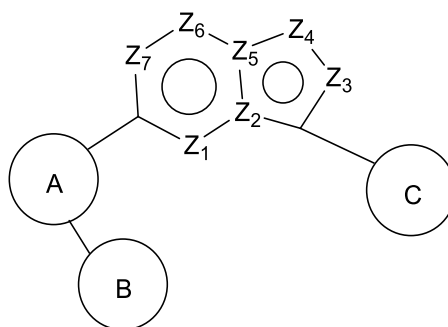


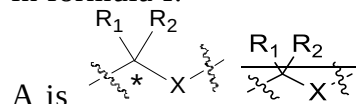
CLAIMS

1. A compound represented by formula I, or atautomer thereof, or a mesomere thereof, a racemate thereof and a mixture of the mesomer and the racemate thereof, or an enantiomer thereof, a diastereomer thereof and a mixture of the enantiomer and the diastereomer thereof, or a pharmaceutically acceptable salt thereof, or a deuterated compound thereof:



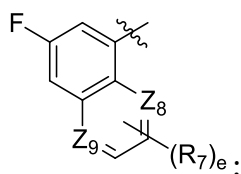
I ;

in formula I:



A is $\frac{R_1 R_2}{\text{wavy line}} \text{C}^* \text{X}$, wherein * denotes R configuration, and X is independently selected from the group consisting of NR_6 , O, CR_1R_2 , S, $\text{S}(\text{O})$ and $\text{S}(\text{O})_2$;

B is selected from the group consisting of phenyl, and 6 membered heteroaryl containing 1 or 2 nitrogen; ~~monocyclic aromatic hydrocarbon, bicyclic aromatic hydrocarbon, monocyclic heteroaromatic hydrocarbon and bicyclic heteroaromatic hydrocarbon~~, wherein, H on any carbon atom of the phenyl and 6 membered heteroaryl containing 1 or 2 nitrogen B is optionally substituted by the following substituents: halogen, hydroxy, amino, cyano, ~~acyl, ester,~~ $\text{C}_1\text{-C}_6$ alkyl, cycloalkyl, $\text{C}_1\text{-C}_6$ alkylamino, $\text{C}_1\text{-C}_6$ alkoxy, cycloalkoxy, aryl, heteroaryl, monosubstituted or polysubstituted $\text{C}_1\text{-C}_6$ alkyl, and monosubstituted or polysubstituted $\text{C}_1\text{-C}_6$ alkoxy, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted cycloalkoxy, monosubstituted or polysubstituted aryl, monosubstituted or polysubstituted heteroaryl; the substituents of the monosubstituted or polysubstituted $\text{C}_1\text{-C}_6$ alkyl, and the monosubstituted or polysubstituted $\text{C}_1\text{-C}_6$ alkoxy, the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted cycloalkoxy, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl are independently selected from the the group consisting of deuterium, halogen, amino, cyano, hydroxyl, ~~acyl, ester,~~ $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_1\text{-C}_6$ haloalkyl, cycloalkyl, halocycloalkyl, $\text{C}_1\text{-C}_6$ alkoxy, and $\text{C}_1\text{-C}_6$ haloalkoxy, aryl and heteroaryl;



or B is $\frac{Z_8 Z_9}{\text{wavy line}} \text{C} \text{ (R}_7\text{)}_e$;

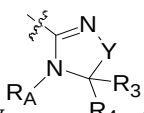
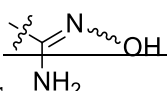
Z_8 and Z_9 are each independently selected from CR_{11} or N;

R_7 is each independently selected from the group consisting of hydrogen, halogen,

amino, cyano, hydroxy, C₁-C₆alkyl, C₁-C₆alkoxy, C₁-C₆alkylamino, monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy; the substituents of the monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy are independently selected from the group consisting of deuterium, halogen, amino, cyano, hydroxy, C₁-C₆alkyl, C₁-C₆ haloalkyl, C₁-C₆alkoxy and C₁-C₆haloalkoxy;

