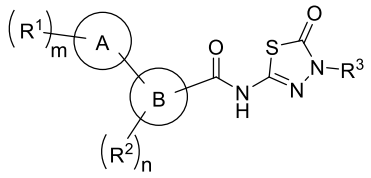
What is Claimed:

1. A compound of Formula (I), or a pharmaceutically acceptable salt, solvate, tautomer, stereoisomer, atropisomer, isotopic variant, prodrug or deuterated compound thereof; wherein:



(I);

ring A is C_3-C_{14} cycloalkylene, 4-14 membered heterocycloalkylene, C_6-C_{14} arylene or 5-14 membered heteroarylene;

ring B is partially unsaturated 5-14 membered heterocycloalkylene, C_6-C_{14} arylene or 5-14 membered heteroarylene;

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

n is 0, 1, 2, 3, 4 or 5;

each R^1 is independently H, D, halogen, -CN, -NO_2, -N_3, -SF_5, oxo, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl or 5-6 membered heteroaryl, -NR^CR^D, -OR^A, -SR^A, -NR^COR^A, -$C(O)R^B$, -$C(O)NR^CR^D$, -$C(O)OR^A$, -$OC(O)R^B$, -$NR^CC(O)R^B$, -$S(O)R^B$, -$S(O)_2R^B$, -$S(O)NR^CR^D$, -$NR^CS(O)_2R^D$, -$S(O)_2NR^CR^D$, -$NR^CS(O)_2NR^CR^D$, -$NR^CS(O)(=NR^B)R^B$, -$SiR^GR^HR^I$, -$B(OR^C)(OR^D)$, -$P(O)R^ER^F$, -$P(O)OR^EOR^F$, -$OP(O)OR^EOR^F$; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl or 5-6 membered heteroaryl is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from R^{1A}; or

two R^1 together with the atom(s) to which they are attached form oxo, C_3-C_7 cycloalkyl or 4-7 membered heterocycloalkyl; wherein, the C_3-C_7 cycloalkyl or 4-7 membered heterocycloalkyl is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from R^{1A};

each R^{1A} is independently D, halogen, CN, -NO_2, N_3, oxo, OR^a, NR^cR^d, $C(O)NR^cR^d$, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl, or 5-6 membered heteroaryl; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl, or 5-6 membered heteroaryl is optionally substituted with D, halogen, -CN, -OH, -NH_2, oxo, -NR^cR^d, -OR^a, -SR^a, C_1-C_6 alkyl, C_1-C_6 haloalkyl;

each R^2 is independently H, D, -CN, -NO_2, -N_3, oxo, -SF_5, halogen, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, -NR^CR^D, -OR^A, -SR^A, -NR^COR^A, -$C(O)R^B$, -$C(O)NR^CR^D$, -$C(O)OR^A$, -$OC(O)R^B$, -$NR^CC(O)R^B$, -$S(O)R^B$, -$S(O)_2R^B$, -$S(O)NR^CR^D$, -

$NR^CS(O)_2R^D$, $-S(O)_2NR^CR^D$, $-NR^CS(O)_2NR^CR^D$, $-NR^CS(O)(=NR^B)R^B$, $-SiR^GR^HR^I$, $-B(OR^C)(OR^D)$, $-P(O)R^ER^F$, $-P(O)OR^EOR^F$, $-OP(O)OR^EOR^F$; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from R^{2A}; or

two R^2 together with the atom(s) to which they are attached form oxo, C_3-C_7 cycloalkyl, 4-7 membered heterocycloalkyl; wherein, the C_3-C_7 cycloalkyl, 4-7 membered heterocycloalkyl is optionally substituted by 1, 2, 3 or 4 substituents independently selected from R^{2A};

each R^{2A} is independently D, halogen, -CN, -OH, $-NH_2$, $-NO_2$, $-SF_5$, oxo, C_1-C_4 alkyl, C_2-C_4 alkenyl, C_2-C_4 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl, 5-6 membered heteroaryl, $-NR^cR^d$, $-OR^a$, $-SR^a$, $-C(O)R^b$, $-C(O)NR^cR^d$, $-C(O)OR^a$, $-OC(O)R^b$, $-OC(O)NR^cR^d$, $-NR^cC(O)R^b$, $-NR^cC(O)NR^cR^d$, $-NR^cC(O)OR^a$, $-S(O)(=NR^b)R^b$, $-S(O)R^b$, $-S(O)NR^cR^d$, $-S(O)_2R^b$, $-NR^cS(O)_2R^d$, $-S(O)_2NR^cR^d$, $-NR^cS(O)_2NR^cR^d$, or $-NR^cS(O)(=NR^b)R^b$; wherein, the C_1-C_4 alkyl, C_2-C_4 alkenyl, C_2-C_4 alkynyl, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl, phenyl, or 5-6 membered heteroaryl is optionally substituted with D, halogen, -CN, -OH, $-NH_2$, oxo, $-NR^{c1}R^{d1}$, $-OR^{a1}$, $-SR^{a1}$, C_1-C_6 alkyl, C_1-C_6 haloalkyl;

R^3 is C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{14} cycloalkyl, 4-14 membered heterocycloalkyl, C_6-C_{14} aryl, 5-14 membered heteroaryl; wherein, the C_1-C_{10} alkyl, C_2-C_{10} alkenyl, C_2-C_{10} alkynyl, C_3-C_{14} cycloalkyl, 4-14 membered heterocycloalkyl, C_6-C_{14} aryl, 5-14 membered heteroaryl is optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

each R^4 is independently H, D, halo, -CN, $-NO_2$, $-N_3$, oxo, $-NR^CR^D$, $-OR^A$, $-SR^A$, $-NR^COR^A$, $-C(O)R^B$, $-C(O)NR^CR^D$, $-C(O)OR^A$, $-OC(O)R^B$, $-OC(O)NR^CR^D$, $-NR^CC(O)R^B$, $-NR^CC(O)NR^CR^D$, $-NR^CC(O)OR^A$, $-S(O)R^B$, $-S(O)_2R^B$, $-S(O)NR^CR^D$, $-NR^CS(O)_2R^D$, $-S(O)_2NR^CR^D$, $-NR^CS(O)_2NR^CR^D$, $-NR^CS(O)(=NR^B)R^B$, $-SiR^GR^HR^I$, $-B(OR^C)(OR^D)$, $-P(O)R^ER^F$, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl is optionally substituted with 1, 2, 3, 4, or 5 substituents independently selected from R^5; or

two R^4 together with the atom(s) to which they are attached form oxo, C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl; each ring is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from R^5;

each R^5 is independently D, CN, halo, NO_2, $-N_3$, SF_5, oxo, optionally substituted C_1-C_6 alkyl, optionally substituted C_2-C_6 alkenyl, optionally substituted C_2-C_6 alkynyl, optionally substituted C_3-C_6 cycloalkyl, optionally substituted 4-6 membered heterocycloalkyl, $-OR^a$, $-SR^a$, $-C(O)R^b$, $-C(O)NR^cR^d$, $-C(O)OR^a$, $-OC(O)R^b$, -

