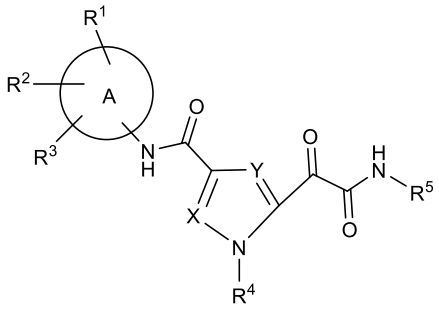
What is claimed

1. A compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof,



I

wherein,

X and Y each independently represent CR^7, and said R^7 is independently selected from the group consisting of hydrogen, C_{3-4} cycloalkyl, -CN, fluoro, chloro, bromo and C_{1-3} alkyl, wherein said C_{1-3} alkyl is optionally substituted with one or more fluoro;

ring A is selected from the group consisting of phenyl and 5- to 10-membered heteroaryl;

R^1, R^2 and R^3 are each independently selected from the group consisting of hydrogen, fluoro, chloro, bromo, $-CHF_2$, $-CH_2F$, $-CF_3$, -CN, C_{1-3} alkyl, and C_{3-4} cycloalkyl;

R^4 is selected from the group consisting of hydrogen, C_{1-3} alkyl and C_{3-4} cycloalkyl;

R^5 is selected from the group consisting of C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 7-membered cycloalkyl and 3- to 7-membered heterocycloalkyl, wherein said C_{1-6} alkyl, C_{2-6} alkenyl, C_{2-6} alkynyl, 3- to 7-membered cycloalkyl and 3- to 7-membered heterocycloalkyl are optionally substituted with the group(s) selected from the group consisting of halo, 3- to 4-membered cycloalkyl, 3- to 4-membered heterocycloalkyl, $-OR^8$, oxo, -CN, $-C(O)OR^8$, $-SO_2R^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of fluoro, -CN and -OH; and

each R^8 is independently selected from the group consisting of hydrogen and C_{1-3} alkyl.

2. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to claim 1, wherein:

X and Y each independently represent CR^7, and said R^7 is independently selected from the group consisting of hydrogen, fluoro, chloro, bromo and C_{1-3} alkyl, wherein the C_{1-3} alkyl is optionally substituted with one or more fluoro;

alternatively, R^7 is independently selected from the group consisting of hydrogen, fluoro, chloro, bromo, and C_{1-3} alkyl;

alternatively, R^7 is independently selected from the group consisting of hydrogen, fluoro, chloro, bromo, and methyl; and

alternatively, R^7 is independently selected from the group consisting of hydrogen, chloro, bromo, and methyl.

3. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a

pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein:

ring A is selected from the group consisting of phenyl, 5-membered heteroaryl, 6-membered heteroaryl, 7-membered heteroaryl, 8-membered heteroaryl, 9-membered heteroaryl and 10-membered heteroaryl;

alternatively, ring A is selected from the group consisting of phenyl and 6-membered heteroaryl;

alternatively, ring A is selected from phenyl; and

alternatively, the "heteroaryl" in the above definitions of ring A contains 1 or 2 N atoms.

4. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to claim 1 or 2, wherein ring A is selected from the group consisting of phenyl and pyridyl.

5. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein:

R^1 is selected from the group consisting of hydrogen, fluoro, chloro, $-CHF_2$, -CN, $-CF_3$ and methyl; and

alternatively, R^1 is selected from the group consisting of hydrogen and fluoro.

6. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 5, wherein:

R^2 is selected from the group consisting of hydrogen, fluoro, chloro, and bromo; and

alternatively, R^2 is selected from the group consisting of hydrogen and fluoro.

7. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 6, wherein:

R^3 is selected from the group consisting of hydrogen, fluoro, chloro, $-CHF_2$, -CN, $-CF_3$, and methyl;

alternatively, R^3 is selected from the group consisting of hydrogen, fluoro, chloro, -CN, and methyl.

8. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 7, wherein:

R^1 is selected from the group consisting of hydrogen, fluoro, chloro, $-CHF_2$, -CN, $-CF_3$ and methyl, and at least one of R^1 and R^3 is fluoro or hydrogen.

9. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 4, wherein:

one of R^1 and R^3 is selected from the group consisting of hydrogen and fluoro, and the other is selected from the group consisting of hydrogen, fluoro, chloro, $-CHF_2$, -CN, $-CF_3$, and methyl;

alternatively, one of R^1 and R^3 is hydrogen, and the other is selected from the group consisting of fluoro, chloro, $-CHF_2$, -CN, $-CF_3$ and methyl;

alternatively, R^2 is selected from the group consisting of fluoro, chloro, and bromo, and one of R^1 and R^3 is hydrogen, and the other is selected from the group consisting of hydrogen, fluoro, chloro, $-CHF_2$, -CN, $-CF_3$ and methyl;

alternatively, R^2 is fluoro, and one of R^1 and R^3 is hydrogen, and the other is selected from the group consisting of fluoro, chloro and -CN;

alternatively, R^2 is fluoro, R^1 is hydrogen, and R^3 is -CN or chloro; and

alternatively, R^2 is fluoro, R^1 is hydrogen, and R^3 is -CN.

10. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 9, wherein:

R^4 is selected from the group consisting of hydrogen and C_{1-3} alkyl; and/or R^8 is selected from the group consisting of hydrogen and methyl;

alternatively, R^4 is methyl or hydrogen; and

alternatively, R^4 is methyl.

11. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 10, wherein:

R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, 3- to 4-membered cycloalkyl, 3- to 4-membered heterocycloalkyl, $-OR^8$, oxo, -CN, $-C(O)OR^8$, $-SO_2R^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of fluoro, -CN and -OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, 3- to 4-membered cycloalkyl, 3- to 4-membered heterocycloalkyl, $-OR^8$, oxo, -CN, $-C(O)OR^8$, $-SO_2R^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of fluoro, -CN and -OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, oxo, -OH, -CN, $-C(O)OR^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of fluoro and OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH, -CN, $-C(O)OR^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of fluoro and OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkenyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH, -CN, $-C(O)OR^8$, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of

fluoro and OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, oxo, -OH, $-C(O)N(R^8)_2$, $-C(O)OR^8$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of OH and fluoro;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH, $-C(O)N(R^8)_2$, $-C(O)OR^8$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with the group(s) selected from the group consisting of OH and fluoro;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH, $-C(O)OR^8$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with OH;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH and $-C(O)OR^8$, wherein the 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of oxo, -OH, fluoro, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with one or more groups selected from the group consisting of OH and fluoro;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH and $-C(O)OR^8$, wherein the 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of -OH, fluoro, $-C(O)N(R^8)_2$, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with the group(s) selected from the group consisting of OH and fluoro;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_3 alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl group is optionally substituted with the group(s) selected from the group consisting of fluoro, -OH and $-C(O)OCH_3$, wherein said 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of oxo, -OH, fluoro, $-C(O)NHCH_3$, and methyl, wherein methyl is optionally substituted with one or more groups selected from the group consisting of OH and fluoro;

alternatively, R^5 is selected from the group consisting of C_{1-4} alkyl, C_3 alkynyl, 3- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl is optionally substituted with the group(s) selected from the group consisting of fluoro, -OH and $-C(O)OCH_3$, wherein said 3- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of -OH, fluoro, $-C(O)NHCH_3$, and methyl, wherein methyl is optionally

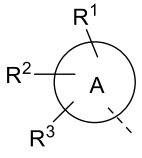
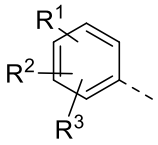
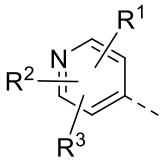
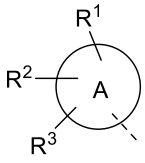
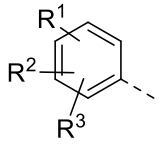
substituted with the group(s) selected from the group consisting of OH and fluoro; and