R₁₁ are each independently selected from the group consisting of H, hydroxy, halogen, amino, cyano, C₁-C₆alkyl, C₁-C₆ haloalkyl, C₁-C₆alkoxy and C₁-C₆haloalkoxy;

e is 0, 1, 2, 3 or 4;

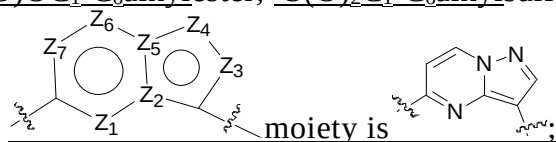
C is independently  or , where Y is independently selected from the group consisting of O, NR_A and CR₁R₂; ~~wavy~~ represents Z shape or E shape;

wherein R₁ and R₂ are each independently selected from the group consisting of hydrogen, ~~halogen, amino, cyano, hydroxy, acyl, ester, C₁-C₆alkyl, C₁-C₆alkoxy, cycloalkyl, aryl, heteroaryl, monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, monosubstituted and polysubstituted heteroaryl;~~ the substituents of the monosubstituted or polysubstituted C₁-C₆alkyl, and the monosubstituted or polysubstituted C₁-C₆alkoxy, ~~the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl~~ are independently selected from the group consisting of deuterium, halogen, amino, cyano, hydroxyl, acyl, ~~ester, C₁-C₆alkyl, C₁-C₆haloalkyl, cycloalkyl, halocycloalkyl, C₁-C₆alkoxy, and C₁-C₆haloalkoxy, aryl and heteroaryl;~~ or R₁ and R₂ together with the C atom attached to them form substituted or unsubstituted 3-7 membered cycloalkane, aza-cycloalkane, oxa-cycloalkane or thio-cycloalkane; wherein the substituted means being substituted by one or more groups selected from the group consisting of alkyl, acyl, ester, sulfonyl, and sulfinyl;

R₃ and R₄ are each independently selected from the group consisting of hydrogen, amino, hydroxy, ~~acyl, ester, C₁-C₆alkyl, cycloalkyl, aryl, phenyl, 5-6 membered heteroaryl containing 1 or 2 nitrogen,~~ monosubstituted or polysubstituted C₁-C₆alkyl, monosubstituted or polysubstituted C₁-C₆alkoxy, ~~monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, and monosubstituted or polysubstituted 5-6 membered heteroaryl containing 1 or 2 nitrogen;~~ the substituents of the monosubstituted or polysubstituted C₁-C₆alkyl, the monosubstituted or polysubstituted C₁-C₆alkoxy, ~~the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted phenyl, aryl, and the monosubstituted or polysubstituted 5-6 membered heteroaryl containing 1 or 2 nitrogen~~ are independently selected from the group consisting of halogen, amino, cyano, hydroxy, ~~acyl, ester, C₁-C₆alkyl, C₁-C₆haloalkyl, cycloalkyl, halocycloalkyl, C₁-C₆alkoxy, and C₁-C₆haloalkoxy, aryl and heteroaryl;~~

or R₃ and R₄ together with the C atom attached to them form substituted or unsubstituted 3-7 membered cycloalkane, substituted or unsubstituted 3-7 membered aza-cycloalkane, substituted or unsubstituted 3-7 membered oxa-cycloalkane or substituted or unsubstituted 3-7 membered thio-cycloalkane or oxo(-O); ~~or R₃ and R₄ together with the~~

atom attached to them form substituted or unsubstituted 3-7membered cycloalkane, aza-cycloalkane, oxa-cycloalkane or thio-cycloalkane; or R_3 fuses with Y to form substituted or unsubstituted 3-7membered cycloalkane, aza-cycloalkane, oxa-cycloalkane or thio-cycloalkane; wherein the substituted means being substituted by one or more groups selected from the group consisting of C_1 - C_6 alkyl, $-C(O)C_1$ - C_6 alkylacyl, $-C(O)OC_1$ - C_6 alkylester, $-S(O)_2C_1$ - C_6 alkylsulfonyl, and $-S(O)C_1$ - C_6 alkylsulfinyl;

