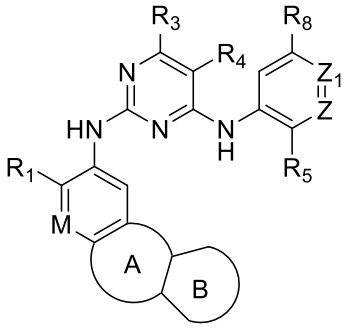
CLAIMS

1. A compound represented by formula (I'''),



(I''')

or a stereoisomer, a tautomer or a pharmaceutically acceptable salt, a prodrug, a hydrate, a solvate and an isotopically labeled derivative thereof,

wherein,

R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{2-6} alkynyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and C_{2-6} alkynylamino;

M is selected from N and CR_a;

Z is selected from N and CR_6;

Z_1 is selected from N and CR_7;

R_a is H, halogen, C_{1-6} alkyl, C_{3-6} cycloalkyl, C_{1-6} heteroalkyl, or C_{1-6} haloalkyl;

or, R_a cyclizes with R_1 to form a substituted or unsubstituted 5-8 membered heterocyclyl or 5-8 membered carbocyclyl;

ring A is selected from the substituted or unsubstituted 5-8 membered heterocyclyl or 5-8 membered carbocyclyl;

ring B is absent or selected from aryl or 5-6 membered heteroaryl, and 4-8 membered heterocycloalkyl or C_{4-8} cycloalkyl, which are optionally substituted with one or more R_2;

R_2 is each independently selected from H, halogen, -CN, $-C(=O)R_b$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-S(=O)(=NR_c)R_b$, $-NH_2$, -OH, -SH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{5-6} aryl, C_{5-6} arylalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and $-(CH_2)_rNR_cR_d$, r is optionally selected from 0, 1, 2, and 3; wherein the C_{3-6} cycloalkyl, the 3-6 membered

heterocycloalkyl, the C_{5-6} aryl, the C_{5-6} arylalkyl, the C_{3-6} cycloalkyloxy, the 3-6 membered heterocycloalkyloxy, the C_{2-6} alkenyloxy, the C_{1-6} alkylamino, the C_{1-6} haloalkylamino, the C_{3-6} cycloalkylamino, the 3-6 membered heterocycloalkylamino or the C_{2-6} alkenylamino in R_2 is optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

R_3 and R_4 are each independently selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_3 cyclizes with R_4 to form aryl, C_{4-7} cycloalkyl, 5-7 membered heterocycloalkyl, or 5-6 membered heteroaryl;

R_5 is selected from substituted or unsubstituted $-NH_2$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-P(=O)R_bR_c$, $-P(=O)R_bNR_cR_d$, $-P(=O)R_bOR_c$, $-P(=O)OR_bOR_c$, $-P(=S)R_bR_c$, $-P(=S)R_bNR_cR_d$, $-P(=S)R_bOR_c$, $-P(=S)OR_bOR_c$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c-$, $-N=S(=O)R_bR_c$ or $R_bN=S(=O)R_c-$, $-NR_bC(O)R_c$, and $R_cS(=NR_b)(=O)NR_d-$;

R_b, R_c and R_d are each independently selected from H, -CN, C_{1-3} alkyl, C_{1-3} haloalkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, C_{5-10} aryl, and 5-10 membered heteroaryl;

or, R_b and R_c cyclizes with atoms to which they are both attached to form 5-6 membered heterocycloalkyl unsubstituted or optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

R_6, R_7 and R_8 are each independently selected from H, halogen, -CN, -OH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, 5-6 membered heteroaryl, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $-P(=O)(R_b)-$, $-P(=S)(R_b)-$, $-N(R_b)S(=O)_2-$, $-S(=O)_2N(R_b)-$, or $-S(=O)_2$;

or, R_6 cyclizes with R_7 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl;

or, R_7 cyclizes with R_8 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl.

2. The compound represented by formula (I''') as claimed in claim 1, wherein R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, and C_{1-6} haloalkoxy; preferably, R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, and C_{1-6} alkoxy;

or

wherein M is selected from N or CR_a, wherein R_a is H, halogen, C_{1-3} alkyl, C_{3-6} cycloalkyl or C_{1-3} haloalkyl; preferably, M is selected from N and CH;

or

wherein ring A is selected from a substituted or unsubstituted 5-8 membered carbocyclyl and a 5-8 membered heterocyclyl containing 1 or 2 heteroatoms selected from O, S and N;

preferably, ring A may comprise a double bond; or

preferably, 1 or 2 ring atoms on ring A may be optionally replaced with -C(=O), -N(=O), -S(=O), and $-S(=O)_2$, ring A may also be optionally substituted with one or more R_x groups, wherein the R_x is selected from H, -OH, -CN, $-NH_2$, halogen, C_{1-6} alkylcarbonyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, 3-8 membered heterocycloalkyl-C_{1-6} alkyl-, aryl-C_{1-6} alkyl-, C_{5-13} spirocyclyl, and 5-13 membered spiroheterocyclyl; wherein the C_{3-8} cycloalkyl, the 3-8 membered heterocycloalkyl, the C_{3-8} cycloalkyl-C_{1-6} alkyl-, the 3-8 membered heterocycloalkyl-C_{1-6} alkyl-, the aryl-C_{1-6} alkyl-, C_{5-13} spirocyclyl, and the 5-13 membered spirocyclyl membered spiroheterocyclyl are optionally substituted with one or more R_y; wherein, the R_y is selected from H, halogen, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{3-8} cycloalkyl, 4-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, 4-8 membered heterocycloalkyl-C_{1-6} alkyl-, 5-10 membered aryl, and 5-10 membered heteroaryl;

or

wherein ring B is aryl or 5-6 membered heteroaryl, optionally substituted with one or more R_2; the aryl and the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, pyridazinyl, or triazinyl;

or

wherein R_2 is each independently selected from H, halogen, -CN, $-C(=O)R_b$, $-S(=O)_2R_b$, $-S(=O)(=NR_c)R_b$, $-NH_2$, -OH, -SH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{5-6} aryl, C_{5-6} arylalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and $-(CH_2)_rNR_cR_d$, wherein r is optionally selected from 0, 1, 2, and 3; wherein the 3-6 membered heterocycloalkyl and the C_{5-6} arylalkyl in R_2 is optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

or

wherein R_3 and R_4 are each independently selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, and C_{3-6} cycloalkyl;

or, R_3 cyclizes with R_4 to form phenyl, C_{4-7} cycloalkyl, and 5-7 membered heterocycloalkyl or 5-6

membered heteroaryl containing 1 or 2 heteroatoms selected from O, S, and N; preferably, the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, pyridazinyl, or triazinyl;

or

wherein R_5 is selected from substituted or unsubstituted $-NH_2$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-P(=O)R_bR_c$, $-P(=O)R_bNR_cR_d$, $-P(=O)R_bOR_c$, $-P(=O)OR_bOR_c$, $-P(=S)R_bR_c$, $-P(=S)R_bNR_cR_d$, $-P(=S)R_bOR_c$, $-P(=S)OR_bOR_c$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c-$, $-N=S(=O)R_bR_c$ or $R_bN=S(=O)(R_c)-$, and $-NR_bC(O)R_c$;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $-P(=O)(R_b)-$, $-P(=S)(R_b)-$, $-N(R_b)S(=O)_2-$, $-S(=O)_2N(R_b)-$, or $-S(=O)_2$;

or

wherein R_b, R_c, and R_d are each independently selected from H, C_{1-3} alkyl, C_{1-3} haloalkyl, and C_{3-6} cycloalkyl;

or, R_b and R_c cyclizes with atoms to which they are both attached to form 5-6 membered heterocycloalkyl unsubstituted or optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

or

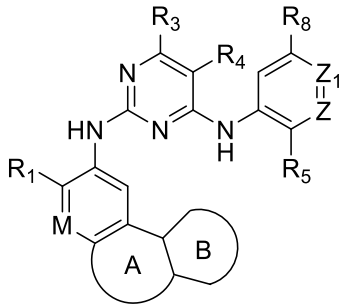
wherein R_6 and R_7 are each independently selected from H, halogen, -CN, -OH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, 5-6 membered heteroaryl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_6 cyclizes with R_7 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, phenyl, and 5-6 membered heteroaryl; preferably, the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, pyridazinyl, or triazinyl;

or

wherein R_8 is H.

3. A compound represented by formula (I"),



(I")

or a stereoisomer, a tautomer or a pharmaceutically acceptable salt, a prodrug, a hydrate, a solvate and an isotopically labeled derivative thereof,

wherein,

R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{2-6} alkynyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and C_{2-6} alkynylamino;

M is selected from N and CR_a; R_a is H, halogen, C_{1-3} alkyl, C_{3-6} cycloalkyl or C_{1-3} haloalkyl;

Z is selected from N and CR_6;

Z_1 is selected from N and CR_7;

or, R_a cyclizes with R_1 to form a substituted or unsubstituted 5-8 membered heterocyclyl;

ring A is selected from the substituted or unsubstituted 5-8 membered heterocyclyl or 5-8 membered carbocyclyl;

ring B is aryl or 5-6 membered heteroaryl, optionally substituted with one or more R_2; the aryl and the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, pyridazinyl, or triazinyl;

R_2 is each independently selected from H, halogen, -CN, $-C(=O)R_b$, $-S(=O)_2R_b$, $-S(=O)(=NR_c)R_b$, $-NH_2$, -OH, -SH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{5-6} aryl, C_{5-6} arylalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and $-(CH_2)_rNR_cR_d$, wherein r is optionally selected from 0, 1, 2, and 3;

R_3 and R_4 are each independently selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{1-6} alkylamino, C_{1-6}

haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_3 cyclizes with R_4 to form aryl, C_{4-7} cycloalkyl, 5-7 membered heterocycloalkyl, or 5-6 membered heteroaryl;

R_5 is selected from substituted or unsubstituted $-NH_2$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-P(=O)R_bR_c$, $-P(=O)R_bNR_cR_d$, $-P(=O)R_bOR_c$, $-P(=O)OR_bOR_c$, $-P(=S)R_bR_c$, $-P(=S)R_bNR_cR_d$, $-P(=S)R_bOR_c$, $-P(=S)OR_bOR_c$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c-$, $-N=S(=O)R_bR_c$ or $R_bN=S(=O)(R_c)-$, and $-NR_bC(O)R_c$;

R_b, R_c and R_d are each independently selected from H, -CN, C_{1-3} alkyl, C_{1-3} haloalkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, C_{5-10} aryl, and 5-10 membered heteroaryl;

or, R_b and R_c cyclizes with atoms to which they are both attached to form 5-6 membered heterocycloalkyl;

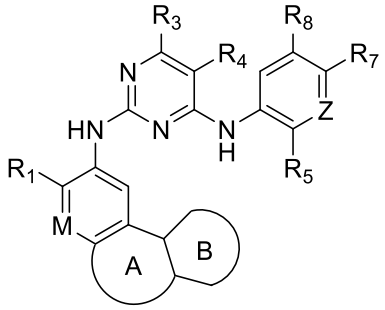
R_6, R_7 and R_8 are each independently selected from H, halogen, -CN, -OH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, 5-6 membered heteroaryl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $-P(=O)(R_b)-$, $-P(=S)(R_b)-$, $-N(R_b)S(=O)_2-$, $-S(=O)_2N(R_b)-$, or $-S(=O)_2$;

or, R_6 cyclizes with R_7 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl;

or, R_7 cyclizes with R_8 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl.

