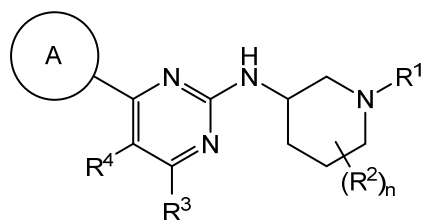


SUMMARY

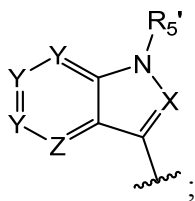
[6] The present disclosure provides inhibitors of one or more families of kinases, e.g., serine/threonine kinases, such as one or more of the family of CDK proteins. The present disclosure further provides CDK7 inhibitors, in particular selective CDK7 inhibitors of Formula (I) and pharmaceutically acceptable salts, solvates, hydrates, tautomers, stereoisomers, isotopically labeled derivatives, and compositions thereof. The present disclosure additionally provides methods of using the compounds of the present disclosure, and pharmaceutically acceptable salts, solvates, hydrates, tautomers, stereoisomers, and compositions thereof as therapeutics for the prevention and/or treatment of diseases associated with overexpression and/or aberrant activity of one or more of the kinases such as serine/threonine kinase family members, e.g., one or more CDK family members, e.g., CDK7 and/or CDK12 and/or CDK13. In certain embodiments, the inventive compounds are used for the prevention and/or treatment of proliferative diseases (*e.g.*, cancers (*e.g.*, leukemia, melanoma, multiple myeloma), benign neoplasms, angiogenesis, inflammatory diseases, autoinflammatory diseases, and autoimmune diseases) in a subject.

[6a] In one aspect of the present disclosure, there is provided a compound of formula I:



, or a pharmaceutically acceptable salt

or stereoisomer thereof, wherein



ring A is

X is $C(R^6)$;

each Y is, independently, $C(R^7)$;

Z is $C(R^8)$;

R¹ is selected from hydrogen, -C₁-C₆ alkyl, -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -(C₀-C₆ alkylene)-carbocyclyl, -C(O)-O-(C₁-C₆ alkylene), -(C₁-C₆ alkylene)-NR^{1'}-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-NR^{1'}-SO₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-S(O)₂-N(R^{1'})₂, wherein any carbocyclyl portion of R¹ is optionally substituted, and wherein any alkyl or alkylene portion of R¹ is optionally substituted with one or more independently selected monovalent substituents;

each R^{1'} is independently selected from hydrogen and optionally substituted C₁-C₆ alkyl, or

two R^{1'} are optionally taken together with the nitrogen atom to which they are bound to form a 4-6 membered, optionally substituted heterocyclyl or heteroaryl ring, wherein:

each R², if present, is independently selected from =O, halo, -OH, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₁-C₄-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, -O-(C₁-C₆-alkylene)-aryl, -NH-C(O)-C₁-C₄ alkyl, and -C(O)-NH-(unsubstituted C₁-C₄ alkyl), or

R¹ and any R² are taken together with the atoms to which they are bound to form an optionally substituted heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring, or

two R² are taken together with the atom or atoms to which they are bound and any intervening ring atoms to form an optionally substituted aryl, carbocyclyl, heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring,

wherein any carbocyclyl, heterocyclyl, or heteroaryl portion of R^2 , any ring formed by taking R^1 together with R^2 , or any ring formed by taking two R^2 together is optionally substituted, and wherein any alkyl or alkylene portion of R^2 is optionally substituted with one or more independently selected monovalent substituents unless otherwise specified;

R^3 is selected from hydrogen, halo, -CN, optionally substituted -C₁-C₆ alkyl, or optionally substituted carbocyclyl;

R^4 is selected from halo, -CN, -C₁-C₆ alkyl, -C₂-C₆ alkenyl, C₂-C₆ alkynyl, -O-C₁-C₆ alkyl, -S-C₁-C₆ alkyl, and carbocyclyl, wherein any alkyl, alkenyl, alkynyl, or carbocyclyl portion of R^4 is optionally substituted;

each R^5 is independently selected from halo, -OH, -C₁-C₆ alkyl, -CN, -(C₀-C₆ alkylene)-C(O)OH, -(C₀-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-C(O)-N($R^{1'}$)₂, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-S(O)₂-N($R^{1'}$)₂, -(C₀-C₆ alkylene)-P(O)-O-(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-P(O)-(C₁-C₄ alkyl)(O-C₁-C₄ alkyl), -(C₀-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₀-C₆-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, phenyl, -(C₂-C₄ alkenylene)-phenyl, -S(O)-(C₁-C₄ alkyl), -S-(C₁-C₄ alkyl), -S(O)-OH, and -S(O)₂-OH, wherein any alkyl, alkylene, alkenylene, carbocyclyl, heterocyclyl, phenyl, and heteroaryl portion of R^5 is optionally substituted; or

two vicinal R^5 are taken together with the ring atoms to which they are bound to form an optionally substituted carbocyclyl or optionally substituted heterocyclyl, wherein each carbocyclyl or heterocyclyl is fused to ring A;

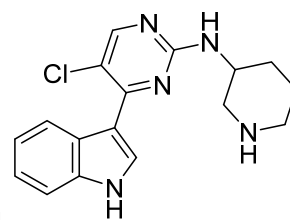
$R^{5'}$ is selected from hydrogen, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-S(O)₂-N(R^{1'})₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-C(O)-N(R^{1'})₂, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₃ alkylene)-C(O)-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-carbocyclyl, -(C₁-C₆ alkylene)-O-heteroaryl, -(C₁-C₆ alkylene)-O-heterocyclyl, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-C(O)OH, wherein any alkyl, alkylene, carbocyclyl, heterocyclyl and heteroaryl portion of $R^{5'}$ is optionally substituted;

$R^{5'}$ and any R^5 are taken together with the ring atoms to which they are bound to form an optionally substituted heterocyclyl, wherein each heterocyclyl is fused to ring A;

R^6 is selected from hydrogen, -CN, -CH₃, -CH₂F, -CHF₂ and -CF₃;

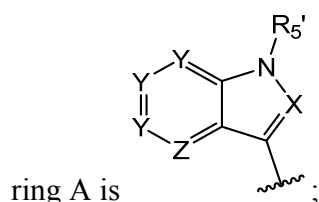
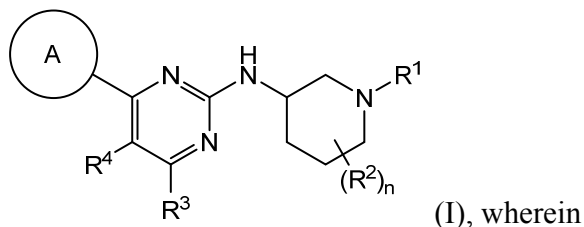
each R^7 is independently selected from hydrogen and R^5 ;

R^8 is selected from hydrogen and fluoro; and



n is 0, 1, 2, 3, or 4, wherein the compound is other than a stereoisomer or pharmaceutical salt thereof.

[6b] In another aspect of the present disclosure, there is provided a pharmaceutically acceptable solvate, hydrate, tautomer, or isotopically labeled derivative of a compound of formula I



X is C(R⁶);

each Y is, independently, C(R⁷);

Z is C(R⁸);

R¹ is selected from hydrogen, -C₁-C₆ alkyl, -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -(C₀-C₆ alkylene)-carbocyclyl, -C(O)-O-(C₁-C₆ alkylene), -(C₁-C₆ alkylene)-NR^{1'}-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-NR^{1'}-SO₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-S(O)₂-N(R^{1'})₂, wherein any carbocyclyl portion of R¹ is optionally substituted, and wherein any alkyl or alkylene portion of R¹ is optionally substituted with one or more independently selected monovalent substituents;

each R^{1'} is independently selected from hydrogen and optionally substituted C₁-C₆ alkyl, or

two R^{1'} are optionally taken together with the nitrogen atom to which they are bound to form a 4-6 membered, optionally substituted heterocyclyl or heteroaryl ring, wherein:

each R^2 , if present, is independently selected from =O, halo, -OH, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₁-C₄-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, -O-(C₁-C₆-alkylene)-aryl, -NH-C(O)-C₁-C₄ alkyl, and -C(O)-NH-(unsubstituted C₁-C₄ alkyl), or

R^1 and any R^2 are taken together with the atoms to which they are bound to form an optionally substituted heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring, or

two R^2 are taken together with the atom or atoms to which they are bound and any intervening ring atoms to form an optionally substituted aryl, carbocyclyl, heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring,

wherein any carbocyclyl, heterocyclyl, or heteroaryl portion of R^2 , any ring formed by taking R^1 together with R^2 , or any ring formed by taking two R^2 together is optionally substituted, and wherein any alkyl or alkylene portion of R^2 is optionally substituted with one or more independently selected monovalent substituents unless otherwise specified;

R^3 is selected from hydrogen, halo, -CN, optionally substituted -C₁-C₆ alkyl, or optionally substituted carbocyclyl;

R^4 is selected from halo, -CN, -C₁-C₆ alkyl, -C₂-C₆ alkenyl, C₂-C₆ alkynyl, -O-C₁-C₆ alkyl, -S-C₁-C₆ alkyl, and carbocyclyl, wherein any alkyl, alkenyl, alkynyl, or carbocyclyl portion of R^4 is optionally substituted;

each R⁵ is independently selected from halo, -OH, -C₁-C₆ alkyl, -CN, -(C₀-C₆ alkylene)-C(O)OH, -(C₀-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-C(O)-N(R^{1'})₂, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-S(O)₂-N(R^{1'})₂, -(C₀-C₆ alkylene)-P(O)-O-(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-P(O)-(C₁-C₄ alkyl)(O-C₁-C₄ alkyl), -(C₀-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₀-C₆-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, phenyl, -(C₂-C₄ alkenylene)-phenyl, -S(O)-(C₁-C₄ alkyl), -S-(C₁-C₄ alkyl), -S(O)-OH, and -S(O)₂-OH, wherein any alkyl, alkylene, alkenylene, carbocyclyl, heterocyclyl, phenyl, and heteroaryl portion of R⁵ is optionally substituted; or

two vicinal R⁵ are taken together with the ring atoms to which they are bound to form an optionally substituted carbocyclyl or optionally substituted heterocyclyl, wherein each carbocyclyl or heterocyclyl is fused to ring A;

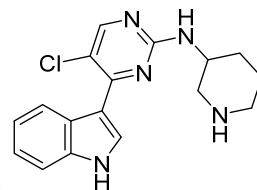
R^{5'} is selected from hydrogen, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-S(O)₂-N(R^{1'})₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-C(O)-N(R^{1'})₂, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₃ alkylene)-C(O)-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-carbocyclyl, -(C₁-C₆ alkylene)-O-heteroaryl, -(C₁-C₆ alkylene)-O-heterocyclyl, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-C(O)OH, wherein any alkyl, alkylene, carbocyclyl, heterocyclyl and heteroaryl portion of R^{5'} is optionally substituted;

$R^{5'}$ and any R^5 are taken together with the ring atoms to which they are bound to form an optionally substituted heterocyclyl, wherein each heterocyclyl is fused to ring A;

R^6 is selected from hydrogen, -CN, -CH₃, -CH₂F, -CHF₂ and -CF₃;

each R^7 is independently selected from hydrogen and R^5 ;

R^8 is selected from hydrogen and fluoro; and



n is 0, 1, 2, 3, or 4, wherein the compound is other than

[6c] In a further aspect of the present disclosure, there is provided a pharmaceutical composition comprising the compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative disclosed herein and a pharmaceutically acceptable excipient.

[6d] In another aspect of the present disclosure, there is provided a compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative disclosed herein or a pharmaceutical composition disclosed herein for use in treating a subject suffering from cancer, a benign neoplasm, angiogenesis, an inflammatory disease, an autoinflammatory disease, an autoimmune disease, or an infectious disease.