$OC(O)NR^cR^d$, $-NR^cR^d$, $-NR^cC(O)R^b$, $-NR^cC(O)NR^cR^d$, $-NR^cC(O)OR^a$, $-S(O)(=NR^b)R^b$, $-S(O)R^b$, $-S(O)NR^cR^d$, $-S(O)_2R^b$, $-NR^cS(O)_2R^d$, $-S(O)_2NR^cR^d$, $-NR^cS(O)_2NR^cR^d$, $-NR^cS(O)(=NR^b)R^b$, $-SiR^GR^HR^I$, or $-B(OR^C)(OR^D)$; wherein, the optionally substituted substituent is selected from D, halo, CN, OH, C_1-C_4 alkyl, C_1-C_4 haloalkyl, -O-C_1-C_4 alkyl, -OC_1-C_4 haloalkyl;

each R^A is independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene, $SiR^GR^HR^I$; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocyclalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, -CN, halo, C_1-C_4 alkyl, C_1-C_4 haloalkyl, -C_1-C_4 alkyl-OH, -C_1-C_4 alkyl-CN, -C_1-C_4 alkyl-O-C_1-C_4 alkyl, -C_1-C_4 alkyl-O-C_1-C_4 haloalkyl, $-NO_2$, oxo, $-OR^a$, $-SR^a$, $-SF_5$, $-NHOR^a$, $-C(O)R^b$, $-C(O)NR^cR^d$, $-C(O)OR^a$, $-OC(O)R^b$, $-OC(O)NR^cR^d$, $-NR^cR^d$, $-NR^cC(O)R^b$, $-NR^cC(O)NR^cR^d$, $-NR^cC(O)OR^a$, $-B(OR^c)(OR^d)$, $-C(=NR^c)NR^cR^d$, $-NR^dC(=NR^c)NR^cR^d$, $-NR^dC(=NR^c)R^b$, $-P(O)R^eR^f$, $-P(O)OR^eOR^f$, $-OP(O)OR^eOR^f$, $-S(O)R^b$, $-S(O)NR^cR^d$, $-S(O)_2R^b$, $-NR^cS(O)_2R^b$, $-S(O)_2NR^cR^d$, $-NR^cS(O)_2NR^cR^d$, or $-NR^cS(O)(=NR^b)R^b$;

each R^B is independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, -CN, halo, oxo, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 cyanoalkyl, C_1-C_4 alkyl-O-C_1-C_4 alkyl, C_1-C_4 alkyl-O-C_1-C_4 haloalkyl, $-SF_5$, $-OR^a$, $-C(O)R^b$, $-OC(O)NR^cR^d$, $-NR^cR^d$, $-NR^cC(O)R^b$, $-NR^cC(O)NR^cR^d$, $-NR^cC(O)OR^a$, $-S(O)R^b$, $-S(O)NR^cR^d$, $-S(O)_2R^b$, $-NR^cS(O)_2R^b$, $-S(O)_2NR^cR^d$, $-NR^cS(O)_2NR^cR^d$, or $-B(OR^c)(OR^d)$;

R^C and R^D are each independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6

alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, CN, halo, oxo, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 cyanoalkyl, -C_1-C_4 alkyl-O-C_1-C_4 alkyl, -C_1-C_4 alkyl-O-C_1-C_4 haloalkyl, -SF_5, -OR^a, -$OC(O)NR^cR^d$, -NR^cR^d, -$NR^cC(O)R^b$, -$S(O)NR^cR^d$, -$S(O)_2R^b$, -$NR^cS(O)_2R^b$, -$S(O)_2NR^cR^d$, -$NR^cS(O)_2NR^cR^d$ or -$B(OR^c)(OR^d)$;

or R^C and R^D together with the N atom to which they are attached form 4-7 membered heterocycloalkyl optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, -OH, oxo, -CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, halo, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_1-C_4 cyanoalkyl, -OC_1-C_4 alkyl, or -OC_1-C_4 haloalkyl;

R^a and R^{a1} are each independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene; wherein the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, halo, -OH, -CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, C_1-C_4 alkyl, OC_1-C_4 alkyl, C_1-C_4 haloalkyl, or -OC_1-C_4 haloalkyl;

R^b and R^{b1} are each independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene; wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, or 4-10 membered heterocycloalkyl-C_1-C_6 alkylene is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, OH, CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, halo, C_1-C_4 alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl;

R^c, R^d, R^{c1}, R^{d1} are each independently H, D, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, 4-10 membered heterocycloalkyl-C_1-C_6 alkylene, C_6-C_{10} aryl-C_3-C_{10} cycloalkylene, C_6-C_{10} aryl-4-10 membered

heterocycloalkylene, C_6-C_{10} aryl-5-10 membered heteroarylene, bi(C_6-C_{10} aryl), 5-10 membered heteroaryl-C_3-C_{10} cycloalkylene, 5-10 membered heteroaryl-4-10 membered heterocycloalkylene, 5-10 membered heteroaryl-C_6-C_{10} arylene, or bi(5-10 membered heteroaryl); wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_6-C_{10} aryl-C_1-C_6 alkylene, 5-10 membered heteroaryl-C_1-C_6 alkylene, C_3-C_{10} cycloalkyl-C_1-C_6 alkylene, 4-10 membered heterocycloalkyl-C_1-C_6 alkylene, C_6-C_{10} aryl-C_3-C_{10} cycloalkylene, C_6-C_{10} aryl-4-10 membered heterocycloalkylene, C_6-C_{10} aryl-5-10 membered heteroarylene, bi(C_6-C_{10} aryl), 5-10 membered heteroaryl-C_3-C_{10} cycloalkylene, 5-10 membered heteroaryl-4-10 membered heterocycloalkylene, 5-10 membered heteroaryl-C_6-C_{10} arylene, or bi(5-10 membered heteroaryl) is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, OH, CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, halo, C_1-C_4 alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_1-C_4 hydroxyalkyl, C_1-C_4 cyanoalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C(O)OR^{a1}, C(O)R^{b1}, S(O)$_2$$R^{b1}$, C_1-C_4 alkyl-O-C_1-C_4 alkyl or C_1-C_4 alkyl-O-C_1-C_4 alkyl-O-;