4. A compound represented by formula (I'),



(I′)

or a stereoisomer, a tautomer or a pharmaceutically acceptable salt, a prodrug, a hydrate, a solvate and an isotopically labeled derivative thereof,

wherein,

R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{2-6} alkynyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, C_{2-6} alkenylamino, and C_{2-6} alkynylamino;

M is selected from N and CR_a;

Z is selected from N and CR_6;

R_a is H, halogen, C_{1-3} alkyl, C_{3-6} cycloalkyl or C_{1-3} haloalkyl;

or, R_a cyclizes with R_1 to form a substituted or unsubstituted 5-8 membered heterocyclyl;

ring A is selected from the substituted or unsubstituted 5-8 membered heterocyclyl or 5-8 membered carbocyclyl;

ring B is aryl or 5-6 membered heteroaryl, optionally substituted with one or more R_2; the aryl and the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, or pyridazinyl;

R_2 each is independently selected from H, halogen, -CN, $-C(=O)R_b$, $-S(=O)_2R_b$, $-S(=O)(=NR_c)R_b$, $-NH_2$, -OH, -SH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{5-6} aryl, C_{5-6} arylalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

R_3 and R_4 are each independently selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_3 cyclizes with R_4 to form aryl, C_{4-7} cycloalkyl, 5-7 membered heterocycloalkyl, or 5-6 membered heteroaryl;

R_5 is selected from substituted or unsubstituted $-NH_2$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-P(=O)R_bR_c$, $-P(=O)R_bNR_cR_d$, $-P(=O)R_bOR_c$, $-P(=O)OR_bOR_c$, $-P(=S)R_bR_c$, $-P(=S)R_bNR_cR_d$, $-P(=S)R_bOR_c$, $-P(=S)OR_bOR_c$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c$-, -N=S(=O)R_bR_c and R_bN=S(=O)R_c-;

R_b, R_c and R_d are each independently selected from H, -CN, C_{1-3} alkyl, C_{1-3} haloalkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, C_{5-10} aryl, and 5-10 membered heteroaryl;

R_6, R_7 and R_8 are each independently selected from H, halogen, -CN, -OH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, 5-6 membered heteroaryl, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6

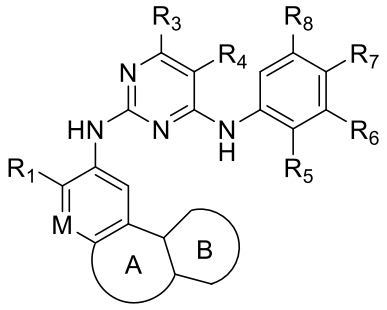
membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $P(=O)R_b$;

or, R_6 cyclizes with R_7 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl;

or, R_7 cyclizes with R_8 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl.

5. A compound represented by formula (I),



(I)

or a stereoisomer, a tautomer or a pharmaceutically acceptable salt, a prodrug, a hydrate, a solvate and an isotopically labeled derivative thereof,

wherein,

R_1 is selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy, C_{2-6} alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

M is selected from N and CR_a;

R_a is H, halogen, C_{1-3} alkyl, C_{3-6} cycloalkyl or C_{1-3} haloalkyl;

or, R_a cyclizes with R_1 to form a substituted or unsubstituted 5-8 membered heterocyclyl;

ring A is selected from substituted or unsubstituted 4-8 membered heterocyclyl and 5-8 membered carbocyclyl;

ring B is aryl or 5-6 membered heteroaryl, optionally substituted with one or more R_2; the aryl and the 5-6 membered heteroaryl may be pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, or pyridazinyl;

R_2 is each independently selected from H, halogen, -CN, $-C(=O)R_b$, $-S(=O)_2R_b$, $-S(=O)(=NR_c)R_b$, $-NH_2$, -OH, -SH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyloxy, 3-6 membered heterocycloalkyloxy and C_{2-6}

alkenyloxy, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

R_3 and R_4 are each independently selected from H, halogen, -CN, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_3 cyclizes with R_4 to form aryl, C_{4-7} cycloalkyl, 5-7 membered heterocycloalkyl, or 5-6 membered heteroaryl;

R_5 is selected from substituted or unsubstituted $-NH_2$, $-C(=O)NR_bR_c$, $-S(=O)_2R_b$, $-P(=O)R_bR_c$, $-P(=O)R_bNR_cR_d$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c-$, $-N=S(=O)R_bR_c$, and $R_bN=S(=O)R_c-$;

R_b, R_c and R_d are each independently selected from H, -CN, C_{1-3} alkyl, C_{1-3} haloalkyl, C_{3-6} cycloalkyl, C_{4-6} heterocycloalkyl, C_{5-10} aryl, and 5-10 membered heteroaryl;

R_6, R_7 and R_8 are each independently selected from H, halogen, -CN, -OH, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{2-6} alkenyl, C_{2-6} alkynyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, 5-6 membered heteroaryl, C_{1-6} alkylamino, C_{1-6} haloalkylamino, C_{3-6} cycloalkylamino, 3-6 membered heterocycloalkylamino, and C_{2-6} alkenylamino;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $P(=O)R_b$;

or, R_6 cyclizes with R_7 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl;

or, R_7 cyclizes with R_8 to form C_{4-6} cycloalkyl, 4-6 membered heterocycloalkyl, aryl, and 5-6 membered heteroaryl.

6. The compound as claimed in any one of claims 1 to 5,

R_1 is selected from H, halogen, -CN, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkyl, and C_{1-3} haloalkoxy;

M is selected from N and CH;

ring A is selected from the substituted or unsubstituted 5-8 membered heterocyclyl or 5-8 membered carbocyclyl;

ring B is 5-6 membered heteroaryl optionally substituted with one or more R_2; the 5-6 membered heteroaryl is pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, or pyridazinyl;

R_2 is each independently selected from H, C_{1-4} alkyl, C_{1-4} haloalkyl, $-(CH_2)_rNR_cR_d$, 3-6 membered heterocycloalkyl, and C_{5-6} arylalkyl, wherein r is optionally selected from 0, 1, 2, and 3, and the 3-6 membered heterocycloalkyl and the C_{5-6} arylalkyl are optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

R_3 and R_4 are each independently selected from H, halogen, C_{1-4} alkyl, C_{1-4} halogenated alkyl, and C_{3-6} cycloalkyl;

or, R_3 cyclizes with R_4 to form 5-6 membered heteroaryl; the 5-6 membered heteroaryl is pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, or pyridazinyl;

R_5 is selected from $-C(=O)NR_bR_c$, $-P(=O)R_bR_c$, $-P(=S)R_bR_c$, $-S(=O)_2NR_bR_c$, $R_bS(=O)_2NR_c-$, and $-NR_bC(O)R_c$;

R_b, R_c and R_d are each independently selected from H, C_{1-3} alkyl, C_{1-3} alkoxy, and C_{3-6} cycloalkyl;

or, R_b and R_c cyclizes with atoms to which they are both attached to form 5-6 membered heterocycloalkyl unsubstituted or optionally substituted with one or more C_{1-3} alkyl or C_{1-3} alkoxy;

or, R_5 cyclizes with R_6 to form a 4-7 membered ring containing $-P(=O)(R_b)-$, $-P(=S)(R_b)-$, $-N(R_b)S(=O)_2-$, $-S(=O)_2N(R_b)-$, or $-S(=O)_2$;

R_6, R_7 and R_8 are each independently selected from H, halogen, and C_{1-3} alkyl;

or, R_8 is selected from H, R_6 cyclizes with R_7 to form 5-6 membered heteroaryl; the 5-6 membered heteroaryl is pyrrolyl, furanyl, thienyl, pyrazolyl, thiazolyl, oxazolyl, isothiazolyl, isoxazolyl, imidazolyl, triazolyl, phenyl, pyrimidinyl, pyridyl, pyrazinyl, or pyridazinyl.

7. The compound as claimed in any one of claims 1 to 6, wherein the M is selected from N and CH; preferably, M is CH;

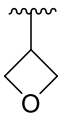
or

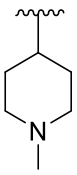
wherein the R_1 is selected from H, halogen, -CN, C_{1-3} alkyl, C_{1-3} alkoxy, C_{1-3} haloalkyl, and C_{1-3} haloalkoxy;

preferably, wherein the R_1 is selected from H, methyl, ethyl, *n*-propyl, isopropyl, *n*-butyl, methoxy, ethoxy, *n*-propoxy, isopropoxy, *n*-butoxy, trifluoromethyl, trifluoromethoxy, trichloromethyl, trichloromethoxy, and 2,2,2-trifluoroethoxy; and

more preferably, wherein the R_1 is selected from methoxy;

or

wherein the R_2 is selected from H, methyl, ethyl, isopropyl, difluoromethyl, trifluoromethyl, $-CH_2CH_2N(CH_3)CH_3$, 

, and 

;

preferably, wherein the R_2 is selected from H, methyl, ethyl, isopropyl, difluoromethyl, and trifluoromethyl; and

more preferably, wherein the R_2 is selected from methyl;

or

wherein R_3 and R_4 are each independently selected from H, F, Cl, Br, CN, methyl, ethyl, isopropyl, methoxy, ethoxy, isopropoxy, difluoromethyl, trifluoromethyl, 2,2,2-trifluoroethyl, and cyclopropyl;

preferably, wherein the R_3 is selected from H, and the R_4 is each independently selected from H, F, Cl, Br, methyl, difluoromethyl, trifluoromethyl, and cyclopropyl;