[6e] In a further aspect of the present disclosure, there is provided a use of the compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative disclosed herein or the pharmaceutical composition disclosed herein in the manufacture of a medicament for treating a subject suffering from cancer, a benign neoplasm, angiogenesis, an inflammatory disease, an autoinflammatory disease, an autoimmune disease, or an infectious disease.

[7] The present disclosure further provides compounds of formula (I) and pharmaceutically acceptable salts, solvates, hydrates, tautomers, stereoisomers, and isotopically labeled derivatives thereof, wherein Ring A, L, R^1 , R^2 , R^3 , R^4 , R^5 , R^6 , m, n, and subvariables thereof are as defined herein.

[8] The present disclosure also provides pharmaceutical compositions comprising a compound of Formula (I) or a pharmaceutically acceptable salt, solvate, hydrate, tautomer, stereoisomer, or isotopically labeled derivative thereof, and optionally a pharmaceutically acceptable excipient. In certain embodiments, the pharmaceutical compositions described herein include a therapeutically effective amount of a compound of Formula (I) or a pharmaceutically acceptable salt, solvate, hydrate, tautomer, stereoisomer, or isotopically labeled derivative thereof. The pharmaceutical composition may be useful for treating and/or preventing a proliferative or infectious disease.

[9] The present disclosure further provides methods for treating and/or preventing proliferative diseases. Exemplary proliferative diseases include cancer (*e.g.*, leukemia, melanoma, multiple myeloma), benign neoplasm, angiogenesis, inflammatory diseases, autoinflammatory diseases, and autoimmune diseases. In other embodiments, the present

disclosure provides methods for treating and/or preventing an infectious disease (*e.g.*, a viral infection).

[10] The present disclosure also provides methods of down-regulating the expression of certain serine/threonine kinases, *e.g.*, certain CDK family members, *e.g.*, CDK7 in a biological sample or subject.

[11] The present disclosure further relates to methods of inhibiting the activity of certain serine/threonine kinases, *e.g.*, certain CDK family members, *e.g.*, CDK7 in a biological sample or subject.

[12] The present disclosure also provides methods of inhibiting cell growth in a biological sample or subject.

[13] The present disclosure also provides methods of inducing apoptosis of a cell in a biological sample or a subject.

[14] The present disclosure further provides compounds of formula (I) and pharmaceutically acceptable salts, tautomers, stereoisomers, isotopically labeled derivatives, and compositions thereof, for use in the treatment of a proliferative disease in a subject.

[15] The present disclosure also provides compounds of formula (I) and pharmaceutically acceptable salts, solvates, hydrates, tautomers, stereoisomers, isotopically labeled derivatives, and compositions thereof, for use in the treatment or prevention of an infectious disease in a subject. In certain embodiments, the infectious disease is a viral infection.

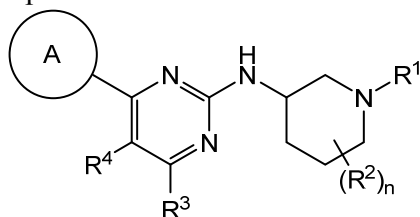
[16] The present disclosure also relates to kits comprising a container with a compound of formula (I) or a pharmaceutically acceptable salt, solvate, hydrate, tautomer, stereoisomer, or isotopically labeled derivative thereof, or a pharmaceutical composition thereof. In certain embodiments, the kits described herein further include instructions for administering the compound of formula (I) or the pharmaceutically acceptable salt, solvate, hydrate, tautomer, stereoisomer, or isotopically labeled derivative thereof, or the pharmaceutical composition thereof.

[17] The details of one or more embodiments of the present disclosure are set forth herein. Other features, objects, and advantages of the present disclosure will be apparent from the Detailed Description, the Figures, the Examples, and the Claims.

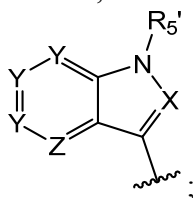
CLAIMS

What is claimed is:

1. A compound of formula I:



, or a pharmaceutically acceptable salt or stereoisomer thereof, wherein



ring A is

X is C(R⁶);

each Y is, independently, C(R⁷);

Z is C(R⁸);

R¹ is selected from hydrogen, -C₁-C₆ alkyl, -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -(C₀-C₆ alkylene)-carbocyclyl, -C(O)-O-(C₁-C₆ alkylene), -(C₁-C₆ alkylene)-NR^{1'}-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-NR^{1'}-SO₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-S(O)₂-N(R^{1'})₂, wherein any carbocyclyl portion of R¹ is optionally substituted, and wherein any alkyl or alkylene portion of R¹ is optionally substituted with one or more independently selected monovalent substituents;

each R^{1'} is independently selected from hydrogen and optionally substituted C₁-C₆ alkyl, or

two R^{1'} are optionally taken together with the nitrogen atom to which they are bound to form a 4-6 membered, optionally substituted heterocyclyl or heteroaryl ring, wherein:

each R², if present, is independently selected from =O, halo, -OH, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₁-C₄-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, -O-(C₁-C₆-alkylene)-aryl, -NH-C(O)-C₁-C₄ alkyl, and -C(O)-NH-(unsubstituted C₁-C₄ alkyl), or

R¹ and any R² are taken together with the atoms to which they are bound to form an optionally substituted heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring, or

two R² are taken together with the atom or atoms to which they are bound and any intervening ring atoms to form an optionally substituted aryl, carbocyclyl, heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring,

wherein any carbocyclyl, heterocyclyl, or heteroaryl portion of R², any ring formed by taking R¹ together with R², or any ring formed by taking two R² together is optionally

substituted, and wherein any alkyl or alkylene portion of R² is optionally substituted with one or more independently selected monovalent substituents unless otherwise specified;

R³ is selected from hydrogen, halo, -CN, optionally substituted -C₁-C₆ alkyl, or optionally substituted carbocyclyl;

R⁴ is selected from halo, -CN, -C₁-C₆ alkyl, -C₂-C₆ alkenyl, C₂-C₆ alkynyl, -O-C₁-C₆ alkyl, -S-C₁-C₆ alkyl, and carbocyclyl, wherein any alkyl, alkenyl, alkynyl, or carbocyclyl portion of R⁴ is optionally substituted;

each R⁵ is independently selected from halo, -OH, -C₁-C₆ alkyl, -CN, -(C₀-C₆ alkylene)-C(O)OH, -(C₀-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-C(O)-N(R^{1'})₂, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-S(O)₂-N(R^{1'})₂, -(C₀-C₆ alkylene)-P(O)-O-(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-P(O)-(C₁-C₄ alkyl)(O-C₁-C₄ alkyl), -(C₀-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₀-C₆-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, phenyl, -(C₂-C₄ alkenylene)-phenyl, -S(O)-(C₁-C₄ alkyl), -S-(C₁-C₄ alkyl), -S(O)-OH, and -S(O)₂-OH, wherein any alkyl, alkylene, alkenylene, carbocyclyl, heterocyclyl, phenyl, and heteroaryl portion of R⁵ is optionally substituted; or

two vicinal R⁵ are taken together with the ring atoms to which they are bound to form an optionally substituted carbocyclyl or optionally substituted heterocyclyl, wherein each carbocyclyl or heterocyclyl is fused to ring A;

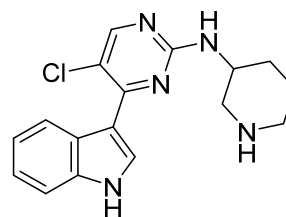
R^{5'} is selected from hydrogen, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-S(O)₂-N(R^{1'})₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-C(O)-N(R^{1'})₂, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₃ alkylene)-C(O)-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-carbocyclyl, -(C₁-C₆ alkylene)-O-heteroaryl, -(C₁-C₆ alkylene)-O-heterocyclyl, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-C(O)OH, wherein any alkyl, alkylene, carbocyclyl, heterocyclyl and heteroaryl portion of R^{5'} is optionally substituted;

R^{5'} and any R⁵ are taken together with the ring atoms to which they are bound to form an optionally substituted heterocyclyl, wherein each heterocyclyl is fused to ring A;

R⁶ is selected from hydrogen, -CN, -CH₃, -CH₂F, -CHF₂ and -CF₃;

each R⁷ is independently selected from hydrogen and R⁵;

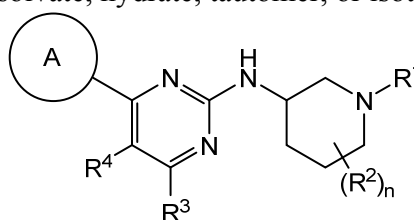
R⁸ is selected from hydrogen and fluoro; and



n is 0, 1, 2, 3, or 4, wherein the compound is other than stereoisomer or pharmaceutical salt thereof.

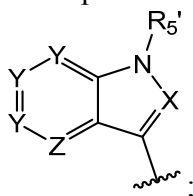
or a

2. A pharmaceutically acceptable solvate, hydrate, tautomer, or isotopically labeled



derivative of a compound of formula I

(I), wherein



ring A is

X is C(R⁶);

each Y is, independently, C(R⁷);

Z is C(R⁸);

R¹ is selected from hydrogen, -C₁-C₆ alkyl, -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -(C₀-C₆ alkylene)-carbocyclyl, -C(O)-O-(C₁-C₆ alkylene), -(C₁-C₆ alkylene)-NR^{1'}-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-NR^{1'}-SO₂-N(R^{1'})₂, -(C₁-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-S(O)₂-N(R^{1'})₂, wherein any carbocyclyl portion of R¹ is optionally substituted, and wherein any alkyl or alkylene portion of R¹ is optionally substituted with one or more independently selected monovalent substituents;

each R^{1'} is independently selected from hydrogen and optionally substituted C₁-C₆ alkyl, or

two R^{1'} are optionally taken together with the nitrogen atom to which they are bound to form a 4-6 membered, optionally substituted heterocyclyl or heteroaryl ring, wherein:

each R², if present, is independently selected from =O, halo, -OH, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₁-C₄-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, -O-(C₁-C₆-alkylene)-aryl, -NH-C(O)-C₁-C₄ alkyl, and -C(O)-NH-(unsubstituted C₁-C₄ alkyl), or

R¹ and any R² are taken together with the atoms to which they are bound to form an optionally substituted heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring, or

two R² are taken together with the atom or atoms to which they are bound and any intervening ring atoms to form an optionally substituted aryl, carbocyclyl, heterocyclyl or heteroaryl ring fused, spirofused or bridged to the piperidine ring,

wherein any carbocyclyl, heterocyclyl, or heteroaryl portion of R², any ring formed by taking R¹ together with R², or any ring formed by taking two R² together is optionally substituted, and wherein any alkyl or alkylene portion of R² is optionally substituted with one or more independently selected monovalent substituents unless otherwise specified;

R³ is selected from hydrogen, halo, -CN, optionally substituted -C₁-C₆ alkyl, or optionally substituted carbocyclyl;

R⁴ is selected from halo, -CN, -C₁-C₆ alkyl, -C₂-C₆ alkenyl, C₂-C₆ alkynyl, -O-C₁-C₆ alkyl, -S-C₁-C₆ alkyl, and carbocyclyl, wherein any alkyl, alkenyl, alkynyl, or carbocyclyl portion of R⁴ is optionally substituted;

each R⁵ is independently selected from halo, -OH, -C₁-C₆ alkyl, -CN, -(C₀-C₆ alkylene)-C(O)OH, -(C₀-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-C(O)-N(R¹)₂, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₀-C₆ alkylene)-S(O)₂-N(R¹)₂, -(C₀-C₆ alkylene)-P(O)-O-(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-P(O)-(C₁-C₄ alkyl)(O-C₁-C₄ alkyl), -(C₀-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-C(O)-heterocyclyl, -(C₀-C₆ alkylene)-C(O)-heteroaryl, -O-(C₁-C₆-alkyl), -O-(C₁-C₆-alkylene)-O-(C₁-C₄-alkyl), -O-(C₀-C₆-alkylene)-carbocyclyl, -O-(C₁-C₆-alkylene)-heterocyclyl, -O-(C₁-C₆-alkylene)-heteroaryl, phenyl, -(C₂-C₄ alkenylene)-phenyl, -S(O)-(C₁-C₄ alkyl), -S-(C₁-C₄ alkyl), -S(O)-OH, and -S(O)₂-OH, wherein any alkyl, alkylene, alkenylene, carbocyclyl, heterocyclyl, phenyl, and heteroaryl portion of R⁵ is optionally substituted; or

two vicinal R⁵ are taken together with the ring atoms to which they are bound to form an optionally substituted carbocyclyl or optionally substituted heterocyclyl, wherein each carbocyclyl or heterocyclyl is fused to ring A;

