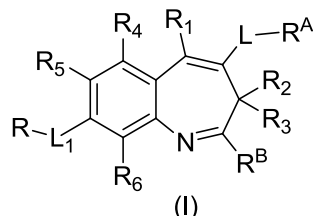


What is claimed is:

1. A compound of formula (I), a stereoisomer, a stable isotopic derivative or a pharmaceutically acceptable salt thereof;



wherein, L is -C(O)-;

L₁ is a bond;

R is 9 to 15 membered bicyclic or tricyclic fused ring, one ring of which is an aromatic ring, the other 1 to 2 ring is non-aromatic ring, and the 9 to 15 membered bicyclic or tricyclic fused ring contains 1 to 3 N atom, and the non-aromatic ring further contains 1 to 2 S and/or O , and the 9 to 15 membered bicyclic or tricyclic fused ring is unsubstituted or selectively substituted at any position by one or more than one substituent selected from the group consisting of halogen, alkyl, haloalkyl, haloalkoxy, alkenyl, alkynyl, Cy¹, -L₂-Cy¹, -CN, -NO₂, -SR_d, -OR_d, -OC(O)R_d, -OC(O)OR_d, -OC(O)NR_dR_e, -C(O)OR_d, -C(O)R_d, -C(O)NR_dR_e, -C(O)NR_dS(O)₂R_e, -C(O)N(R_d)OR_e, -C(=NH)R_e, -C(=NH)NR_dR_e, -NR_dR_e, -NR_dC(O)R_e, -N(R_d)C(O)OR_e, -N(R_d)C(O)NR_dR_e, -NR_dS(O)₂R_e, -NR_dC(=NH)R_e, -NR_dC(=NH)NR_dR_e, -S(O)₁₋₂R_e, -S(O)₂NR_dR_e and -NR_dS(O)₂NR_dR_e; the alkyl, alkenyl or alkynyl is unsubstituted or selectively substituted at any position by one or more than one substituent selected from the group consisting of -CN, -NO₂, -SR_d, -OR_d, -OC(O)R_d, -OC(O)OR_d, -OC(O)NR_dR_e, -C(O)OR_d, -C(O)R_d, -C(O)NR_dR_e, -C(O)NR_dS(O)₂R_e, -NR_dR_e, -NR_dC(O)R_e, -N(R_d)C(O)OR_e, -N(R_d)C(O)NR_dR_e, -NR_dC(=NH)R_e, -NR_dC(=NH)NR_dR_e, -NR_dS(O)₂R_e, -NR_dS(O)₂NR_dR_e, -N(R_d)C(O)N(R_d)S(O)₂R_e, -S(O)₁₋₂R_e, -S(O)₂NR_dR_e, -S(O)(=NCN)R_e, -S(O)(=NR_d)R_e, -S(O)(=NSO₂R_d)R_e, -S(O)₂N(R_d)C(O)R_e, -S(O)₂N(R_d)C(O)NR_dR_e, -P(O)(OR_d)₂, -OP(O)(OR_d)₂ or -B(OR_d)₂;

L₂ is a bond, C₂₋₆ alkenylene, C₂₋₆ alkynylene, or -(CR_{a1}R_{b1})_m-;

each of Cy¹ is independently cycloalkyl, heterocycloalkyl, aryl or heteroaryl; the Cy¹ is unsubstituted or selectively substituted at any position by one or more than one substituent selected from the group consisting of halogen, alkyl, haloalkyl, haloalkoxy, hydroxyalkyl, aminoalkyl, alkenyl, alkynyl, -CN, -NO₂, -SR_{d2}, -OR_{d2}, -OC(O)R_{d2}, -OC(O)OR_{d2}, -OC(O)NR_{d2}R_{e2}, -C(O)OR_{d2}, -C(O)R_{d2}, -C(O)NR_{d2}R_{e2}, -NR_{d2}R_{e2}, -NR_{d2}C(O)R_{e2}, -N(R_{d2})C(O)OR_{e2}, -N(R_{d2})C(O)NR_{d2}R_{e2}, -NR_{d2}S(O)₂R_{e2}, -NR_{d2}C(=NH)R_{e2}, -NR_{d2}C(=NH)NR_{d2}R_{e2}, -S(O)₁₋₂R_{e2}, -S(O)₂NR_{d2}R_{e2} and -NR_{d2}S(O)₂NR_{d2}R_{e2};

R₁, R₂ and R₃ are independently selected from hydrogen, deuterium and alkyl;

or, R₂ and R₃ together with the C atom to which they are attached, form a C₃₋₈ cycloalkyl or a 3 to 8 membered heterocycloalkyl;

R₄, R₅ and R₆ are independently selected from hydrogen, deuterium, halogen, amino, cyano, nitro, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ haloalkoxy, C₁₋₆ alkoxy, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₁₋₆hydroxyalkyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, phenyl or 5 to 6 membered heteroaryl;

R^A is -NR_{d1}R_{e1};

R^B is -NH₂;

each of R_{a1} and R_{b1} is independently selected from hydrogen, deuterium, halogen, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, C₆₋₁₀ aryl, 5 to 6 membered heteroaryl, C₃₋₈ cycloalkyl C₁₋₆ alkyl, 3 to 8 membered heterocycloalkyl C₁₋₆ alkyl, phenyl C₁₋₆ alkyl or 5 to 6 membered heteroaryl C₁₋₆ alkyl; the C₁₋₆ alkyl, C₁₋₆ alkoxy, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, C₆₋₁₀ aryl or 5 to 6 membered heteroaryl is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, hydroxyl, amino, carboxyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₁₋₆ alkoxy and C₁₋₆ haloalkoxy;

or R_{a1} and R_{b1} together with the C atom to which they are attached, form a C₃₋₈ cycloalkyl or a 3 to 8 membered heterocycloalkyl;

each of R_d and R_e is independently selected from hydrogen, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, C₆₋₁₀ aryl, 5 to 6 membered heteroaryl, C₃₋₈ cycloalkyl C₁₋₆ alkyl, 3 to 8 membered heterocycloalkyl C₁₋₆ alkyl, phenyl C₁₋₆ alkyl or 5 to 6 membered heteroaryl C₁₋₆ alkyl; R_d, R_e, R_{d1} or R_{e1} is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, hydroxyl, amino, carboxyl, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkylamino, C₁₋₆ haloalkyl, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl and C₂₋₆ alkynyl;

or, R_d and R_e together with the N atom to which they are attached, form a 3 to 8 membered heterocycloalkyl; the heterocycloalkyl can further comprise 1 to 3 heteroatom selected from the group consisting of N, O and S; the heterocycloalkyl is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, amino, hydroxyl, carboxyl, cyano, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₁₋₃ alkyl, amino C₁₋₃ alkyl, -OR_{d2}, -OC(O)R_{d2}, -OC(O)OR_{d2}, -OC(O)NR_{d2}R_{e2}, -C(O)OR_{d2}, -C(O)R_{d2}, -C(O)NR_{d2}R_{e2}, -NR_{d2}R_{e2}, -NR_{d2}C(O)R_{e2}, -N(R_{d2})C(O)OR_{e2}, -N(R_{d2})C(O)NR_{d2}R_{e2}, -NR_{d2}S(O)₂R_{e2}, -NR_{d2}C(=NH)R_{e2}, -NR_{d2}C(=NH)NR_{d2}R_{e2}, -NR_{d2}S(O)₂NR_{d2}R_{e2}, -S(O)₁₋₂R_{d2} and -S(O)₂NR_{d2}R_{e2};

each of R_{d1} and R_{e1} is independently selected from hydrogen, C₁₋₆ alkyl, C₃₋₈

cycloalkyl, 3 to 8 membered heterocycloalkyl, C₃₋₈ cycloalkyl C₁₋₆ alkyl and 3 to 8 membered heterocycloalkyl C₁₋₆ alkyl; R_{d1} or R_{e1} is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, hydroxyl, amino, carboxyl, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkylamino, C₁₋₆ haloalkyl and C₁₋₆ haloalkoxy;

or, R_{d1} and R_{e1} together with the N atom to which they are attached, form a 3 to 8 membered heterocycloalkyl; the heterocycloalkyl can further comprise 1 to 3 heteroatom selected from the group consisting of N, O and S; the heterocycloalkyl is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, amino, hydroxyl, cyano, C₁₋₆ alkyl, C₁₋₆ haloalkyl, amino C₁₋₃ alkyl and -OR_{d2};

each of R_{d2} and R_{e2} is independently selected from hydrogen, C₁₋₆ alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, C₆₋₁₀ aryl, 5 to 6 membered heteroaryl, C₃₋₈ cycloalkyl C₁₋₆ alkyl, 3 to 8 membered heterocycloalkyl C₁₋₆ alkyl, phenyl C₁₋₆ alkyl or 5 to 6 membered heteroaryl C₁₋₆ alkyl; R_{d2} or R_{e2} is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, hydroxyl, amino, carboxyl, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₁₋₆ alkylamino, C₁₋₆ haloalkyl, C₁₋₆ haloalkoxy, C₂₋₆ alkenyl and C₂₋₆ alkynyl; or, R_{d2} and R_{e2} together with the N atom to which they are attached, form a 3 to 8 membered heterocycloalkyl;

each of m is 1, 2, 3, 4, 5, or 6.