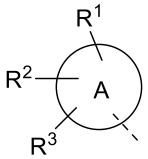
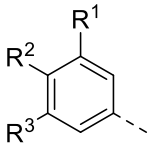
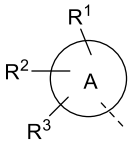
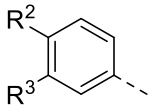
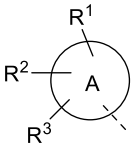
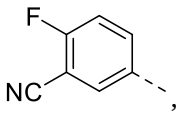
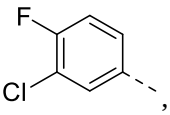
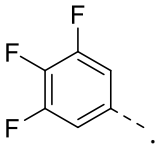
alternatively, the "heterocycloalkyl" in the definitions of R^5 contains 1 or 2 heteroatoms selected from the group consisting of N, O and S.

12. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 10, wherein R^5 is selected from the group consisting of C_{1-4} alkyl, C_{2-4} alkynyl, 4- to 6-membered cycloalkyl and 4- to 6-membered heterocycloalkyl, wherein said C_{1-4} alkyl is optionally substituted with the group(s) selected from the group consisting of halo, -OH and $-C(O)OR^8$, wherein the 4- to 6-membered cycloalkyl or 4- to 6-membered heterocycloalkyl is optionally substituted with the group(s) selected from the group consisting of -OH, and C_{1-3} alkyl, wherein C_{1-3} alkyl is optionally substituted with OH.

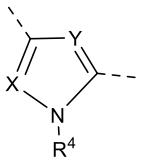
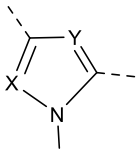
13. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 12, wherein R^8 is selected from the group consisting of hydrogen and methyl.

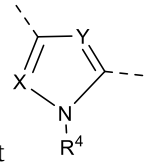
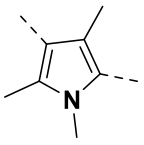
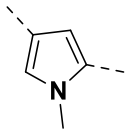
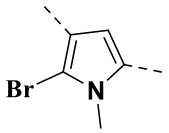
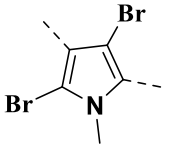
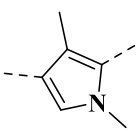
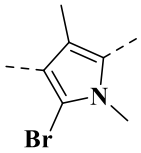
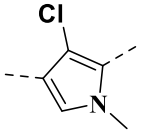
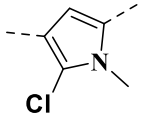
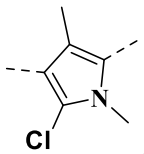
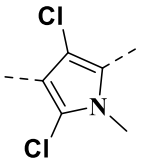
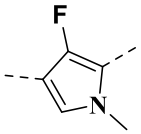
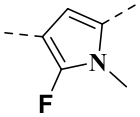
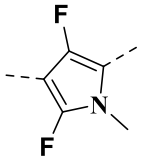
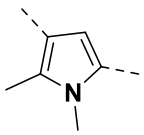
14. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 13, wherein:

the structural unit  is selected from the group consisting of  and ; alternatively, the structural unit  is selected from ;