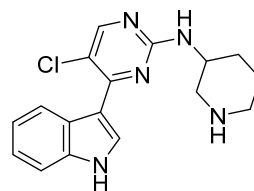
R^{5'} is selected from hydrogen, -CN, -C₁-C₆ alkyl, -(C₀-C₆ alkylene)-S(O)₂-N(R¹)₂, -(C₀-C₆ alkylene)-carbocyclyl, -(C₀-C₆ alkylene)-C(O)-N(R¹)₂, -(C₀-C₆ alkylene)-aryl, -(C₀-C₆ alkylene)-heterocyclyl, -(C₀-C₆ alkylene)-heteroaryl, -(C₀-C₆ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₃ alkylene)-C(O)-N(R¹)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-(C₁-C₄ alkylene)-S(O)₂-N(R¹)₂, -(C₁-C₆ alkylene)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-O-carbocyclyl, -(C₁-C₆ alkylene)-O-heteroaryl, -(C₁-C₆ alkylene)-O-heterocyclyl, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-P(O)(C₁-C₄ alkyl)-O-(C₁-C₄ alkyl), -(C₁-C₆ alkylene)-P(O)-(O-C₁-C₄ alkyl)₂, -(C₁-C₆ alkylene)-C(O)-(C₁-C₄ alkyl), and -(C₁-C₆ alkylene)-C(O)OH, wherein any alkyl, alkylene, carbocyclyl, heterocyclyl and heteroaryl portion of R^{5'} is optionally substituted;

R^{5'} and any R⁵ are taken together with the ring atoms to which they are bound to form an optionally substituted heterocyclyl, wherein each heterocyclyl is fused to ring A;

R⁶ is selected from hydrogen, -CN, -CH₃, -CH₂F, -CHF₂ and -CF₃;

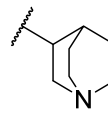
each R⁷ is independently selected from hydrogen and R⁵;

R⁸ is selected from hydrogen and fluoro; and



n is 0, 1, 2, 3, or 4, wherein the compound is other than

3. The compound of claim 1, the salt or stereoisomer thereof, or the solvate, hydrate, tautomer, or isotopically labeled derivative of claim 2, wherein R^1 is selected from hydrogen, cyclopropyl, $-CH_3$, $-CH_2CH_3$, $-CH_2CH_2OCH_3$, $-CH(CH_3)_2$, or $-CH_2CH(CH_3)_2$, or wherein R^1 is taken together with one R^2 and the ring atoms to which each are bound to form a ring



which, taken together with the ring to which R^1 and R^2 are bound, is

4. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 3, wherein R^1 is hydrogen.

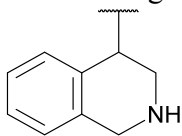
5. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-4, wherein each R^2 , if present, is independently selected from halo, $=O$, $-OH$, $-C_1-C_4$ alkyl, phenyl, heteroaryl, $-C(O)$ -heterocyclyl, $-NH-C(O)-C_1-C_4$ alkyl, and $-C(O)-NH$ -(unsubstituted C_1-C_4 alkyl), wherein any heteroaryl or heterocyclyl portion of R^2 is optionally substituted and any C_1-C_4 alkyl or phenyl portion of R^2 is optionally substituted with one or more independently selected monovalent substituents; or, either

(a) two R^2 bound to different ring atoms are optionally taken together with the atoms to which they are bound and any intervening ring atoms to form an optionally substituted aryl or cycloalkyl, fused or bridged to the piperidine ring; or

(b) two R^2 bound to the same ring atom are optionally taken together with the atom to which they are bound to form an optionally substituted cycloalkyl spirofused to the piperidine ring.

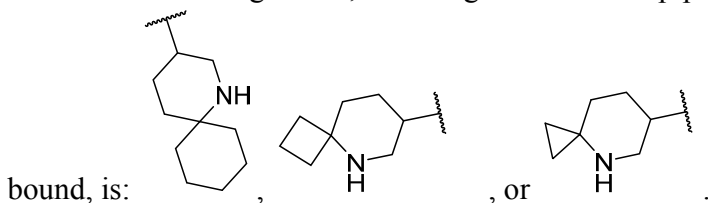
6. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 5, wherein n is 0, 1, 2 or 3, and each R^2 , if present, is independently selected from fluoro, $=O$, $-CH_3$, $-CH_2CH_3$, $-OH$, $-CH(CH_3)_2$, $-C(O)NHCH_3$, $-NHC(O)CH_2CH_3$, 3-methyl-1,2,4-oxadiazol-5-yl, 1,2,4-triazolo[4,3-a]pyridin-3-yl, 8-methylsulfonyl-1,2,4-triazolo[4,3-a]pyridin-3-yl, pyrrolidin-1-ylcarbonyl, 3-hydroxypyrrolidin-1-ylcarbonyl, and unsubstituted phenyl, or

two R^2 on different atoms are taken together with the atoms to which they are bound and any intervening ring atoms to form a ring which, taken together with the piperidine ring to



which both R^2 are bound, is

two R² bound to the same ring atom are taken together with the atom to which they are bound to form a ring which, taken together with the piperidine ring to which both R² are



7. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-6, wherein n is 0 and/or R³ is hydrogen.

8. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-7, wherein R⁴ is selected from hydrogen, halo, -CN, optionally substituted C₁-C₄ alkyl, optionally substituted C₂-C₄ alkynyl, optionally substituted -O-C₁-C₄ alkyl, optionally substituted C₃-C₆ cycloalkyl, and -C(O)-optionally substituted C₁-C₄ alkyl.

9. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 8, wherein R⁴ is selected from chloro, fluoro, bromo, iodo, cyclopropyl, -CN, -CF₃, -CH₂CF₃, -CH₂CH₂F, -CH₃, -CH₂CH₃, -CH₂CH₂CH₃, -CH(CH₃)₂, -CH₂CH(CH₃)₂, -OCH₃, -CH(OH)CH₃, -CH=CH₂, -C(O)CH₃, -OCHF₂, S-CH₃, -S-CHF₂, -S-CF₃, and -C≡CH.

10. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 9, wherein R⁴ is selected from -CF₃, -CH₂CH₃, and -CH₂CH₂F.

11. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-10, wherein each R⁷ is independently selected from hydrogen, halo, -C₁-C₆ alkyl, -CN, -C(O)OH, -C(O)-(C₁-C₄ alkyl), -C(O)-N(R^{1'})₂, -S(O)₂-(C₁-C₄ alkyl), -CH₂-S(O)₂-(C₁-C₄ alkyl), -S(O)₂-N(R^{1'})₂, -P(O)(C₁-C₄ alkyl)-O-C₁-C₄ alkyl, -P(O)(O-(C₁-C₄ alkyl))₂, carbocyclyl, heterocyclyl, heteroaryl, -C(O)-heterocyclyl, -(C₁-C₄ alkylene)-S(O)₂-(C₁-C₄ alkyl), -O-(C₆-alkylene)-carbocyclyl, phenyl, -(C₂-C₄ alkenylene)-phenyl, -S(O)-(C₁-C₄ alkyl), -S-(C₁-C₄ alkyl), -S(O)-OH, and -S(O)₂-OH, wherein any alkyl, alkylene, alkenylene, carbocyclyl, phenyl, heterocyclyl or heteroaryl is optionally substituted.

12. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 11, wherein R⁷ is selected from hydrogen, fluoro, chloro, bromo, -CN, -CH₃, -CH₂CH₂C(CH₃)₂OH, -C(O)-CH₃, -C(O)OH, -C(O)-NH-CH₃, -P(=O)(OCH₂CH₃)₂, -P(=O)(OCH₂CH₃)CH₃, -S(O)₂CH₃, -P(O)-(CH₃)₂, -P(O)-(CH₂CH₃)₂, -S(O)₂N(CH₃)₂, -S(O)₂CH(CH₃)₂, -S(O)₂CH₂F, -S(O)₂CHF₂, -SCHF₂, -S(O)CHF₂, -S(O)OH, -S(O)₂OH, -S(O)₂NHCH₃, -(CH₂)₄CH₃, -CH₂S(O)₂CH₃, -S(O)₂-CH₂CH₃, 1H-pyrazol-4-yl, 1-methylpyrazol-4-yl, 1,3-dimethyl-pyrazol-4-yl, 5-methyl-1H-pyrazol-4-yl, 1-methyl-2-oxoimidazolidin-3-yl, 4-methylimidazol-1-yl, morpholin-4-yl, pyridin-4-yl, pyridazin-4-yl, 4-hydroxycyclohexyl, 4-hydroxy-4-methylcyclohexyl, 5-methyl-1,2,4-triazol-3-yl, 5-methyl,

1,2,4-oxadiazol-3-yl, 1,3-dimethylpyridazin-4-yl, 1,5-dimethylpyridazin-4-yl, 3-methyl-1H-pyridazin-4-yl, 1-(2-methyl-2-hydroxypropyl)pyridazin-4-yl, imidazol-1-yl, 1-methyl-5-cyanopyrrol-3-yl, 5-cyano-1H-pyrrol-3-yl, and pyridazin-4-yl, 1H-pyrazol-3-yl, 1-difluoromethyl-pyrazol-3-yl, 1-difluoromethyl-pyrazol-4-yl, 1-methylpyrazol-3-yl, 3-methyl-1H-pyrazol-4-yl, 3-methyl-3-hydroxypyrrolidin-1-ylcarbonyl, 3-hydroxypyrrolidin-1-ylcarbonyl, 4-hydroxycyclohexyl, 4-hydroxycyclohex-1-enyl, 1,1-dioxothiomorpholin-4-yl, 4-cyano-1H-imidazol-1-yl, 2,3-dimethyl-1,2,4-triazol-5-yl, 1,5-dimethyl-pyrazol-4-yl, pyridin-3-yl, 1-(2-methyl-2-hydroxypropan-1-yl)pyrazol-4-yl, pyrrolidin-1-yl, pyrrolidin-1-ylcarbonyl, 1H-pyrazol-2-yl, 3-hydroxy-3-trifluoromethylpyrrolidin-1-ylcarbonyl, 3-methoxypyrrolidin-1-ylcarbonyl, 3-cyanopyrrolidin-1-ylcarbonyl, 4-hydroxy-4-methylpiperidin-1-ylcarbonyl, 3-oxopyrrolidin-1-ylcarbonyl, 3-(pyrrolidin-1-ylcarbonyl)phenyl, 3-phenoxyphenyl, thiazol-2-yl, pyrazin-2-yl, 2,4-dioxo-1H,3H-pyrimidin-5-yl, 3-methyl-3-hydroxypyrrolidin-1-ylsulfonyl, 5-fluoropyridin-3-yl, 2-hydroxypyridin-3-yl, 3,3-difluoro-4-hydroxy, 3,5-dimethyloxazol-4-yl, 3-fluorophenyl, 4-methylpyridin-3-yl, 2-hydroxymethylpyridin-3-yl, 6-hydroxymethylpyridin-2-yl, 5-hydroxymethylpyridin-3-yl, 1-methyl-6-oxopyridin-3-yl, 4-aminosulfonylphenyl, 3-aminosulfonylphenyl, 3-hydroxy-3-ethylpyrrolidin-1-ylcarbonyl, 3-cyano-4-hydroxyphenyl, benzo[d]thiazol-6-yl, 2H-indazol-6-yl, 1H-benzoimidazol-5-yl, 2-oxo-3-cyano-4-methylpyridin-5-yl, 2-aminobenzo[d]thiazol-2-yl, 3-aminocarbonylphenyl, 6-trifluoromethyl-1H-pyrrolo[3,2-c]pyridin-3-yl, 2-aminoquinazolin-8-yl, styryl, 1-methyl-1H-indazol-6-yl, 2,3-dihydrobenzo[b][1,4]dioxin-7-yl, 2-ethoxyphenyl, 3-(2-hydroxyethyl)phenyl, 3-(methylcarbonylaminomethyl)phenyl, 1-methyl-6-trifluoromethyl-1H-pyrrolo[3,2-c]pyridin-3-yl, quinolin-4-yl, isoquinolin-5-yl, isoquinolin-7-yl, and 2-oxo-3,4-dihydroquinolin-7-yl.

13. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 12, wherein R⁷ is selected from hydrogen, fluoro, -CN, -S(O)₂CH₃, -S(O)₂NHCH₃, 3-hydroxy-pyrrolidin-1-ylcarbonyl, 3-hydroxy-3-methyl-pyrrolidin-1-ylcarbonyl, and 1H-imidazol-2-yl.

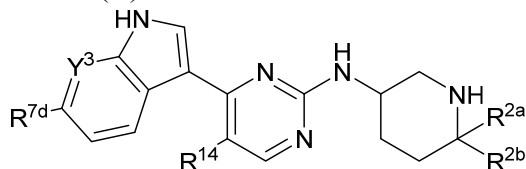
14. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-13, wherein R^{5'} is selected from hydrogen, C₁-C₄ alkyl, -(C₀-C₃ alkylene)-aryl and -(C₁-C₃ alkylene)-O-(C₁-C₄ alkyl).

15. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of ~~claim 14~~ claim 14, wherein R^{5'} is selected from hydrogen, methyl, isopropyl, -CH₂-O-CH₃, -(CH₂)₂-O-CH₃, and phenyl.

16. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-15, wherein R⁶ is selected from hydrogen and methyl.

17. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 16, wherein R⁶ is hydrogen.

18. The compound of claim 1, the salt or stereoisomer thereof, or the solvate, hydrate, tautomer, or isotopically labeled derivative of claim 2, wherein the compound is a compound of formula (II):



(II), wherein:

Y^3 is $C(R^{7e})$;

each of R^{2a} and R^{2b} is independently selected from hydrogen and C_1 - C_3 alkyl; or

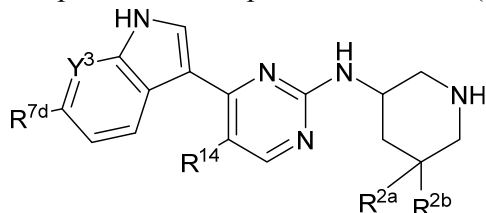
R^{2a} and R^{2b} are taken together to form a cycloalkyl or a heterocycle spirofused to the piperidine ring, wherein said the cycloalkyl or heterocycle is optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl;

R^{7d} is selected from hydrogen, $-C(O)-(C_1-C_4 \text{ alkyl})$, $-CN$, and heteroaryl optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl;

R^{7e} is selected from hydrogen, halo, $-S(O)_2-(C_1-C_4 \text{ alkyl})$, $-P(O)(C_1-C_4 \text{ alkyl})_2$, $-C(O)NH-(C_1-C_4 \text{ alkyl})$, $-C(O)N(C_1-C_4 \text{ alkyl})_2$, $-S(O)_2NH-(C_1-C_4 \text{ alkyl})$, $-S(O)_2N-(C_1-C_4 \text{ alkyl})_2$, and heteroaryl optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl; and

R^{14} is selected from C_1 - C_3 alkyl and C_1 - C_3 haloalkyl.

19. The compound of claim 1, the salt or stereoisomer thereof, or the pharmaceutically acceptable solvate, hydrate, tautomer, or isotopically labeled derivative of claim 2, wherein the compound is a compound of formula (III):



(III), wherein:

Y^3 is $C(R^{7e})$;

each of R^{2a} and R^{2b} is independently selected from hydrogen and C_1 - C_3 alkyl; or

R^{2a} and R^{2b} are taken together to form a cycloalkyl or a heterocycle spirofused to the piperidine ring, wherein the cycloalkyl or heterocycle is optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl;

R^{7d} is selected from hydrogen, $-C(O)-(C_1-C_4 \text{ alkyl})$, $-CN$, and heteroaryl optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl;

R^{7e} is selected from hydrogen, halo, $-S(O)_2-(C_1-C_4 \text{ alkyl})$, $-P(O)(C_1-C_4 \text{ alkyl})_2$, $-C(O)NH-(C_1-C_4 \text{ alkyl})$, $-C(O)N(C_1-C_4 \text{ alkyl})_2$, $-S(O)_2NH-(C_1-C_4 \text{ alkyl})$, $-S(O)_2N-(C_1-C_4 \text{ alkyl})_2$, and heteroaryl optionally substituted with one or more independently selected C_1 - C_4 alkyl or C_1 - C_4 haloalkyl; and

R¹⁴ is selected from C₁-C₃ alkyl and C₁-C₃ haloalkyl.

20. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 18 or claim 19, wherein:

R^{2a} is selected from hydrogen and -CH₃;

R^{2b} is selected from hydrogen, -CH₃, -CH₂CH₃, and -CH(CH₃)₂; or

R^{2a} and R^{2b} are taken together to form oxetan-3-yl;

R^{7d} is selected from hydrogen, -C(O)CH₃, -CN, pyridin-3-yl, pyridin-4-yl, 1-methyl-5-cyanopyrrol-3-yl, 1-methylpyrazol-4-yl, 1-methylpyrazol-3-yl, 1H-pyrazol-4-yl, 1H-pyrazol-3-yl, 1H-imidazol-2-yl, 1,3-dimethylpyrazol-4-yl, 1,5-dimethylpyrazol-4-yl, 1,5-dimethyl-1,2,4-triazol-3-yl, imidazol-1-yl, 1-difluoromethylpyrazol-3-yl, 1-difluoromethylpyrazol-4-yl and thiazol-2-yl;

R^{7e} is selected from hydrogen, fluoro, chloro, bromo, -CN, -P(O)(CH₃)₂, -S(O)₂CH(CH₃)₂, -S(O)₂CH₂CH₃, -S(O)₂N(CH₃)₂, -C(O)NHCH₃, pyridin-4-yl, pyridazin-4-yl, 5-methyl-1H-pyrazol-4-yl, 1-methylpyrazol-4-yl, 4-methyl-1H-imidazol-1-yl, 1H-benzo[d]imidazol-5-yl, 6-(trifluoromethyl)-1H-pyrrolo[3,2-c]pyridin-3-yl, 1-methyl-6-(trifluoromethyl)-1H-pyrrolo[3,2-c]pyridin-3-yl, isoquinolin-7-yl, isoquinolin-5-yl, pyrazin-2-yl, 2H-indazol-6-yl, 3,5-dimethylisoxazol-4-yl, thiazol-2-yl, 4-methylpyridin-3-yl, 1-methylindazol-6-yl, quinolin-4-yl, benzo[d]thiazol-6-yl, and 1,3-dimethylpyrazol-4-yl; and

R¹⁴ is selected from -CH₃, -CF₃, -CH₂CH₃, -CH₂CF₃, -CH₂CH₂F, and -CH(CH₃)₂.

21. The compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of claim 19, wherein:

R^{2a} is selected from hydrogen and -CH₃;

R^{2b} is selected from hydrogen, and -CH₃;

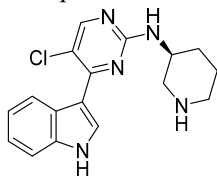
R^{7d} is selected from hydrogen, -CN, pyrazin-2-yl, thiazol-2-yl, and 3,5-dimethylisoxazol-4-yl;

R^{7e} is selected from hydrogen, fluoro, -C(O)NHCH₃, -P(O)(CH₃)₂, -S(O)₂CH₃, -S(O)₂N(CH₃)₂, 1,3-dimethylpyrazol-4-yl, and pyridazin-4-yl; and

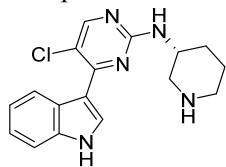
R¹⁴ is selected from -CH₂CH₃, and -CF₃.

22. The compound of claim 1, the salt or stereoisomer thereof, or the solvate, hydrate, tautomer, or isotopically labeled derivative of claim 2, wherein the compound is:

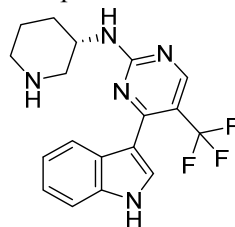
Compound 100



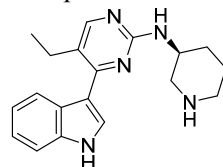
Compound 101



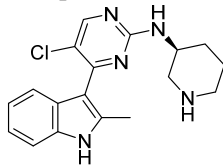
Compound 102



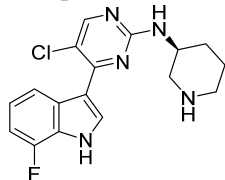
Compound 105



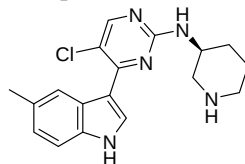
Compound 106



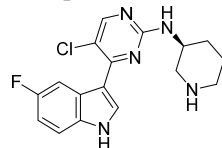
Compound 107



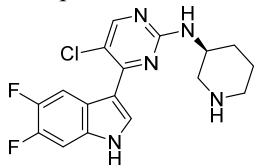
Compound 108



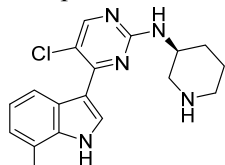
Compound 109



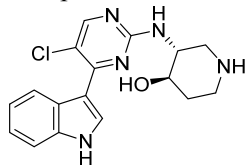
Compound 111



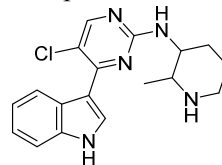
Compound 112



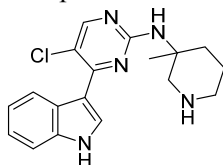
Compound 113



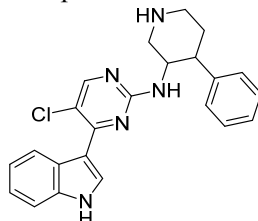
Compound 114



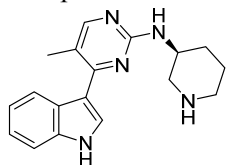
Compound 115



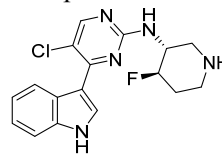
Compound 116



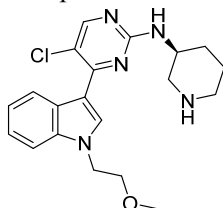
Compound 119



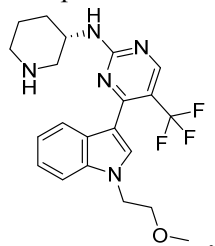
Compound 121



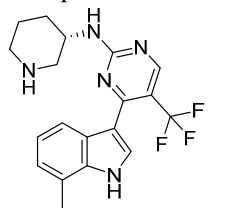
Compound 122



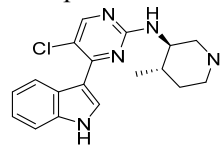
Compound 123



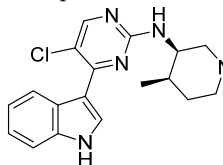
Compound 124



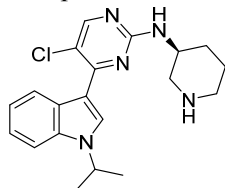
Compound 125



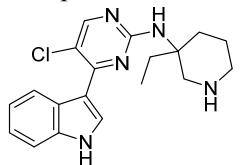
Compound 126



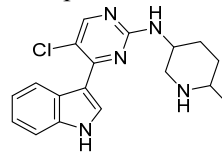
Compound 127



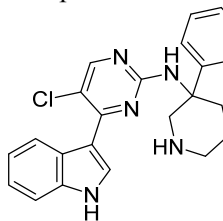
Compound 128



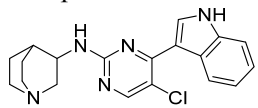
Compound 129



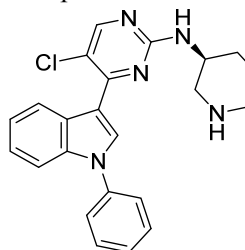
Compound 130



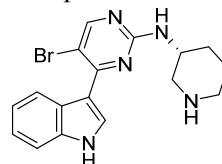
Compound 131



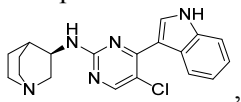
Compound 132



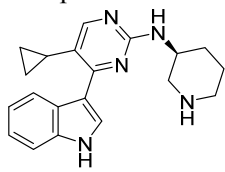
Compound 133



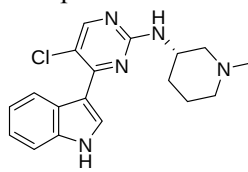
Compound 134



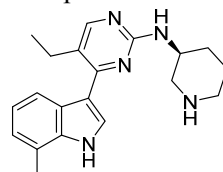
Compound 135



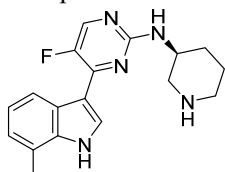
Compound 136



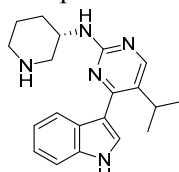
Compound 137



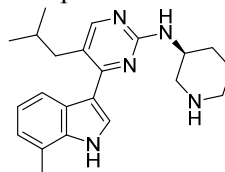
Compound 138



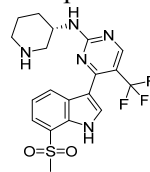
Compound 139



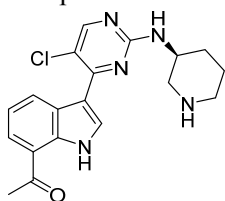
Compound 140



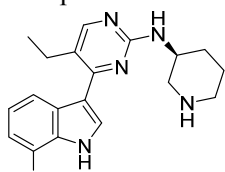
Compound 141



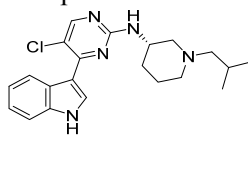
Compound 142



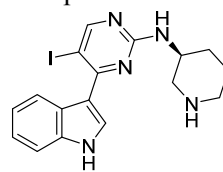
Compound 144



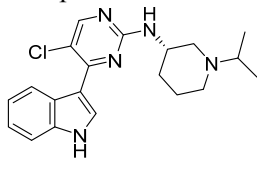
Compound 145



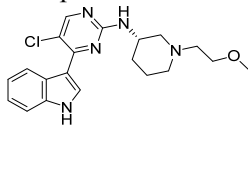
Compound 147



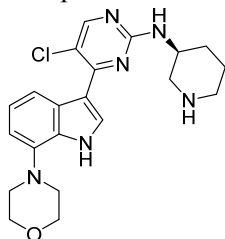
Compound 148



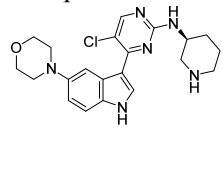
Compound 149



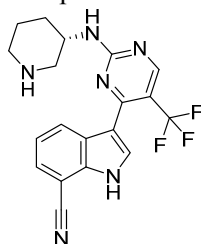
Compound 150



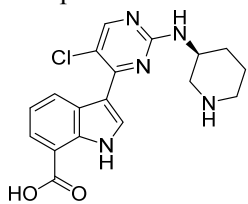
Compound 151



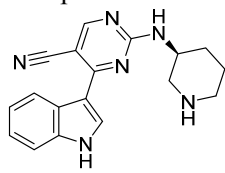
Compound 153



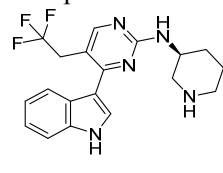
Compound 154



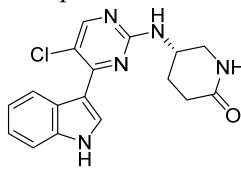
Compound 157



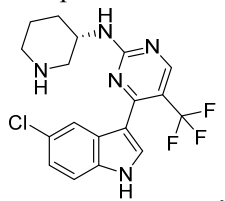
Compound 158



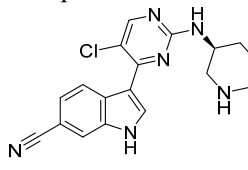
Compound 159



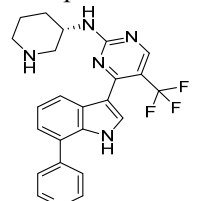
Compound 160



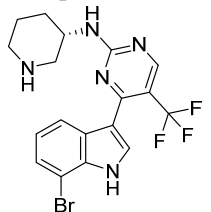
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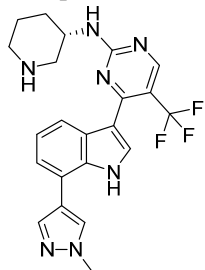
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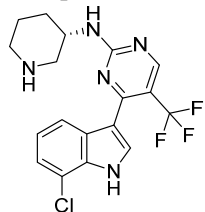
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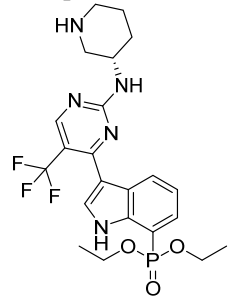
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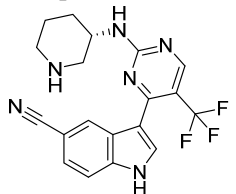
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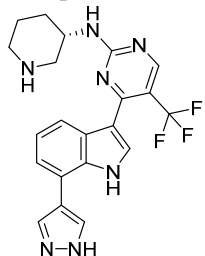
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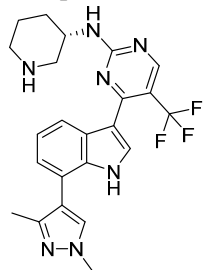
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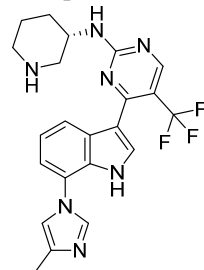
Compound 170



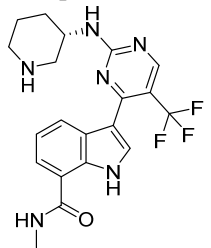
Compound 171



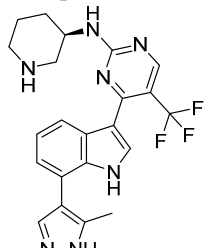
Compound 172



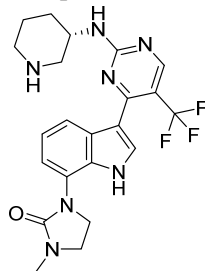
Compound 173



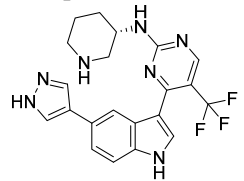
Compound 175



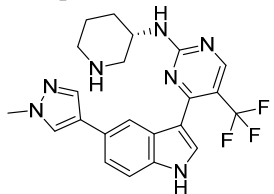
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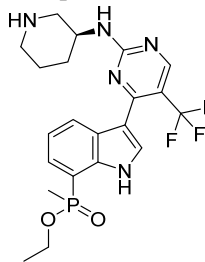
Compound 177



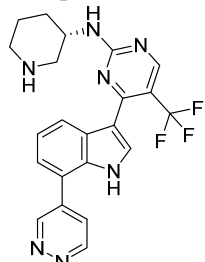
Compound 178



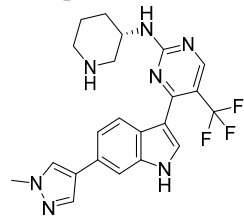
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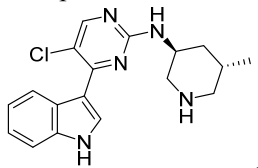
Compound 180



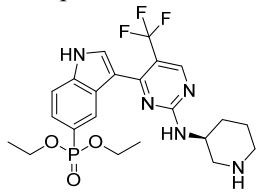
Compound 181



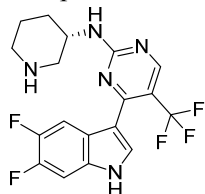
Compound 182



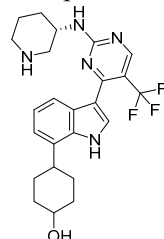
Compound 183



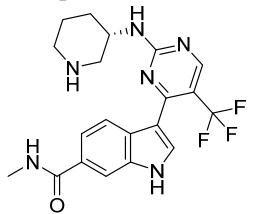
Compound 184



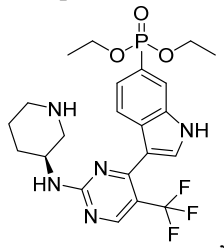
Compound 185



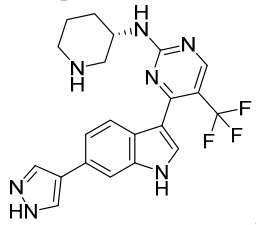
Compound 186



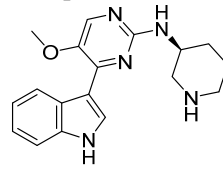
Compound 187



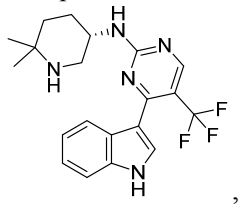
Compound 188



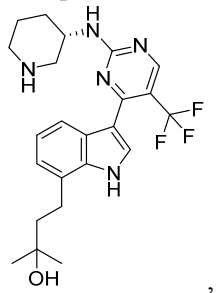
Compound 189



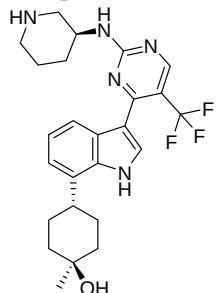
Compound 190



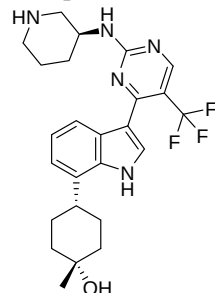
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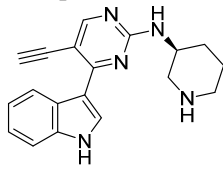
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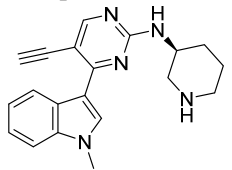
Compound 193



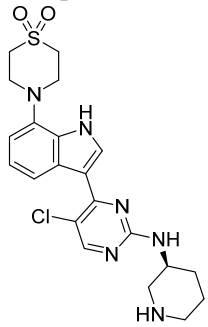
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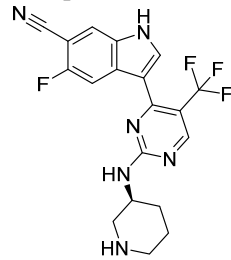
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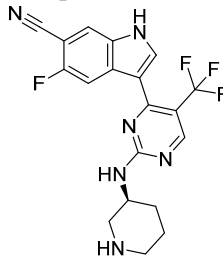
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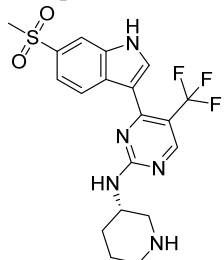
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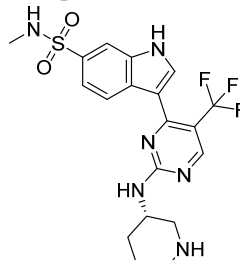
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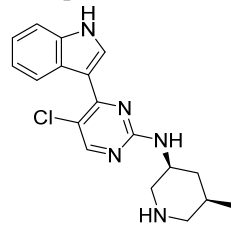
Compound 199



