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(54) Title: SUBSTITUTED INDOLES AND METHODS OF USE THEREOF

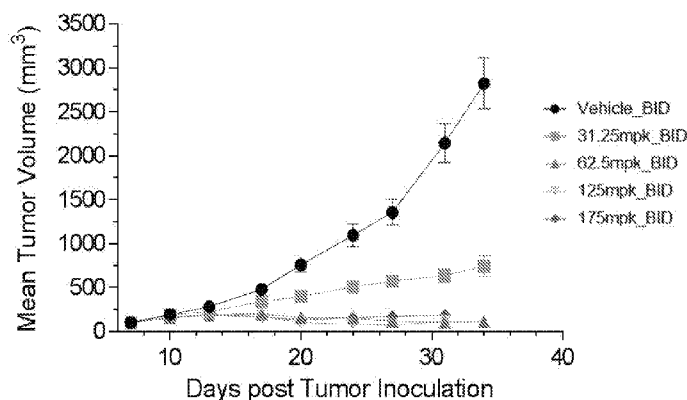
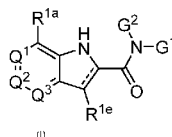


Fig. 4



(57) **Abstract:** The present disclosure provides substituted indole compounds of Formula I: (I) and the pharmaceutically acceptable salts and solvates thereof, wherein R^{1a} , R^{1e} , G_1 , G_2 , Q^1 , Q^2 , Q^3 , and (II) are defined as set forth in the specification. The present disclosure is also directed to the use of compounds of Formula I to treat a disease, disorder, or condition such as cancer in a subject.



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SUBSTITUTED INDOLES AND METHODS OF USE THEREOF

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present disclosure provides substituted indoles and methods of use thereof. In some embodiments, the substituted indoles are SETD2 protein inhibitors. In some embodiments, the substituted indoles may be used in methods of treating diseases, disorders, or conditions in a subject.

Background

[0002] The selective addition of methyl groups to specific amino acid sites on histones is controlled by the action of a family of enzymes known as histone methyltransferases (HMTs). The level of expression of a particular gene is influenced by the presence or absence of one or more methyl groups at a relevant histone site. The specific effect of a methyl group at a particular histone site persists until the methyl group is removed by a histone demethylase, or until the modified histone is replaced through nucleosome turnover. In a like manner, other enzyme classes can decorate DNA and histones with other chemical species, and still other enzymes can remove these species to provide control of gene expression.

[0003] SETD2 is a human histone methyltransferase located at the cytogenic band p21.31 of chromosome 3 (3p21.31). The acronym "SETD2" stands for Suppressor of variegation, Enhancer of zeste, and Tritorax domain containing 2. The SETD2 protein comprises three conserved functional domains: (1) the triplicate AWS-SET-PostSET domain; (2) a WW domain; and (3) a Set2-Rbp1 interacting ("SRI") domain. These three functional domains define the biological function of SETD2. *See, Li, J. et al., Oncotarget 7:50719-50734 (2016).* SETD2 is believed to be the single human gene responsible for the trimethylation of lysine 36 (Lys-36) of histone H3 (H3K36me3) using dimethylated Lys-36 (H3K36me2) as substrate. Edmunds, J.W. *et al., The EMBO Journal 27:406-420 (2008).*

[0004] Human SETD2 has been shown to have tumor suppressor functionality. *Li, J. et al., Oncotarget 7:50719-50734 (2016).* For example, inactivation of human SETD2 has been reported in renal cell carcinoma (RCC). Larkin, J., *et al., Nature Reviews 9:147-155*

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(2012). Also, expression levels of SETD2 in breast cancer samples have been reported as significantly lower than in adjacent non-cancerous tissue (ANCT) samples. Newbold, R.F. and Mokbel, K., *Anticancer Research* 30: 3309-3311 (2010). Additionally, biallelic mutations and loss-of-function point mutations in SETD2 were reported in patients with acute leukemia. Zhu, X. *et al.*, *Nature Genetics* 46: 287-293 (2014). Mutations in SETD2 have also been reported in pediatric high-grade gliomas. Fontebasso, A.M. *et al.*, *Acta Neuropathol.* 125: 659-669 (2013).

BRIEF SUMMARY OF THE INVENTION

- [0005]** The present disclosure relates to the surprising and unexpected discovery that inhibiting human SETD2 protein, despite its known functionality as a tumor suppressor, can be used to treat cancer. The present disclosure also provides novel substituted indoles. In some embodiments, the substituted indoles are inhibitors of SETD2. In some embodiments, the substituted indoles may be used in methods of treating diseases, e.g., cancer, disorders, or conditions in a subject. In some embodiments, the substituted indoles display selective anti-proliferative effects in t(4;14) multiple myeloma cell lines.
- [0006]** In one aspect, the present disclosure provides substituted indoles represented by any one of Formulae **I**, **II**, **II-A**, **III**, **III-A**, **IV**, **IV-A**, **IV-B**, **IV-C**, **IV-D**, **V**, **V-A**, **V-B**, **VI**, **VII**, **VII-A**, **VII-B**, **VII-C**, **VII-D**, **VII-E**, **VII-F**, **VII-G**, **VII-H**, **VIII**, **VIII-A**, and **VIII-B**, below, and the pharmaceutically acceptable salts and solvates thereof, collectively referred to herein as "Compounds of the Disclosure."
- [0007]** In another aspect, the present disclosure provides a pharmaceutical composition comprising a Compound of the Disclosure and one or more pharmaceutically acceptable carriers.
- [0008]** In another aspect, the present disclosure provides a method of inhibiting SETD2 protein in a subject, comprising administering to the mammal an effective amount of at least one Compound of the Disclosure.
- [0009]** In another aspect, the present disclosure provides methods for treating a disease, disorder, or condition, e.g., cancer, in a subject, comprising administering a therapeutically effective amount of a Compound of the Disclosure to a subject.
- [0010]** In another aspect, the present disclosure provides methods for treating a disease, disorder, or condition, e.g., cancer, responsive to inhibition of SETD2 protein comprising

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administering a therapeutically effective amount of a Compound of the Disclosure to a subject.

- [0011] In another aspect, the present disclosure provides the use of Compounds of the Disclosure as inhibitors of SETD2 protein.
- [0012] In another aspect, the present disclosure provides a pharmaceutical composition for treating a disease, disorder, or condition responsive to inhibition of SETD2 protein, wherein the pharmaceutical composition comprises a therapeutically effective amount of a Compound of the Disclosure in a mixture with one or more pharmaceutically acceptable carriers.
- [0013] In another aspect, the present disclosure provides Compounds of the Disclosure for use in treating cancer, e.g., multiple myeloma, in a subject in need thereof
- [0014] In another aspect, the present disclosure provides a Compound of the Disclosure for use in the manufacture of a medicament for treating cancer in a mammal.
- [0015] In another aspect, the present disclosure provides a kit comprising a Compound of the Disclosure.
- [0016] In another aspect, the present disclosure provides a method of treating a subject having multiple myeloma, the method comprising: (a) determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject; and (b) administering a therapeutically effective amount of a Compound of the Disclosure to the subject if a chromosomal translocation is present in the biological sample.
- [0017] Additional embodiments and advantages of the disclosure will be set forth, in part, in the description that follows, and will flow from the description, or can be learned by practice of the disclosure. The embodiments and advantages of the disclosure will be realized and attained by means of the elements and combinations particularly pointed out in the appended claims.
- [0018] It is to be understood that both the foregoing summary and the following detailed description are exemplary and explanatory only, and are not restrictive of the invention as claimed.

BRIEF DESCRIPTION OF DRAWINGS

- [0019] Fig. 1 is a scatter graph showing the selective anti-proliferative effects of Cpd. No. 15 in t(4;14) and non- t(4;14) multiple myeloma cell lines.