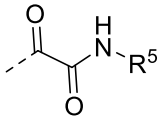
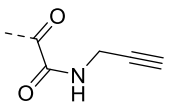
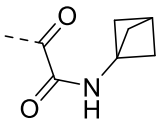
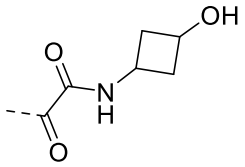
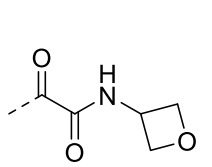
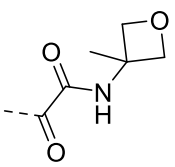
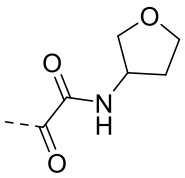
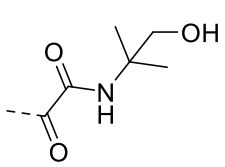
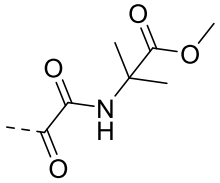
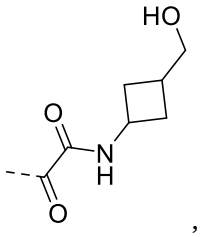
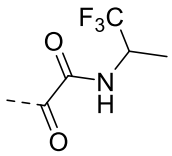
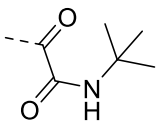
alternatively, the structural unit  is selected from ; alternatively, the structural unit  is selected from ; alternatively, the structural unit  is selected from the group consisting of , , and .

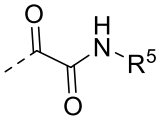
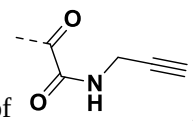
15. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 14, wherein:

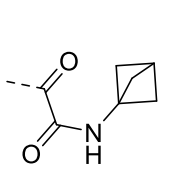
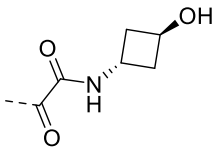
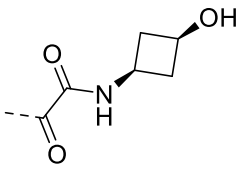
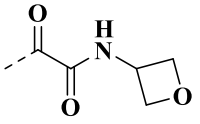
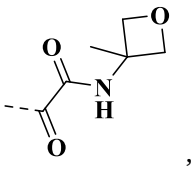
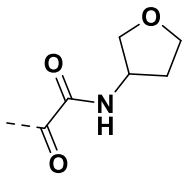
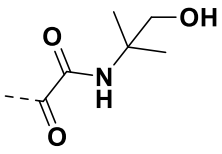
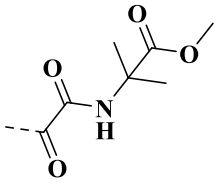
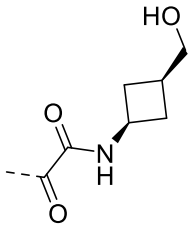
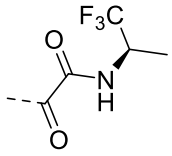
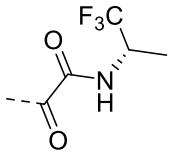
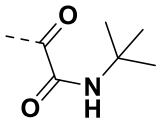
the structural unit  is selected from ;

alternatively, the structural unit  is selected from the group consisting of , , , , , , , , , , , , , and .

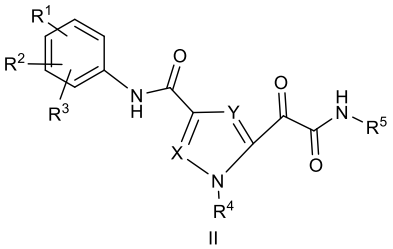
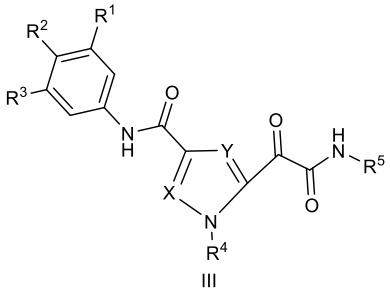
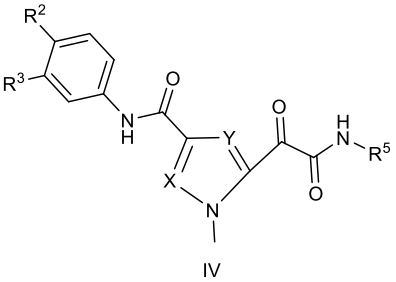
16. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 15, wherein:

the structural unit  is selected from the group consisting of , , , , , , , , , , and ;