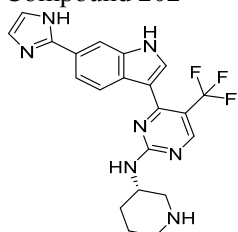
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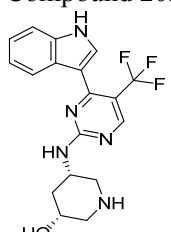
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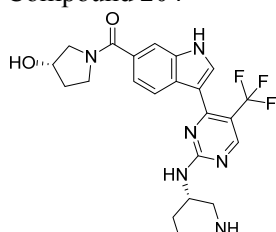
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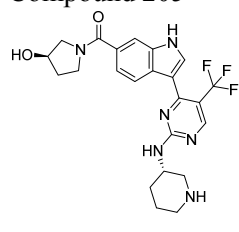
Compound 203



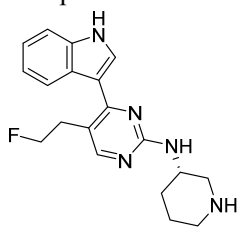
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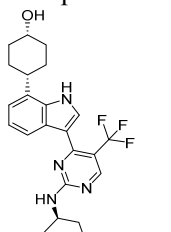
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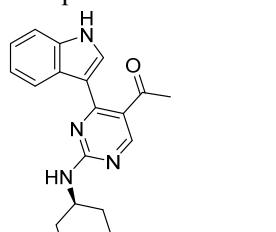
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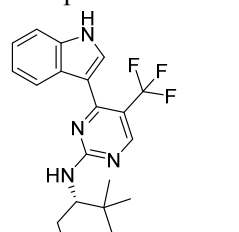
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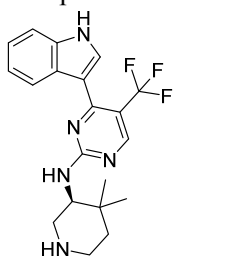
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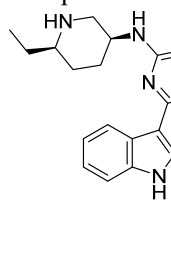
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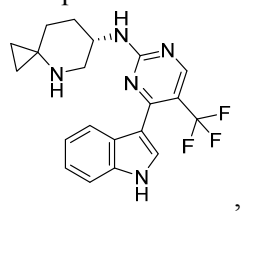
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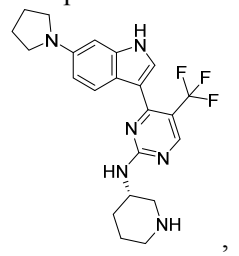
Compound 211



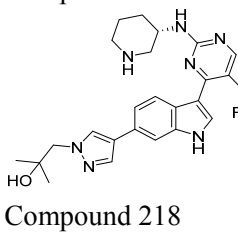
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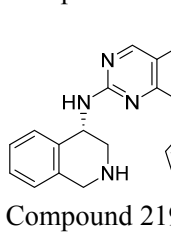
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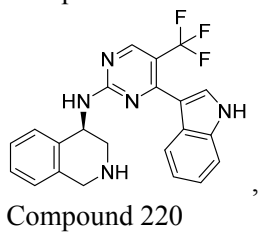
Compound 214



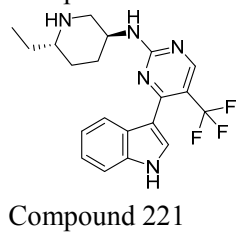
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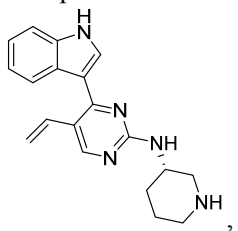
Compound 216



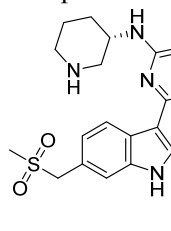
Compound 217



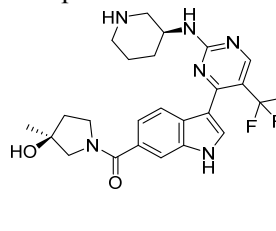
Compound 218



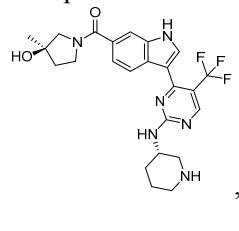
Compound 219



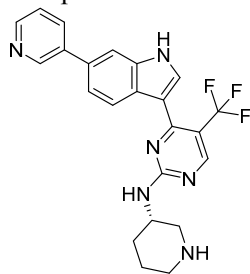
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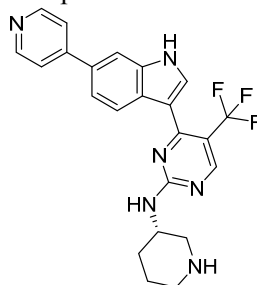
Compound 221



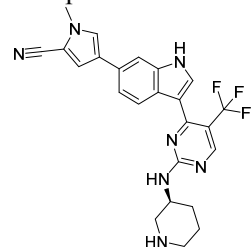
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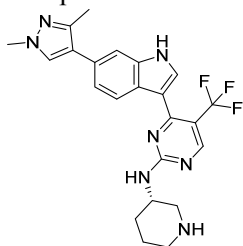
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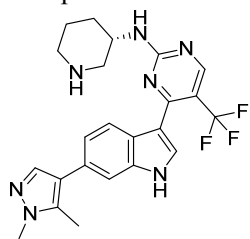
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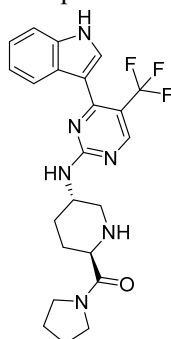
Compound 226



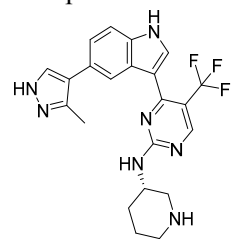
Compound 227



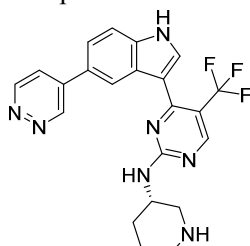
Compound 228



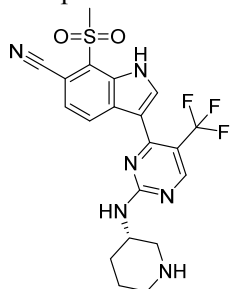
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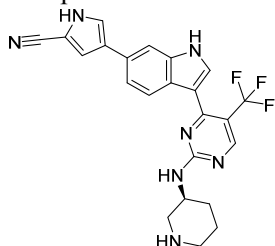
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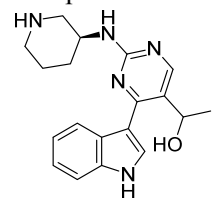
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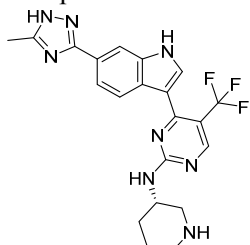
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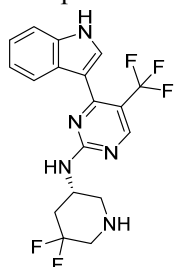
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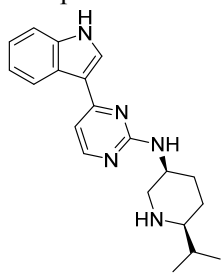
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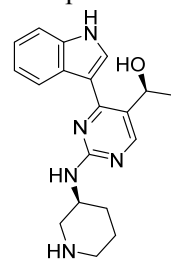
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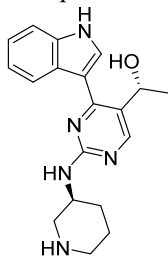
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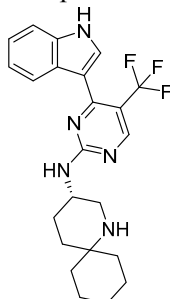
Compound 238



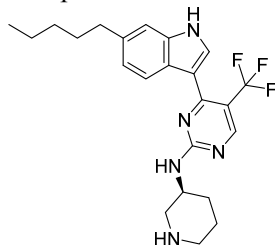
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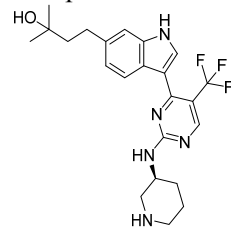
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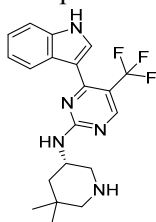
Compound 241