or R^c and R^d together with the N atom to which they are attached form a 4-7 membered heterocycloalkyl optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, OH, CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, halo, C_1-C_4 alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_1-C_4 hydroxyalkyl, C_1-C_4 cyanoalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_1-C_4 alkoxy-C_1-C_4 alkyl or C_1-C_4 alkoxy-C_1-C_4 alkoxy;

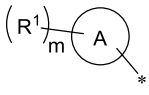
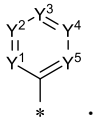
or R^{c1} and R^{d1} together with the N atom to which they are attached form a 4-7 membered heterocycloalkyl optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from D, -OH, -CN, -NH_2, -NH(C_1-C_4 alkyl), -N(C_1-C_4 alkyl)$_2$, halo, C_1-C_4 alkyl, C_1-C_4 alkoxy, C_1-C_4 haloalkyl, C_1-C_4 haloalkoxy, C_1-C_4 hydroxyalkyl, C_1-C_4 cyanoalkyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_1-C_4 alkoxy-C_1-C_4 alkyl or C_1-C_4 alkoxy-C_1-C_4 alkoxy;

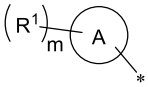
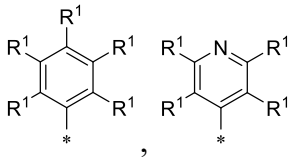
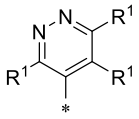
R^E and R^e are each independently H, D, C_1-C_4 alkyl, C_1-C_4 haloalkyl, C_2-C_4 alkenyl, (C_1-C_4 alkoxy)-C_1-C_4 alkyl, C_2-C_4 alkynyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_3-C_{10} cycloalkyl, 4-10 membered heterocycloalkyl, C_6-C_{10} aryl-C_1-C_4 alkyl, C_3-C_{10} cycloalkyl-C_1-C_4 alkyl, 5-10 membered heteroaryl-C_1-C_4 alkyl, or 4-10 membered heterocycloalkyl-C_1-C_4 alkyl;

R^F and R^f are each independently H, D, C_1-C_4 alkyl, C_2-C_4 alkenyl, C_2-C_4 alkynyl, C_6-C_{10} aryl, 5-10 membered heteroaryl, C_3-C_{10} cycloalkyl, or 4-10 membered heterocycloalkyl; and

R^G, R^H and R^I are each independently optionally substituted C_1-C_4 alkyl or optionally substituted phenyl; wherein, the optionally substituted substituent is selected from D, halo, CN, OH, C_1-C_4 alkyl, C_1-C_4 haloalkyl, -O-C_1-C_4 alkyl, -OC_1-C_4 haloalkyl.

2. The compound of claim 1, wherein, ring A is C_6-C_{10} arylene, or 5-10 membered heteroarylene; preferably, ring A is phenyl or 6-membered heteroarylene; more preferably, Cy is phenyl, pyridinyl, or pyrazinyl; more preferably, ring A is phenyl or pyridin-4-yl;

and/or, the moiety  has the structure of ; wherein, Y^1, Y^2, Y^3, Y^4, Y^5 are each independently selected from N or CR^1; preferably, one of Y^1, Y^2, Y^3, Y^4, Y^5 is N; two of Y^1, Y^2, Y^3, Y^4, Y^5 are N; or all of Y^1, Y^2, Y^3, Y^4, Y^5 are CR^1; preferably,

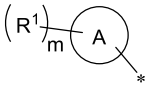
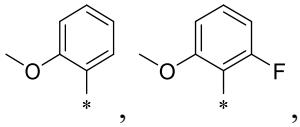
the moiety  has the structure of  or ;

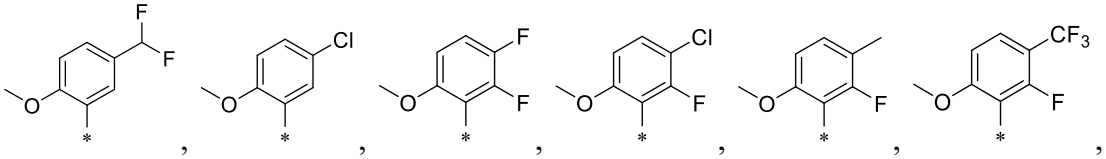
and/or, each R^1 is independently (i) H, D, halo, or $–OR^A$; or (ii) C_1-C_6 alkyl, C_2-C_6 alkynyl; each is optionally substituted with 1, 2, 3, 4, or 5 substituents, each of which is independently R^{2A};

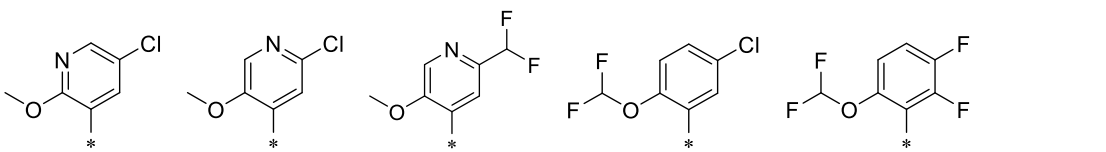
preferably, each R^1 is independently H, –F, –Cl, $–CH_3$, $–CHF_2$, $–CF_3$, $–OCH_3$, $–OCHF_2$, $–OCF_3$, or -C≡CH;