alternatively, the structural unit  is selected from the group consisting of ,

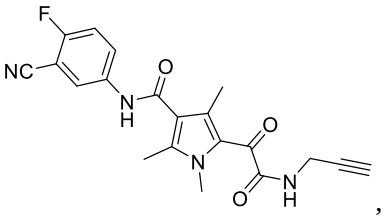
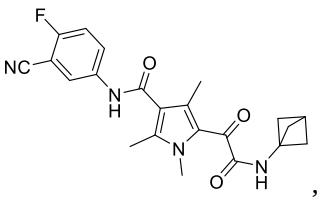
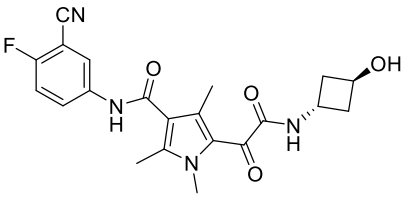
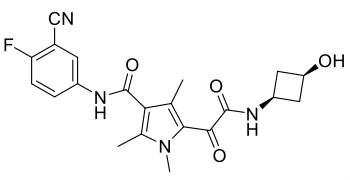
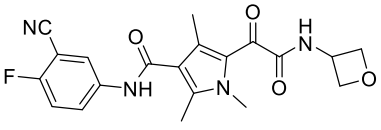
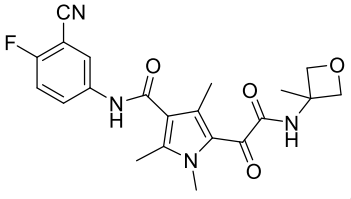

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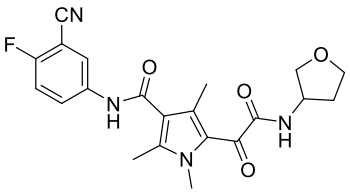
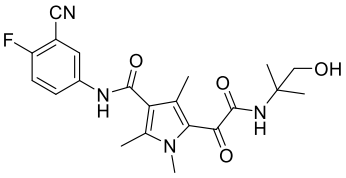
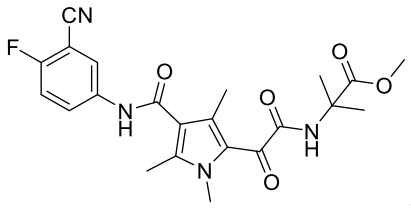
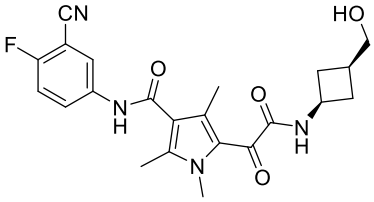
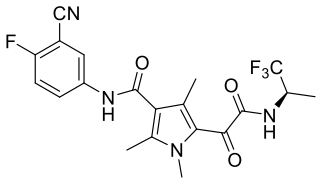
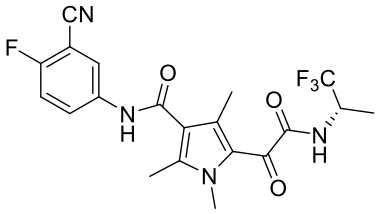
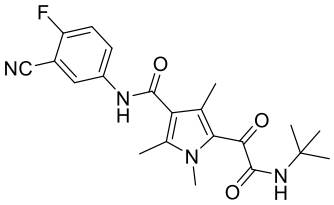
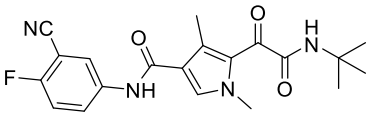
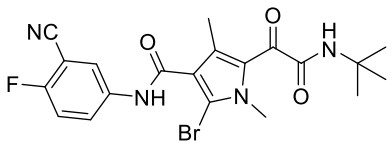
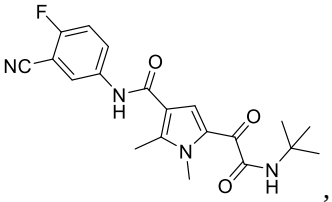
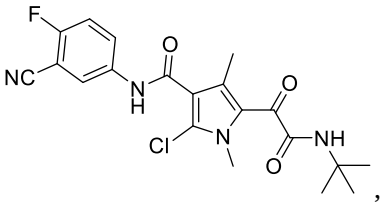
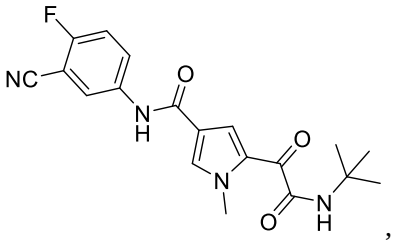
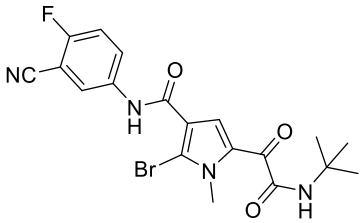
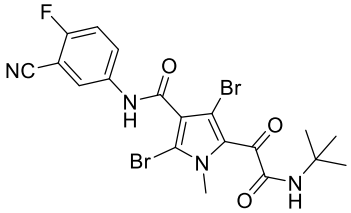
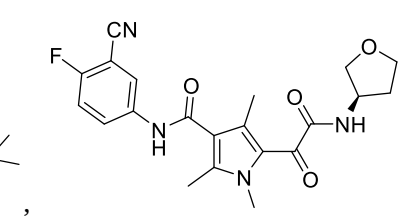
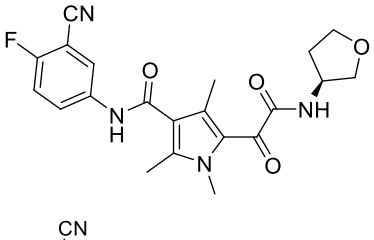
17. The compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to claim 1, wherein, the compound of formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof is selected from a compound of Formula II, Formula III or Formula IV, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof,