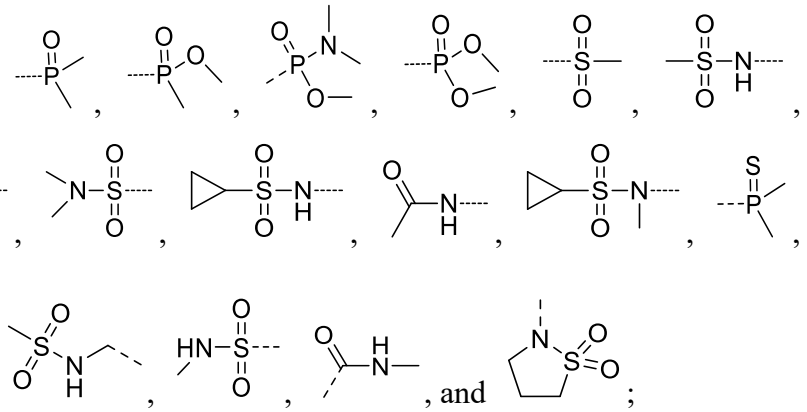
more preferably, wherein the R_3 is selected from H, and the R_4 is independently selected from F, Cl, Br, methyl, ethyl, difluoromethyl, and trifluoromethyl;

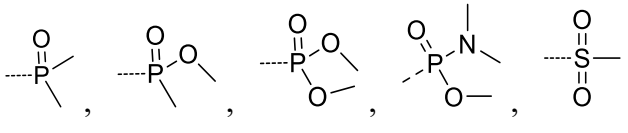
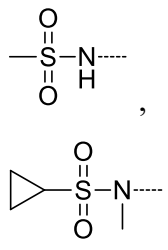
more preferably, wherein the R_3 is selected from H, and R_4 is selected from Cl, Br, and methyl;

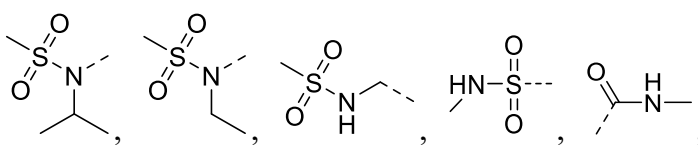
still more preferably, wherein the R_3 is selected from H, and the R_4 is selected from Br;

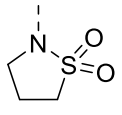
or, wherein the R_3 cyclizes with the R_4 to form a thiophene ring and a pyrrole ring, wherein the thiophene ring and the pyrrole ring may be optionally substituted with C_{1-4} alkyl;

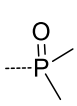
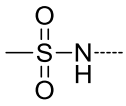
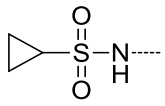
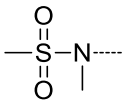
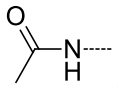
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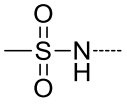
wherein the R_5 is selected from , and ;

preferably, wherein the R_5 is selected from , and ;

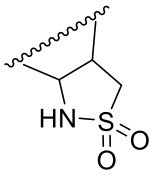
preferably, wherein the R_5 is selected from 

and ;

preferably, wherein the R_5 is selected from , , , , and ; or

preferably, wherein the R_5 is selected from ;

or

R_5 cyclizes with R_6 to form .

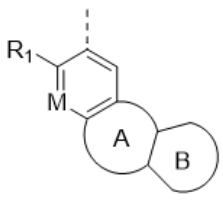
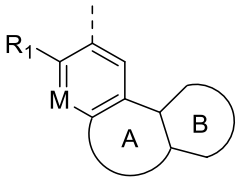
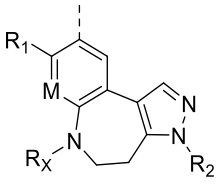
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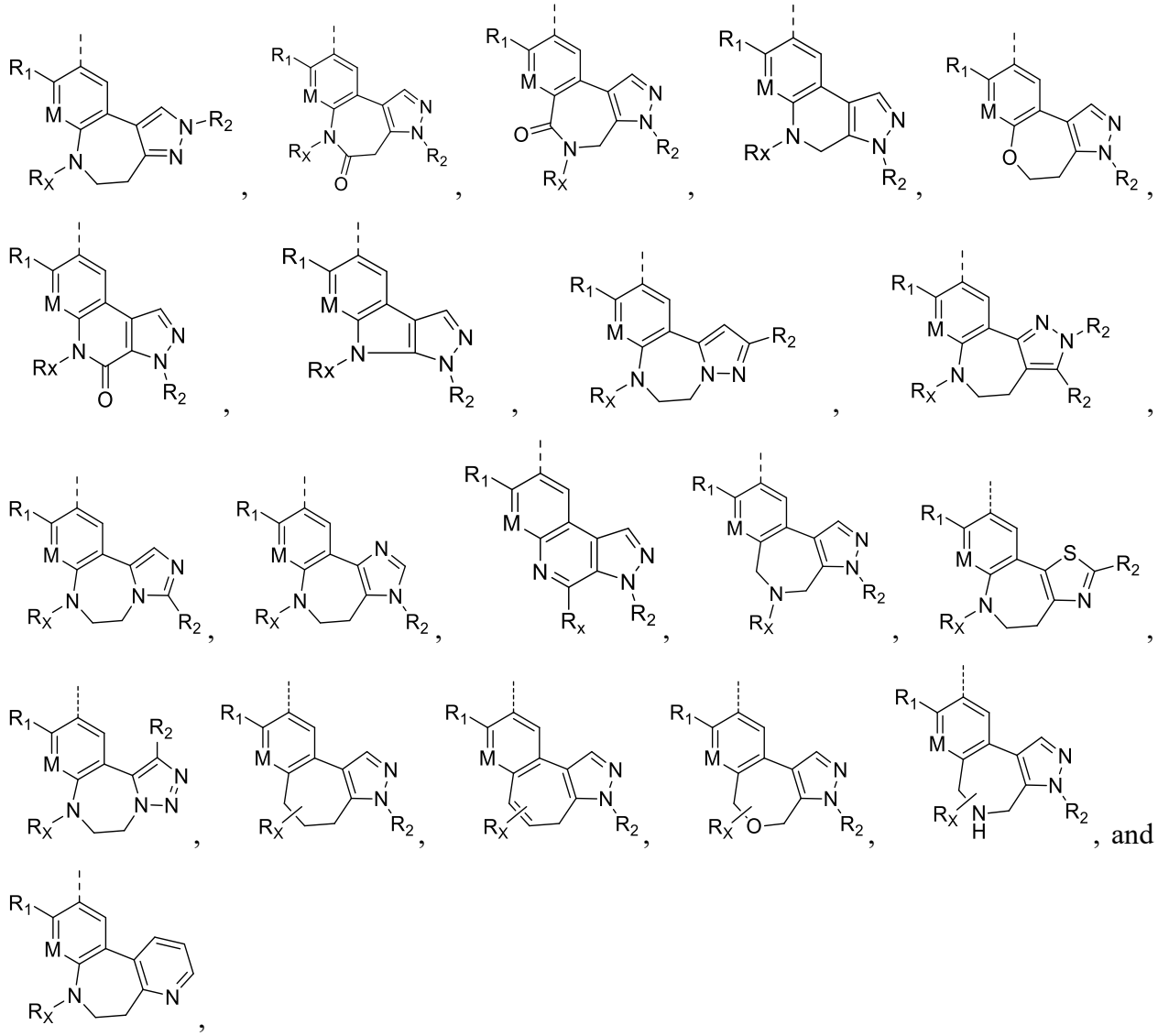
wherein R_6, R_7, and R_8 are each independently selected from H, methyl, and halogen; or, R_6 and R_8 are selected from H, and R_7 is selected from F; or, R_6, R_7, and R_8 are each independently selected from H and methyl, preferably H;

or, R_6 cyclizes with R_7 independently or R_7 cyclizes with R_8 independently to form cyclobutane, cyclopentane, a tetrahydropyrrole ring, a tetrahydrofuran ring, a tetrahydropyrane ring, a thiophene ring, an imidazole ring, a pyrazole ring, a pyrrole ring, an oxazole ring, a thiazole ring, an isoxazole ring, a piperazine ring, an isothiazole ring, a benzene ring, a pyridine ring, a piperidine ring, a pyrimidine ring, a pyridazine ring, and a pyrazine ring;

preferably, R_6 cyclizes with R_7 independently or R_7 cyclizes with R_8 independently to form a cyclobutane, a pyridine ring, and a pyrazine ring; and

more preferably, R_6 cyclizes with R_7 to form a pyrazine ring.

8. The compound as claimed in any one of claims 1 to 7, wherein the structural unit  or  is selected from ,

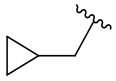


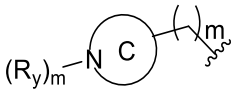
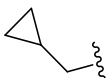
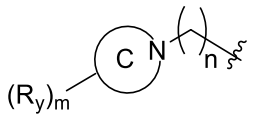
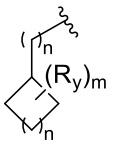
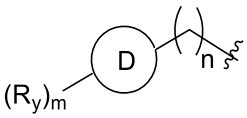
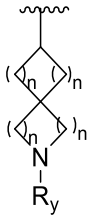
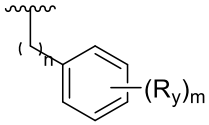
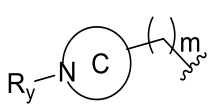
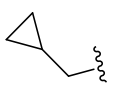
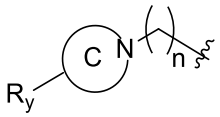
wherein, R_1 is defined as in any one of claims 1 to 7;