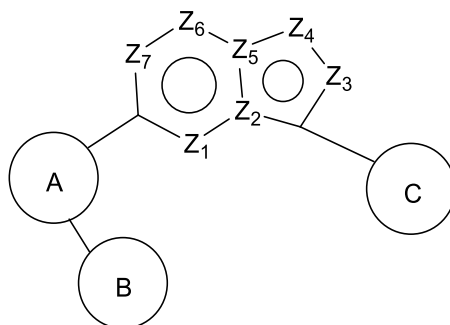


Z_1 , Z_2 , Z_3 , Z_4 , Z_5 , Z_6 , and Z_7 are each independently selected from the group consisting of N, CR_5 and NR_6 ;

R_5 is independently selected from the group consisting of hydrogen, halogen, amino, cyano, hydroxy, acyl, ester, alkyl, cycloalkyl, alkylamino, alkoxy, aryl, heteroaryl, monosubstituted or polysubstituted alkyl, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, and monosubstituted or polysubstituted heteroaryl; the substituents of the monosubstituted or polysubstituted alkyl, the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl are independently selected from the group consisting of halogen, amino, cyano, hydroxy, acyl, ester, alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkoxy, haloalkoxy, aryl and heteroaryl;

R_6 and R_A are each independently selected from the group consisting of hydrogen, acyl, ester, C_1 - C_6 alkyl, cycloalkyl, aryl, heteroaryl, monosubstituted or polysubstituted C_1 - C_6 alkyl, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, and monosubstituted or polysubstituted heteroaryl; the substituents of the monosubstituted or polysubstituted C_1 - C_6 alkyl, the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl are independently selected from the group consisting of halogen, amino, cyano, hydroxy, acyl, ester, C_1 - C_6 alkyl, C_1 - C_6 haloalkyl, cycloalkyl, halocycloalkyl, C_1 - C_6 alkoxy, C_1 - C_6 haloalkoxy, aryl and heteroaryl.

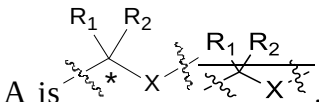
2. The compound of formula I of claim 1, or the tautomer thereof, or the mesomer thereof, the racemate thereof and the mixture of the mesomer and the racemate thereof, or the enantiomer thereof, the diastereomer thereof and the mixture of the enantiomer and the diastereomer thereof, or the pharmaceutically acceptable salt thereof, or the deuterated compound thereof:



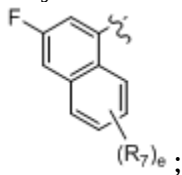
I

;

in formula I:

A is , wherein * denotes R configuration, and, X is NR₆, O, CR₄R₂, or S, S(O) or S(O)₂;

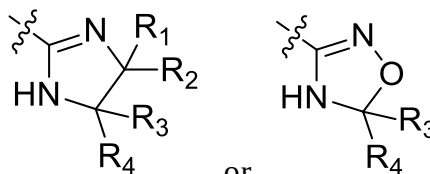
B is optionally selected from the group consisting of phenyl, and 6 membered heteroaryl containing 1 or 2 nitrogen;~~monocyclic aromatic hydrocarbon, bicyclic aromatic hydrocarbon, monocyclic heteroaromatic hydrocarbon, and bicyclic heteroaromatic hydrocarbon,~~ wherein the H on any carbon atom of the phenyl, and 6 membered heteroaryl containing 1 or 2 nitrogen~~B~~ is optionally substituted by the following substituents: halogen, hydroxyl, amino, cyano, ~~ester,~~ C₁-C₆alkyl, C₁-C₆haloalkyl, C₁-C₆alkylamino, and C₁-C₆alkoxy, ~~aryl or heteroaryl;~~

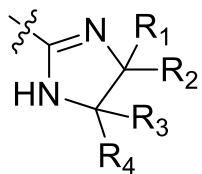
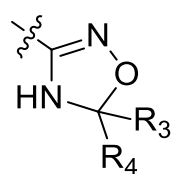


or B is

R₇ is each independently selected from the group consisting of hydrogen, halogen, amino, cyano, hydroxy, C₁-C₆alkyl, C₁-C₆alkoxy, C₁-C₆alkylamino, monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy; the substituents of the monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy are independently selected from the group consisting of deuterium, halogen, amino, cyano, hydroxy, C₁-C₆alkyl, C₁-C₆ haloalkyl, C₁-C₆alkoxy and C₁-C₆haloalkoxy;

e is 0, 1, 2, 3 or 4;