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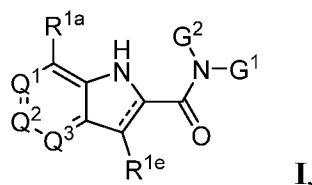
- [0020] Fig. 2 is a line graph showing that KMS-34, a t(4;14) multiple myeloma cell line has a cytotoxic response to Cpd. No. 15 with an proliferation IC_{50} of 80 nM in a 14-day assay. The Y-axis is the cell number at each time point on a log scale. Each line represents the indicated dose of Cpd. No. 15.
- [0021] Fig. 3 is a line graph comparing the H3K36me3 inhibition potency and the anti-proliferative potency of representative Compounds of the Disclosure. Each point represents a Compound of the Disclosure run in an A549 H3K36me3 assay and a KMS-34 proliferation assay.
- [0022] Fig. 4 is a line graph showing the antitumor activity of Cpd. No. 15 in the KMS11 xenograft model.
- [0023] Fig. 5 is a line graph showing the antitumor activity of Cpd. No. 15 in the MM.1S xenograft model

DETAILED DESCRIPTION OF THE INVENTION

- [0024] Compounds of the Disclosure are useful for treating diseases, disorders, or conditions, e.g., cancer, in a subject. In one embodiment, the diseases, disorders, or conditions are responsive to SETD2 protein inhibition. In some embodiments, the Compounds of the Disclosure are SETD2 inhibitors.

I. Compounds of the Disclosure

- [0025] In one embodiment, Compounds of the Disclosure are compounds having Formula I:



wherein:

- [0026] R^{1a} is selected from the group consisting of halogen, alkyl, alkoxy, cycloalkyl, (hydroxy)alkyl, and (cycloalkyl)alkyl;
- [0027] Q^1 is selected from the group consisting of $-C(R^{1b})=$ and $-N=$;
- [0028] Q^2 is selected from the group consisting of $-C(R^{1c})=$ and $-N=$;
- [0029] Q^3 is selected from the group consisting of $-C(R^{1d})=$ and $-N=$;
- [0030] provided that at least one of Q^1 , Q^2 , or Q^3 is $-C(R^{1b})=$, $-C(R^{1c})=$, or $-C(R^{1d})=$, respectively;

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[0031] R^{1b} , R^{1c} , and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, alkyl, alkenyl, (hydroxy)alkyl, and alkoxy;

[0032] R^{1e} is selected from the group consisting of hydrogen, halogen, alkyl, cycloalkyl, (hydroxy)alkyl, and (cycloalkyl)alkyl;

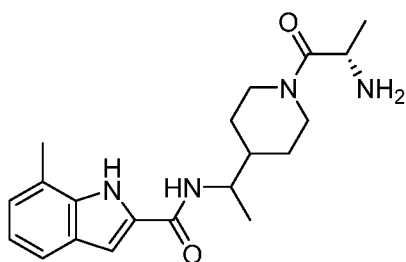
[0033] $\equiv$ is a single or double bond;

[0034] G^1 is selected from the group consisting of optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, optionally substituted cycloalkyl, (aryl)alkyl, (heteroaryl)alkyl, (heterocyclo)alkyl, (amino)(aryl)alkyl, (heteroaryl)(aryl)alkyl, (heteroaryl)(heterocyclo)alkyl, (heteroaryl)(carboxamido)alkyl, (heteroaryl)(cycloalkyl)alkyl, (aryl)(alkoxycarbonyl)alkyl, (cycloalkyl)alkyl, (heteroaryl)(amino)alkyl, (cycloalkyl)(alkoxycarbonyl)alkyl, (heteroaryl)(alkoxycarbonyl)alkyl, (heterocyclo)(cycloalkyl)alkyl, (aryl)(cycloalkyl)alkyl, (aryl)(hydroxy)alkyl, (cycloalkyl)(hydroxy)alkyl, (hydroxy)alkyl, optionally substituted alkyl, (aryl)(haloalkyl)alkyl, (cycloalkyl)(haloalkyl)alkyl, (hydroxy)(haloalkyl)alkyl, and (alkoxycarbonyl)(haloalkyl)alkyl; and

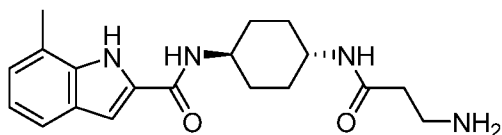
[0035] G^2 is selected from the group consisting of hydrogen and alkyl; or

[0036] G^1 and G^2 taken together with the nitrogen atom to which they are attached form an optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

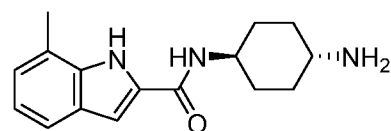
[0037] In another embodiment, the compound having Formula I is not:



N-(1-(1-(L-alanyl)piperidin-4-yl)ethyl)-7-methyl-1H-indole-2-carboxamide ;



N-(((1r,4r)-4-(3-aminopropanamido)cyclohexyl)-7-methyl-1H-indole-2-carboxamide ; or



N-(((1r,4r)-4-aminocyclohexyl)-7-methyl-1H-indole-2-carboxamide .

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[0038] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein:

[0039] R^{1a} is selected from the group consisting of halogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₃-C₈ cycloalkyl, (hydroxy)C₁₋₆ alkyl, and (C₃-C₆ cycloalkyl)C₁₋₆ alkyl;

[0040] R^{1b}, R^{1c}, and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, C₁-C₆ alkyl, C₂-C₆ alkenyl, (hydroxy)C₁₋₆ alkyl, and C₁-C₆ alkoxy;

[0041] R^{1e} is selected from the group consisting of hydrogen and C₁-C₆ alkyl;

[0042] G¹ is selected from the group consisting of optionally substituted C₆-C₁₀ aryl, optionally substituted 5- to 10-membered heteroaryl, optionally substituted 3- to 10-membered heterocyclo, optionally substituted C₃-C₈ cycloalkyl, (C₆-C₁₀ aryl)C₁-C₆ alkyl, (5- to 10-membered heteroaryl)C₁-C₆ alkyl, (3- to 10-membered heterocyclo)C₁-C₆ alkyl, (amino)(C₆-C₁₀ aryl)C₁-C₆ alkyl, (5- to 14-membered heteroaryl)(C₆-C₁₀ aryl)C₁-C₆ alkyl, (5- to 10-membered heteroaryl)(3- to 10-membered heterocyclo)C₁-C₆ alkyl, (5- to 10-membered heteroaryl)(carboxamido)C₁-C₆ alkyl, (5- to 10-membered heteroaryl)(C₃-C₆ cycloalkyl)C₁-C₆ alkyl, (C₆-C₁₀ aryl)(alkoxycarbonyl)C₁-C₆ alkyl, (C₃-C₆ cycloalkyl)C₁-C₆ alkyl, (5- to 10-membered heteroaryl)(amino)C₁-C₆ alkyl, (C₃-C₆ cycloalkyl)(alkoxycarbonyl)C₁-C₆ alkyl, (5- to 14-membered heteroaryl)(alkoxycarbonyl)C₁-C₆ alkyl, (3- to 14-membered heterocyclo)(C₃-C₈ cycloalkyl)C₁-C₆ alkyl, (C₆-C₁₀ aryl)(C₃-C₈ cycloalkyl)C₁-C₆ alkyl, (C₆-C₁₀ aryl)(hydroxy)C₁-C₆ alkyl, (C₃-C₆ cycloalkyl)(hydroxy)C₁-C₆ alkyl, (hydroxy)C₁-C₆ alkyl, optionally substituted C₁-C₆ alkyl, (C₆-C₁₀ aryl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl, (C₃-C₆ cycloalkyl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl, (hydroxy)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; and (alkoxycarbonyl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; and