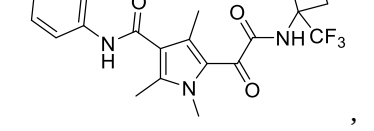
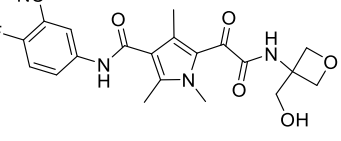
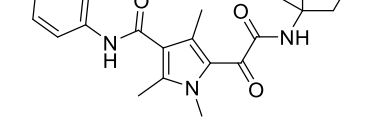

II

III

IV

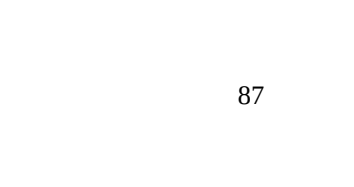
wherein R^1, R^2, R^3, R^4, R^5, X, and Y are as defined in claim 1.

18. A compound, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof, selected from the group consisting of:

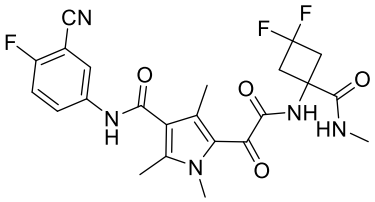
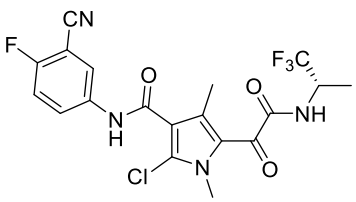
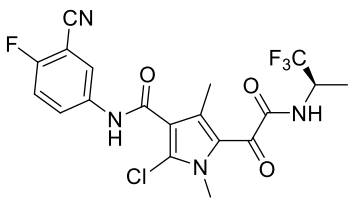
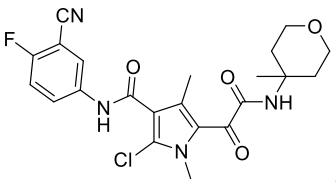
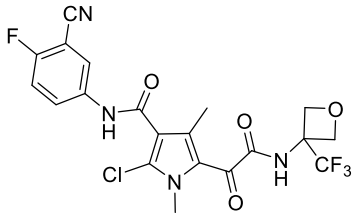
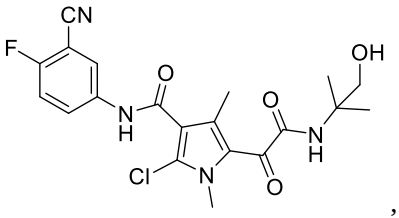
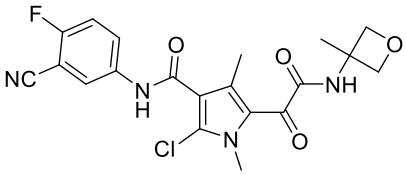
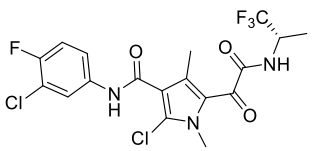