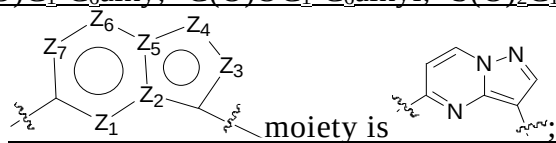


C is optionally selected from  or , wherein the R₁, R₂ are each independently selected from the group consisting of hydrogen and C₁-C₆alkyl;

~~-, R₃, and R₄ are each independently selected from the group consisting of hydrogen, halogen, amino, cyano, hydroxyl, acyl, ester, C₁-C₆alkyl, haloalkyl, cycloalkyl, halocycloalkyl, aryl, heteroaryl, monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, and monosubstituted or polysubstituted heteroaryl;~~ the substituents of the monosubstituted or polysubstituted C₁-C₆alkyl, and monosubstituted or polysubstituted C₁-C₆alkoxy ~~the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl~~ are independently selected from the group consisting of halogen, amino, cyano, hydroxy and hydroxyl; ~~-, acyl, ester, alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkoxy, haloalkoxy, aryl and heteroaryl, R₁ and R₂, R₂ and R₃, R₃ and R₄ or R₁ and R₄ are optionally connected to form 3-7membered cycloalkane, aza-cycloalkane, oxa-cycloalkane, or thio-cycloalkane;~~

or R₃ and R₄ together with the C atom attached to them form substituted or unsubstituted 3-7membered cycloalkane, substituted or unsubstituted 3-7membered aza-cycloalkane, substituted or unsubstituted 3-7membered oxa-cycloalkane or substituted

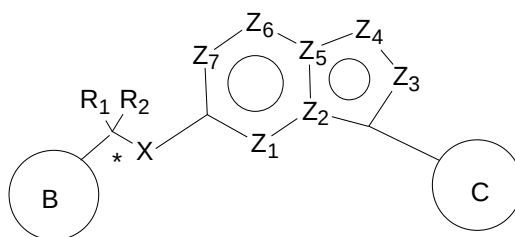
or unsubstituted 3-7membered thio-cycloalkane; wherein the substituted means being substituted by one or more groups selected from the group consisting of C_1 - C_6 alkyl, $-C(O)C_1$ - C_6 alkyl, $-C(O)OC_1$ - C_6 alkyl, $-S(O)_2C_1$ - C_6 alkyl, and $-S(O)C_1$ - C_6 alkyl;



Z_1 , Z_2 , Z_3 , Z_4 , Z_5 , Z_6 and Z_7 are each independently selected from N, CR_5 or NR_6 ;

R_5 and R_6 are each independently selected from the group consisting of hydrogen, halogen, amino, cyano, hydroxy, acyl, ester, C_1 - C_6 alkyl, cycloalkyl, haloalkyl, halocycloalkyl, aryl, heteroaryl, monosubstituted or polysubstituted C_1 - C_6 alkyl, monosubstituted or polysubstituted cycloalkyl, monosubstituted or polysubstituted aryl, and monosubstituted or polysubstituted heteroaryl; wherein the substituents of the monosubstituted or polysubstituted C_1 - C_6 alkyl, the monosubstituted or polysubstituted cycloalkyl, the monosubstituted or polysubstituted aryl, and the monosubstituted or polysubstituted heteroaryl are independently selected from the group consisting of halogen, amino, cyano, and hydroxy, acyl, ester, alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkoxy, haloalkoxy, aryl and heteroaryl.