[0043] G² is selected from the group consisting of hydrogen and C₁-C₆ alkyl; or

[0044] G¹ and G² taken together with the nitrogen atom to which they are attached form a 5- to 10-membered optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

[0045] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein:

[0046] R^{1a} is selected from the group consisting of halogen, C₁-C₃ alkyl, C₁-C₃ alkoxy, C₃-C₆ cycloalkyl, (hydroxy)C₁₋₄ alkyl, and (C₃-C₆ cycloalkyl)C₁₋₄ alkyl;

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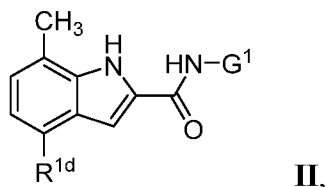
- [0047] R^{1b} , R^{1c} , and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, C_1 - C_3 alkyl, C_2 - C_4 alkenyl, (hydroxy) C_1 - C_4 alkyl, and C_1 - C_3 alkoxy;
- [0048] R^{1e} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl;
- [0049] G^1 is selected from the group consisting of optionally substituted C_6 - C_{10} aryl, optionally substituted 5- to 10-membered heteroaryl, optionally substituted 3- to 10-membered heterocyclo, optionally substituted C_3 - C_8 cycloalkyl, (C_6 - C_{10} aryl) C_1 - C_4 alkyl, (5- to 10-membered heteroaryl) C_1 - C_6 alkyl, (3- to 10-membered heterocyclo) C_1 - C_4 alkyl, (amino)(C_6 - C_{10} aryl) C_1 - C_6 alkyl, (5- to 14-membered heteroaryl)(C_6 - C_{10} aryl) C_1 - C_4 alkyl, (5- to 10-membered heteroaryl)(3- to 10-membered heterocyclo) C_1 - C_4 alkyl, (5- to 10-membered heteroaryl)(carboxamido) C_1 - C_4 alkyl, (5- to 10-membered heteroaryl)(C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, (C_6 - C_{10} aryl)(alkoxycarbonyl) C_1 - C_4 alkyl, (C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, (5- to 10-membered heteroaryl)(amino) C_1 - C_4 alkyl, (C_3 - C_6 cycloalkyl)(alkoxycarbonyl) C_1 - C_4 alkyl, (5- to 14-membered heteroaryl)(alkoxycarbonyl) C_1 - C_4 alkyl, (3- to 14-membered heterocyclo)(C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, (C_6 - C_{10} aryl)(C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, (C_6 - C_{10} aryl)(hydroxy) C_1 - C_4 alkyl, (C_3 - C_6 cycloalkyl)(hydroxy) C_1 - C_4 alkyl, (hydroxy) C_1 - C_4 alkyl, optionally substituted C_1 - C_4 alkyl, (C_6 - C_{10} aryl)(C_1 - C_4 haloalkyl) C_1 - C_4 alkyl, (C_3 - C_6 cycloalkyl)(C_1 - C_4 haloalkyl) C_1 - C_4 alkyl, (hydroxy)(C_1 - C_4 haloalkyl) C_1 - C_4 alkyl, and (alkoxycarbonyl)(C_1 - C_4 haloalkyl) C_1 - C_4 alkyl; and
- [0050] G^2 is selected from the group consisting of hydrogen and C_1 - C_4 alkyl; or
- [0051] G^1 and G^2 taken together with the nitrogen atom to which they are attached form a 5- to 10-membered optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.
- [0052] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein $==$ is a double bond, or a pharmaceutically acceptable salt or solvate thereof.
- [0053] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein Q^1 and Q^2 are $-C(H)=$, or a pharmaceutically acceptable salt or solvate thereof.
- [0054] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein Q^3 is $-C(R^{1d})=$; and R^{1d} is selected from the group consisting of hydrogen and halo, or a pharmaceutically acceptable salt or solvate thereof.
- [0055] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein R^{1e} is hydrogen, or a pharmaceutically acceptable salt or solvate thereof.

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[0056] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein R^{1a} is C_1 - C_3 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0057] In another embodiment, Compounds of the Disclosure are compounds having Formula I, wherein G^2 is hydrogen, or a pharmaceutically acceptable salt or solvate thereof.

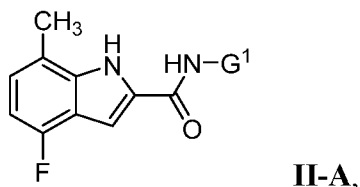
[0058] In another embodiment, Compounds of the Disclosure are compounds having Formula II:



or a pharmaceutically acceptable salt or solvate thereof, wherein R^{1d} and G^1 are as defined in connection with Formula I.

[0059] In another embodiment, Compounds of the Disclosure are compounds having Formulae I or II, wherein R^{1d} is selected from the group consisting of hydrogen and fluoro, or a pharmaceutically acceptable salt or solvate thereof.

[0060] In another embodiment, Compounds of the Disclosure are compounds having Formula II-A:

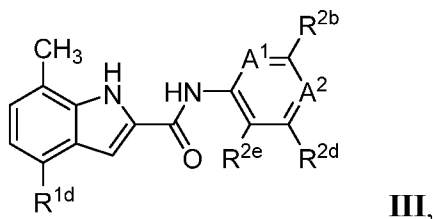


or a pharmaceutically acceptable salt or solvate thereof, wherein G^1 is as defined in connection with Formula II.

[0061] In another embodiment, Compounds of the Disclosure are compounds having Formulae I, II, or II-A, wherein G^1 is selected from the group consisting of optionally substituted C_6 - C_{10} aryl, optionally substituted 5- to 9-membered heteroaryl, optionally substituted 3- to 10-membered heterocyclo, optionally substituted C_6 - C_8 cycloalkyl, (5- to 9-membered heteroaryl) C_1 - C_6 alkyl, (5- to 9-membered heteroaryl)(C_{6-10} aryl) C_1 - C_4 alkyl, (5- to 9-membered heteroaryl heteroaryl)(C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, and (C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0062] In another embodiment, Compounds of the Disclosure are compounds having Formula III:

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wherein:

[0063] A^1 is selected from the group consisting of $-N=$ and $-C(R^{2a})=$;

[0064] R^{2a} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

[0065] R^{2b} is selected from the group consisting of optionally substituted alkyl, optionally substituted heterocyclo, optionally substituted cycloalkyl, optionally substituted heteroaryl, optionally substituted aryl, (carboxamido)alkyl, $-OR^{10c}$, amino, (heterocyclo)alkyl, (amino)alkyl, (hydroxy)alkyl, carboxamido, (heteroaryl)alkyl, $-S(=O)R^{9b}$, $-S(=O)_2R^{9b}$, and $-C(=O)R^{9c}$;

[0066] A^2 is selected from the group consisting of $-N=$ and $-C(R^{2c})=$;

[0067] R^{2c} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

[0068] R^{2d} is selected from the group consisting of hydrogen, alkyl, halogen, cyano, and haloalkyl;

[0069] R^{2e} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

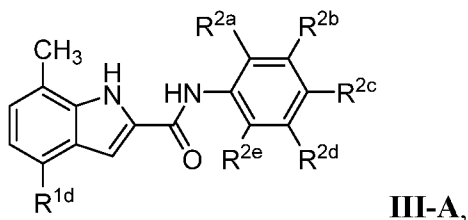
[0070] R^{9b} is selected from the group consisting of amino, alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heterocyclo, and optionally substituted heteroaryl;

[0071] R^{9c} is selected from the group consisting of amino, alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heterocyclo, and optionally substituted heteroaryl; and

[0072] R^{10c} is selected from the group consisting of alkyl, (hydroxy)alkyl, and (amino)alkyl; and

[0073] R^{1d} is as defined in connection with Formula I, or a pharmaceutically acceptable salt or solvate thereof.