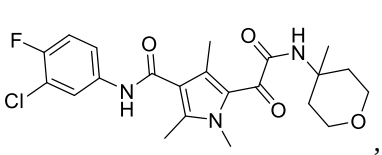
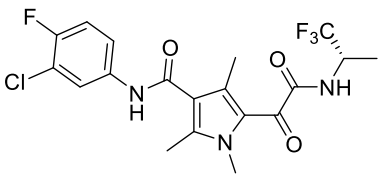
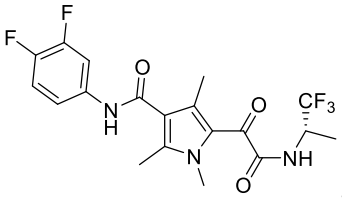
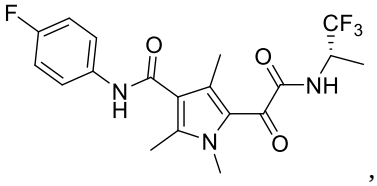
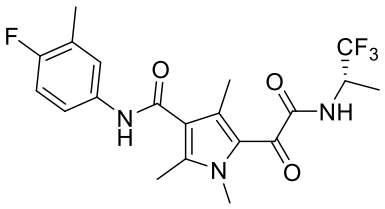
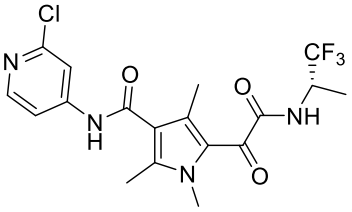
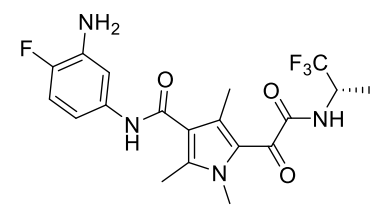
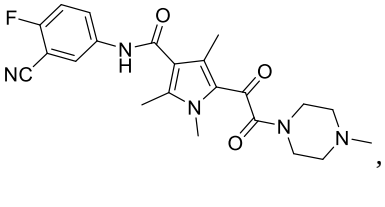
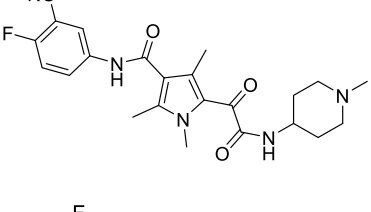
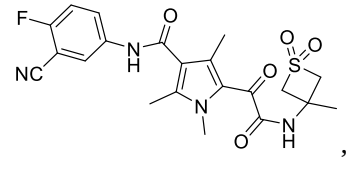
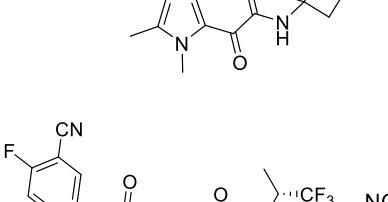
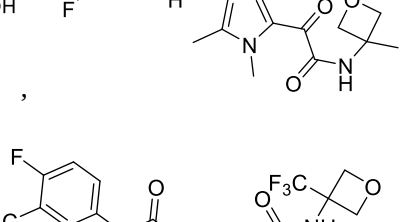
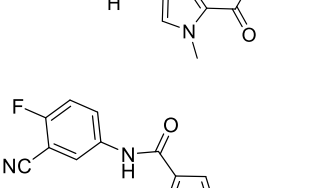
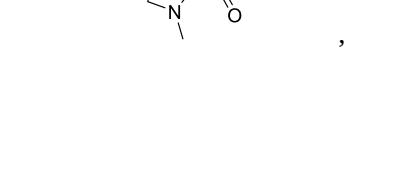
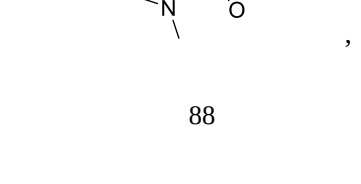
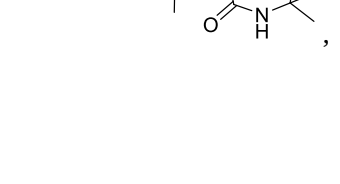