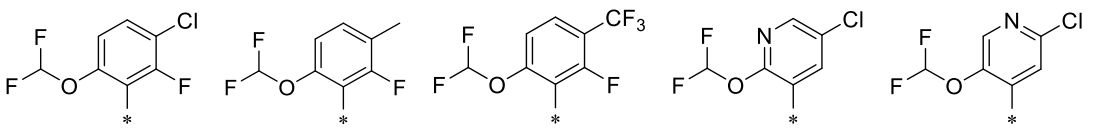
preferably, one of the R^1 groups is $–OCH_3$ or -C≡CH;

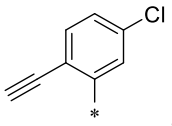
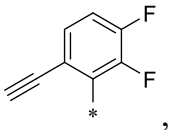
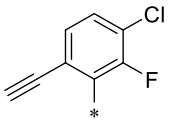
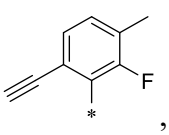
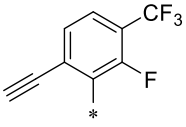
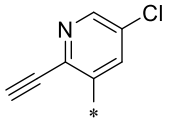
preferably, one of the R^1 groups is –F, –Cl, $–CH_3$, $–CHF_2$, $–CF_3$, $–OCH_3$, $–OCHF_2$, or $–OCF_3$;

preferably, the moiety  has the structure of ,

,

,

.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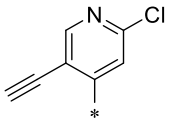
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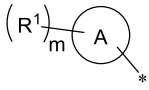
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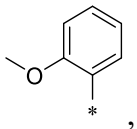
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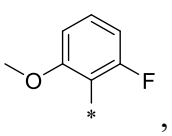
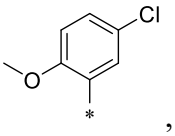
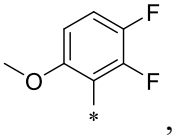
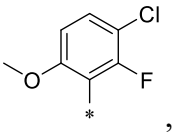
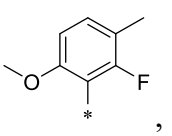
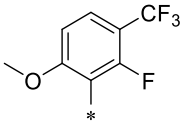
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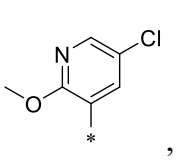
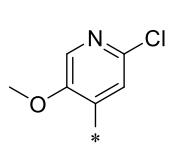
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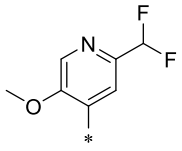
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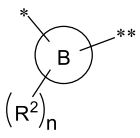
3. The compound of any one of claims 1-2, wherein, ring B is C_6-C_{10} arylene or 5-10 membered heteroarylene; preferably, ring B is 6-membered heteroarylene, 5-membered heteroarylene or C_6 arylene; more preferably, ring B is pyridinyl, pyridazinyl, or imidazolyl;

preferably, the moiety

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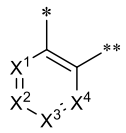
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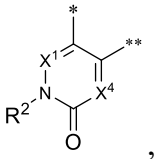
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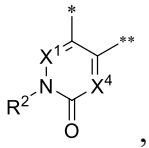
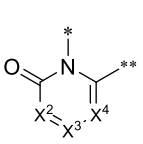
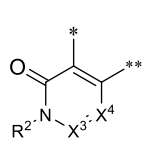
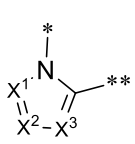
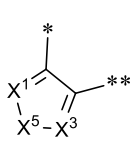
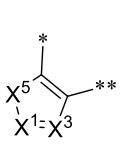
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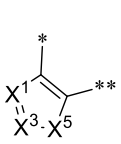
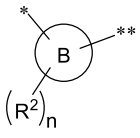

;

wherein, the position * is attached to ring A, the position ** is attached to C=O;

X^1, X^2, X^3, X^4 are each independently selected from N or CR^2;

X^5 is NR^1, O or S.

preferably, the moiety

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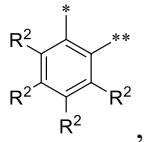
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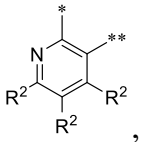
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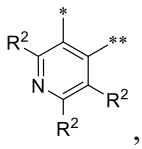
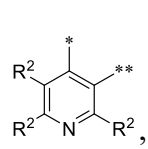
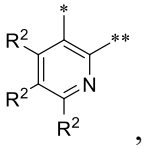
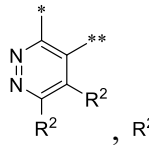
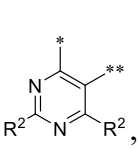
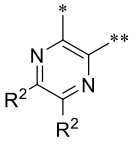
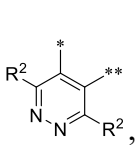
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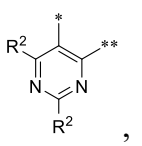
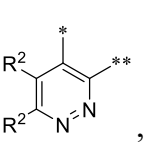