[0074] In another embodiment, Compounds of the Disclosure are compounds having Formula **III-A**:



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wherein R^{1d} , R^{2a} , R^{2b} , R^{2c} , R^{2d} , and R^{2e} are as defined in connection with Formula III, or a pharmaceutically acceptable salt or solvate thereof.

[0075] In another embodiment, Compounds of the Disclosure are compounds having Formula III or Formula III-A, wherein:

[0076] R^{2a} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, halogen, and C_1 - C_4 haloalkyl;

[0077] R^{2b} is selected from the group consisting of:

[0078] (A) unsubstituted 4- to 10-membered heterocyclo;

[0079] (B) substituted 4- to 10-membered heterocyclo having one, two, three, or four substituents independently selected from the group consisting of (i) $-N(R^{3a})C(=O)R^{4a}$; (ii) $-NR^{5a}R^{5b}$; (iii) unsubstituted 4- to 10-membered heterocyclo; (iv) substituted 4- to 10-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of hydroxy, $-NR^{5c}R^{5d}$, C_1 - C_4 alkyl, C_1 - C_6 alkoxy, $-C(R^{6a})(R^{6b})C(=O)NR^{5e}R^{5f}$, $-C(=O)R^{4b}$, (hydroxy) C_1 - C_4 alkyl, and halo; (v) unsubstituted C_3 - C_6 cycloalkyl; (vi) (hydroxy) C_1 - C_4 alkyl; (vii) C_1 - C_6 alkyl; (viii) $-C(=O)NR^{5g}R^{5h}$; (ix) halo; (x) $-C(=O)R^{4c}$; (xi) C_1 - C_6 haloalkyl; (xii) hydroxy; (xiii) (amino) C_1 - C_4 alkyl; (xiv) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (xv) $-S(=O)_2R^{9a}$; (xvi) (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (xvii) C_1 - C_6 alkoxy; (xviii) (C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl; (xix) (C_{6-10} aryl) C_1 - C_4 alkyl; and (xxii) $-OR^{10b}$;

[0080] (C) unsubstituted C_3 - C_8 cycloalkyl;

[0081] (D) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of (i) unsubstituted 4- to 10-membered heterocyclo; (ii) substituted 4- to 10-membered heterocyclo having one or two substituents, independently selected from the group consisting of amino and C_1 - C_4 alkyl; (iii) unsubstituted 5- or 6-membered heteroaryl; (iv) substituted 5- or 6-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, (3- to 8-membered heterocyclo)alkyl, hydroxy, and amino; (v) $-NR^{5i}R^{5j}$; (vi) cyano; (vii) $-N(R^{3d})C(=O)R^{4f}$; (viii) hydroxy; and (ix) C_1 - C_4 alkyl;

[0082] (E) unsubstituted 5- to 10-membered heteroaryl;

[0083] (F) substituted 5- to 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of (i) halo; (ii) C_1 - C_4 alkyl; (C_1 - C_4

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alkoxy)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; C₃-C₆ cycloalkyl; (amino)C₁-C₄ alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of -NR^{5g}R^{5h}; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; -NR^{5q}R^{5r}; and (ix) (3- to 8-membered heterocyclo)C₁-C₄ alkyl;

[0084] (G) unsubstituted C₆-C₁₀ aryl;

[0085] (H) substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of (i) halo; (ii) C₁-C₄ alkyl; (iii) -CH₂N(H)S(=O)₂R⁸; (iv) (5- to 9-membered heteroaryl)C₁-C₄ alkyl; (v) -OR^{10a}; (vi) -N(R^{3b})C(=O)R^{4b}; (vii) (amino)C₁-C₄ alkyl; and (viii) (hydroxy)C₁-C₄ alkyl;

[0086] (I) (carboxamido)C₁-C₄ alkyl;

[0087] (J) -OR^{10c};

[0088] (K) -NR^{5o}R^{5p};

[0089] (L) (3- to 8-membered heterocyclo)C₁-C₄ alkyl;

[0090] (M) (amino)C₁-C₄ alkyl;

[0091] (N) (hydroxy)C₁-C₄ alkyl;

[0092] (O) -C(=O)NR^{5s}R^{5t};

[0093] (P) (5- to 9-membered heteroaryl)C₁-C₄ alkyl; and

[0094] (Q) -S(=O)₂R^{9b};

[0095] R^{2c} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, and C₁-C₄ haloalkyl;

[0096] R^{2d} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, cyano, and C₁-C₄ haloalkyl;

[0097] R^{2e} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, and C₁-C₄ haloalkyl;

[0098] R^{3a}, R^{3b}, R^{3c}, and R^{3d} are each independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, optionally substituted C₃-C₆ cycloalkyl, and optionally substituted 4- to 14-membered heterocyclo;

[0099] R^{4a}, R^{4b}, R^{4c}, R^{4d}, R^{4e}, and R^{4f} are each independently selected from the group consisting of C₁-C₆ alkyl; C₁-C₆ haloalkyl; C₃-C₆ cycloalkyl; C₁-C₆ alkoxy; (C₁-C₄ alkoxy)C₁-C₄

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alkyl; (C₆₋₁₀ aryl)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; (cyano)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted C₆-C₁₀ aryl; substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; and substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo and C₁-C₄ alkyl;

[0100] R^{5a} and R^{5b} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;

[0101] R^{5c} and R^{5d} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0102] R^{5c} and R^{5d} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0103] R^{5e} and R^{5f} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl;

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unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0104] R^{5e} and R^{5f} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0105] R^{5g} and R^{5h} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0106] R^{5g} and R^{5h} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0107] R⁵ⁱ and R^{5j} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0108] R⁵ⁱ and R^{5j} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0109] R^{5k} and R^{5l} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered

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heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0110] R^{5k} and R^{5l} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0111] R^{5m} and R⁵ⁿ are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0112] R^{5m} and R⁵ⁿ taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0113] R^{5o} and R^{5p} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

[0114] R^{5o} and R^{5p} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0115] R^{5q} and R^{5r} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;

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[0116] R^{5s} and R^{5t} are independently selected from the group consisting of hydrogen; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; (hydroxy) C_1 - C_4 alkyl; (amino) C_1 - C_4 alkyl; (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C_1 - C_4 alkyl;

[0117] R^{6a} , R^{6b} , R^{6c} , and R^{6d} are each independently selected from the group consisting of hydrogen and C_1 - C_4 alkyl;

[0118] R^8 is C_1 - C_6 alkyl;

[0119] R^{9a} is selected from the group consisting of C_1 - C_6 alkyl; unsubstituted C_3 - C_8 cycloalkyl; and substituted C_3 - C_8 cycloalkyl having one or two substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl;

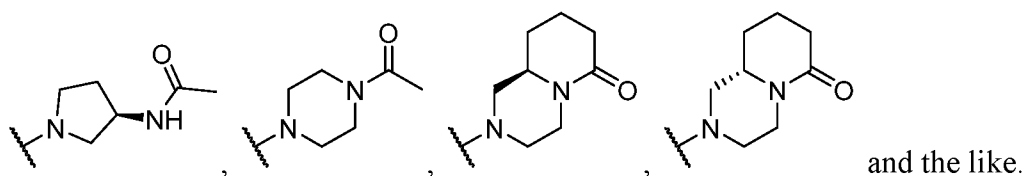
[0120] R^{9b} is selected from the group consisting of C_1 - C_6 alkyl and amino;

[0121] R^{10a} is selected from the group consisting of alkyl, (hydroxy) C_1 - C_4 alkyl, and (amino) C_1 - C_4 alkyl;