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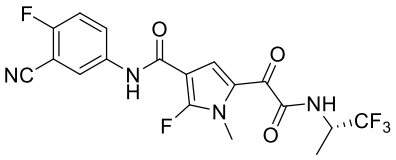
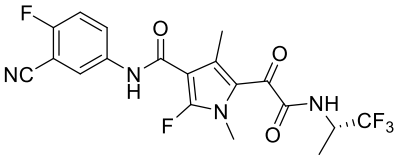
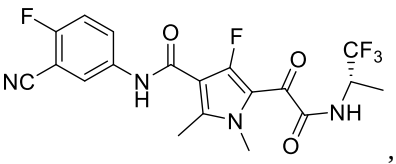
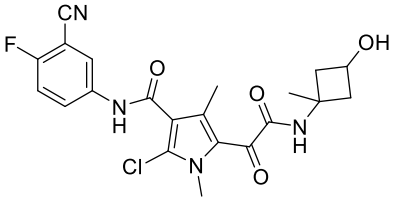
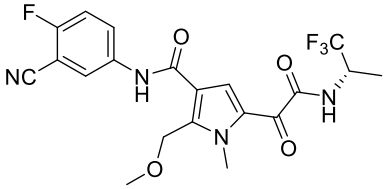
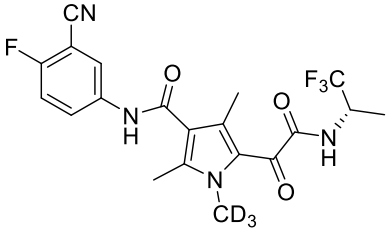
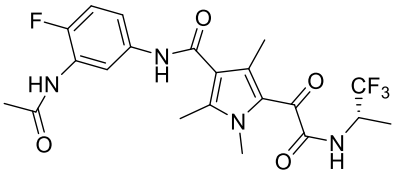
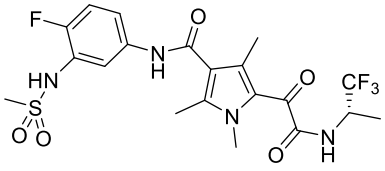
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19. A pharmaceutical composition comprising a compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 18; optionally, the pharmaceutical composition further comprises a pharmaceutically acceptable excipient.
20. Use of a compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 18, or a pharmaceutical composition according to claim 19, in the manufacture of a medicament for treating a disease caused by hepatitis B virus (HBV) infection.
21. A compound of Formula I, a stereoisomer, a tautomer, a geometric isomer, a solvate, a hydrate, or a pharmaceutically acceptable salt thereof according to any one of claims 1 to 18 or a pharmaceutical composition according to claim 19 for use in treating a disease caused by hepatitis B virus (HBV) infection.