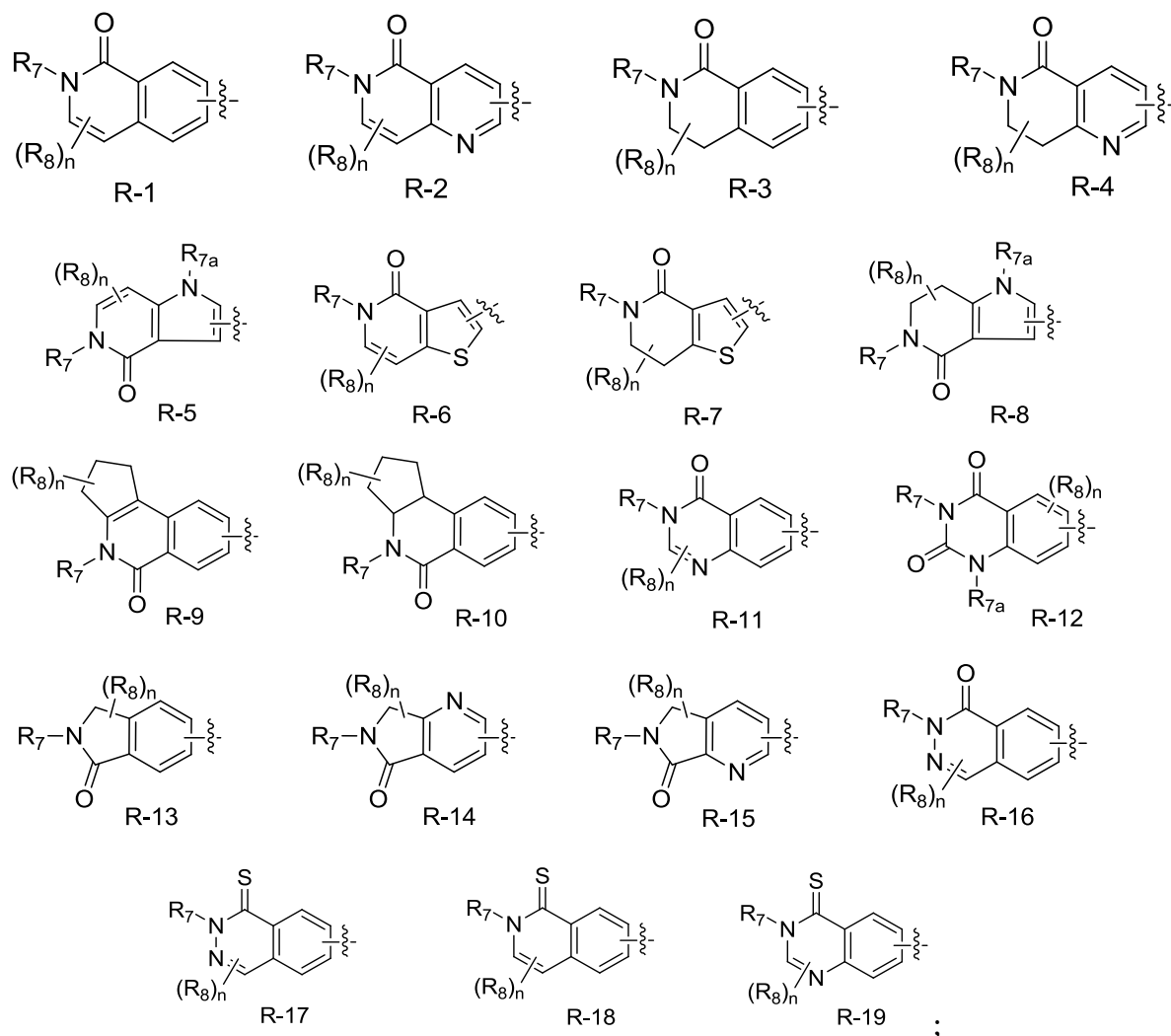
2. The compound of formula (I), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to claim 1, wherein each of R₁, R₂ and R₃ is H; each of R₄, R₅ and R₆ is independently selected from H, D, F, Cl, Br, -CN, -NH₂, -CH₃, -OCH₃, -OCF₃, -CH₂F, -CHF₂ or -CF₃.

3. The compound of formula (I), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to claim 1,

wherein each of R_{d1} and R_{e1} is independently selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₃₋₈ cycloalkyl or a 3 to 8 membered heterocycloalkyl; R_{d1} or R_{e1} is unsubstituted or substituted at any position by one hydroxyl;

or, R_{d1} and R_{e1} together with the N atom to which they are attached, form a C₃₋₈ heterocycloalkyl; the heterocycloalkyl may further contain 1-3 hetero atoms selected from N, O, and S; the heterocycloalkyl is unsubstituted or substituted at any position by one substituent selected from the group consisting of C₁₋₄ alkyl, C₁₋₃ haloalkyl, and C₁₋₃ aminoalkyl.

4. The compound of formula (I), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to claim 1, wherein R is selected from the group consisting of R-1 to R-19:



each of R_7 and R_{7a} is independently selected from hydrogen, halogen, alkyl, haloalkyl, alkenyl, alkynyl, Cy^1 , $-L_2-Cy^1$, $-SR_d$, $-OR_d$, $-C(O)OR_d$, $-C(O)R_d$, $-C(O)NR_dR_e$, $-C(O)NR_dS(O)_2R_e$, $-C(=NH)R_e$, $-C(=NH)NR_dR_e$, $-S(O)_2R_e$ and $-S(O)_2NR_dR_e$; wherein the alkyl, alkenyl or alkynyl is unsubstituted or substituted at any position by one or more than one substituent selected from the group consisting of $-CN$, $-NO_2$, $-SR_d$, $-OR_d$, $-OC(O)R_d$, $-OC(O)OR_d$, $-OC(O)NR_dR_e$, $-C(O)OR_d$, $-C(O)R_d$, $-C(O)NR_dR_e$, $-C(O)NR_dS(O)_2R_e$, $-NR_dR_e$, $-NR_dC(O)R_e$, $-N(R_d)C(O)OR_e$, $-N(R_d)C(O)NR_dR_e$, $-NR_dC(=NH)R_e$, $-NR_dC(=NH)NR_dR_e$, $-NR_dS(O)_2R_e$, $-NR_dS(O)_2NR_dR_e$, $-N(R_d)C(O)N(R_d)S(O)_2R_e$, $-S(O)_{1-2}R_e$, $-S(O)_2NR_dR_e$, $-S(O)(=NCN)R_e$, $-S(O)(=NR_d)R_e$, $-S(O)(=NSO_2R_d)R_e$, $-S(O)_2N(R_d)C(O)R_e$, $-S(O)_2N(R_d)C(O)NR_dR_e$, $-P(O)(OR_d)_2$, $-OP(O)(OR_d)_2$ or $-B(OR_d)_2$;

each of R_8 is independently hydrogen, halogen, alkyl, haloalkyl, haloalkoxy, alkenyl, alkynyl, Cy^1 , $-L_2-Cy^1$, $-CN$, $-NO_2$, $-SR_d$, $-OR_d$, $-OC(O)R_d$, $-OC(O)OR_d$, $-OC(O)NR_dR_e$, $-C(O)OR_d$, $-C(O)R_d$, $-C(O)NR_dR_e$, $-C(O)NR_dS(O)_2R_e$, $-C(=NH)R_e$, $-C(=NH)NR_dR_e$, $-NR_dR_e$, $-NR_dC(O)R_e$, $-N(R_d)C(O)OR_e$, $-N(R_d)C(O)NR_dR_e$, $-NR_dS(O)_2R_e$, $-NR_dC(=NH)R_e$, $-NR_dC(=NH)NR_dR_e$, $-S(O)_{1-2}R_e$, $-S(O)_2NR_dR_e$ and $-NR_dS(O)_2NR_dR_e$; wherein the alkyl, alkenyl or alkynyl is unsubstituted or substituted

at any position by one or more than one substituent selected from the group consisting of -CN, -NO₂, -SR_d, -OR_d, -OC(O)R_d, -OC(O)OR_d, -OC(O)NR_dR_e, -C(O)OR_d, -C(O)R_d, -C(O)NR_dR_e, -C(O)NR_dS(O)₂R_e, -NR_dR_e, -NR_dC(O)R_e, -N(R_d)C(O)OR_e, -N(R_d)C(O)NR_dR_e, -NR_dC(=NH)R_e, -NR_dC(=NH)NR_dR_e, -NR_dS(O)₂R_e, -NR_dS(O)₂NR_dR_e, -N(R_d)C(O)N(R_d)S(O)₂R_e, -S(O)₁₋₂R_e, -S(O)₂NR_dR_e, -S(O)₂N(R_d)C(O)R_e or -S(O)₂N(R_d)C(O)NR_dR_e;

each of n is independently 1, 2 or 3;

wherein, L₂, Cy¹, R_d and R_e are defined as in claim 1.

5. The compound of formula (I), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to claim 4, wherein,

each of R₇ is independently hydrogen, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, Cy¹, -L₂-Cy¹, -SR_d, -OR_d, -C(O)OR_d, -C(O)R_d, -C(O)NR_dR_e, -C(=NH)R_e, -C(=NH)NR_dR_e, -S(O)₂R_e or -S(O)₂NR_dR_e; wherein the C₁₋₆ alkyl, C₂₋₆ alkenyl or C₂₋₆ alkynyl is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of -CN, -NO₂, -CN, -SR_d, -OR_d, -OC(O)R_d, -OC(O)OR_d, -OC(O)NR_dR_e, -C(O)OR_d, -C(O)R_d, -C(O)NR_dR_e, -NR_dR_e, -NR_dC(O)R_e, -N(R_d)C(O)OR_e, -N(R_d)C(O)NR_dR_e, -NR_dS(O)₂R_e, -NR_dC(=NH)R_e, -NR_dC(=NH)NR_dR_e, -S(O)₁₋₂R_e, -S(O)₂NR_dR_e, -S(O)(=NCN)R_e, -S(O)(=NR_d)R_e, -S(O)(=NSO₂R_d)R_e, -NR_dS(O)₂NR_dR_e or -P(O)(OR_d)₂, -OP(O)(OR_d)₂ or -B(OR_d)₂;

and/or, each of R_{7a} is independently hydrogen or C₁₋₆ alkyl;

and/or, each of R₈ is independently hydrogen, methyl, ethyl, n-propyl, tert-butyl, isopropyl, isobutyl, n-butyl, -CN, -NO₂, -NH₂, -CF₃, -OCF₃, -CH₃, -OCH₃, F, Cl or Br;

and/or, L₂ is a bond, -CH₂-, -CH₂CH₂-, -CH₂CH₂CH₂-, -CH₂CH₂C(CH₃)₂-, -CH₂CH₂CH₂CH₂- or -CH₂CH(CH₃)CH₂-;

and/or, each of Cy¹ is independently C₃₋₁₀ cycloalkyl, 3 to 10 membered heterocycloalkyl, C₆₋₁₀ aryl or 5 to 10 membered heteroaryl; the Cy¹ is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of F, Cl, Br, C₁₋₄ alkyl, C₁₋₃ haloalkyl, C₁₋₃ haloalkoxy, C₁₋₃ hydroxy alkyl, C₁₋₃ amino alkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, -CN, -NO₂, -SR_{d2}, -OR_{d2}, -OC(O)R_{d2}, -OC(O)OR_{d2}, -OC(O)NR_{d2}R_{e2}, -C(O)OR_{d2}, -C(O)R_{d2}, -C(O)NR_{d2}R_{e2}, -NR_{d2}R_{e2}, -NR_{d2}C(O)R_{e2}, -N(R_{d2})C(O)OR_{e2}, -N(R_{d2})C(O)NR_{d2}R_{e2}, -NR_{d2}S(O)₂R_{e2}, -NR_{d2}C(=NH)R_{e2}, -NR_{d2}C(=NH)NR_{d2}R_{e2}, -S(O)₁₋₂R_{e2}, -S(O)₂NR_{d2}R_{e2} and -NR_{d2}S(O)₂NR_{d2}R_{e2};