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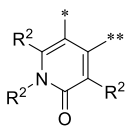
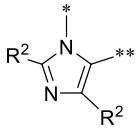
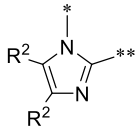
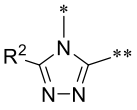
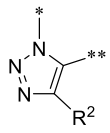
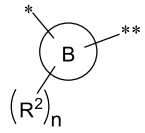
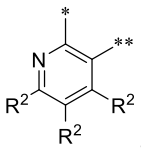
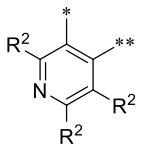
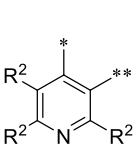
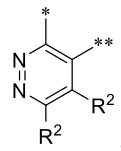
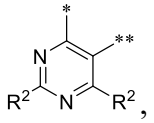
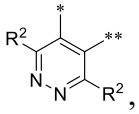
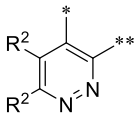
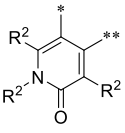
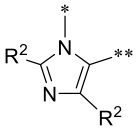
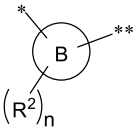
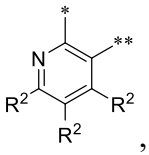
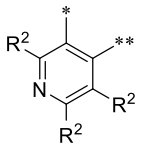
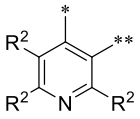
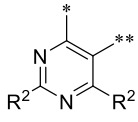
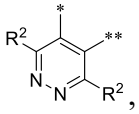
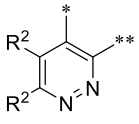
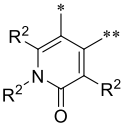
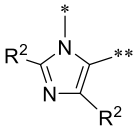
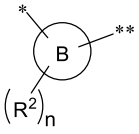
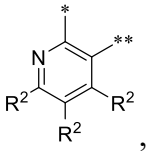
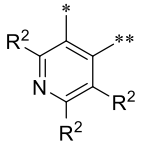
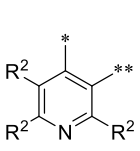
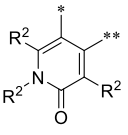
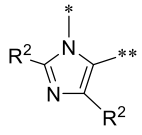
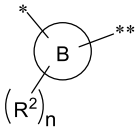
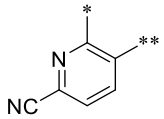
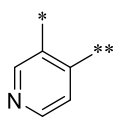
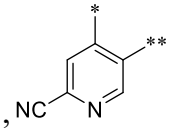
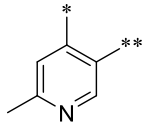
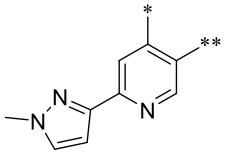
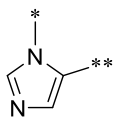
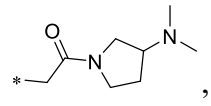
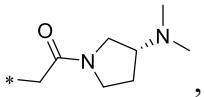
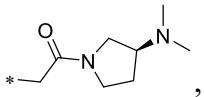
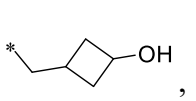
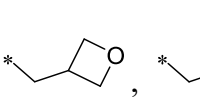
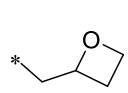
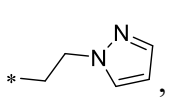
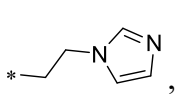
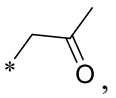
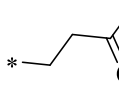
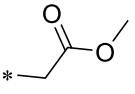
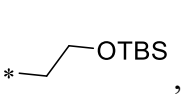
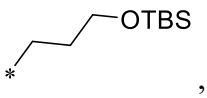
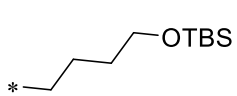
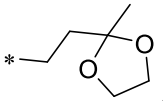





; preferably, the moiety  has the structure of 







, or  ; more preferably, the moiety  has the structure of 






, or  ; more preferably, the moiety  has the structure of 



or  ;

preferably, each R^2 is independently (i) H, D, –CN, or halo; or (ii) C_1-C_6 alkyl or 5-10 membered heteroaryl, each optionally substituted with 1, 2, 3, 4, or 5 substituents, each of which is independently R^{2A}; preferably, each R^2 is independently H, D, –CN, methyl, or 1-methylpyrazolyl;

preferably, the moiety  has the structure of ,




, or .

4. The compound of any one of claims 1-3, wherein, R^3 is C_1-C_{10} alkyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4; preferably, R^3 is C_1-C_8 alkyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently

selected from R^4; more preferably, R^3 is C_1-C_6 alkyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

preferably, R^3 is -CH_3, -CH_2CH_3, -$CH_2CH_2CH_3$, -$CH(CH_3)_2$, -$CH_2CH_2CH_2CH_3$, -$CH_2CH(CH_3)_2$, -$C(CH_3)_3$, -CH_2CH_2F, -CH_2CHF_2, -CH_2CF_3, -CF_2CH_3, -CH_2CH_2OH, -$CH_2CH_2CH_2OH$, -$CH_2CH(OH)CH_3$, -$CH_2CH(OH)CH_2CH_3$, -$CH_2CH_2CH(CH_3)OH$, -$CH_2CH_2C(CH_3)_2OH$, -$CH_2CH_2CH_2CH_2OH$, -$CH_2CH_2OCH_3$, -$CH_2CH_2CH_2OCH_3$, -CH_2COOH, -CH_2CN, -CH_2CH_2CN, -$CH_2CH_2CH_2CN$, , , , , , , , , , , , , , , .;

preferably, R^3 is C_2-C_{10} alkenyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

preferably, R^3 is C_2-C_{10} alkynyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

preferably, R^3 is C_3-C_{14} cycloalkyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

preferably, R^3 is 4-14 membered heterocycloalkyl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

preferably, R^3 is C_6-C_{14} aryl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4; preferably, R^3 is phenyl, naphthalenyl, anthracenyl, phenanthrenyl; each is optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4;

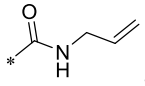
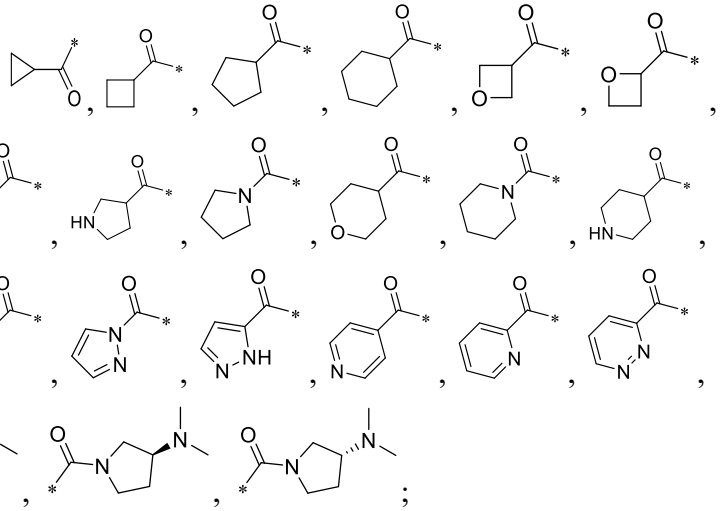
preferably, R^3 is 5-14 membered heteroaryl optionally substituted by 1, 2, 3, 4 or 5 substituent(s) independently selected from R^4.