3. The compound of claim 1, or the tautomer thereof, or the mesomer thereof, the racemate thereof and the mixture of the mesomer and the racemate thereof, or the enantiomer thereof, the diastereomer thereof and the mixture of the enantiomer and the diastereomer thereof, or the pharmaceutically acceptable salt thereof, or the deuterated compound thereof:



II

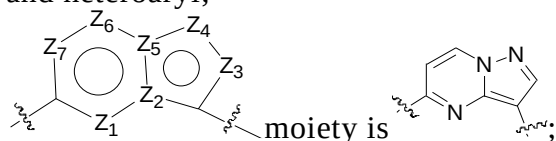
in formula II,

* denotes R configurationthe chiral center;

X is selected from NR_6 , and O, CR_4 , R_2 , S, $S(O)$ or $S(O)_2$;

R_1 and R_2 are different and independently selected from the group consisting of hydrogen, halogen, amino, cyano, hydroxy, C_1 - C_6 alkyl and C_1 - C_6 haloalkyl;

R_6 is independently selected from the group consisting of hydrogen, and C_1 - C_6 alkyl, and monosubstituted or polysubstituted alkyl, and the substituent of monosubstituted or polysubstituted alkyl is independently selected from the group consisting of halogen, amino, cyano, hydroxy, acyl, ester, alkyl, haloalkyl, cycloalkyl, halocycloalkyl, alkoxy, haloalkoxy, aryl and heteroaryl;



B, and C, Z_1 , Z_2 , Z_3 , Z_4 , Z_5 , Z_6 and Z_7 are as defined in claim 1.