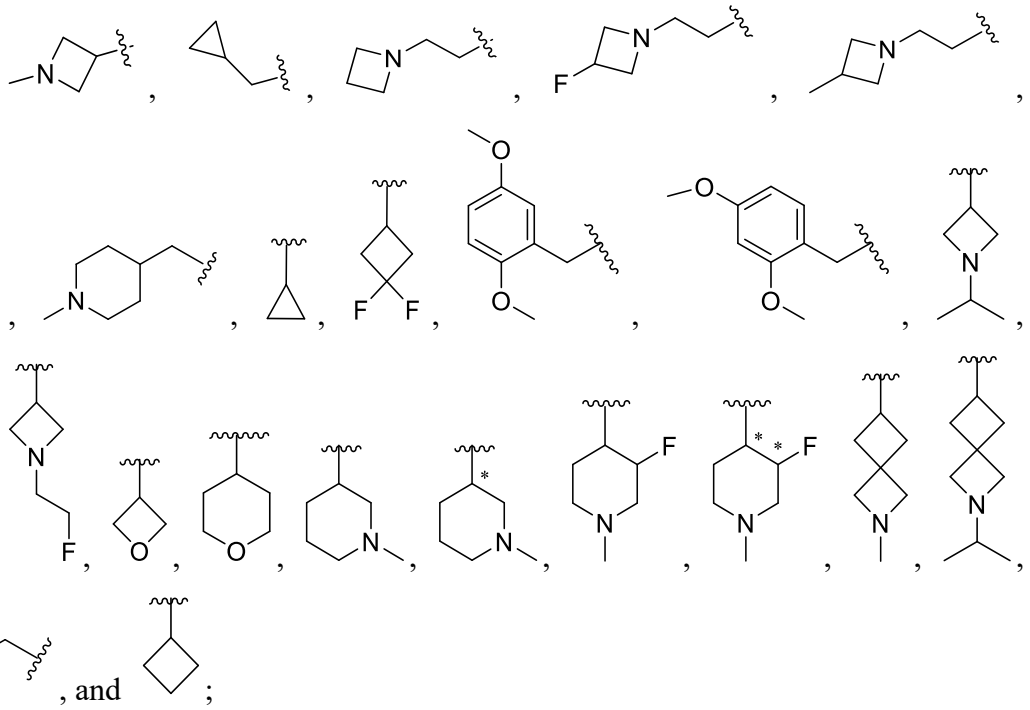
M is defined as in any one of claims 1 to 7;

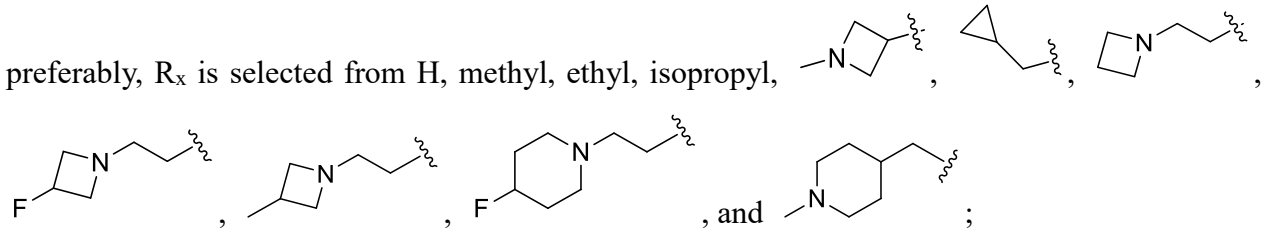
R_2 is defined as in any one of claims 1 to 7;

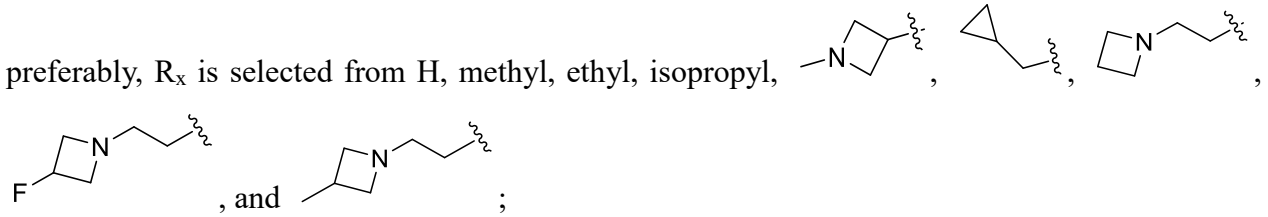
R_x is selected from H, -OH, -CN, $-NH_2$, halogen, C_{1-6} alkylcarbonyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, 3-8 membered heterocycloalkyl-C_{1-6} alkyl-, aryl-C_{1-6} alkyl-, C_{5-13} spirocyclyl, and 5-13 membered spiroheterocyclyl; wherein the C_{3-8} cycloalkyl, the 3-8 membered heterocycloalkyl, the C_{3-8} cycloalkyl-C_{1-6} alkyl-, the 3-8 membered heterocycloalkyl-C_{1-6} alkyl-, the aryl-C_{1-6} alkyl-, C_{5-13} spirocyclyl, and the 5-13 membered spirocyclyl membered spiroheterocyclyl are optionally substituted with one or more R_y; wherein, the R_y is selected from H, halogen, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{3-8} cycloalkyl, 4-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C1-6 alkyl-, 4-8 membered heterocycloalkyl-C_{1-6} alkyl-, 5-10 membered aryl, and 5-10 membered heteroaryl.

9. The compound as claimed in claim 8, wherein, R_x is selected from H, -OH, -CN, -NH_2, halogen, C_{1-6} alkylcarbonyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, and 3-8 membered heterocycloalkyl-C_{1-6} alkyl-; wherein the C_{3-8} cycloalkyl, 3-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, 3-8 membered heterocycloalkyl-C_{1-6} alkyl-, and aryl-C_{1-6} alkyl- are optionally substituted with one or more R_y;
or, R_x is selected from H, -OH, -CN, -NH_2, halogen, C_{1-6} alkylcarbonyl, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{3-6} cycloalkyl, 3-6 membered heterocycloalkyl, C_{3-6} cycloalkyl-C_{1-4} alkyl-, 3-6 membered heterocycloalkyl-C_{1-4} alkyl-, aryl-C_{1-6} alkyl-, and 7-11 membered spiroheterocyclyl, wherein the C_{3-6} cycloalkyl, the 3-6 membered heterocycloalkyl, the C_{3-6} cycloalkyl-C_{1-4} alkyl-, the 3-6 membered heterocycloalkyl-C_{1-4} alkyl-, the aryl-C_{1-6} alkyl-, and the spiroheterocyclyl are optionally substituted with one or more R_y;
wherein, the R_y is selected from H, halogen, C_{1-6} alkyl, C_{1-6} haloalkyl, C_{1-6} alkoxy, C_{3-8} cycloalkyl, 4-8 membered heterocycloalkyl, C_{3-8} cycloalkyl-C_{1-6} alkyl-, 4-8 membered heterocycloalkyl-C_{1-6} alkyl-, 5-10 membered aryl, and 5-10 membered heteroaryl; preferably, the R_y is selected from H, halogen, C_{1-4} alkyl, C_{1-4} haloalkyl, C_{1-4} alkoxy, and C_{3-6} cycloalkyl-C_{1-6} alkyl-; preferably, the R_y is selected from H, F, methyl, ethyl, isopropyl, methoxy, , , and FCH_2CH_2-;
wherein, when R_x is directly attached to N atom, R_x is not -OH, -NH_2, and halogen.

10. The compound as claimed in claim 8 or 9, wherein, R_x is selected from H, -OH, -CN, -NH_2, F, methyl, ethyl, isopropyl, trifluoroethyl, methylcarbonyl, , , , , , , and ; wherein, ring C is 4-8 membered heterocycloalkyl, ring D is 4-8 membered heterocycloalkyl containing oxygen; m and n are independently 0, 1, 2, or 3; R_y is defined as in claim 8 or 9;
preferably, R_x is selected from H, -OH, -CN, -NH_2, methyl, ethyl, isopropyl, methylcarbonyl, , , and ; wherein, ring C is 4-8 membered heterocycloalkyl; m and n are independently 0, 1, 2, or 3; R_y is defined as in claim 8 or 9;
preferably, R_x is selected from H, -OH, -CN, -NH_2, F, methyl, ethyl, isopropyl, trifluoroethyl,

methylcarbonyl, 

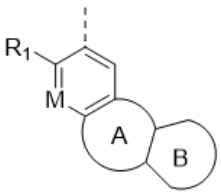
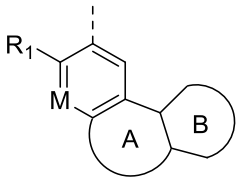
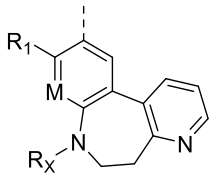
preferably, R_x is selected from H, methyl, ethyl, isopropyl, 

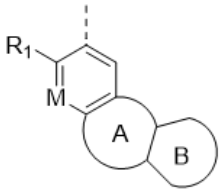
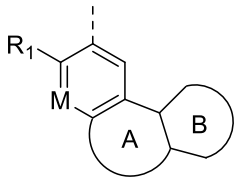
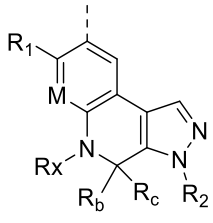
preferably, R_x is selected from H, methyl, ethyl, isopropyl, 

preferably, R_x is selected from H, methyl, ethyl, and isopropyl;

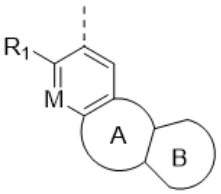
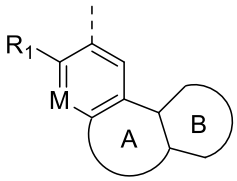
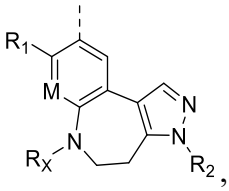
preferably, R_x is selected from methyl and isopropyl;

or

wherein the structural unit  or  is selected from , and R_1, M, and R_x are defined as in claim 22 or 23; or

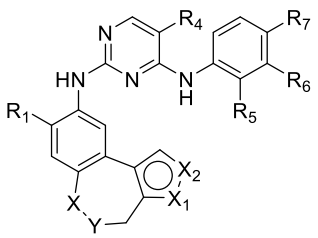
the structural unit  or  is selected from ,

wherein R_1, M, R_x, R_b, R_c, and R_2 are defined as in claim 8 or 9; or

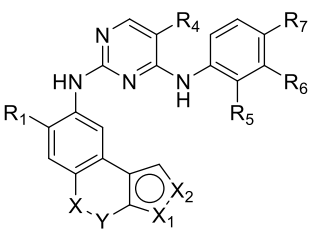
the structural unit  or  is selected from ,

wherein, M, R_1, R_2, and R_x are defined as claim 8 or 9.