preferably, each R^4 is independently H, D, halo, -CN, -NO_2, -N_3, oxo, -NR^CR^D, -OR^A, -SR^A, -NR^COR^A, -$C(O)R^B$, -$C(O)NR^CR^D$, -$C(O)OR^A$, -$OC(O)R^B$, -$OC(O)NR^CR^D$, -$NR^CC(O)R^B$, -$NR^CC(O)NR^CR^D$, -$NR^CC(O)OR^A$, -$S(O)R^B$, -$S(O)_2R^B$, -$S(O)NR^CR^D$, -$NR^CS(O)_2R^D$, -$S(O)_2NR^CR^D$, -$NR^CS(O)_2NR^CR^D$, -$NR^CS(O)(=NR^B)R^B$, -$SiR^GR^HR^I$, -$B(OR^C)(OR^D)$, -$P(O)R^ER^F$, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl;

wherein, the C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl is optionally substituted with 1, 2, 3, 4, or 5 substituents independently selected from R^5;

preferably, wherein, each R^4 is independently H, D, halo, -CN, -N_3, oxo, -NR^CR^D, -OR^A, -SR^A, -$C(O)R^B$, -$C(O)NR^CR^D$, -$C(O)OR^A$, -$OC(O)R^B$, - -$NR^CC(O)R^B$, -$S(O)R^B$, -$S(O)_2R^B$, -$S(O)NR^CR^D$, -$NR^CS(O)_2R^D$, -$S(O)_2NR^CR^D$, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl; wherein, the C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl is optionally substituted with 1, 2, 3, 4, or 5 substituents independently selected from R^5;

preferably, each R^4 is independently H, D, halo, -CN, -N_3, oxo, -NR^CR^D, -OR^A, -SR^A, -$C(O)R^B$, -$C(O)NR^CR^D$, -$C(O)OR^A$, C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl; wherein, the C_6-C_{10} aryl, C_3-C_{10} cycloalkyl, 5-10 membered heteroaryl, or 4-10 membered heterocycloalkyl is optionally substituted with 1, 2, 3, 4, or 5 substituents independently selected from R^5;

preferably, each R^4 is independently H, D, halo, -CN, -NO_2, -N_3, oxo, -NH_2, -$NHCH_3$, -$N(CH_3)_2$, -$NHCH_2CH_3$, -$N(CH_2CH_3)_2$, -OH, -OCH_3, -OCH_2CH_3, -$OCH_2CH_2CH_3$, -$OCH(CH_3)_2$, -OCH_2F, -$OCHF_2$, -OCF_3, -OCH_2CH_2F, -OCH_2CHF_2, -OCH_2CF_3, -OCF_2CF_3, -OCH_2CH_2OH, -$OCH_2CH_2OCH_3$, -$C(O)NH_2$, -$C(O)NHCH_3$, -$C(O)N(CH_3)_2$, , -$C(O)CH_3$, -$C(O)CH_2CH_3$, -$C(O)CH_2CH_2CH_3$, -$C(O)CH(CH_3)_2$, -OTMS, ;

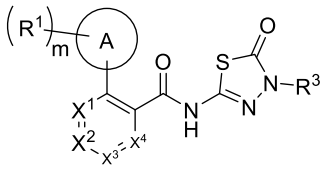
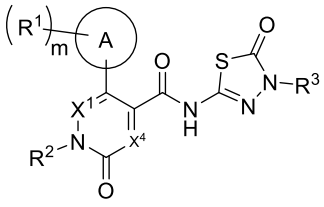
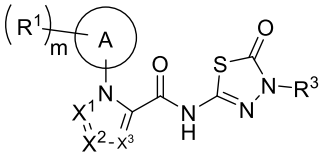
preferably, wherein, each R^4 is independently CH_3, CH_2CH_3, $CH_2CH_2CH_3$, $CH(CH_3)_2$, $CH_2CH_2CH_2CH_3$, $CH_2CH(CH_3)_2$, $C(CH_3)_3$, -$CH{=}CH_2$, -$CH{=}CHCH_3$, -$CH_2CH{=}CH_2$, -C≡CH, -C≡CCH_3, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, pyrrolyl, imidazolyl, oxazolyl, isoxazolyl, thiazolyl, pyrazolyl, 1,2,4-triazolyl, 1,2,3-triazolyl, thiadiazolyl, oxadiazolyl, pyridinyl, pyrimidinyl, pyrazinyl, pyridazinyl, indolyl, azetidinyl, oxetanyl, pyrrolidinyl, tetrahydrofuranyl, tetrahydrothiophenyl, piperidinyl, dioxanyl, tetrahydropyranyl, tetrahydrothiopyranyl, piperazinyl, morpholinyl, azepanyl, diazocanyl, 1,4-diazepanyl; each is optionally substituted with 1, 2, 3, 4, or 5 substituents independently selected from R^5;

preferably, wherein, two R^4 together with the atom(s) to which they are attached form oxo;

preferably, wherein, two R^4 together with the atom(s) to which they are attached form C_3-C_6 cycloalkyl, 4-6 membered heterocycloalkyl; each ring is optionally substituted with 1, 2, 3, 4 or 5 substituent(s) independently selected from R^5; preferably, two R^4 together with the atom(s) to which they are attached form ;

preferably, each R^5 is independently D, CN, halo, NO_2, SF_5, oxo, optionally substituted C_1-C_6 alkyl, optionally substituted C_2-C_6 alkenyl, optionally substituted C_2-C_6 alkynyl, optionally substituted C_3-C_6 cycloalkyl, optionally substituted 4-6 membered heterocycloalkyl, OR^a, SR^a, $C(O)R^b$, $C(O)NR^cR^d$, $C(O)OR^a$, $OC(O)R^b$, $OC(O)NR^cR^d$, NR^cR^d, $NR^cC(O)R^b$, $NR^cC(O)NR^cR^d$, $NR^cC(O)OR^a$, $S(O)(=NR^b)R^b$, $S(O)R^b$, $S(O)NR^cR^d$, $S(O)_2R^b$, $NR^cS(O)_2R^d$, $S(O)_2NR^cR^d$, $NR^cS(O)_2NR^cR^d$, or $NR^cS(O)(=NR^b)R^b$.