[0122] R^{10b} is (amino) C_1 - C_4 alkyl; and

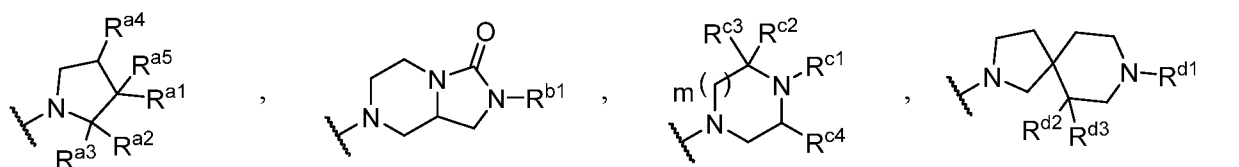
[0123] R^{10c} is (amino) C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0124] In another embodiment, Compounds of the Disclosure are compounds having Formula III or Formula III-A, wherein R^{2b} is an optionally substituted 3- to 10-membered heterocycle linked to the rest of the molecule through a nitrogen atom, e.g., R^{2b} is:

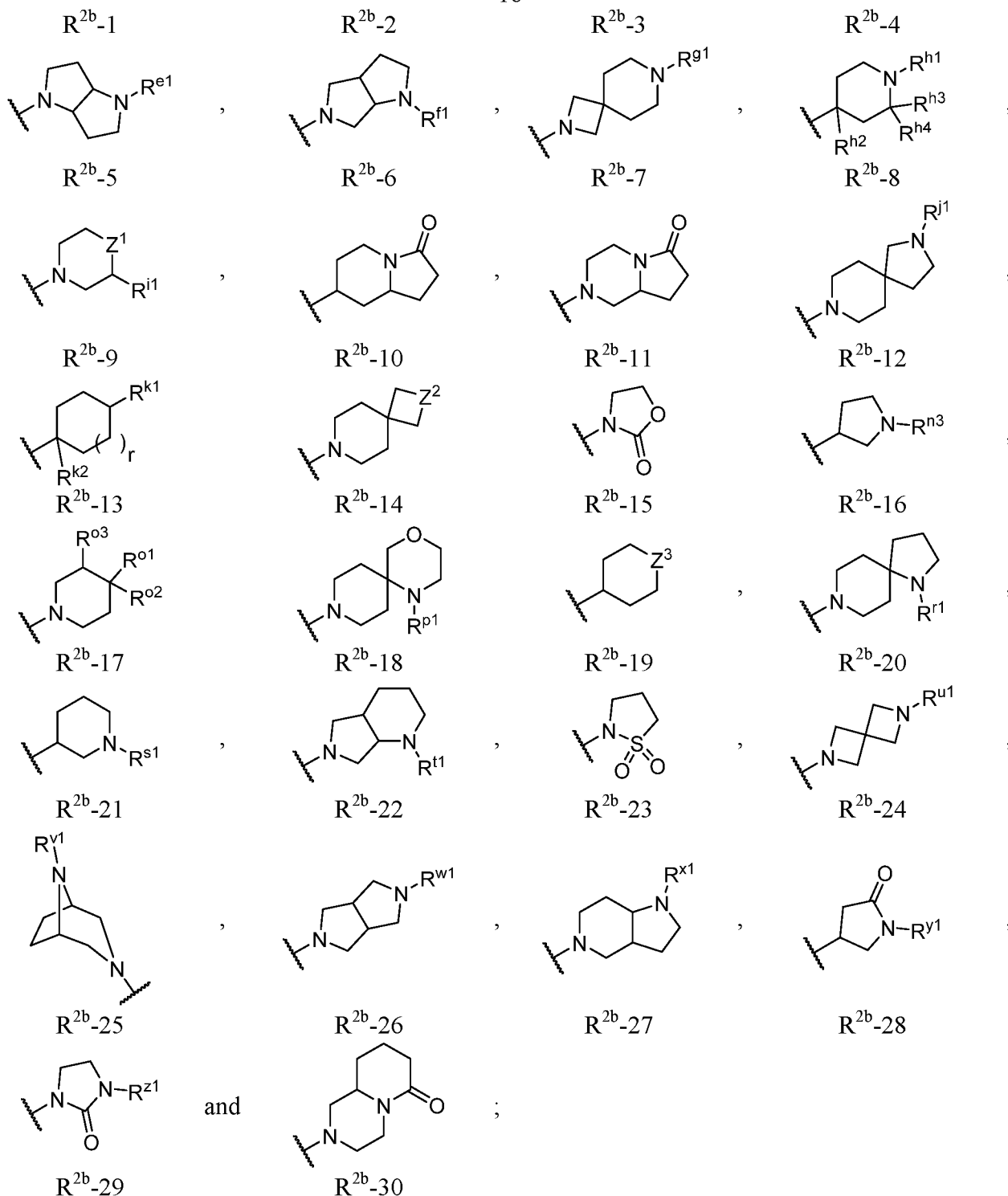


[0125] In another embodiment, Compounds of the Disclosure are compounds having Formula III or Formula III-A, wherein:

[0126] R^{2b} is selected from the group consisting of:



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[0127] R^{a1} is selected from the group consisting of $-N(R^{3a})C(=O)R^{4a}$, $-NR^{5a}R^{5b}$; unsubstituted 4- to 10-membered heterocyclo; substituted 4- to 10-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of hydroxy, $-NR^{5c}R^{5d}$, C_1 - C_4 alkyl, C_1 - C_6 alkoxy, $-C(R^{6a})(R^{6b})C(=O)NR^{5e}R^{5f}$, $-C(=O)R^{4b}$, (hydroxy) C_1 - C_4 alkyl, and halo;

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[0128] R^{a2} and R^{a3} are each hydrogen; or

[0129] R^{a2} and R^{a3} taken together with the carbon atom to which they are attached form a $C(=O)$ group;

[0130] R^{a4} is selected from the group consisting of hydrogen, halo, and hydroxy;

[0131] R^{a5} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_3 - C_6 cycloalkyl;

[0132] R^{b1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_3 - C_6 cycloalkyl;

[0133] R^{c1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;

[0134] R^{c2} and R^{c3} are each independently selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_1 - C_4 haloalkyl; or

[0135] R^{c2} and R^{c3} taken together with the carbon atom to which they are attached form a $C(=O)$ group;

[0136] R^{c4} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl;

[0137] m is 1 or 2;

[0138] R^{d1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;

[0139] R^{d2} and R^{d3} are each independently selected from the group consisting of hydrogen and fluoro;

[0140] R^{e1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;

[0141] R^{f1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;

[0142] R^{g1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, $-C(=O)R^{4c}$, C_1 - C_4 haloalkyl, $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl

[0143] R^{h1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;

[0144] R^{h2} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl;

[0145] R^{h3} and R^{h4} are each independently selected from the group consisting of hydrogen and C_1 - C_4 alkyl; or

[0146] R^{h3} and R^{h4} taken together with the carbon atom to which they are attached form a $C(=O)$ group;

[0147] R^{i1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, (hydroxy) C_1 - C_4 alkyl, $-N(R^{3a})C(=O)R^{4a}$, and (amino) C_1 - C_4 alkyl;