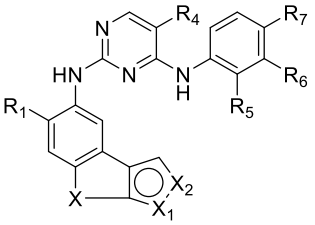
11. The compound as claimed in any one of claims 1 to 10, which is selected from



(II)

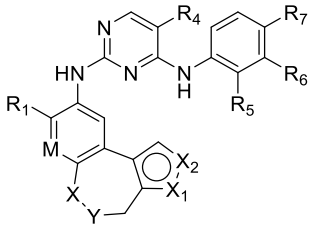


(III)

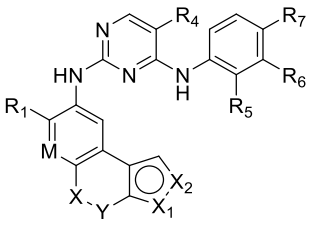


(IV)

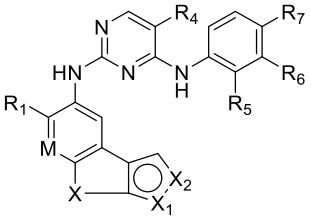
and



(II′)



(III′)



(IV′)

, wherein,

X and Y are each independently selected from -C(=O)-, -C=C-, -NR_x-, -O-, -CR_9R_{10}-, -S(=O)-, and -$S(=O)_2$-;

X_1 and X_2 are each independently selected from N and NR_2;

R_9 and R_{10} are selected from H, halogen, C_{1-6} alkyl, C_{1-6} alkoxy, C_{1-6} haloalkyl, C_{1-6} haloalkoxy, C_{3-8} cycloalkyl and 3-8 membered heterocycloalkyl;

R_1 is defined as in any one of claims 1 to 10;

R_2 is defined as in any one of claims 1 to 10;

R_4 is defined as in any one of claims 1 to 10;

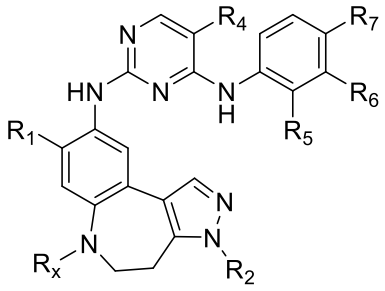
R_5 is defined as in any one of claims 1 to 10;

R_6 and R_7 are defined as in any one of claims 1 to 10;

R_x is defined as in any one of claims 8 to 10;

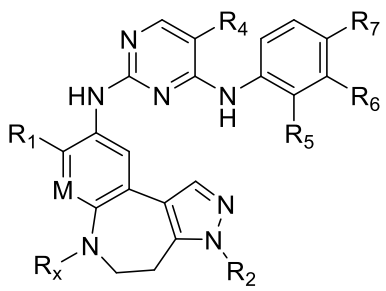
M, if present, is defined as in any one of claims 1 to 10.

12. The compound as claimed in claim 11, which is selected from



(IIa)

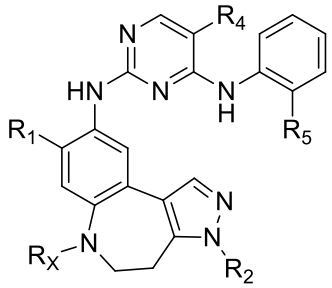
and



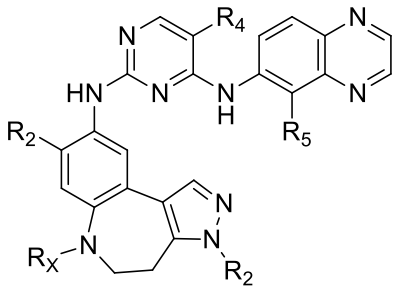
(IIa′) ,

wherein, R_1, R_2, R_4, R_5, R_6, R_7, and R_x are defined as in claim 11; M, if present, is defined as in claim 11.

13. The compound as claimed in claim 12, which is selected from

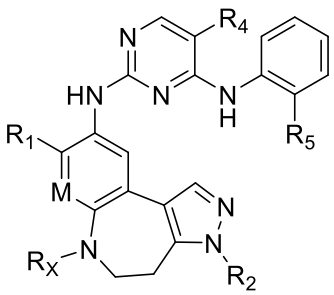


(IIa-1)

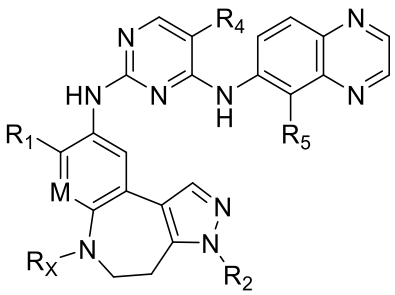


(IIa-2)

or



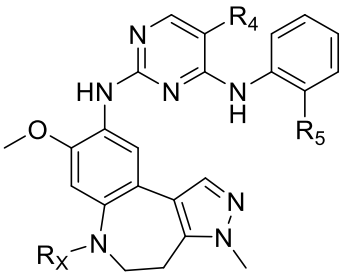
(IIa′-1)



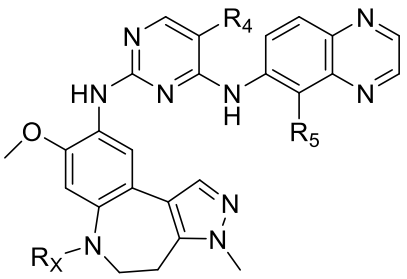
(IIa′-2)

wherein, R_1, R_2, R_4, R_5, and R_x are defined as in claim 12; M, if present, is defined as in claim 12.

14. The compound as claimed in claim 13, which is selected from

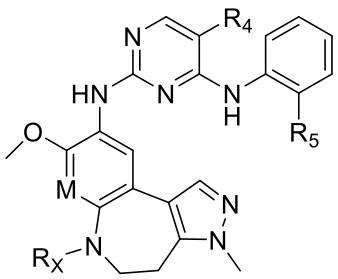


(IIa-1a)

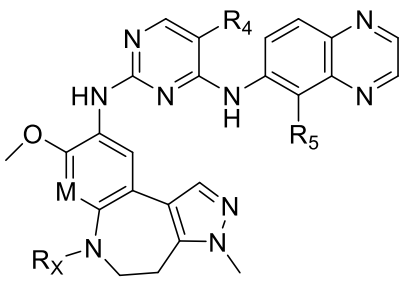


(IIa-2a)

or

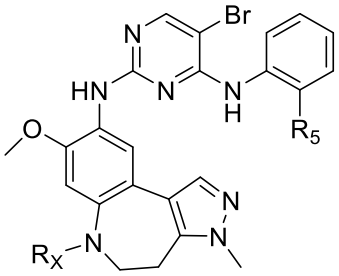


(IIa′-1a)

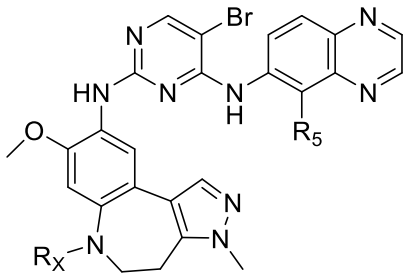


(IIa′ -2a)

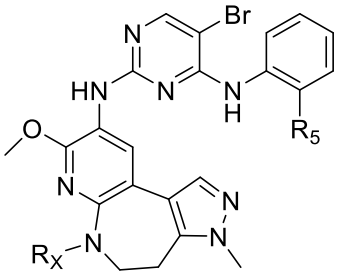
,



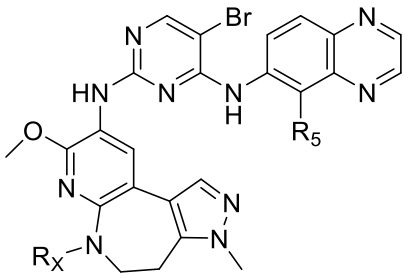
(IIa-1a-1)



(IIa-2a-1)



(IIa-1a-2)