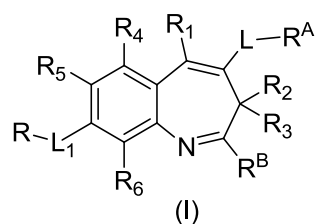
and/or, each of R_d, R_e, R_{d2} and R_{e2} is independently selected from hydrogen, C₁₋₆ alkyl, C₁₋₆ haloalkyl, C₂₋₆ alkenyl, C₂₋₆ alkynyl, C₃₋₈ cycloalkyl, 3 to 8 membered heterocycloalkyl, C₆₋₁₀ aryl, 5 to 6 membered heteroaryl, C₃₋₈ cycloalkyl C₁₋₆ alkyl, 3 to 8 membered heterocycloalkyl C₁₋₆ alkyl, phenyl C₁₋₆ alkyl or 5 to 6 membered heteroaryl C₁₋₆ alkyl; R_d, R_e, R_{d2} or R_{e2} is unsubstituted or substituted at any position by 1 to 3 substituent selected from the group consisting of halogen, hydroxyl, amino,

carboxyl, C₁₋₄ alkyl, C₁₋₃ haloalkyl, C₁₋₃ haloalkoxy, C₁₋₃ alkoxy, C₁₋₃ alkylamino, C₂₋₆ alkenyl and C₂₋₆ alkynyl;

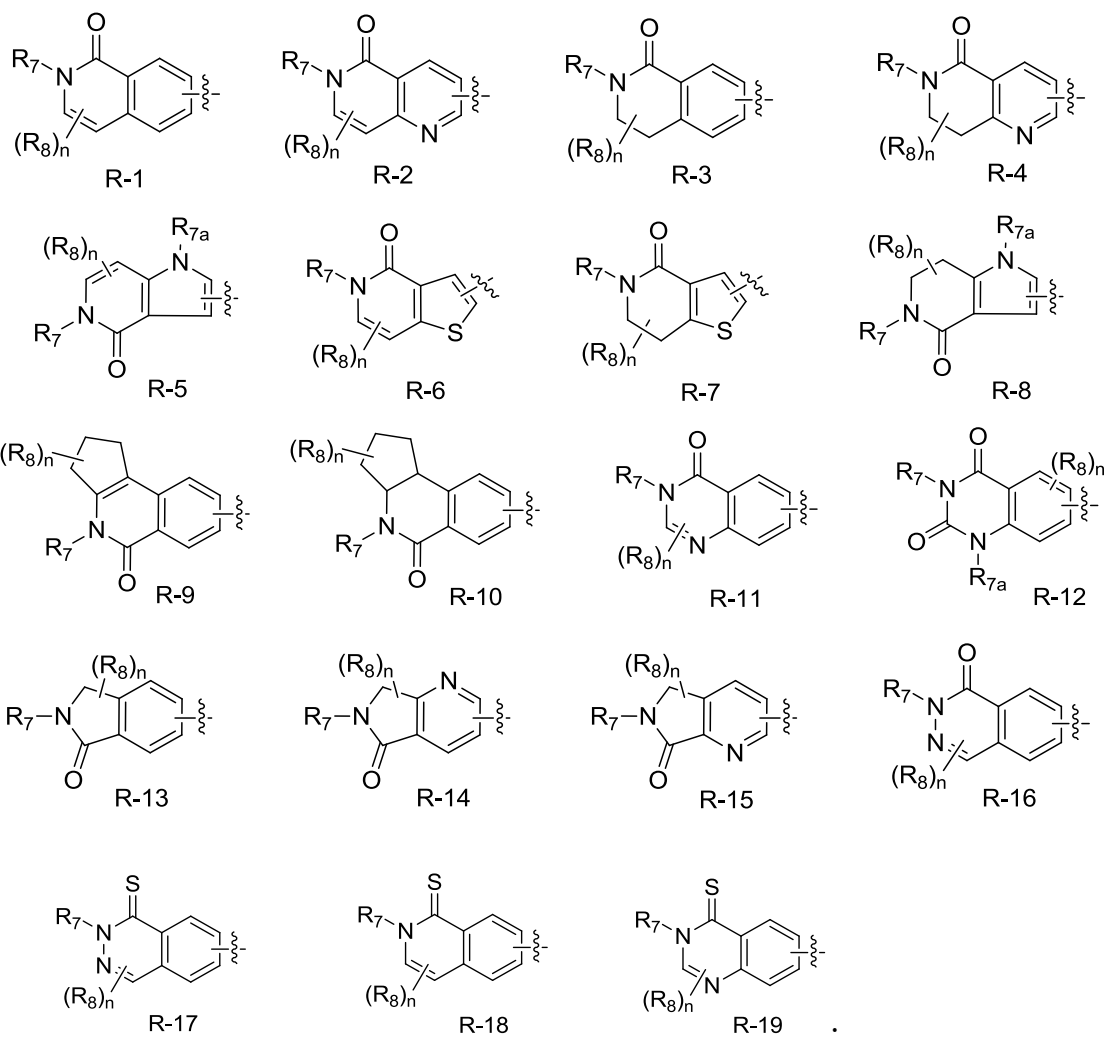
or, R_d and R_e together with the N atom to which they are attached, form a 3 to 8 membered heterocycloalkyl; the heterocycloalkyl may further contain 1 to 3 hetero atom selected from N, O, and S;

or, R_{d2} and R_{e2} together with the N atom to which they are attached, form a 3 to 8 membered heterocycloalkyl.

6. A compound of formula (I), a stereoisomer, a stable isotopic derivative or a pharmaceutically acceptable salt thereof,

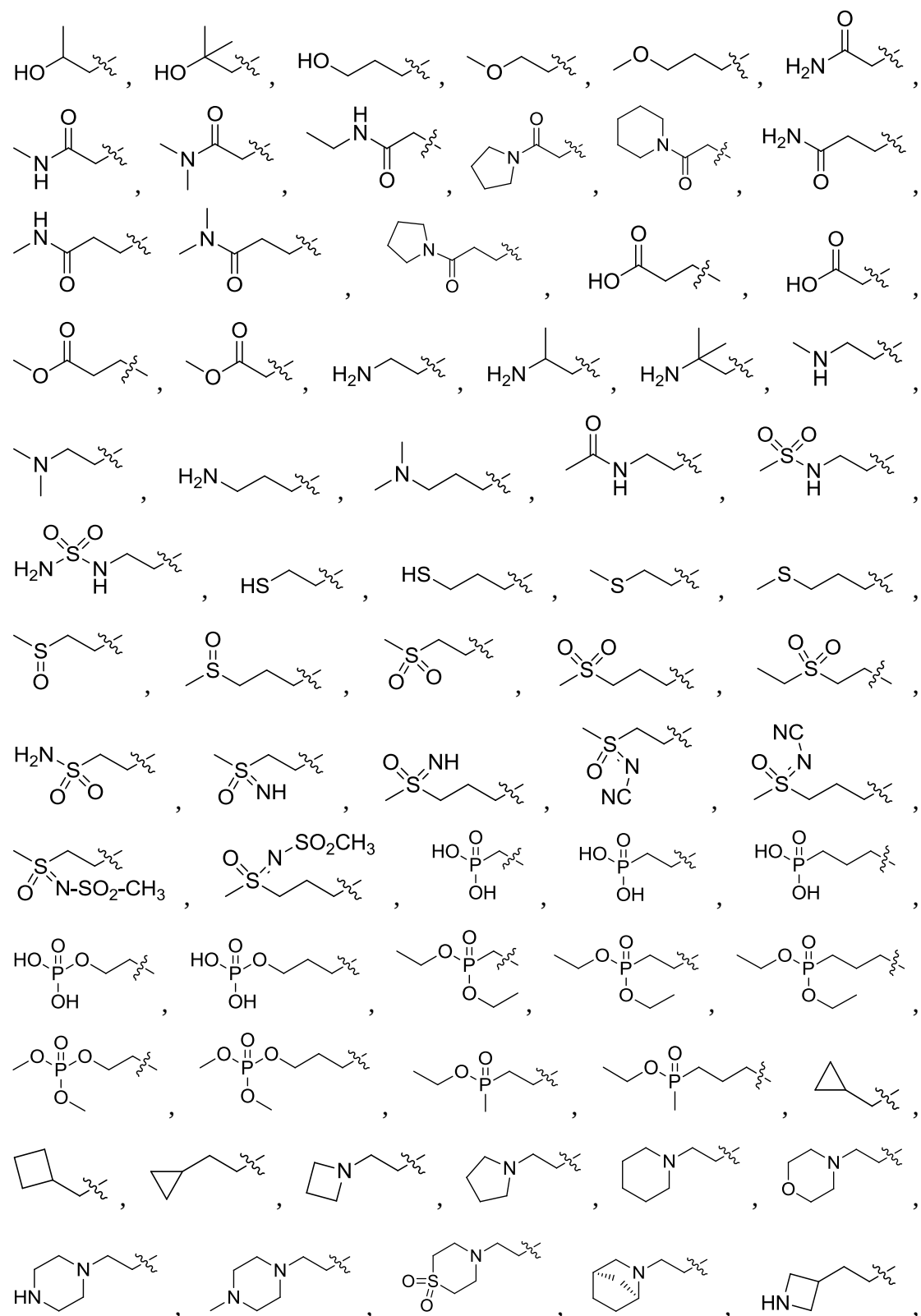


wherein R is selected from the group consisting of R-1 to R-19:

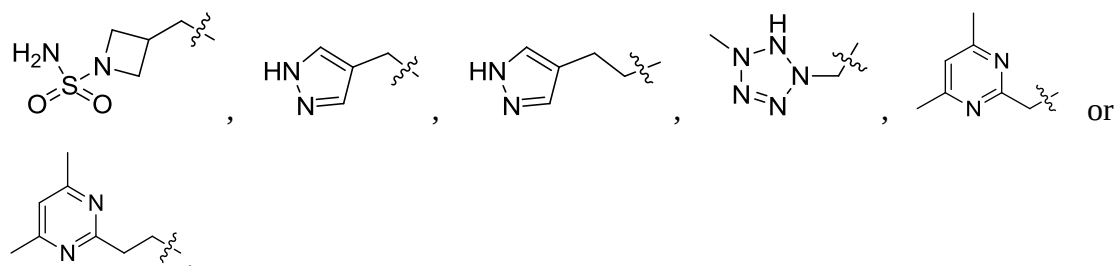


R₁, R₂, R₃, R₄, R₅, R₆, L, L₁, R^A, R^B, R_{7a}, R₈ and n are defined as in claim 4 or 5;

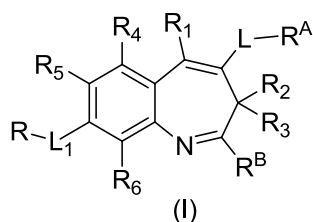
wherein each of R₇ is independently hydrogen, methyl, ethyl, n-propyl, tert-butyl, isopropyl, isobutyl, n-butyl, neopentyl, tert-amyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, phenyl, pyridyl, pyrimidinyl, benzyl, HO-,





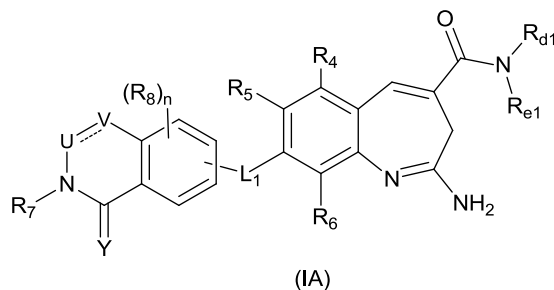


7. A compound of formula (I), a stereoisomer, a stable isotopic derivative or a pharmaceutically acceptable salt thereof,



which is shown as the compound of formula (IA), (IB), (IC), (ID), (IE), (IF), (IG), (IH), (II), (IJ), (IK) or (IL), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof;

the compound of formula (IA), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof:



wherein, --- is a single bond or a double bond;

Y is O or S;

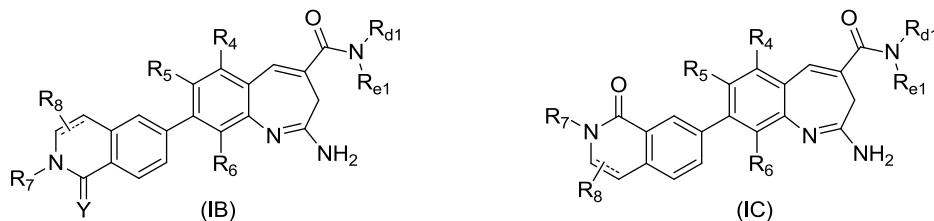
U is N, C(R₈) or C(O), V is N, C(R₈) or N(R_{7a}); and, --- , U and V are any combination of the followings:

- 1) --- is a double bond, U is N, V is C(R₈);
- 2) --- is a double bond, U is C(R₈), V is N;
- 3) --- is a double bond, U is C(R₈), V is C(R₈);
- 4) --- is a single bond, U is C(R₈), V is C(R₈);
- 5) --- is a single bond, U is C(O), V is N(R_{7a});

n is 1;

L₁, R_{d1}, R_{e1}, R₄, R₅ and R₆ are defined as in any one of claims 1-6; R₇, R₈ and R_{7a} are defined as in any one of claims 4-6;

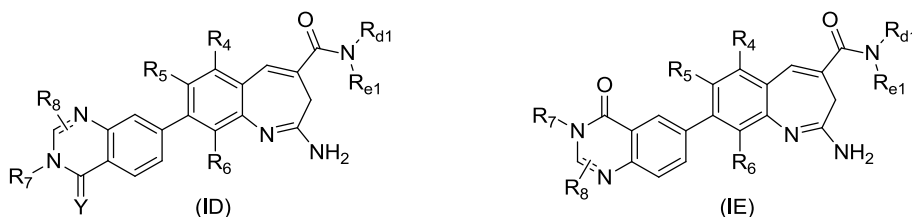
the compound of formula (IB) or (IC), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof:



wherein, --- is a single bond or a double bond; Y is O or S;

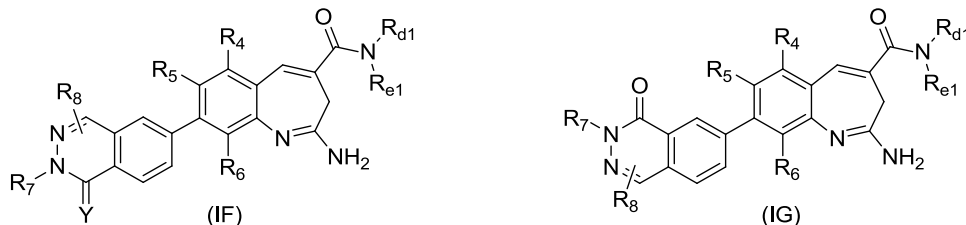
R_{d1}, R_{e1}, R₄, R₅ and R₆ are defined as in any one of claims 1-6; R₇ and R₈ are defined as in any one of claims 4-6;

the compound of formula (ID) or (IE), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof:



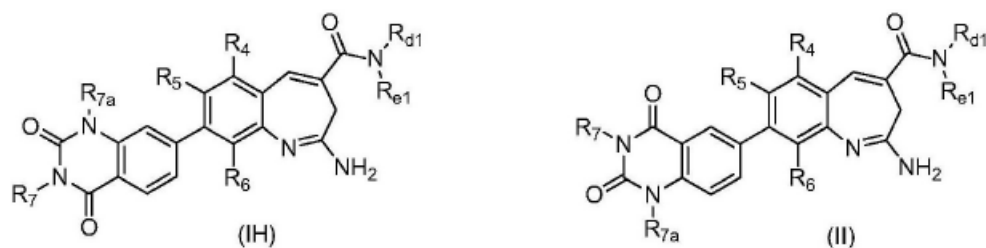
wherein, Y is O or S; R_{d1}, R_{e1}, R₄, R₅ and R₆ are defined as in any one of claims 1-6; R₇ and R₈ are defined as in any one of claims 4-6;

the compound of formula (IF) or (IG), the stereoisomer, the stable isotopic derivative, or the pharmaceutically acceptable salt thereof:



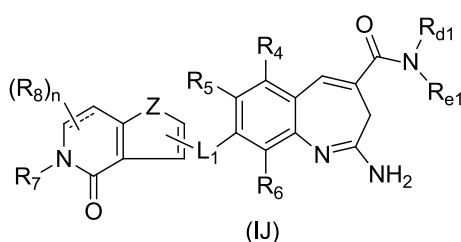
wherein, Y is O or S; R_{d1}, R_{e1}, R₄, R₅ and R₆ are defined as in any one of claims 1-6; R₇ and R₈ are defined as in any one of claims 4-6;

the compound of formula (IH) or (II), the stereoisomer, the stable isotopic derivative, or the pharmaceutically acceptable salt thereof:



wherein, R_{d1} , R_{e1} , R_4 , R_5 and R_6 are defined as in any one of claims 1-6; R_7 and R_{7a} are defined as in any one of claims 4-6;

the compound of formula (IJ), the stereoisomer, the stable isotopic derivative, the pharmaceutically acceptable salt thereof:

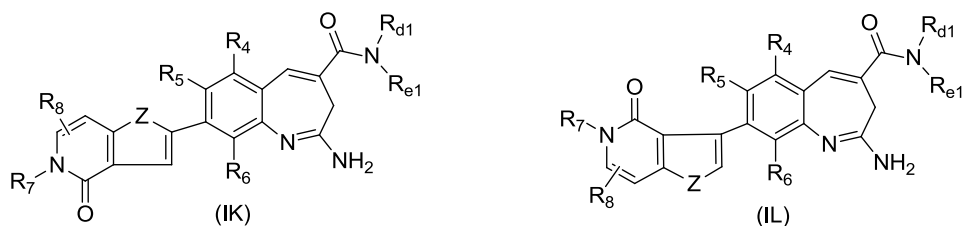


wherein, --- is a single bond or a double bond; Z is $N(R_{7a})$ or S;

n is 1 or 2;

L_1 , R_{d1} , R_{e1} , R_4 , R_5 and R_6 are defined as in any one of claims 1-6; R_7 , R_{7a} and R_8 are defined as in any one of claims 4-6;