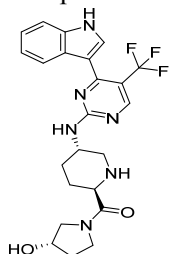
Compound 242



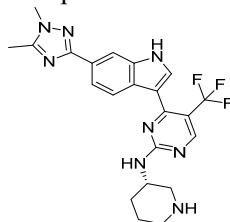
Compound 243



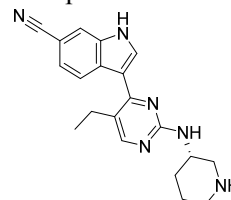
Compound 244



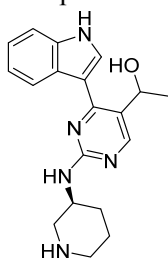
Compound 245



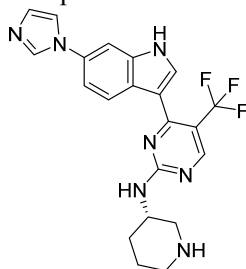
Compound 246



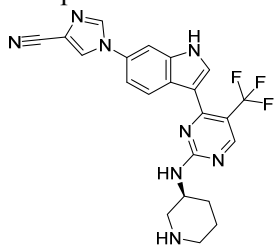
Compound 247



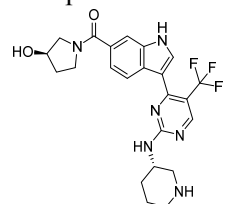
Compound 248



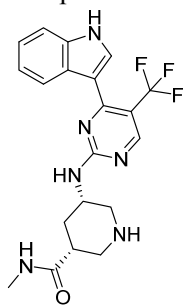
Compound 249



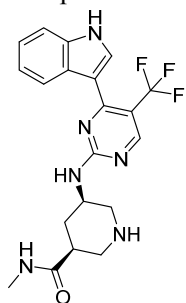
Compound 250



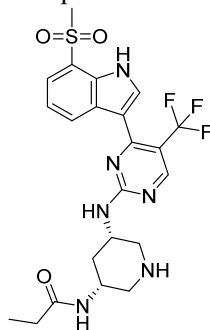
Compound 252



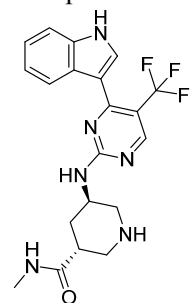
Compound 253



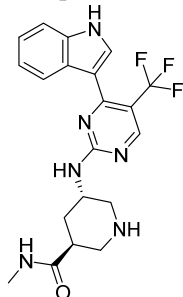
Compound 254



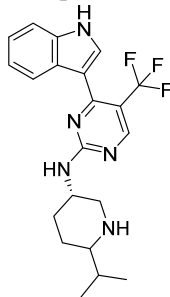
Compound 255



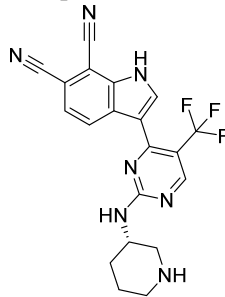
Compound 256



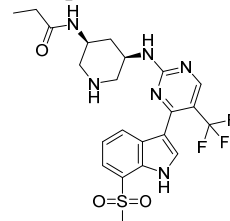
Compound 257



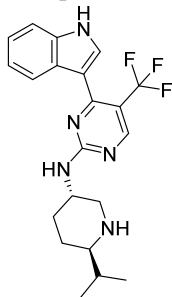
Compound 258



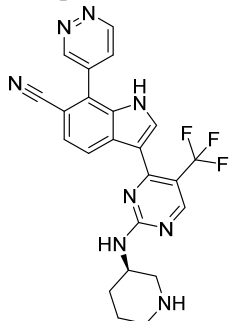
Compound 259



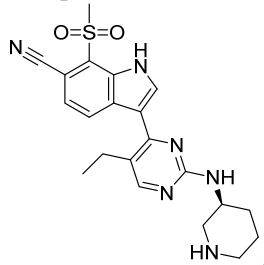
Compound 260



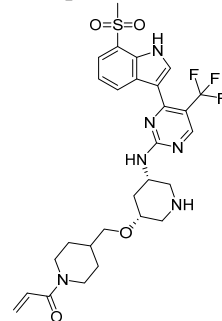
Compound 261



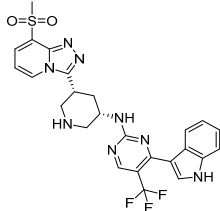
Compound 263



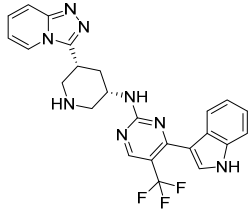
Compound 264



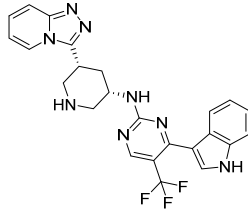
Compound 265



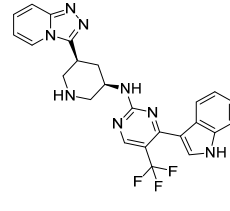
Compound 266



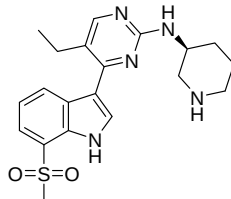
Compound 267



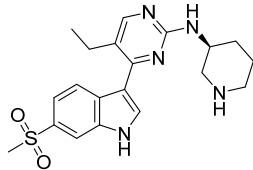
Compound 268



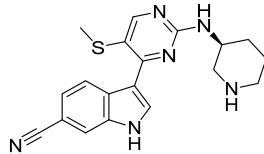
Compound 269



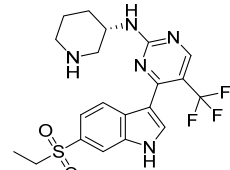
Compound 271



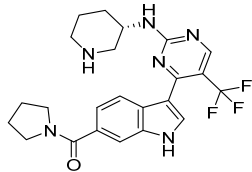
Compound 272



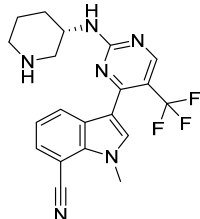
Compound 274



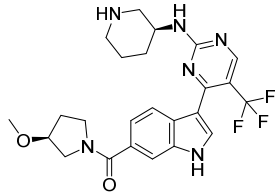
Compound 278



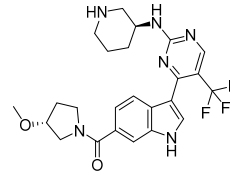
Compound 279



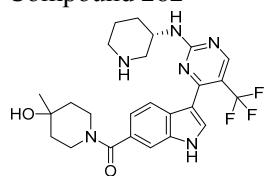
Compound 280



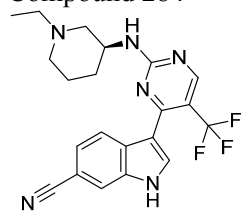
Compound 281



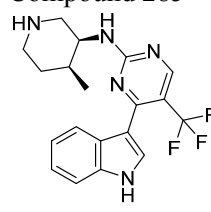
Compound 282



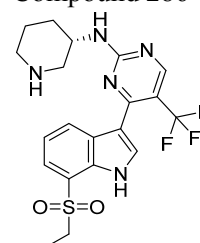
Compound 284



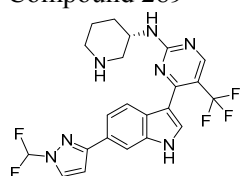
Compound 285



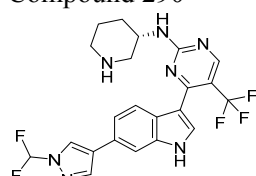
Compound 286



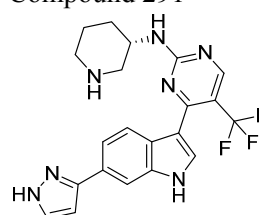
Compound 289



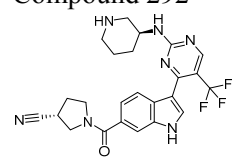
Compound 290



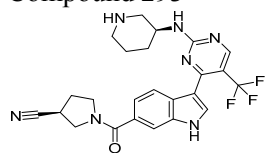
Compound 291



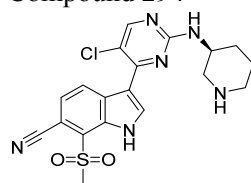
Compound 292



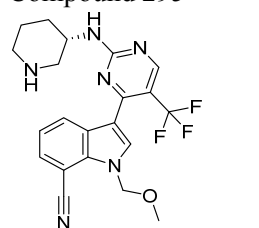
Compound 293



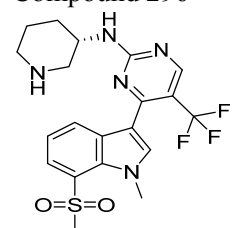
Compound 294



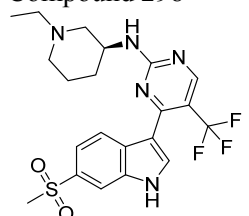
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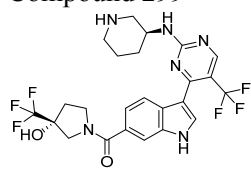
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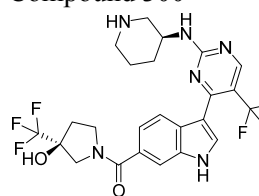
Compound 298



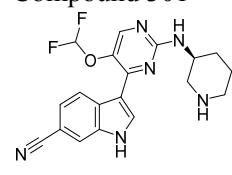
Compound 299



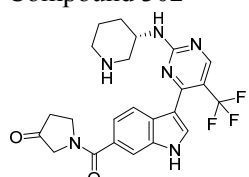
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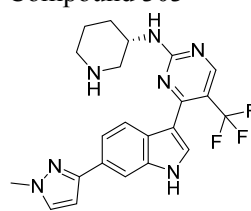
Compound 301



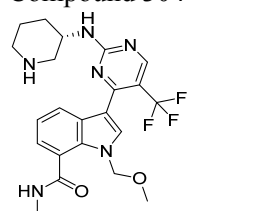
Compound 302



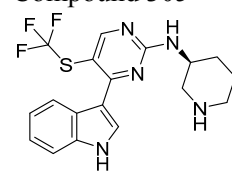
Compound 303



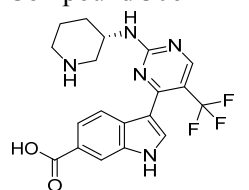
Compound 304



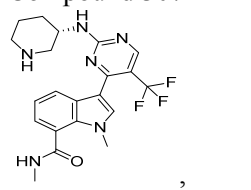
Compound 305



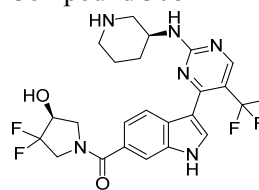
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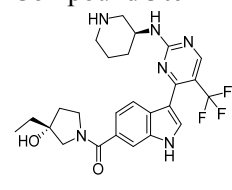
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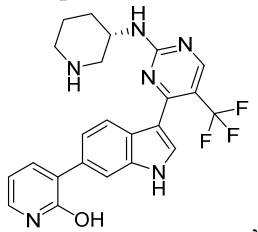
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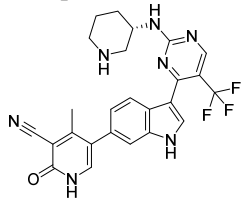
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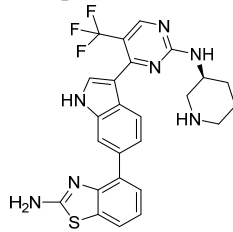
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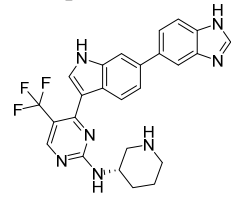
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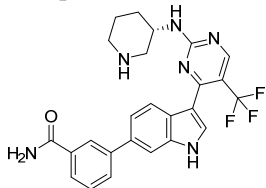
Compound 312



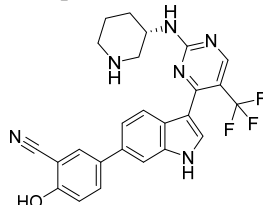
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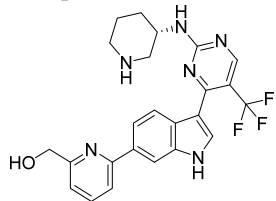
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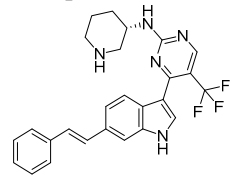
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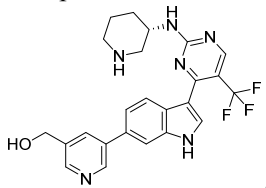
Compound 316



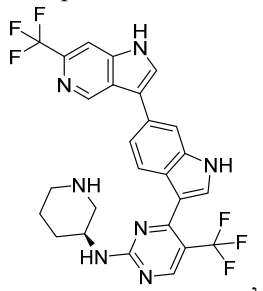
Compound 317



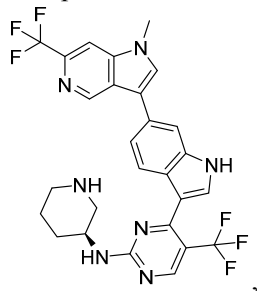
Compound 318



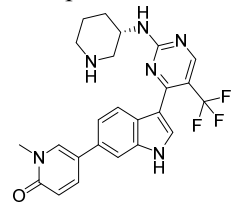
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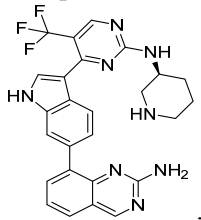
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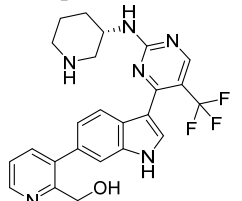
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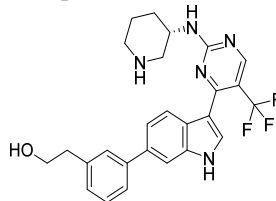
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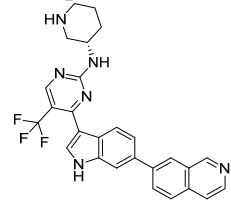
Compound 323



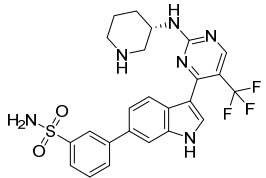
Compound 324



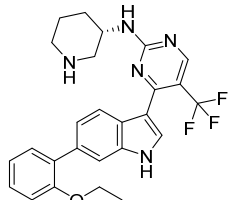
Compound 325



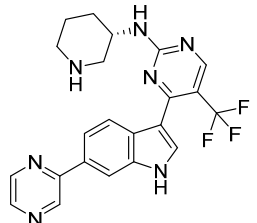
Compound 326



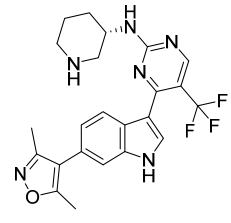
Compound 327



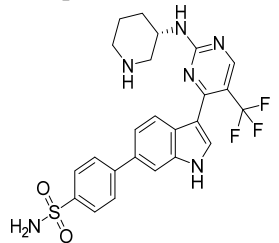
Compound 328



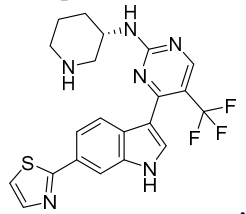
Compound 330



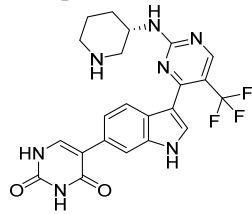
Compound 331



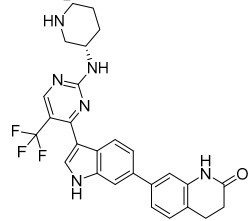
Compound 332



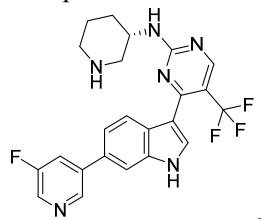
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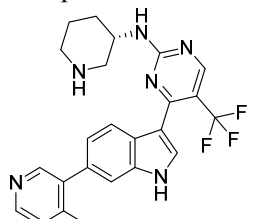
Compound 334