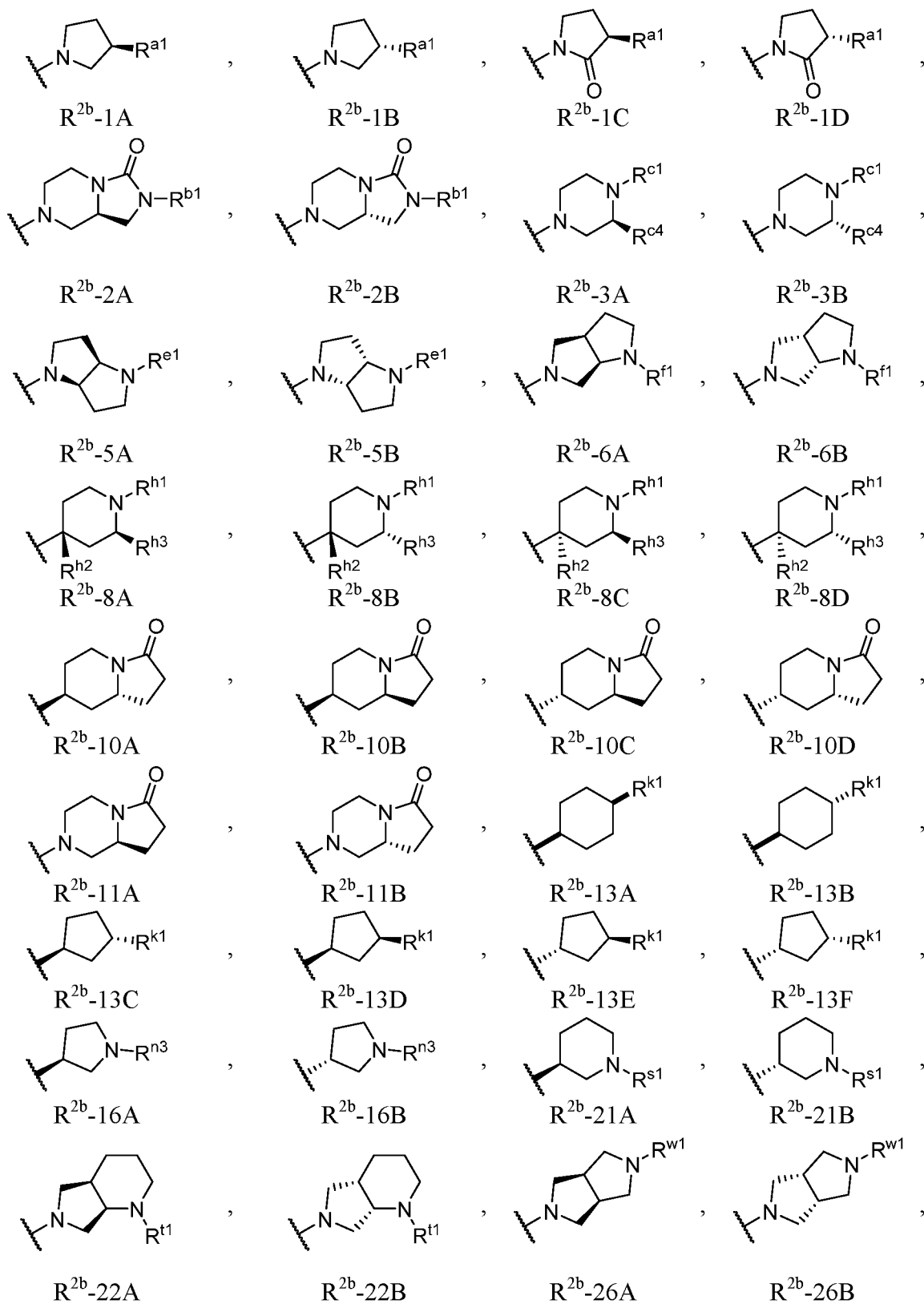
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- [0148] Z^1 is selected from the group consisting of $-CH_2-$ and $-O-$;
- [0149] R^{i1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;
- [0150] R^{k1} is selected from the group consisting of C_1 - C_4 alkyl, unsubstituted 4- to 14-membered heterocyclo and $-NR^{5a}R^{5b}$;
- [0151] R^{k2} is selected from the group consisting of hydrogen, hydroxy, and C_1 - C_4 alkyl;
- [0152] r is 0, 1, or 2;
- [0153] Z^2 is selected from the group consisting of $-O-$ and $-N(R^{m3})-$;
- [0154] R^{m3} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_1 - C_4 haloalkyl;
- [0155] R^{n3} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0156] R^{o1} is selected from the group consisting of hydroxy, (hydroxy) C_1 - C_4 alkyl, (amino) C_1 - C_4 alkyl, (C_1 - C_4 alkoxy) C_1 - C_4 alkyl, C_1 - C_4 alkoxy, $-NR^{5a}R^{5b}$, unsubstituted 4- to 14-membered heterocyclo, substituted 4- to 14-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl and C_1 - C_4 alkoxy;
- [0157] R^{o2} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and (C_1 - C_4 alkoxy) C_1 - C_4 alkyl
- [0158] R^{o3} is selected from the group consisting of hydrogen, fluoro, and C_1 - C_4 alkyl;
- [0159] R^{p1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0160] Z^3 is selected from the group consisting of $-O-$ and $-N(R^{q1})-$;
- [0161] R^{q1} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl;
- [0162] R^{r1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0163] R^{s1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0164] R^{t1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0165] R^{u1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0166] R^{v1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0167] R^{w1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0168] R^{x1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and $-C(=O)R^{4c}$;
- [0169] R^{y1} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl; and
- [0170] R^{z1} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

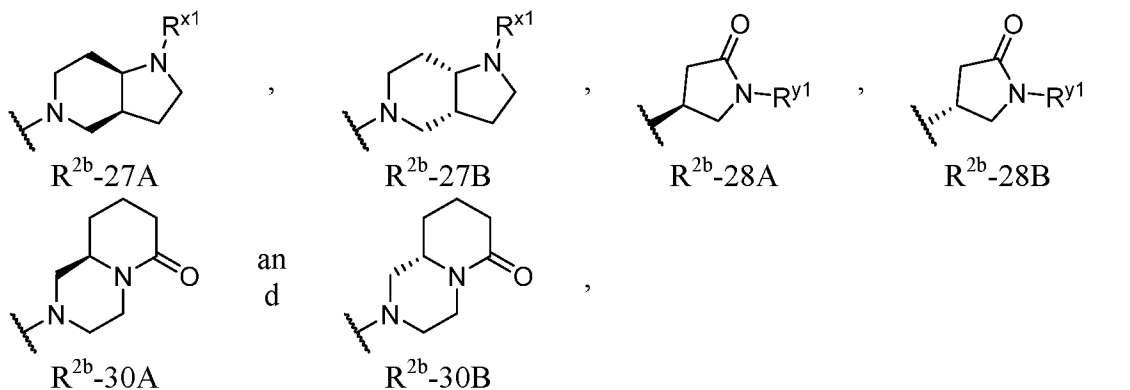
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[0171] In another embodiment, Compounds of the Disclosure are compounds having Formula III or Formula III-A, wherein:

[0172] R^{2b} is selected from the group consisting of:



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or a pharmaceutically acceptable salt or solvate thereof.

- [0173] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -1, R^{2b} -1A, R^{2b} -1B, R^{2b} -1C, or R^{2b} -1D, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{a1} is $-N(R^{3a})C(=O)R^{4a}$. In another embodiment, R^{a1} is $-NR^{5a}R^{5b}$. In another embodiment, R^{a1} is $-NR^{5a}R^{5b}$ and R^{5a} and R^{5b} are independently selected from the group consisting of hydrogen and C_1 - C_4 alkyl. In another embodiment, R^{a1} is optionally substituted 4- to 10-membered heterocyclo.
- [0174] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -2, R^{2b} -2A, or R^{2b} -2b, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{b1} is C_1 - C_4 alkyl.
- [0175] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -3, R^{2b} -3A, or R^{2b} -3B, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{c1} is selected from the group consisting of C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$. In another embodiment, R^{c2} and R^{c3} are each hydrogen. In another embodiment, R^{c2} and R^{c3} taken together with the carbon atom to which they are attached form a $C(=O)$ group. In another embodiment, R^{c4} is hydrogen. In another embodiment, m is 1.
- [0176] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -4, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{d1} is $C(=O)R^{4c}$. In another embodiment, R^{d2} and R^{d3} are each hydrogen or fluoro.
- [0177] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -5, R^{2b} -5A, or R^{2b} -5B, or a

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pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{e1} is -C(=O) R^{4c} .

[0178] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b-6} , R^{2b-6A} , or R^{2b-6B} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{f1} is C(=O) R^{4c} .