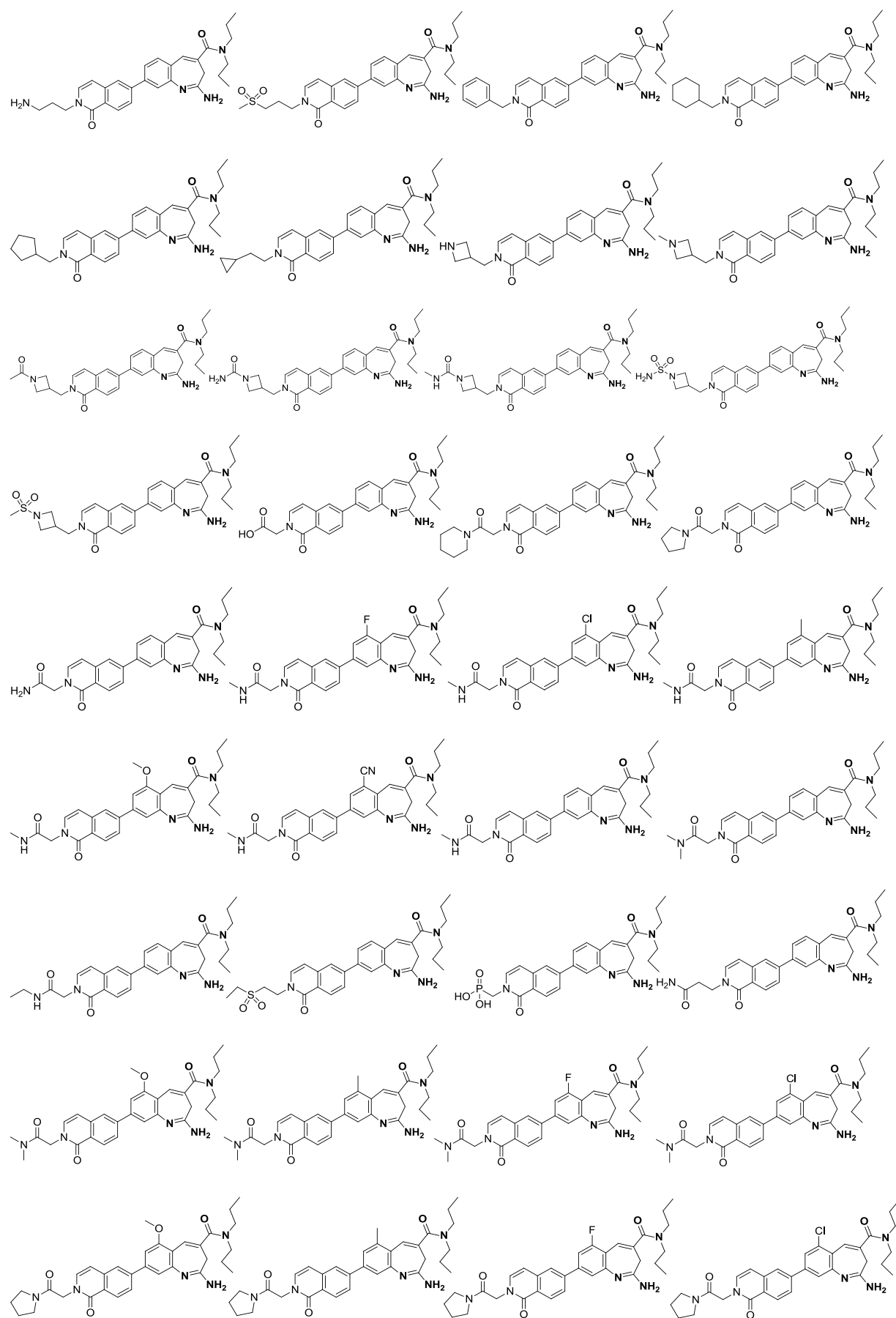
the compound of formula (IK) or (IL), the stereoisomer, the stable isotopic derivative, the pharmaceutically acceptable salt thereof:

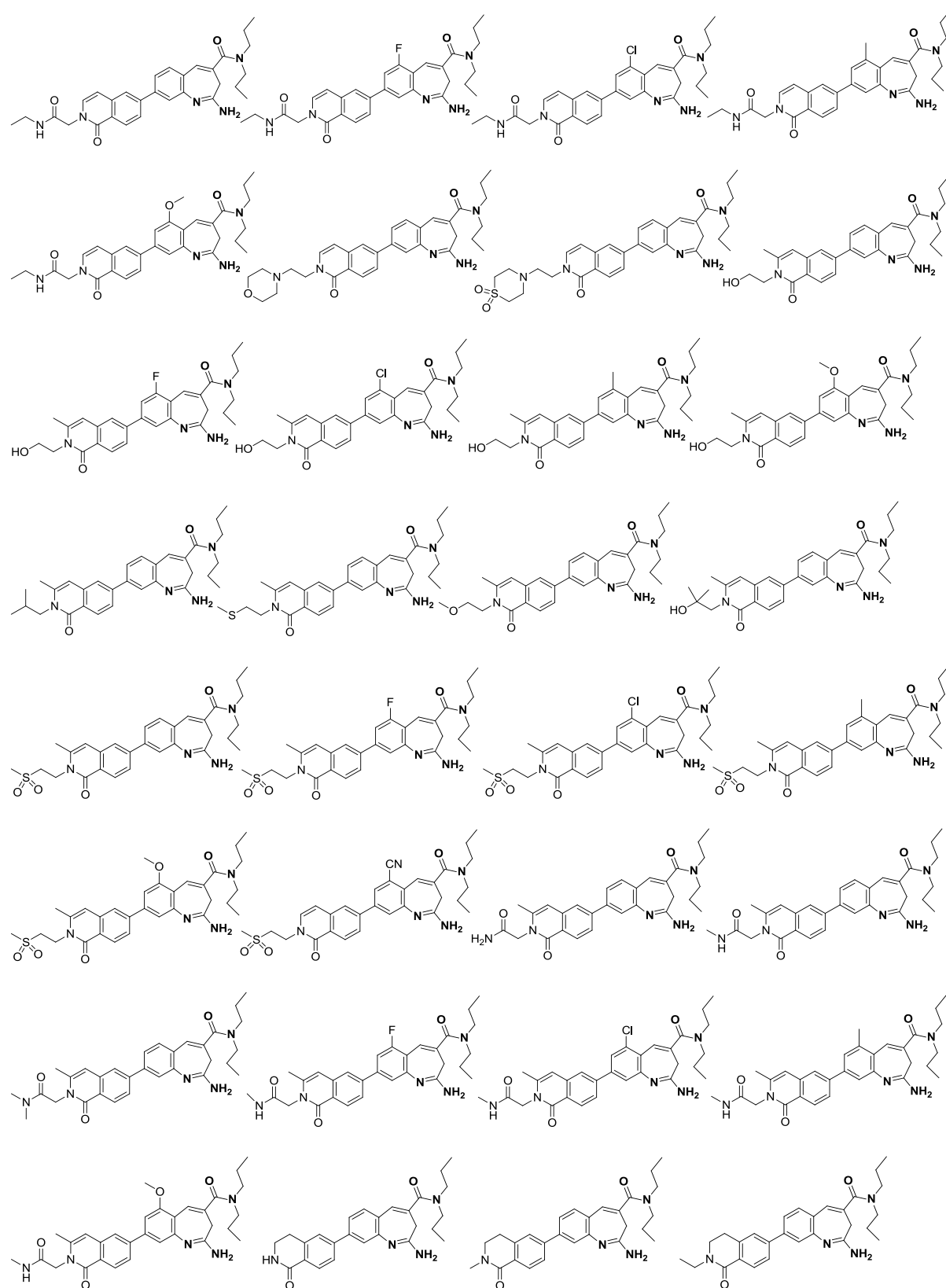


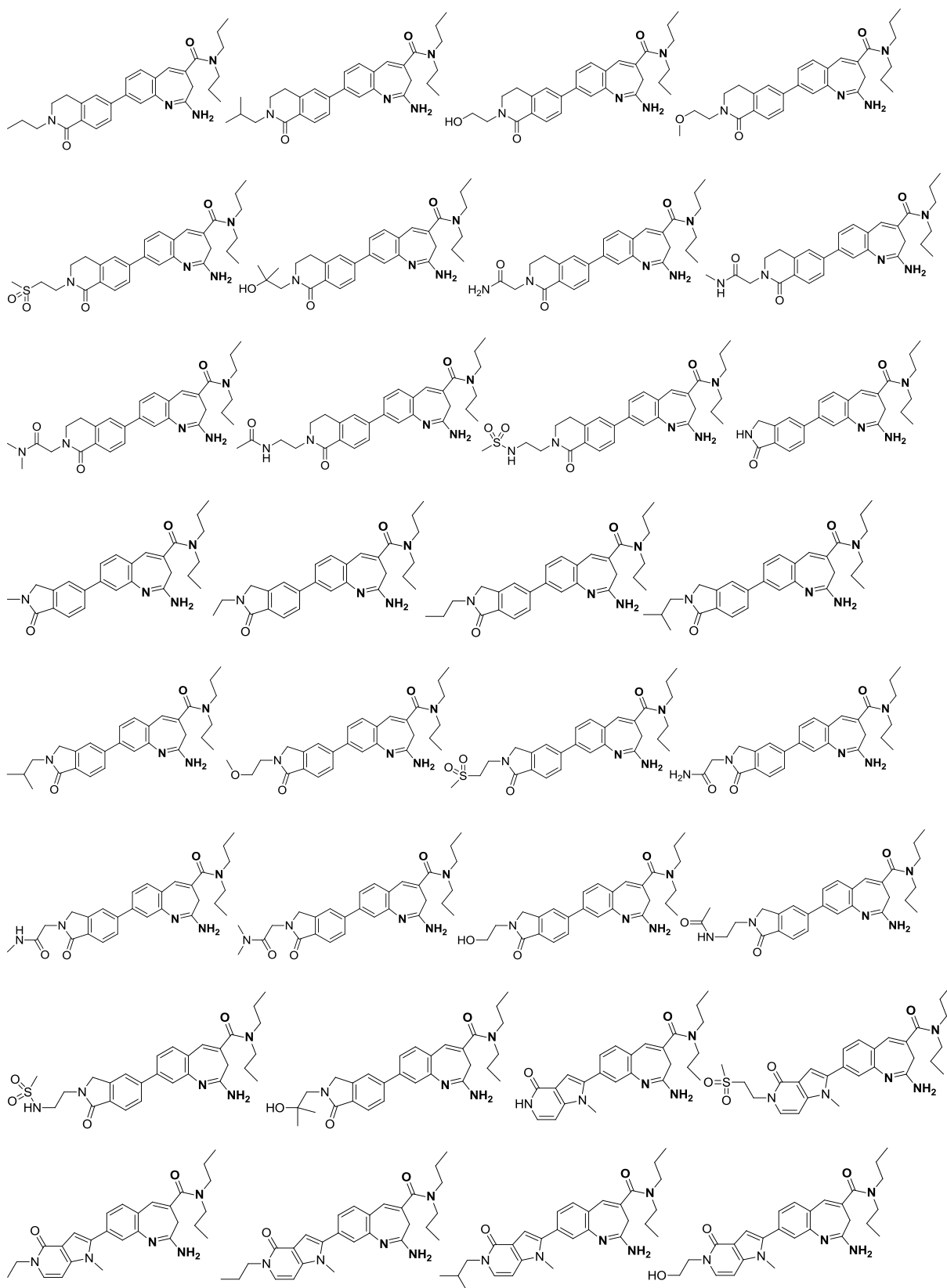
wherein, Z is NH, $N(CH_3)$ or S;