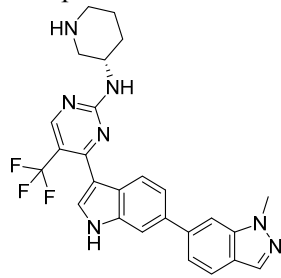
Compound 335



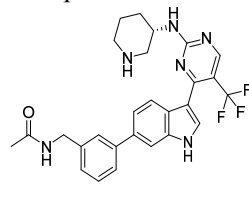
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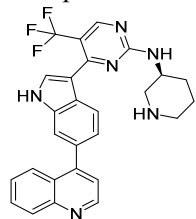
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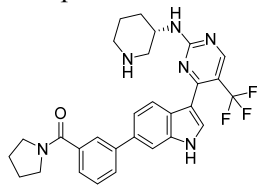
Compound 338



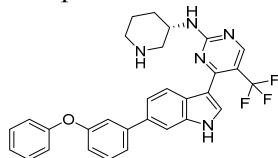
Compound 339



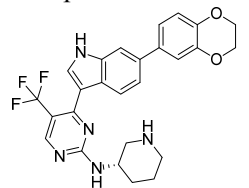
Compound 340



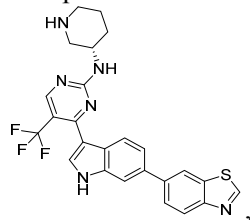
Compound 341



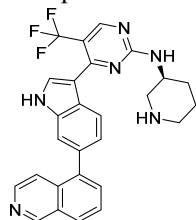
Compound 342



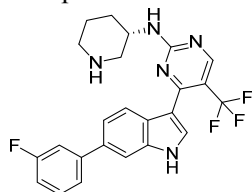
Compound 343



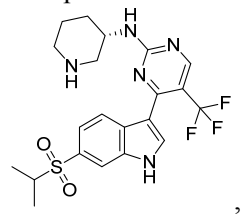
Compound 344



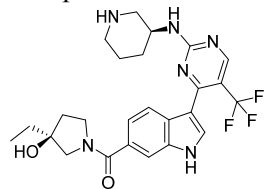
Compound 345



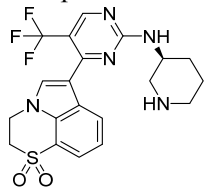
Compound 346



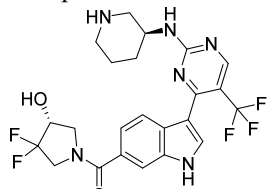
Compound 347



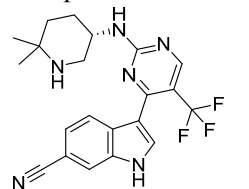
Compound 348



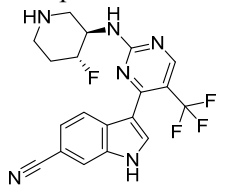
Compound 349



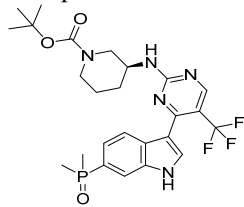
Compound 350



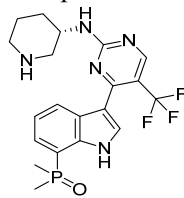
Compound 351



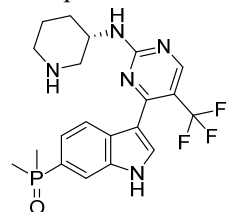
Compound 352



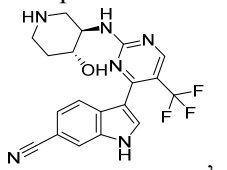
Compound 353



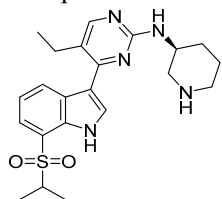
Compound 354



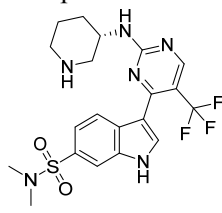
Compound 355



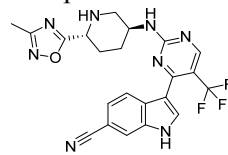
Compound 356



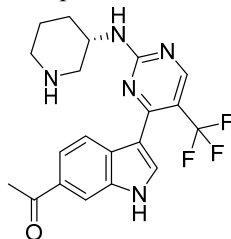
Compound 357



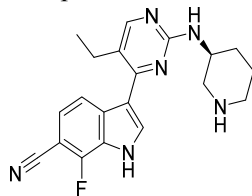
Compound 358



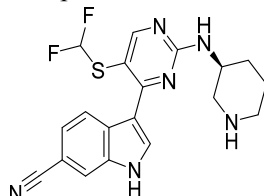
Compound 359



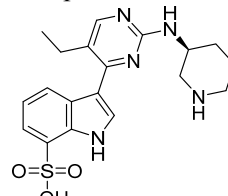
Compound 360



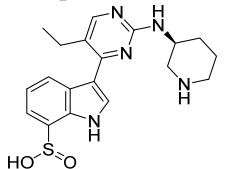
Compound 361



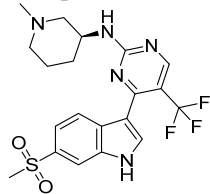
Compound 362



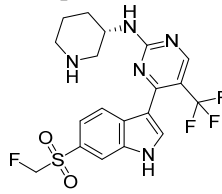
Compound 363



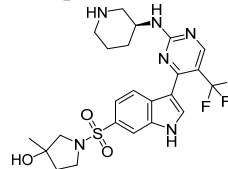
Compound 364



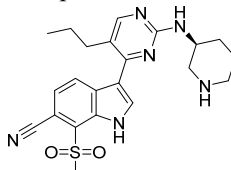
Compound 365



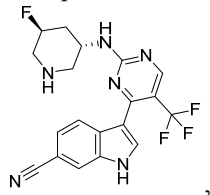
Compound 366



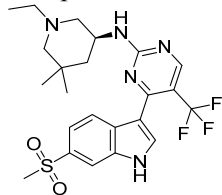
Compound 367



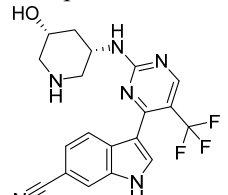
Compound 368



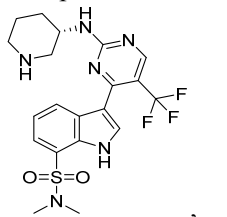
Compound 369



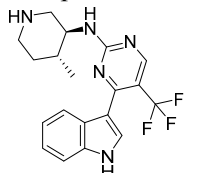
Compound 370



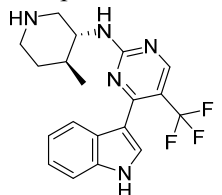
Compound 371



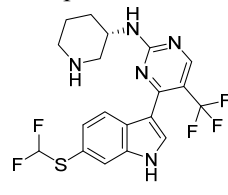
Compound 372



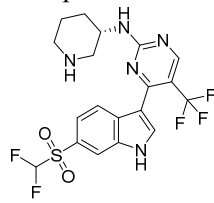
Compound 373



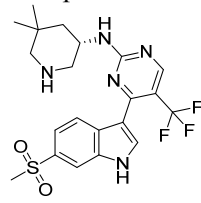
Compound 374



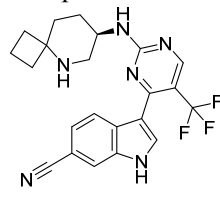
Compound 375



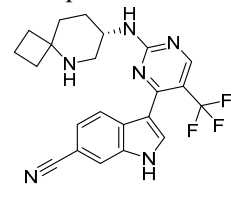
Compound 376



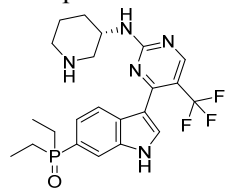
Compound 377



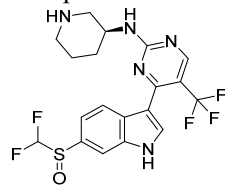
Compound 378



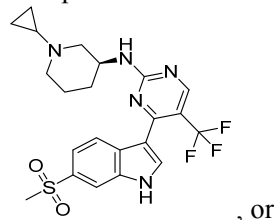
Compound 379



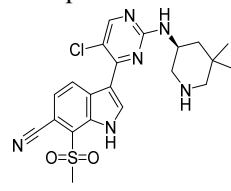
Compound 380



Compound 381



Compound 382



23. A pharmaceutical composition comprising the compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-22 and a pharmaceutically acceptable excipient.

24. A compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-22 or a pharmaceutical composition of claim 23 for use in treating a subject suffering from cancer, a benign neoplasm, angiogenesis, an inflammatory disease, an autoinflammatory disease, an autoimmune disease, or an infectious disease.

25. The compound or pharmaceutical composition according to claim 24, wherein the subject is a mammal and/or the subject is suffering from cancer.

26. The compound or pharmaceutical composition according to claim 25, wherein the cancer is selected from a blood cancer, melanoma, a bone cancer, a breast cancer, a brain cancer, or a lung cancer.

27. The compound or pharmaceutical composition according to claim 26, wherein the cancer is a blood cancer selected from chronic lymphocytic leukemia (CLL), acute lymphoblastic leukemia (ALL), T-cell acute lymphoblastic leukemia (T-ALL), chronic myelogenous leukemia (CML), acute myelogenous leukemia (AML), lymphoma, and multiple myeloma.

28. The compound or pharmaceutical composition according to claim 26, wherein the cancer is a bone cancer selected from osteosarcoma and Ewing's sarcoma.

29. The compound or pharmaceutical composition according to claim 26, wherein the breast cancer is triple-negative breast cancer (TNBC).

30. The compound or pharmaceutical composition according to claim 26, wherein the brain cancer is a neuroblastoma.

31. The compound or pharmaceutical composition according to claim 26, wherein the lung cancer is a small cell lung cancer (SCLC).

32. Use of the compound, salt, stereoisomer, solvate, hydrate, tautomer, or isotopically labeled derivative of any one of claims 1-22 or the pharmaceutical composition of claim 23 in the manufacture of a medicament for treating a subject suffering from cancer, a benign neoplasm, angiogenesis, an inflammatory disease, an autoinflammatory disease, an autoimmune disease, or an infectious disease.

33. The use according to claim 32, wherein the subject is a mammal and/or the subject is suffering from cancer.

34. The use according to claim 32, wherein the cancer is selected from a blood cancer, melanoma, a bone cancer, a breast cancer, a brain cancer, or a lung cancer.

35. The use according to claim 34, wherein the cancer is a blood cancer selected from chronic lymphocytic leukemia (CLL), acute lymphoblastic leukemia (ALL), T-cell acute lymphoblastic leukemia (T-ALL), chronic myelogenous leukemia (CML), acute myelogenous leukemia (AML), lymphoma, and multiple myeloma.

36. The use according to claim 34, wherein the bone cancer is osteosarcoma or Ewing's sarcoma.

37. The use according to claim 34, wherein the breast cancer is a triple-negative breast cancer (TNBC).

38. The use according to claim 34, wherein the brain cancer is a neuroblastoma.

39. The use according to claim 34, wherein the lung cancer is a small cell lung cancer (SCLC).