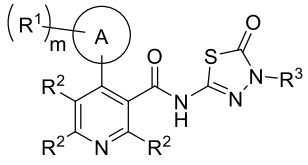
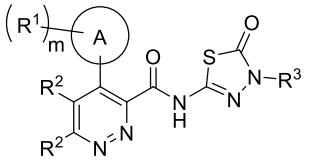
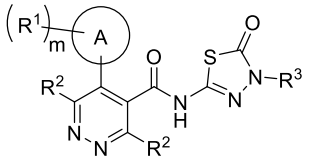
5. The compound of any one of claims 1-4, wherein, the compound of Formula (I) is represented by compounds of Formula (IIa), (IIb) or (IIc):

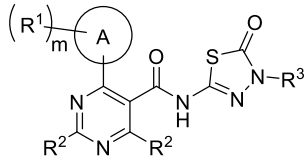
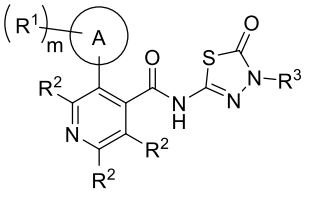
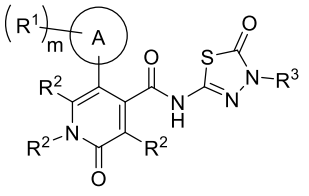
 (IIa),  (IIb),  (IIc);

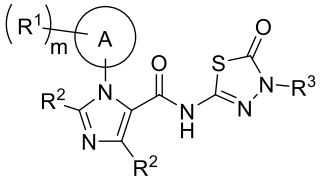
or a pharmaceutically acceptable salt, solvate, tautomer, stereoisomer, atropisomer, isotopic variant, prodrug or deuterated compound thereof;

X^1, X^2, X^3, X^4 are each independently selected from N or CR^2; wherein, R^1, R^2, R^3 and m are defined with respect to Formula (I).

6. The compound of any one of claims 1-5, wherein, the compound of Formula (I) is represented by compounds of Formula (IIIa), (IIIb), (IIIc), (IIId), (IIIe), (IIIf) or (IIIg):

 (IIIa),  (IIIb),  (IIIc),

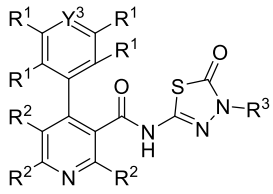
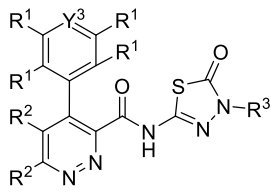
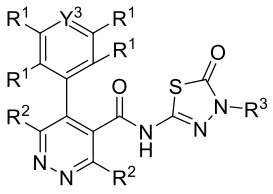
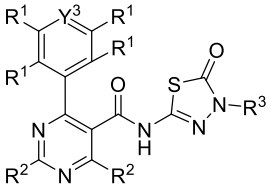
 (IIId),  (IIIe),  (IIIf),

 (IIIg);

or a pharmaceutically acceptable salt, solvate, tautomer, stereoisomer, atropisomer, isotopic variant, prodrug or deuterated compound thereof;

wherein, R^1, R^2, R^3 and m are defined with respect to Formula (I).

7. The compound of any one of claims 1-6, wherein, the compound of Formula (I) is represented by compounds of Formula (IVa), (IVb), (IVc), (IVd), (IVe), (IVf) or (IVg):