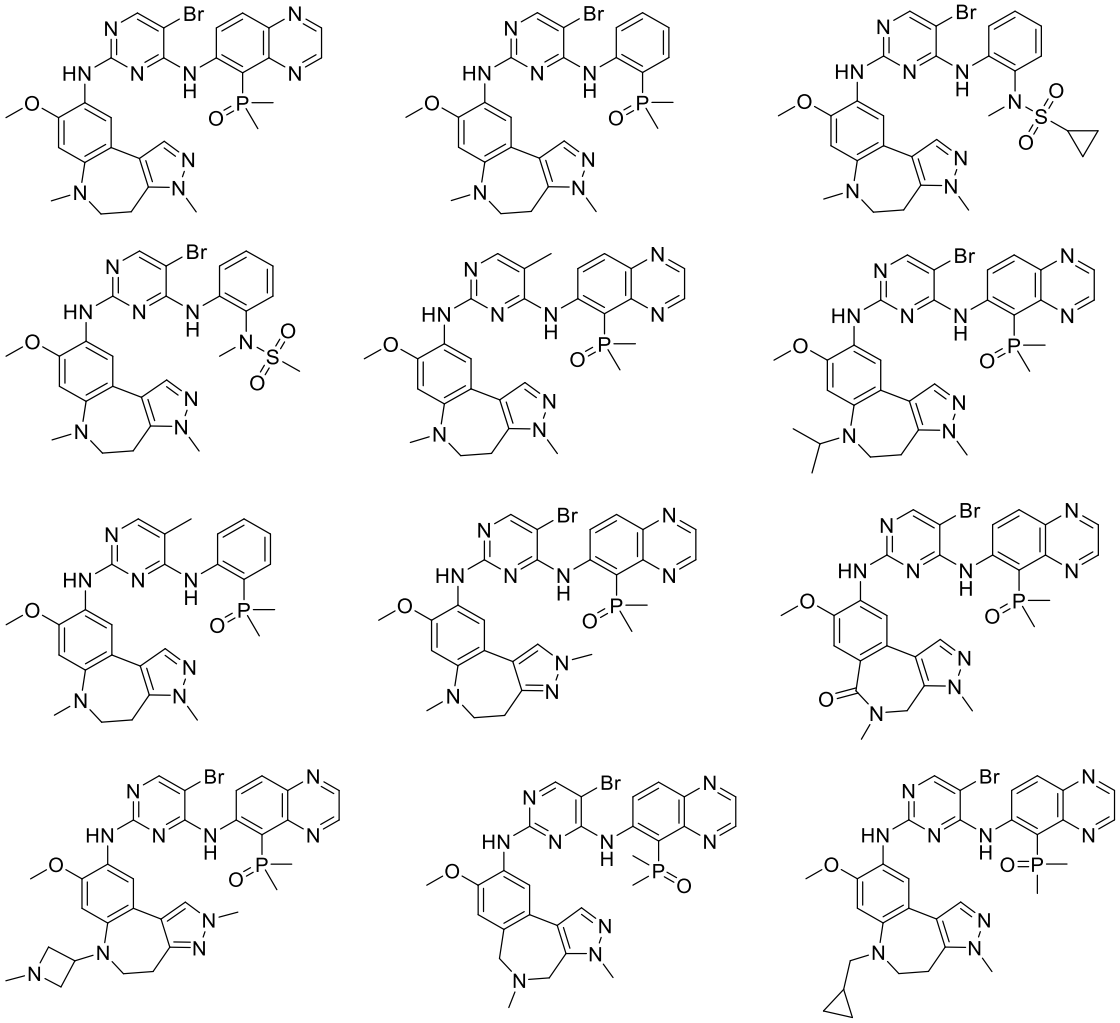


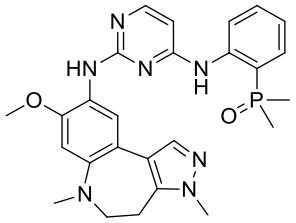
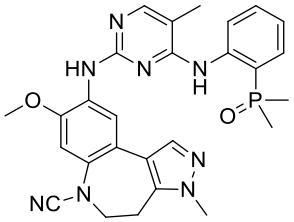
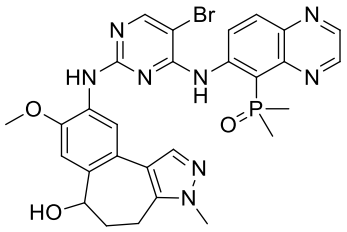
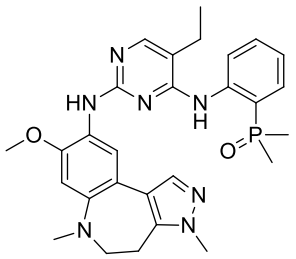
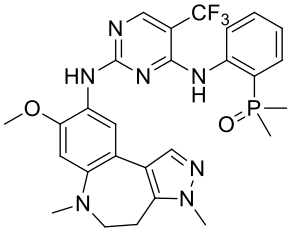
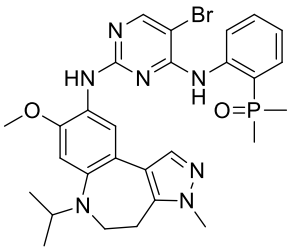
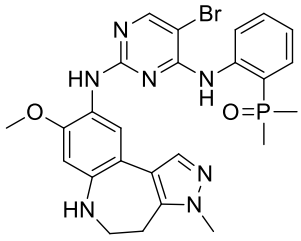
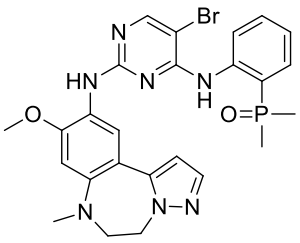
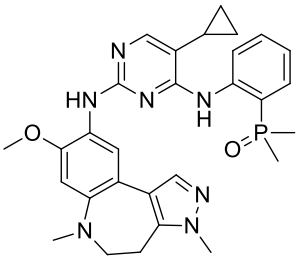
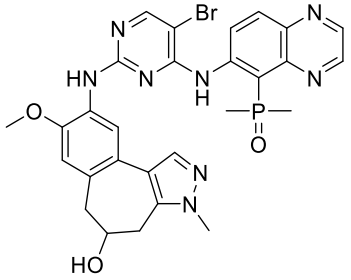
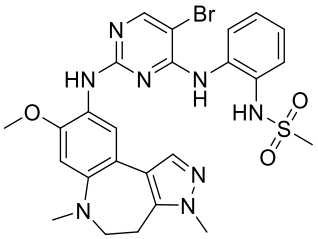
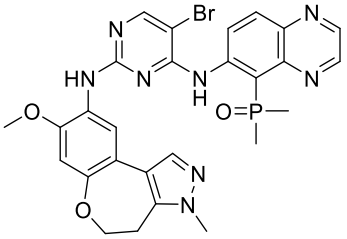
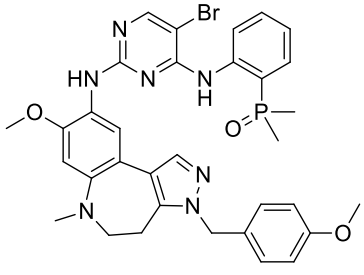
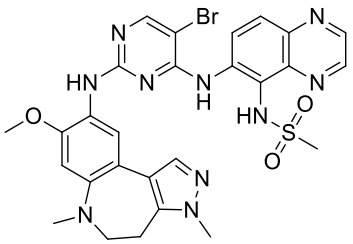
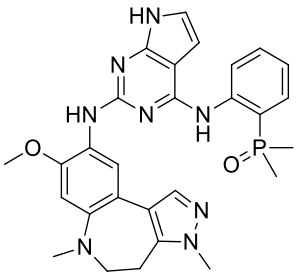
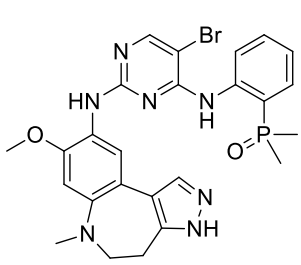
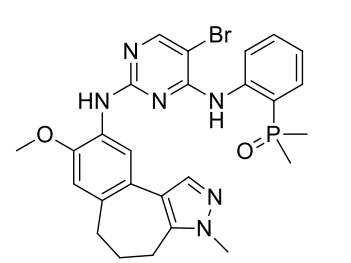
(IIa-2a-2)

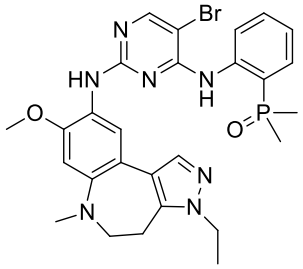
wherein, R_4, R_5 and R_x; and M, if present, are as defined in claim 13.

15. The compound, or the stereoisomer, the tautomer or the pharmaceutically acceptable salt, the prodrug, the hydrate, the solvate and the isotopically labeled derivative thereof as claimed in any

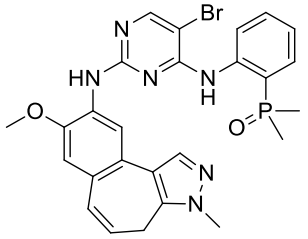
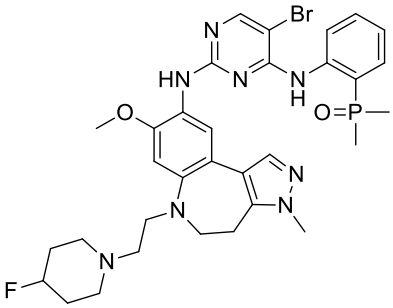
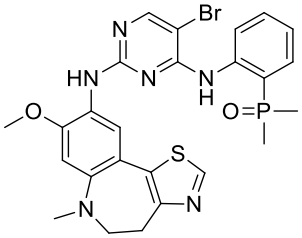
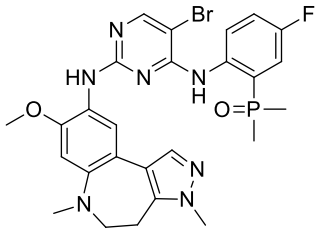
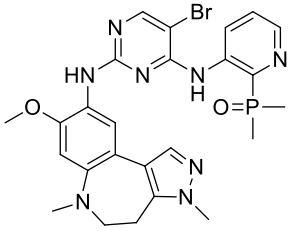
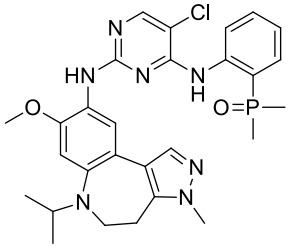
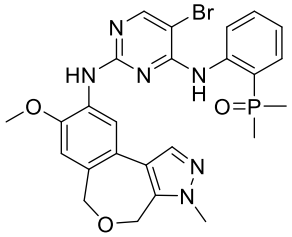
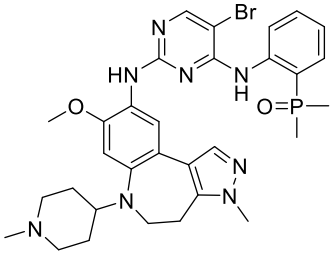
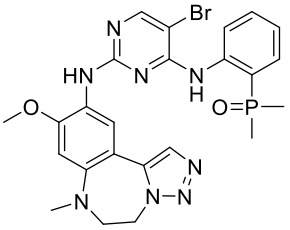
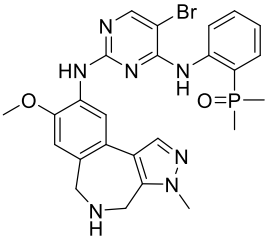
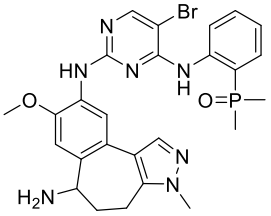
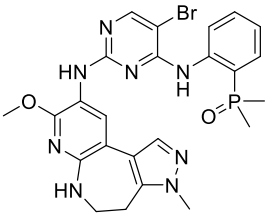
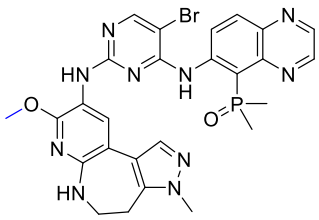
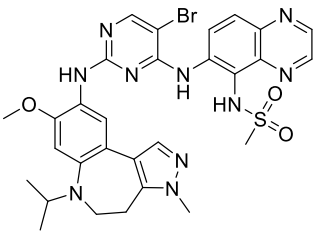
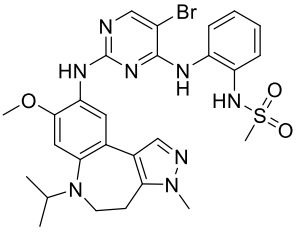
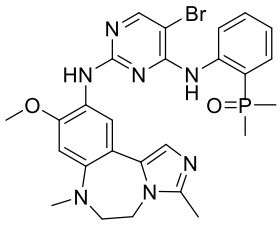
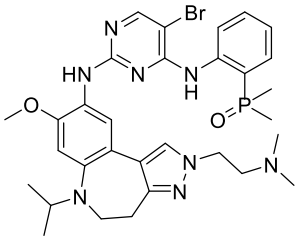
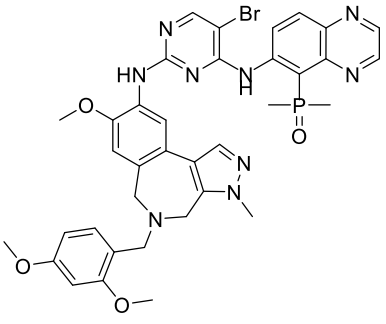
one of claims 1 to 14, which is selected from