[0179] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b-7} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{g1} is C(=O) R^{4c} .

[0180] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b-8} , R^{2b-8A} , R^{2b-8B} , R^{2b-8C} , or R^{2b-8D} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{h1} is -C(=O) R^{4c} . In another embodiment, R^{h2} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl. In another embodiment, R^{h3} is hydrogen.

[0181] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b-9} , or a pharmaceutically acceptable salt or solvate thereof.

[0182] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b-10} , R^{2b-10A} , R^{2b-10B} , R^{2b-10C} , and R^{2b-10d} , or a pharmaceutically acceptable salt or solvate thereof.

[0183] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b-11} , R^{2b-11A} and R^{2b-11B} , or a pharmaceutically acceptable salt or solvate thereof.

[0184] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b-12} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{i1} is -C(=O) R^{4c} .

[0185] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b-13} , R^{2b-13A} , R^{2b-13B} , R^{2b-13C} , R^{2b-13D} , R^{2b-13E} , and R^{2b-13F} , or a pharmaceutically acceptable salt or solvate thereof.

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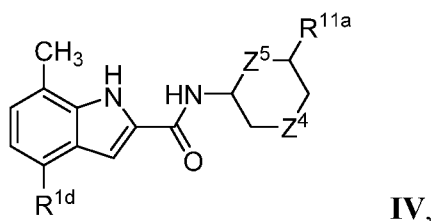
- [0186] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -14, or a pharmaceutically acceptable salt or solvate thereof.
- [0187] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -15, or a pharmaceutically acceptable salt or solvate thereof.
- [0188] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b} -16, R^{2b} -16A and R^{2b} -16B, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{n3} is $-C(=O)R^{4c}$.
- [0189] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -17, or a pharmaceutically acceptable salt or solvate thereof.
- [0190] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -18, or a pharmaceutically acceptable salt or solvate thereof.
- [0191] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -19, or a pharmaceutically acceptable salt or solvate thereof.
- [0192] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -20, or a pharmaceutically acceptable salt or solvate thereof.
- [0193] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b} -21, R^{2b} -21A and R^{2b} -21B, or a pharmaceutically acceptable salt or solvate thereof.
- [0194] In another embodiment, Compounds of the Disclosure are compounds having Formula **III**, wherein R^{2b} is selected from the group consisting of R^{2b} -22, R^{2b} -22A and R^{2b} -22B, or a pharmaceutically acceptable salt or solvate thereof.
- [0195] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -23, or a pharmaceutically acceptable salt or solvate thereof.

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- [0196] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -24, or a pharmaceutically acceptable salt or solvate thereof.
- [0197] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -25, or a pharmaceutically acceptable salt or solvate thereof.
- [0198] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b} -26, R^{2b} -26A and R^{2b} -26B, or a pharmaceutically acceptable salt or solvate thereof.
- [0199] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b} -27, R^{2b} -27A and R^{2b} -27B, or a pharmaceutically acceptable salt or solvate thereof.
- [0200] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is selected from the group consisting of R^{2b} -28, R^{2b} -28A and R^{2b} -28B, or a pharmaceutically acceptable salt or solvate thereof.
- [0201] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -29, or a pharmaceutically acceptable salt or solvate thereof.
- [0202] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is R^{2b} -30, R^{2b} -30A, or R^{2b} -30B, or a pharmaceutically acceptable salt or solvate thereof.
- [0203] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2b} is any one or more of the R^{11a} groups provided in connection with Formula **IV**, *see* below, or a pharmaceutically acceptable salt or solvate thereof.
- [0204] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{4c} is C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.
- [0205] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2d} is selected from the group consisting of hydrogen, fluoro, and chloro, or a pharmaceutically acceptable salt or solvate thereof.

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- [0206] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2d} is hydrogen, or a pharmaceutically acceptable salt or solvate thereof.
- [0207] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** in any of the above described embodiments, wherein A^1 and A^2 are $-C(H)=$; R^{2e} is hydrogen; and R^{2d} is selected from the group consisting of hydrogen and halogen, or a pharmaceutically acceptable salt or solvate thereof.
- [0208] In another embodiment, Compounds of the Disclosure are compounds having Formula **III** or Formula **III-A**, wherein R^{2d} is fluoro, or a pharmaceutically acceptable salt or solvate thereof.
- [0209] In another embodiment, Compounds of the Disclosure are compounds having Formula **IV**:



wherein:

- [0210] Z^4 is selected from the group consisting of $-O-$, $-C(R^{28a})(R^{28b})-$, and $-N(R^{23})-$; or Z^4 is absent;
- [0211] Z^5 is selected from the group consisting of $-CH_2-$ and $-CH_2CH_2-$;
- [0212] R^{11a} is selected from the group consisting of optionally substituted alkyl, optionally substituted heterocyclo, optionally substituted heteroaryl, and $-N(R^{12b})C(=O)R^{13c}$;
- [0213] R^{12b} is selected from the group consisting of hydrogen, alkyl, cycloalkyl, and heterocyclo;
- [0214] R^{13c} is selected from the group consisting of alkyl, haloalkyl, alkoxy, (alkoxy)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, and optionally substituted heterocycle, amino, (amino)alkyl, $(C_3-C_6 \text{ cycloalkyl})oxy$, and $(4- \text{ to } 8\text{-membered heterocyclo})oxy$;
- [0215] R^{23} is selected from the group consisting of hydrogen and C_1-C_4 alkyl;
- [0216] R^{28a} and R^{28b} are independently selected from the group consisting of hydrogen, alkyl, and halo; and

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R^{1d} is as defined in connection with Formula I, or a pharmaceutically acceptable salt or solvate thereof.

[0217] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, wherein Z^4 is selected from the group consisting of -O- and -CH₂-; or Z^4 is absent, or a pharmaceutically acceptable salt or solvate thereof.

[0218] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, wherein:

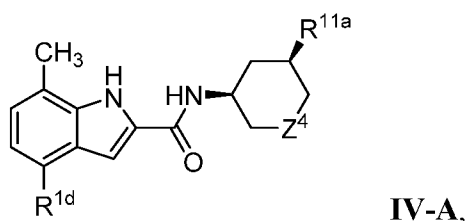
[0219] Z^4 is selected from the group consisting of -O- and -CH₂-; or Z^4 is absent;

[0220] Z^5 is selected from the group consisting of -CH₂- and -CH₂CH₂-;

[0221] R^{13c} is selected from the group consisting of alkyl, haloalkyl, alkoxy, (alkoxy)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, and optionally substituted heterocycle, and

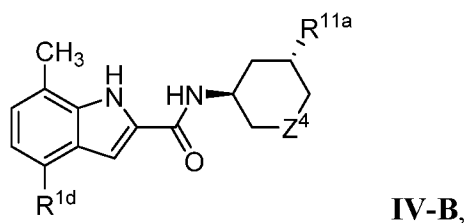
[0222] R^{1d} is as defined in connection with Formula I, or a pharmaceutically acceptable salt or solvate thereof.

[0223] In another embodiment, Compounds of the Disclosure are compounds having Formula IV-A:



or a pharmaceutically acceptable salt or solvate thereof, wherein R^{1d} , R^{11a} , and Z^4 are as defined in connection with Formula IV.

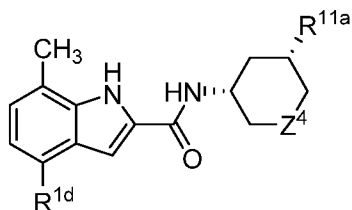
[0224] In another embodiment, Compounds of the Disclosure are compounds having Formula IV-B:



or a pharmaceutically acceptable salt or solvate thereof, wherein R^{1d} , R^{11a} , and Z^4 are as defined in connection with Formula IV.