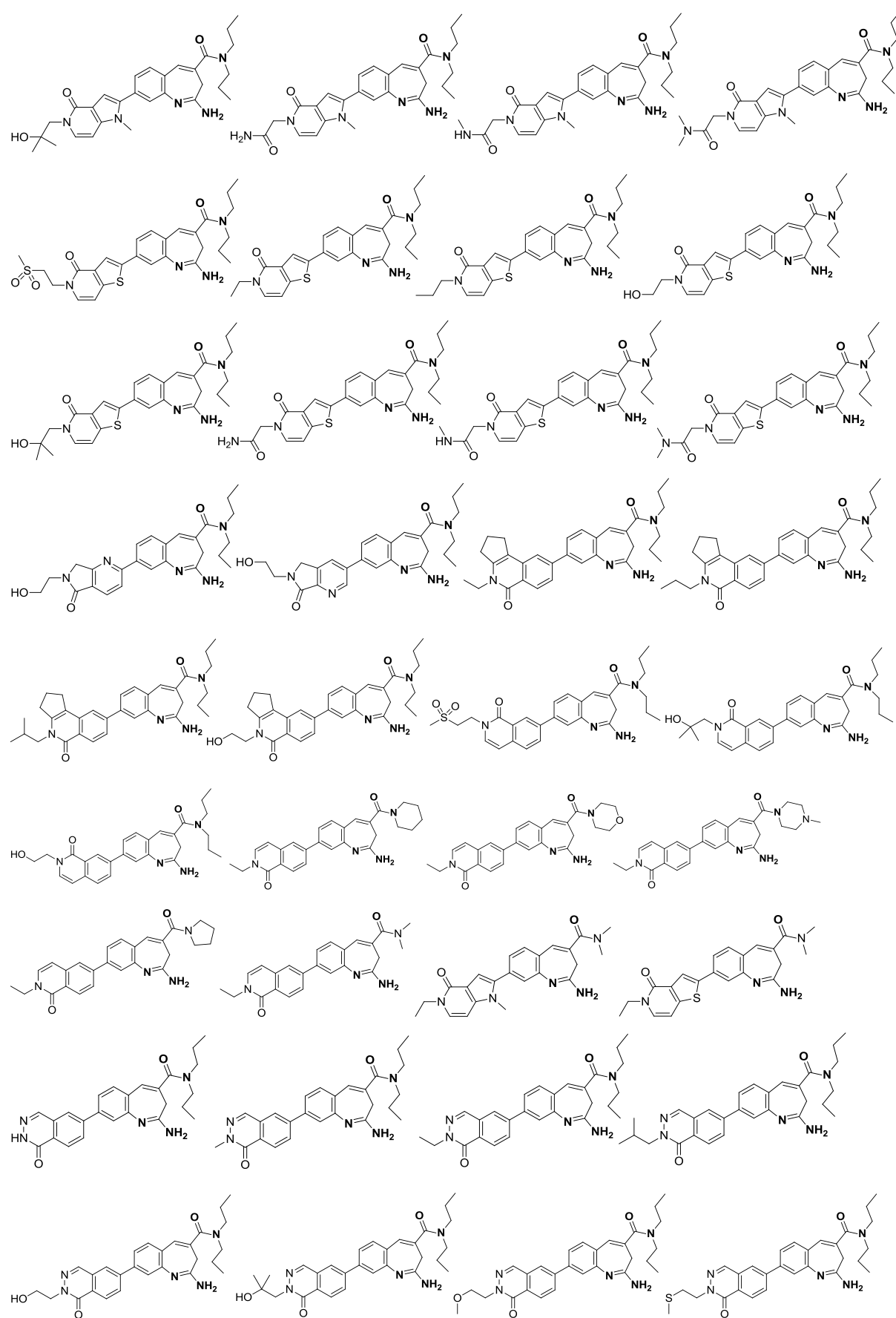
R_{d1} , R_{e1} , R_4 , R_5 and R_6 are defined as in any one of claims 1-6; R_7 and R_8 are defined as in any one of claims 4-6.

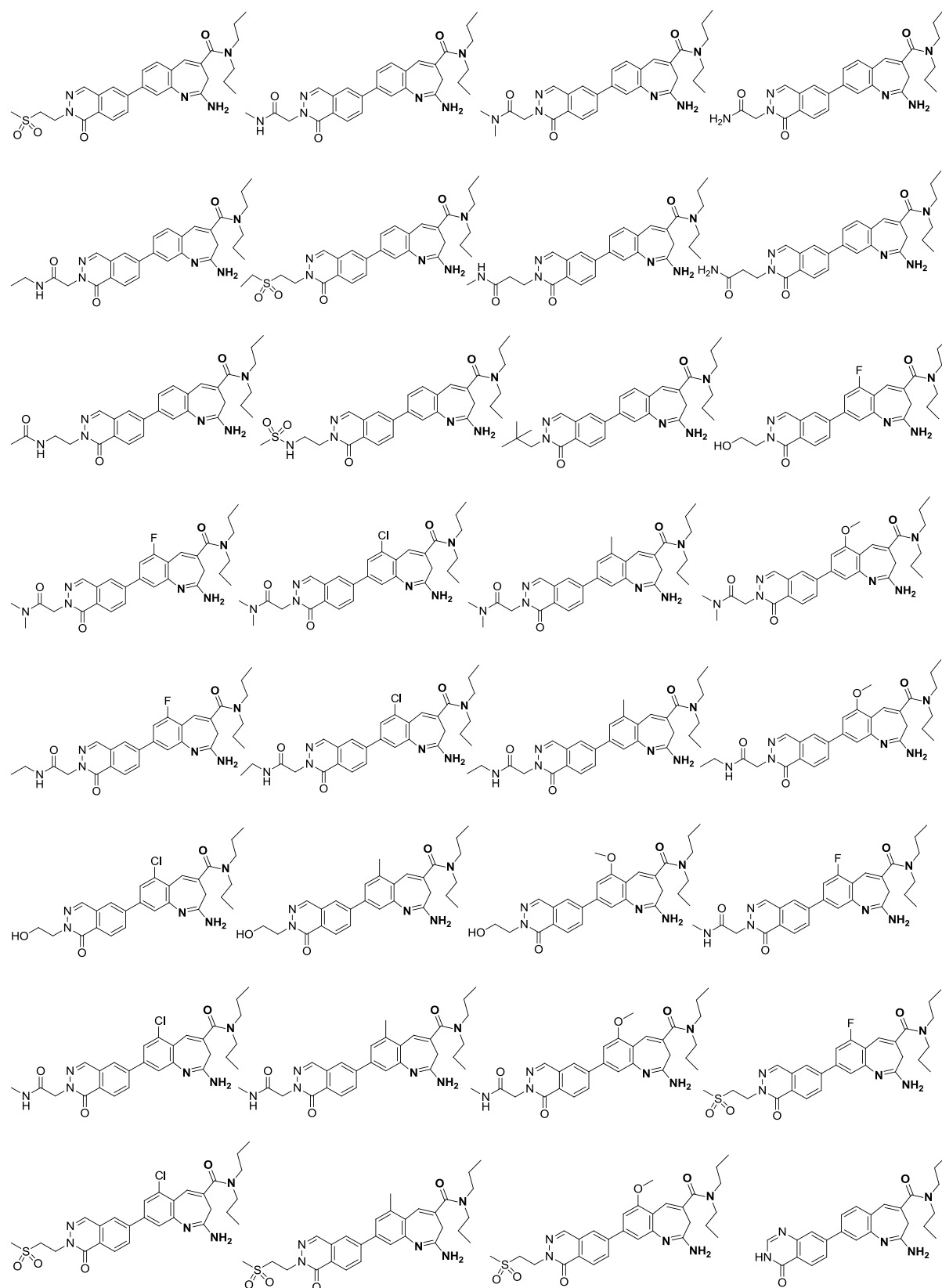
8. A compound, a stereoisomer, a stable isotopic derivative or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of