4. The compound of claim 1, or the tautomer thereof, or the mesomer thereof, the

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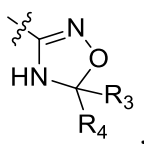
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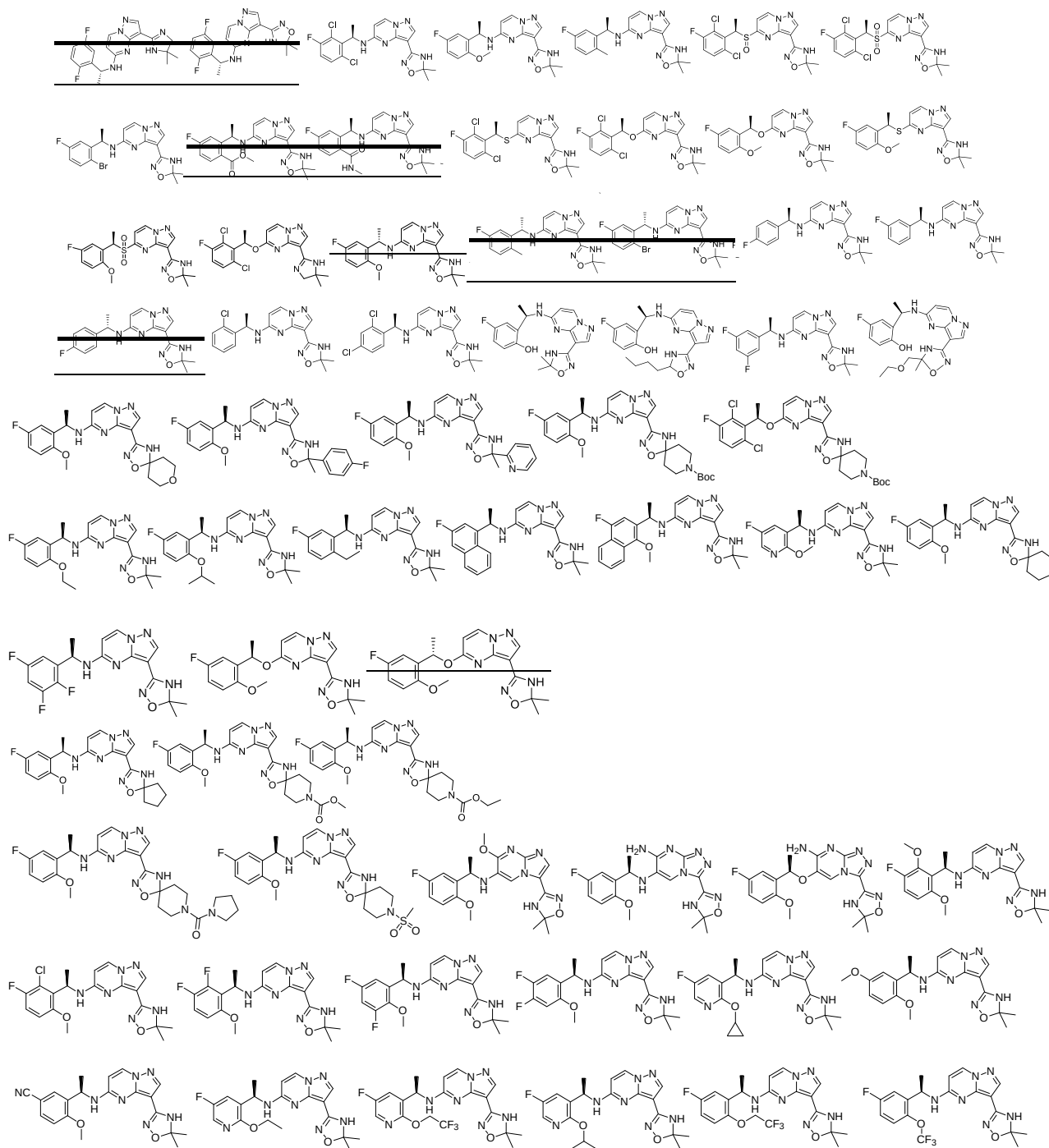
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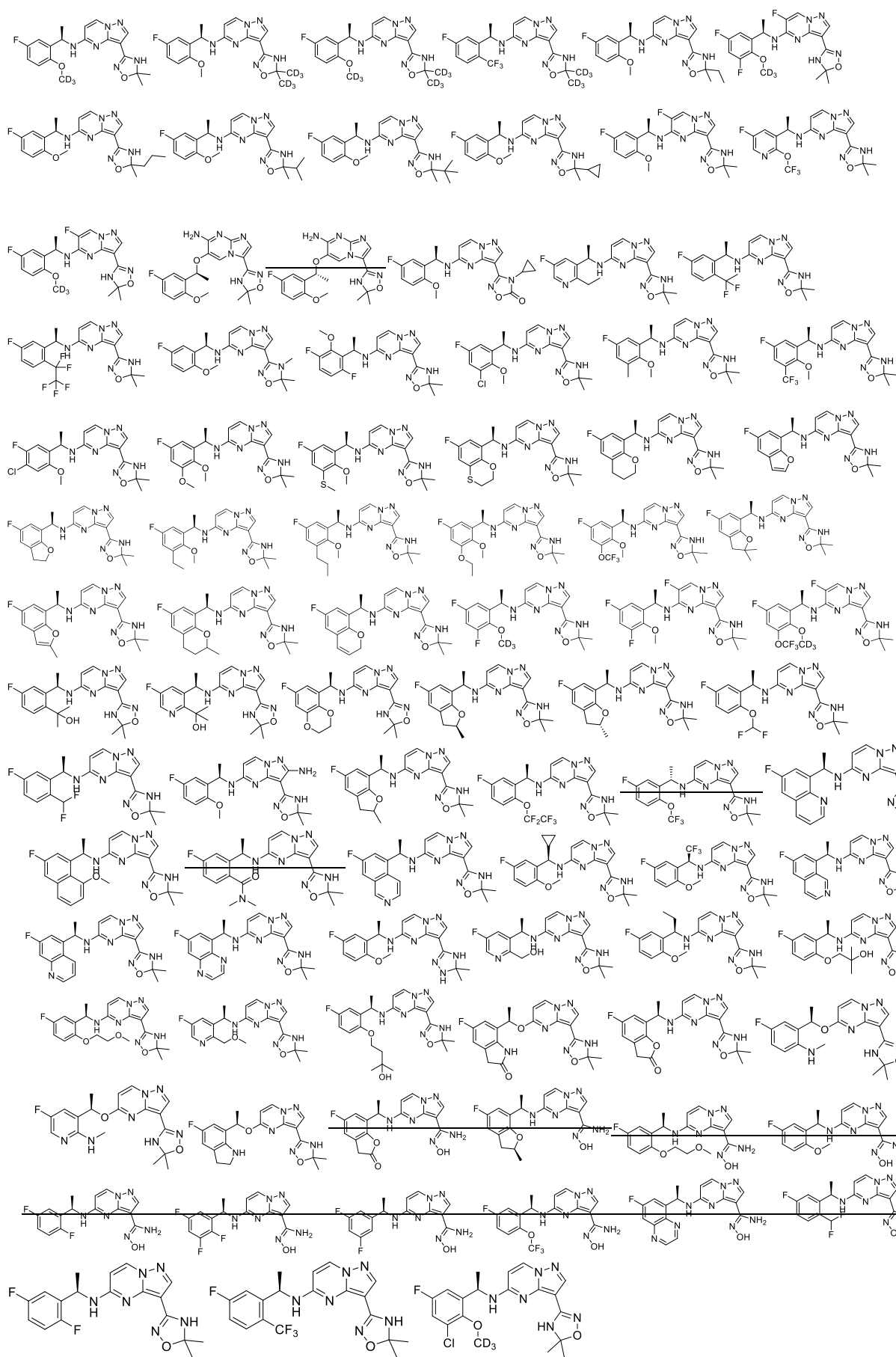
- 68 -