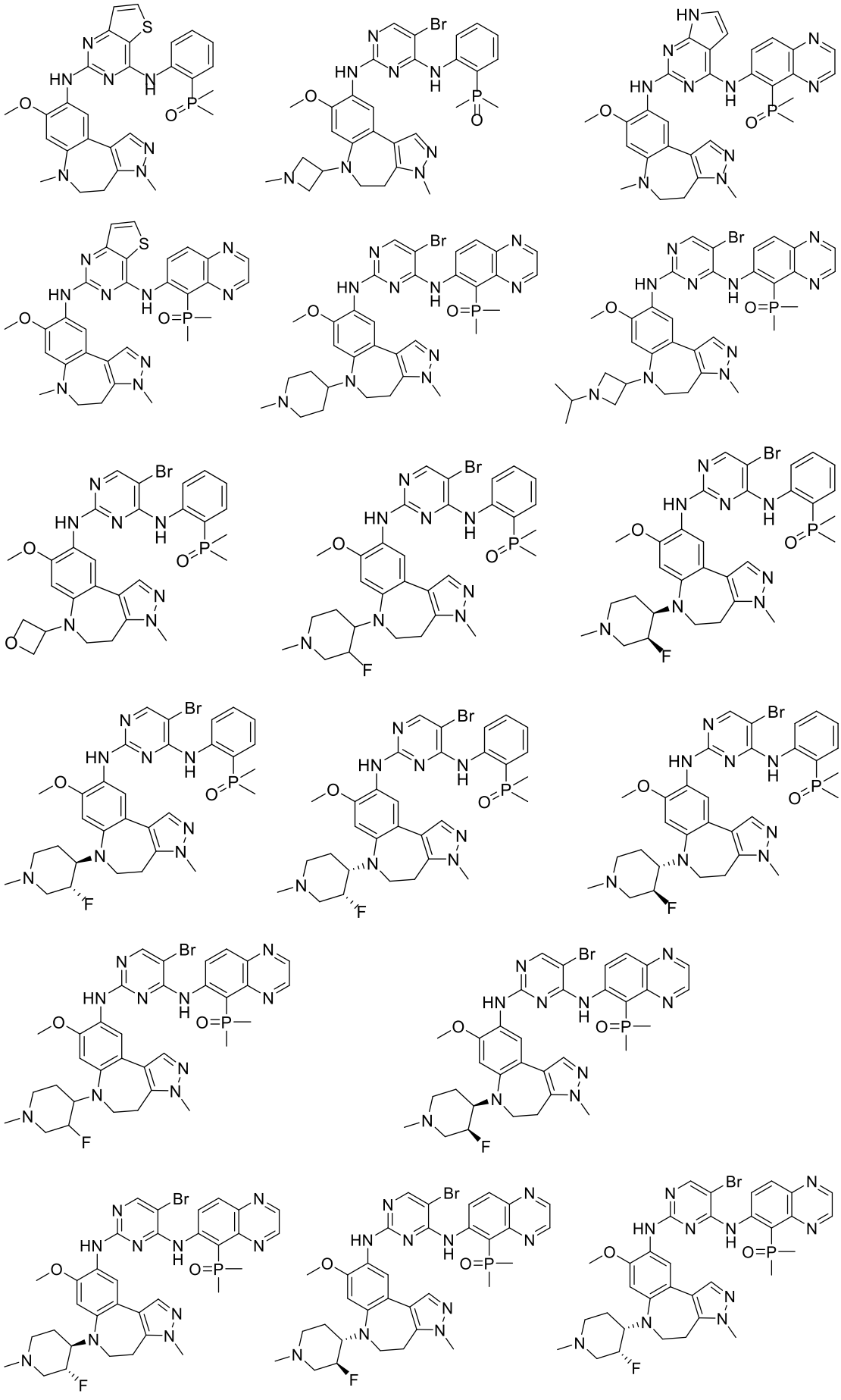


















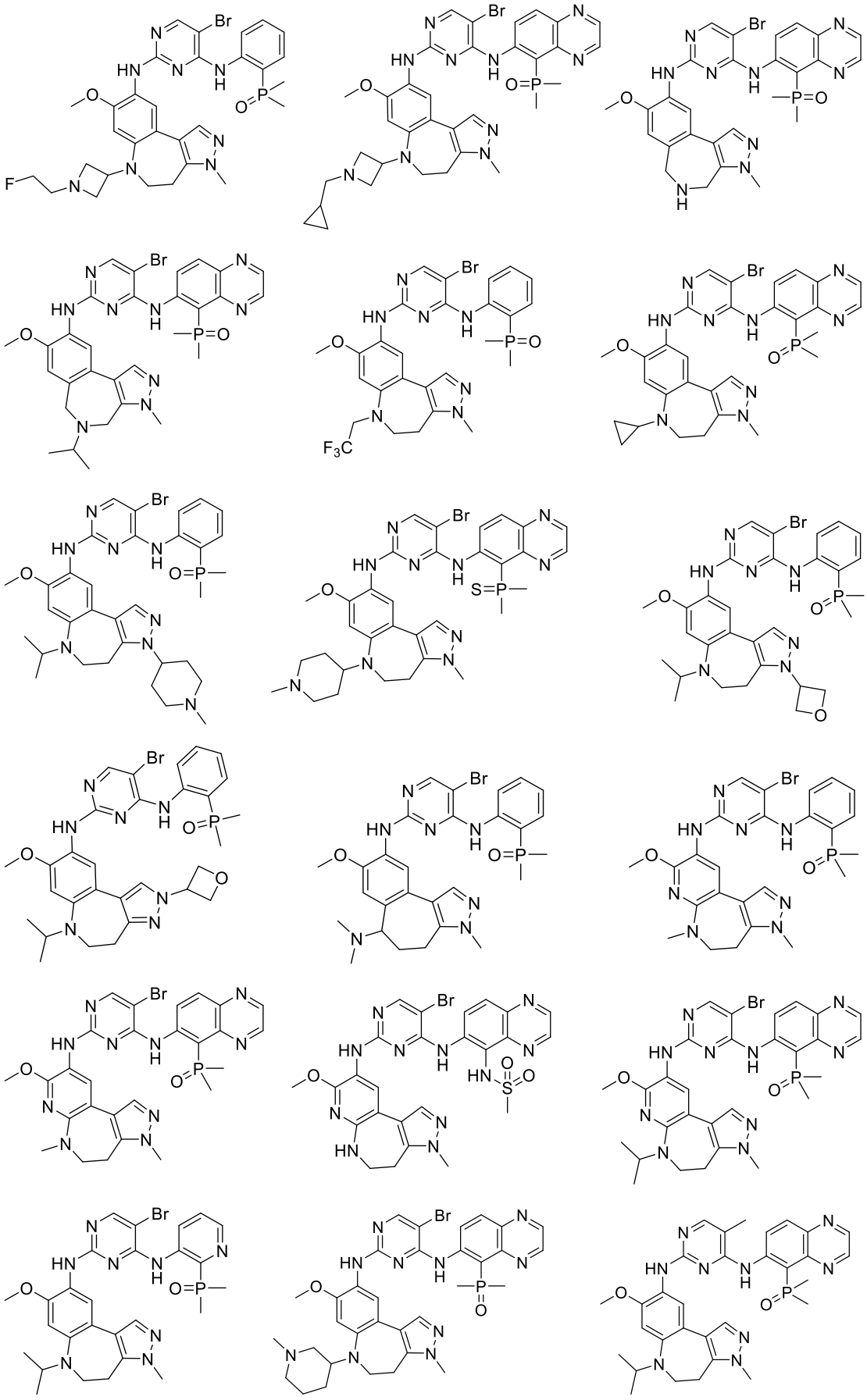


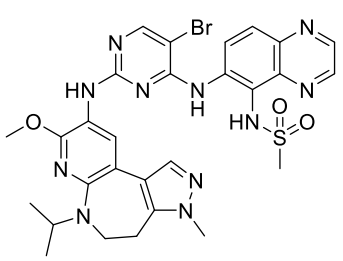
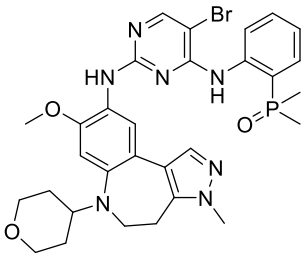
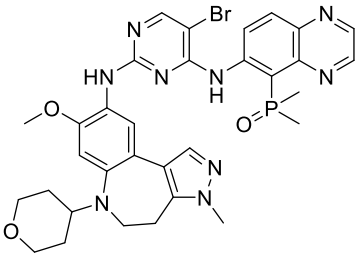
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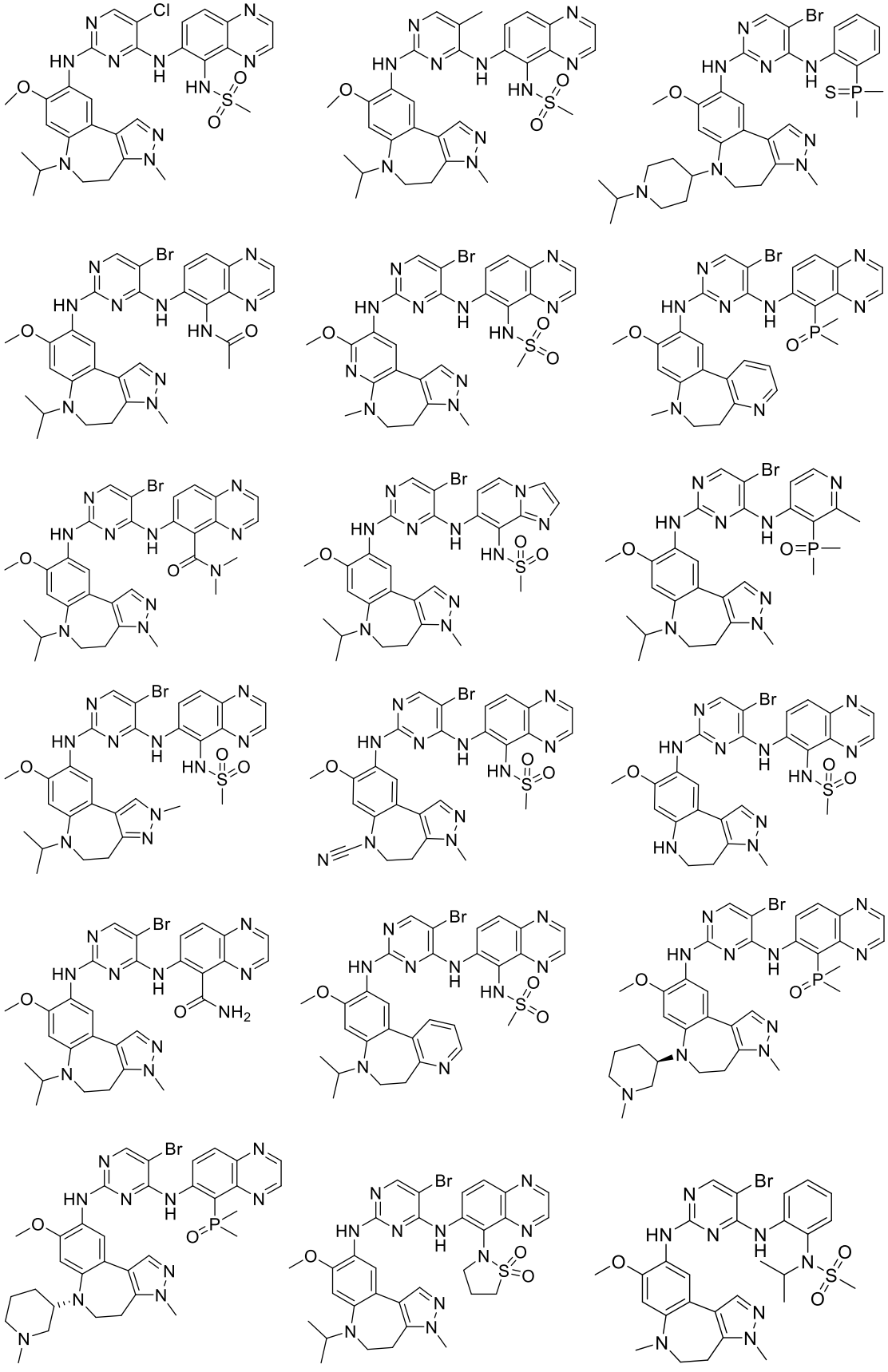



















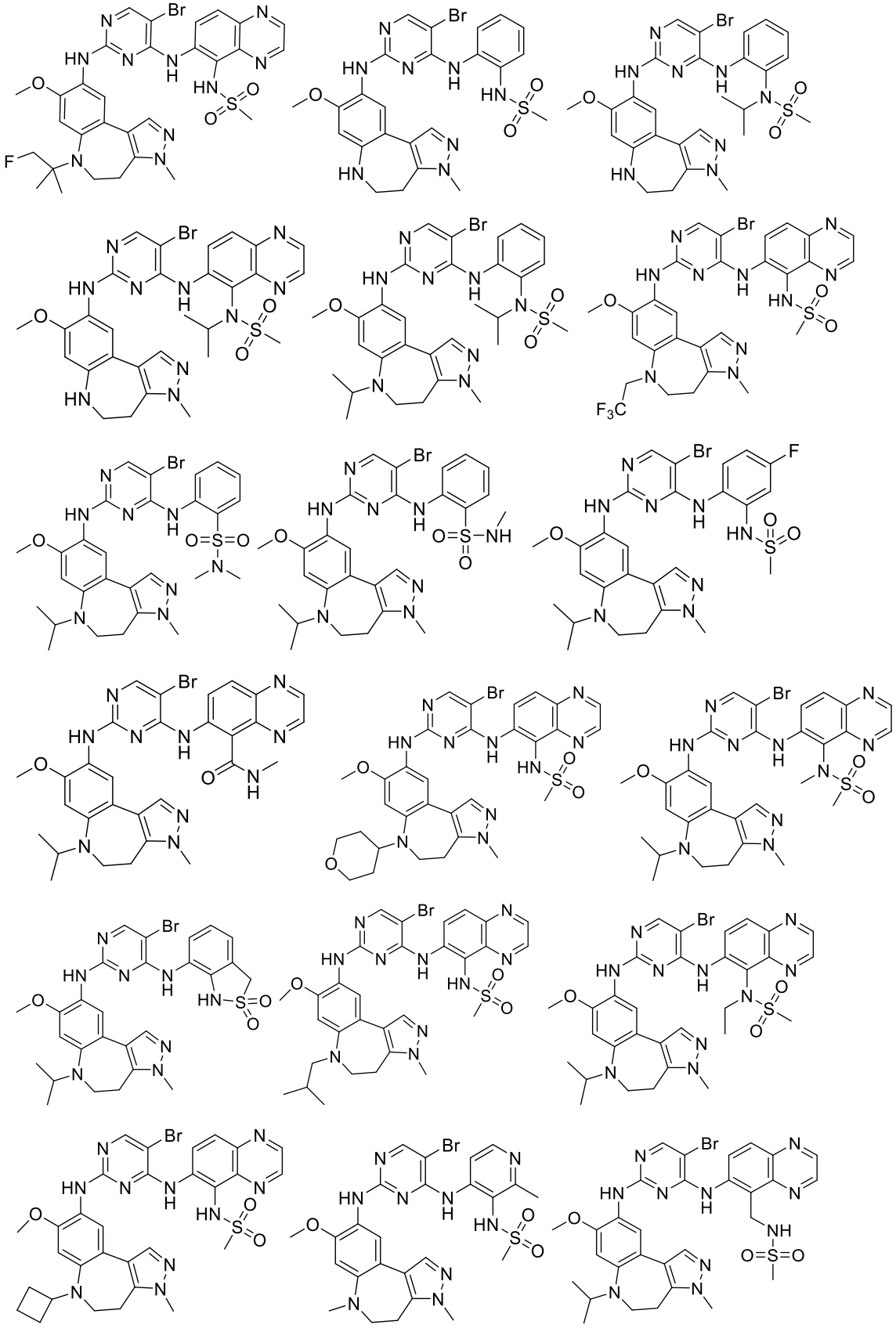
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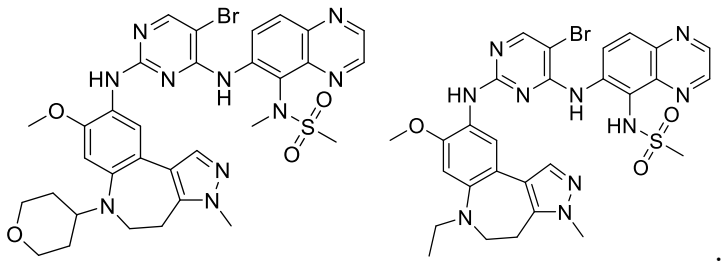






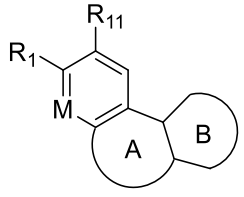




16. A pharmaceutical composition comprising the compound or the pharmaceutically acceptable salt thereof as claimed in any one of claims 1 to 15, and a pharmaceutically acceptable carrier, diluent, or excipient.

17. Use of the compound as claimed in any one of claims 1 to 16 or the pharmaceutically acceptable salt thereof, or the pharmaceutical composition as claimed in claim 16 for the manufacturing of a medicament for the treatment of cancer,
wherein the cancer preferably comprises lymphoma, non-Hodgkin's lymphoma, ovarian cancer, cervical cancer, prostate cancer, colorectal cancer, breast cancer, pancreatic cancer, glioma, glioblastoma, melanoma, leukemia, gastric cancer, endometrial cancer, lung cancer, hepatocellular cancer, gastric cancer, gastrointestinal stromal tumor (GIST), acute myelogenous leukemia (AML), cholangiocarcinoma, renal cancer, thyroid cancer, anaplastic large cell lymphoma, mesothelioma, multiple myeloma, and melanoma,
or
wherein the cancer is lung cancer.