(IVa),

(IVb),

(IVc),

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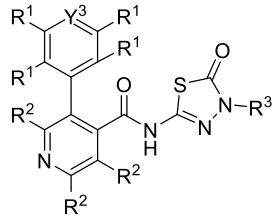
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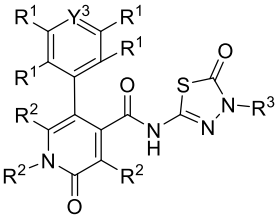
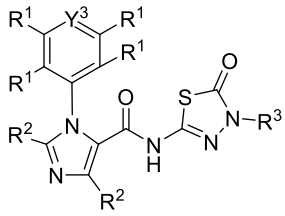
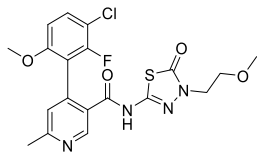
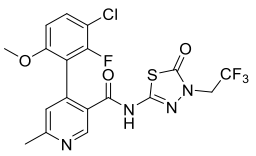
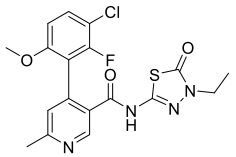
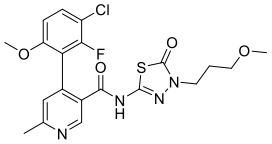
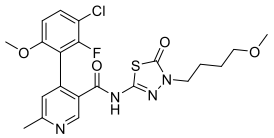
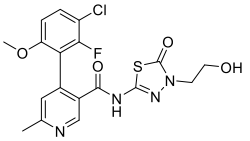
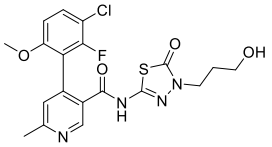
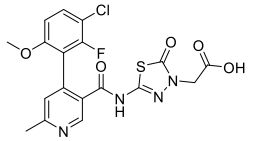
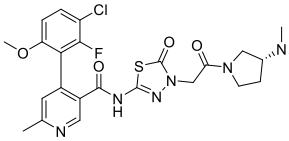
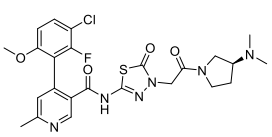
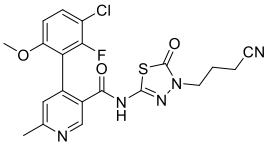
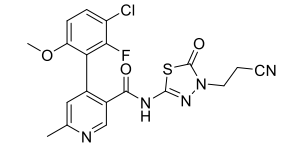
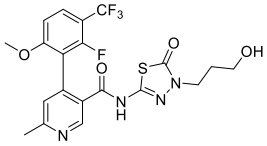
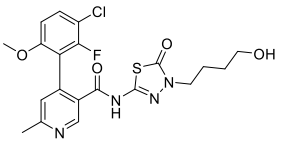
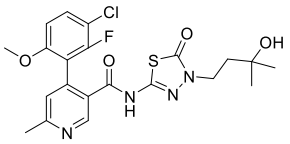
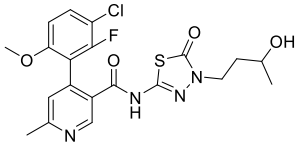
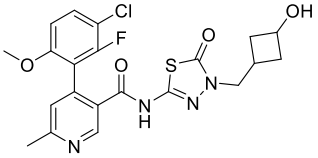
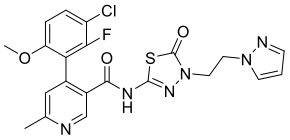
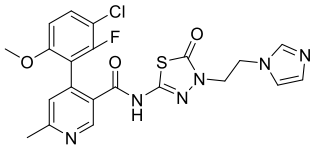
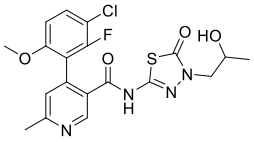
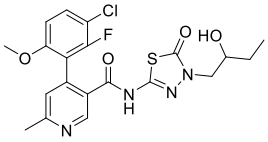
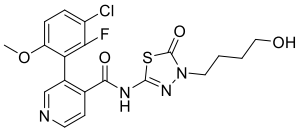
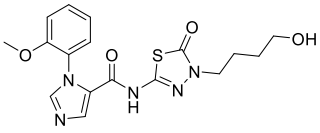
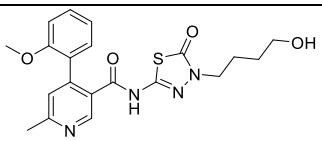
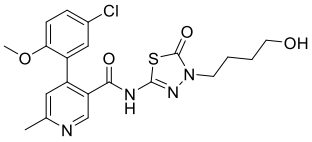
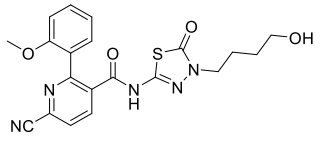
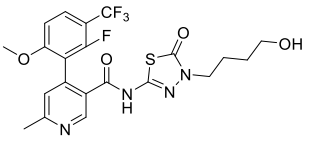
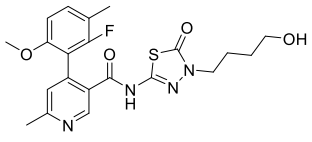
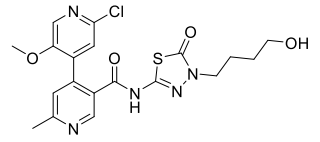
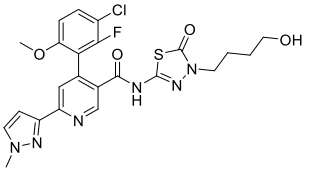
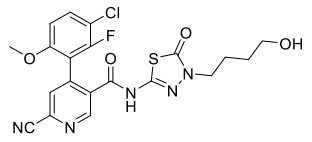
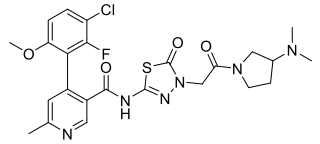
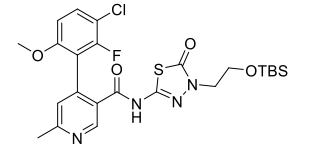
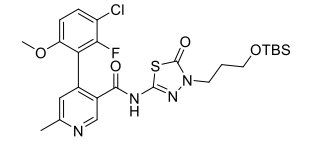
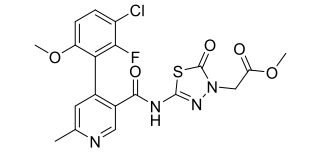
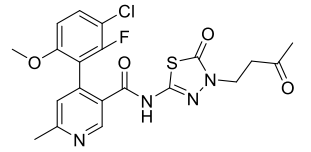
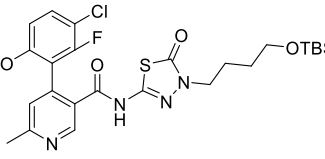
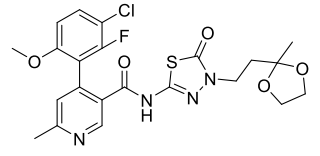
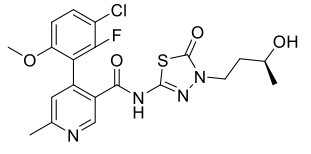
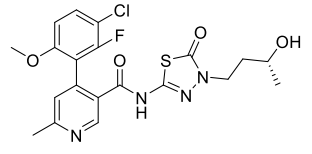
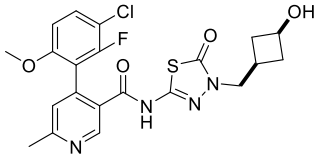
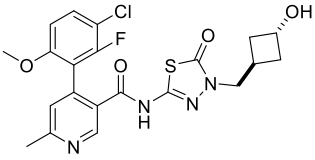

(IVf),

(IVg);

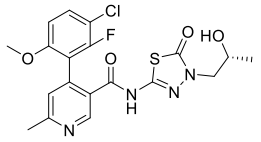
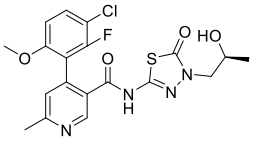
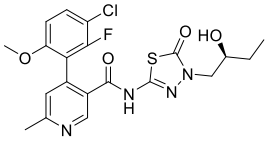
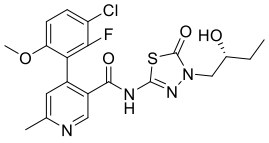
Y^3 is N or CR^1;

wherein, R^1, R^2, R^3 and m are defined with respect to Formula (I).

8. The compound of claim 1, wherein, the compound is:

or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical composition comprising the compound of any one of claims 1-8, or pharmaceutically acceptable salt, solvate, tautomer, stereoisomer, atropisomer, isotopic variant, prodrug or deuterated compound thereof and at least one pharmaceutically acceptable excipient.

10. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a disease characterized by overexpression of PolQ in a patient.

11. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a disease in a patient, wherein the disease is characterized by increased dependence upon MMEJ DSB repair.

12. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a cancer in a patient, wherein the cancer is characterized by HR-deficiency, a reduction or absence of expression of HR-associated genes.

13. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a cancer in a patient that is lack of 53BP1/Shieldin complex.

14. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a cancer in a patient, wherein the cancer, following or not following exposure to PARPi medication, which are resistant to PARPi treatment.

15. Use of the compound of any one of claims 1-8 or the pharmaceutical composition of claim 9 in the manufacture of a medicament for treating a cancer in a patient, wherein the cancer is characterized by NHEJ deficiency, a reduction or absence of expression of NHEJ-associated genes.