compound thereof, wherein C is
wherein, R₃ and R₄ are as defined in claim 1.

6. ~~The A compound of claim 1~~, or the tautomer thereof, or the mesomer thereof, the racemate thereof and the mixture of the mesomer and the racemate thereof, or the enantiomer thereof, the diastereomer thereof and the mixture of the enantiomer and the diastereomer thereof, or the pharmaceutically acceptable salt thereof, or the deuterated compound thereof, wherein the compound ~~represented by formula I~~ is optionally selected from the following compounds:





7. A pharmaceutically acceptable salt of the compound ~~of formula I of~~ according to any of claims 1-6, wherein the pharmaceutically acceptable salt is an inorganic acid salt or an organic acid salt, wherein the inorganic acid salt is selected from the group consisting of hydrochloride, hydrobromide, hydroiodate, sulfate, bisulfate, nitrate, phosphate and acid phosphate; the organic acid salt is selected from formate, acetate, trifluoroacetate, propionate, pyruvate, hydroxyacetate, oxalate, malonate, fumarate, maleate, lactate, malate, citrate, tartrate, methanesulfonate, ethanesulfonate, hydroxyethanesulfonate, benzenesulfonate, salicylate, picrate, glutamate, ascorbate, camphorate, camphor sulfonate.

8. A pharmaceutical composition comprising a therapeutically effective amount of the compound ~~according to any of formula I of~~ claims 1-6, or the tautomer thereof, or the mesomer thereof, the racemate thereof and the mixture of the mesomer and the racemate thereof, or the enantiomer thereof, the diastereomer thereof and the mixture of the enantiomer and the diastereomer thereof, or the pharmaceutically acceptable salt thereof, or the deuterated compound thereof, and one or more pharmaceutically acceptable carriers, diluents or excipients.

9. A use of the compound of ~~formula I~~ according to any of claims 1-6, or the tautomer thereof, or the mesomer thereof, the racemate thereof and the mixture of the mesomer and the racemate thereof, or the enantiomer thereof, the diastereomer thereof and the mixture of the enantiomer and the diastereomer thereof, or the pharmaceutically acceptable salt thereof, or the deuterated compound thereof or the pharmaceutical composition ~~comprising the compound represented by formula I according to claim 8~~ in the preparation of a medicament for preventing and/or treating the diseases ~~related to pathological characteristics mediated by ROS1, NTRK, and ALK, and their drug-resistant kinases, etc.~~

10. The use of claim 9, wherein the diseases ~~related to pathological characteristics mediated by ROS1, NTRK, and ALK, and their drug-resistant kinases, etc.~~ is selected from include cancer, sarcoma and pain.

11. The use of claim 10, wherein the cancer is any one of breast cancer, cervical cancer, colon cancer, lung cancer, stomach cancer, rectal cancer, pancreatic cancer, brain cancer, skin cancer, oral cancer, prostate cancer, bone cancer, kidney cancer, ovarian cancer, bladder cancer, liver cancer, fallopian tumor, peritoneal tumor, melanoma, glioma, glioblastoma, head and neck cancer, mastoid nephroma, leukemia, lymphoma, myeloma and thyroid tumor.