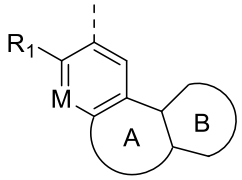
18. A compound represented by formula (V) or a stereoisomer thereof, or a pharmaceutically acceptable salt thereof,



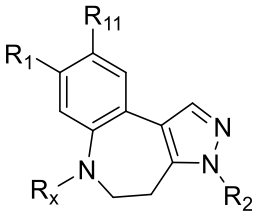
(V)

wherein, R_{11} is $-NH_2$ or $-NO_2$;
R_1 is defined as in any one of claims 1 to 15;
ring A and ring B are defined as in any one of claims 1 to 15;

M is defined as in any one of claims 1 to 15;

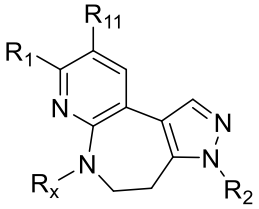
structural unit  is defined as in any one of claims 8 to 15.

19. A compound represented by formula (V) or (Va') or a stereoisomer thereof, or a pharmaceutically acceptable salt thereof,



(Va)

and



(Va ′) ,

wherein,

R_1 is defined as in any one of claims 1 to 15;

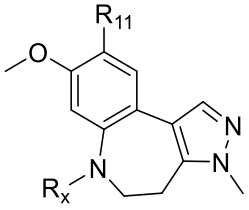
R_{11} is defined as in claim 18;

R_2 is defined as in any one of claims 1 to 15;

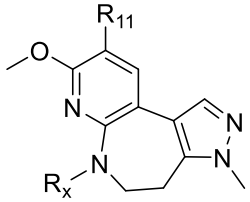
R_x is defined as in any one of claims 8 to 15.

or

a compound represented by formula (Va-1) or (Va-1') or a stereoisomer thereof, or a pharmaceutically acceptable salt thereof,



(Va-1)



(Va-1′)

wherein, R_{11} and R_x are as defined above.

20. Use of the compound or the stereoisomer thereof, or the pharmaceutically acceptable salt thereof as claimed in any one of claims 18 or 19 for preparing the compound, or the stereoisomer, the tautomer or the pharmaceutically acceptable salt, the prodrug, the hydrate, the solvate and the isotopically labeled derivative thereof as claimed in any one of claims 1 to 15.