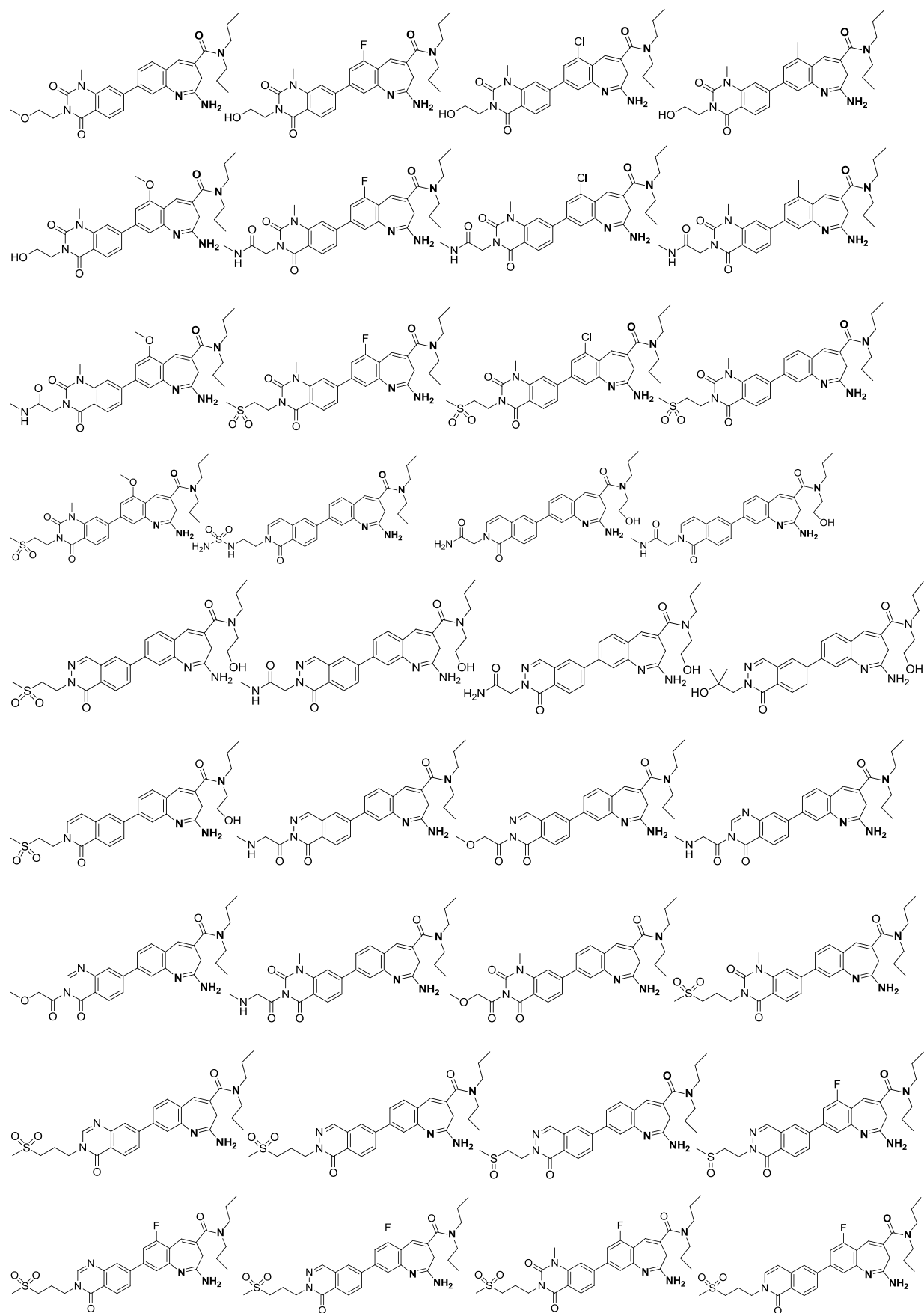


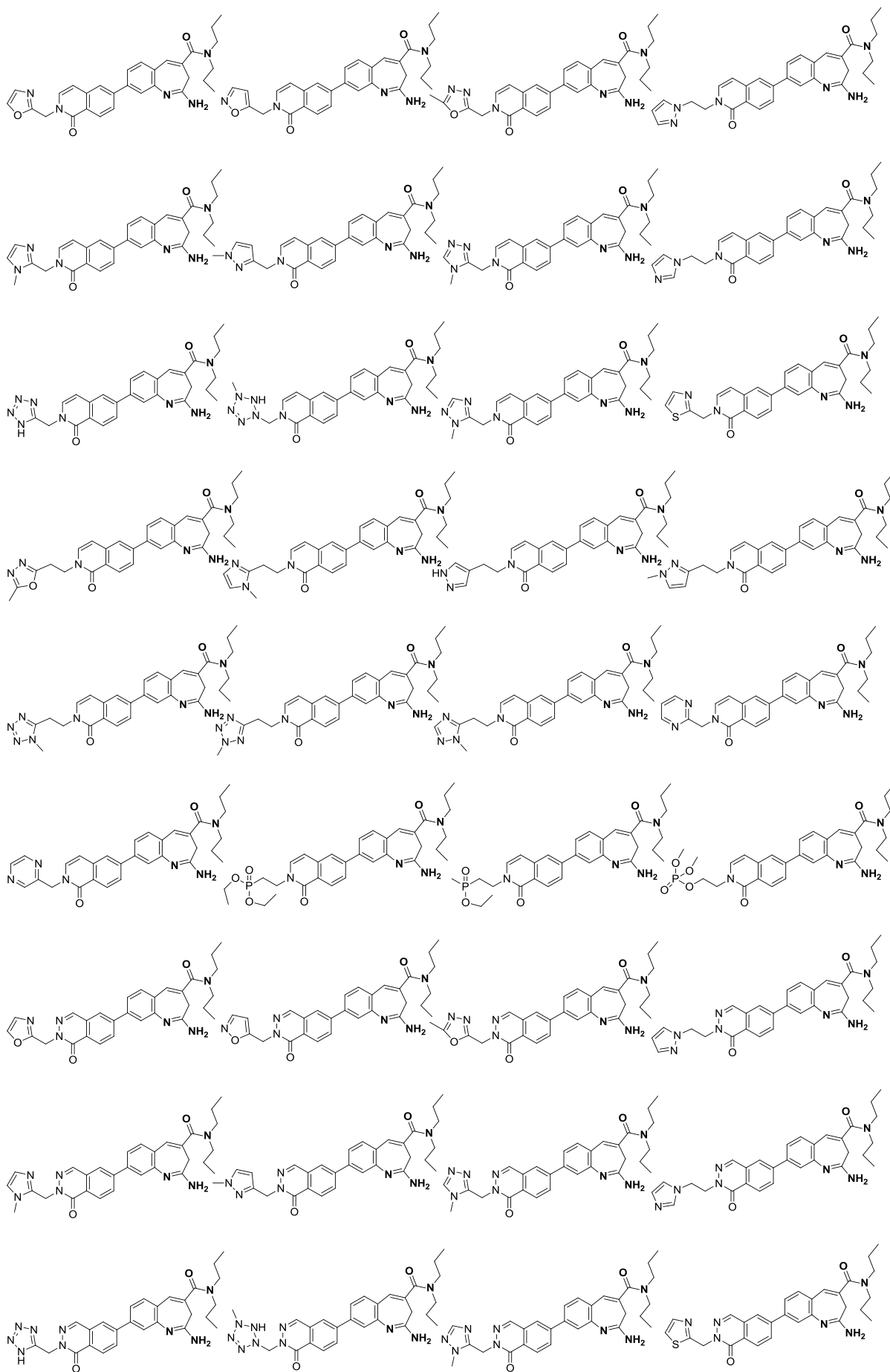


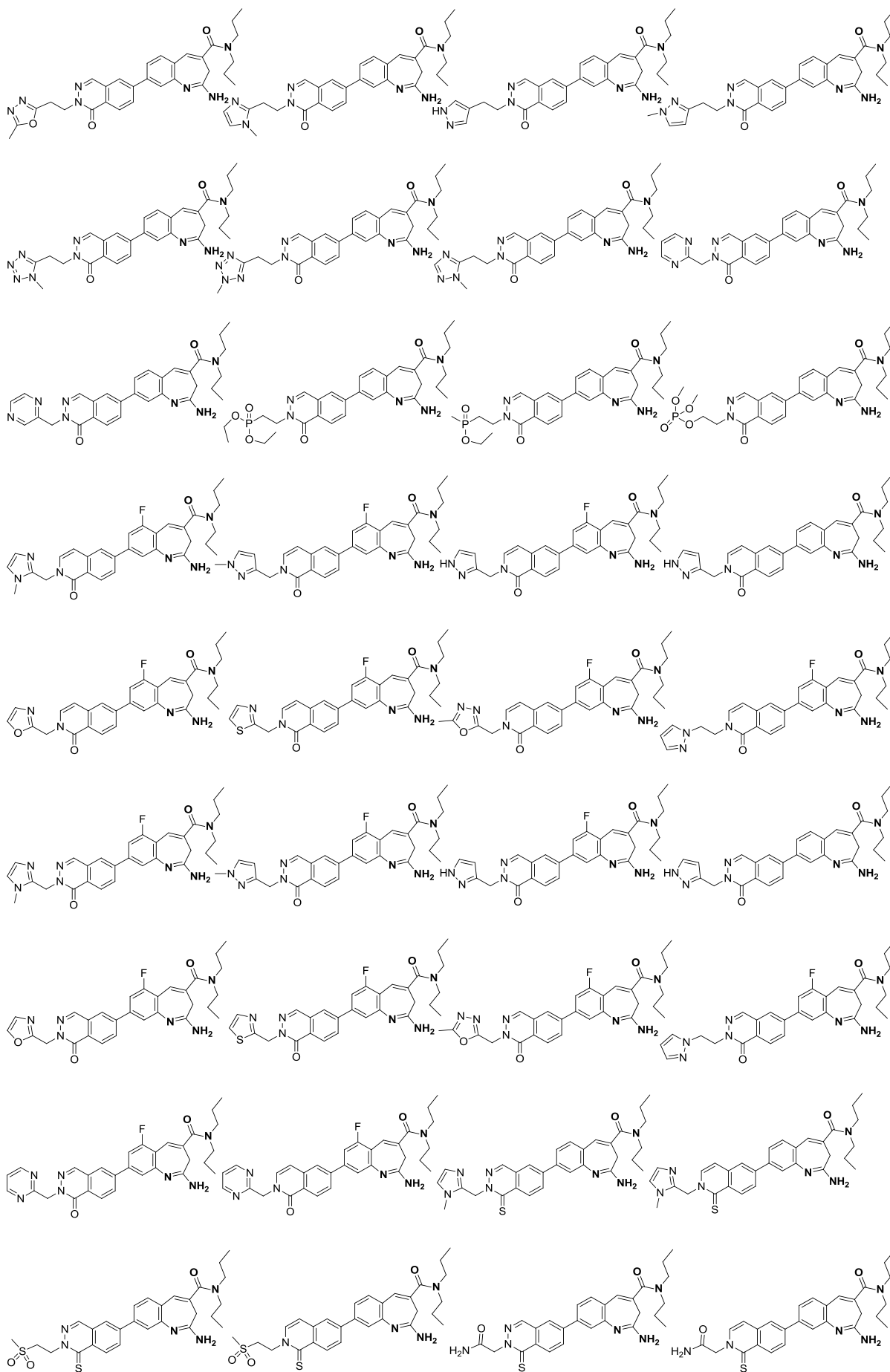


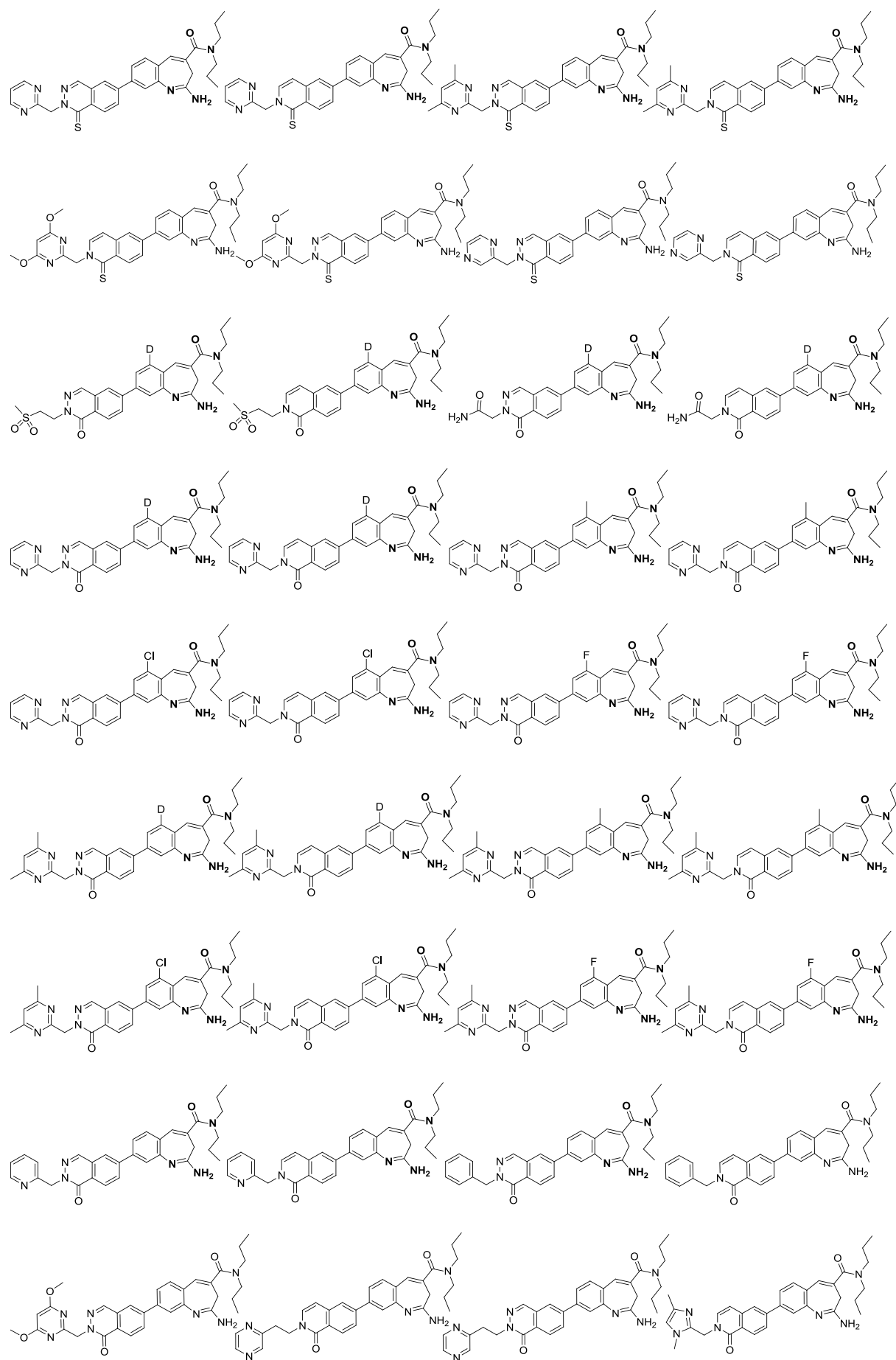


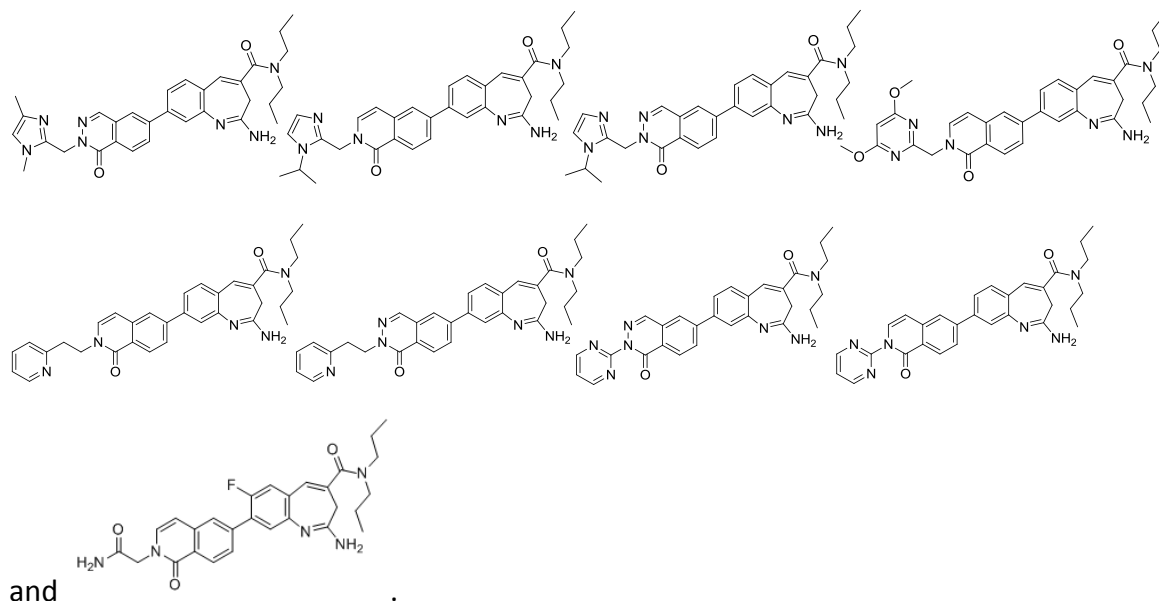






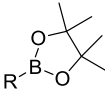


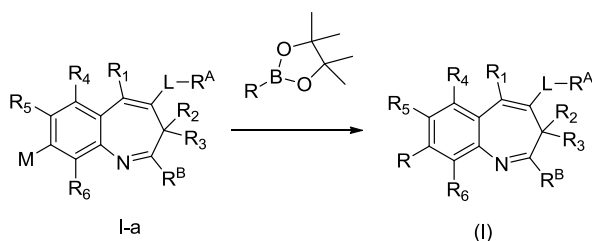




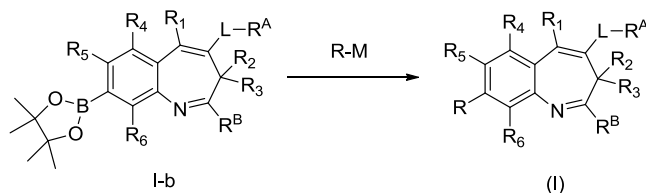
9. A preparation method of the compound of formula (I), the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-7, which is any one of the following methods:

method 1 comprising conducting a suzuki coupling reaction with the compound

of formula I-a and  to obtain the compound of formula (I);



method 2 comprising conducting a suzuki coupling reaction with the compound I-b and R-M to obtain the compound of formula (I);



wherein, M is bromine, chlorine, iodine or $-\text{OS}(\text{O})_2\text{CF}_3$; R_1 , R_2 , R_3 , R_4 , R_5 , R_6 , R^A , R^B , R and L are defined as in any one of claims 1-7.

10. A pharmaceutical composition, comprising a therapeutically effective amount of the compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8, and

pharmaceutically acceptable excipient(s).

11. A use of the compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8 in the preparation of TLR7 and/or TLR8 regulator.

12. A use of the compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8 in the preparation of a medicament for the treatment, alleviation and/or prevention of related diseases mediated by TLR7 and/or TLR8, wherein the diseases are selected from the group consisting of cancers, viral infections, inflammations and autoimmune diseases.

13. The use according to claim 12, wherein the medicament is further used in combination with one or more than one other kinds of therapeutic agents and/or therapeutic methods for the treatment, amelioration and/or prevention of related diseases mediated by TLR7 and/or TLR8, wherein the diseases are selected from the group consisting of cancers, viral infections, inflammations and autoimmune diseases.

14. The compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8 for use as TLR7 and/or TLR8 regulator.

15. The compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8 for use in the treatment, alleviation and/or prevention of related diseases mediated by TLR7 and/or TLR8, wherein the diseases are selected from the group consisting of cancers, viral infections, inflammations and autoimmune diseases.

16. The compound, the stereoisomer, the stable isotopic derivative or the pharmaceutically acceptable salt thereof according to at least one of claims 1-8 for use as a medicament.