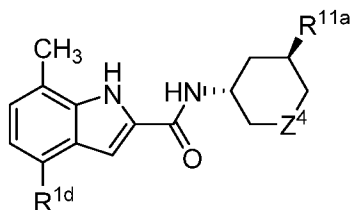
[0225] In another embodiment, Compounds of the Disclosure are compounds having Formula IV-C:

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**IV-C,**

or a pharmaceutically acceptable salt or solvate thereof, wherein R^{1d} , R^{11a} , and Z^4 are as defined in connection with Formula **IV**.

[0226] In another embodiment, Compounds of the Disclosure are compounds having Formula **IV-D**:

**IV-D,**

or a pharmaceutically acceptable salt or solvate thereof, wherein R^{1d} , R^{11a} , and Z^4 are as defined in connection with Formula **IV**.

[0227] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein:

[0228] R^{11a} is selected from the group consisting of: (A) unsubstituted 4- to 14-membered heterocyclo; (B) substituted 4- to 14-membered heterocyclo having one, two or three substituents independently selected from the group consisting of $-N(R^{12a})C(=O)R^{13a}$, $-C(=O)R^{13b}$, C_1 - C_4 alkyl; $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; (hydroxy) C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; amino; hydroxy; $-N(R^{12a})S(=O)_2R^{24}$, $-S(=O)_2R^{24}$; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (C) unsubstituted 5- to 10-membered heteroaryl; (D) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, and (amino)alkyl; (E) C_1 - C_6 alkyl; and (F) $-N(R^{12b})C(=O)R^{13c}$,

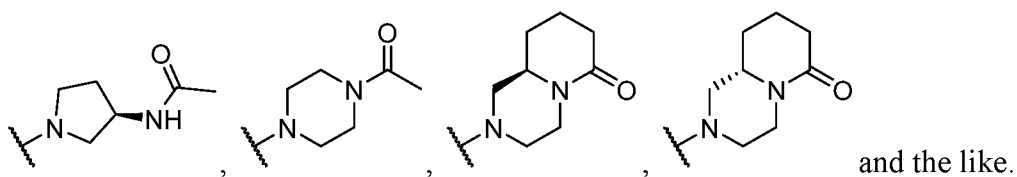
[0229] R^{12a} and R^{12b} are each independently selected from the group consisting of hydrogen, C_1 - C_4 alkyl, $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl, and (hydroxy) C_1 - C_4 alkyl;

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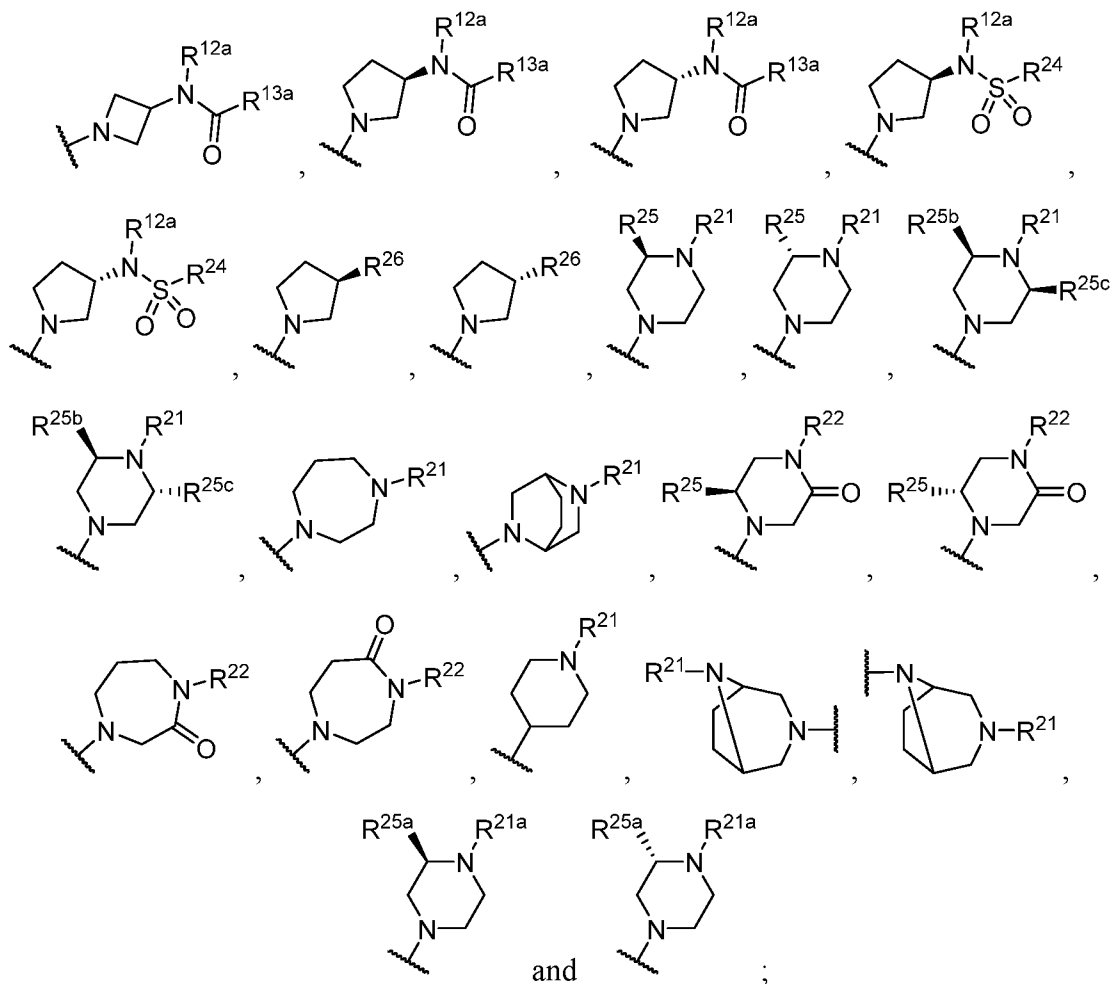
- [0230] R^{13a} , R^{13b} , and R^{13c} are each independently selected from the group consisting of C₁-C₆ alkyl; C₁-C₆ haloalkyl; unsubstituted C₃-C₆ cycloalkyl; C₁-C₆ alkoxy; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; (cyano)alkyl; unsubstituted C₆-C₁₀ aryl; substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; amino; (amino)alkyl; (C₃-C₆ cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy; and
- [0231] R^{24} is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl.
- [0232] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, IV-A, IV-B, IV-C, or IV-D, wherein Z^4 is $-C(R^{28a})(R^{28b})-$; and R^{28a} and R^{28b} are independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, and fluoro, or a pharmaceutically acceptable salt or solvate thereof.
- [0233] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, IV-A, IV-B, IV-C, or IV-D, wherein Z^4 is $-C(R^{28a})(R^{28b})-$; R^{28a} is hydrogen; and R^{28b} is selected from the group consisting of C₁-C₄ alkyl and fluoro, or a pharmaceutically acceptable salt or solvate thereof.
- [0234] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, IV-A, IV-B, IV-C, or IV-D, wherein Z^4 is $-C(R^{28a})(R^{28b})-$; and R^{28a} and R^{28b} are independently C₁-C₄ alkyl, or a pharmaceutically acceptable salt or solvate thereof.
- [0235] In another embodiment, Compounds of the Disclosure are compounds having Formula IV, IV-A, IV-B, IV-C, or IV-D, wherein Z^4 is selected from the group consisting of -O-, -CH₂-, and -N(R^{23}), or Z^4 is absent, or a pharmaceutically acceptable salt or solvate thereof.
- [0236] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein Z^4 is -CH₂-, or a pharmaceutically acceptable salt or solvate thereof.
- [0237] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is an optionally substituted 3- to

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10-membered heterocycle linked to the rest of the molecule through a nitrogen atom, e.g., R^{11a} is



[0238] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is a substituted 4- to 14-membered heterocycle selected from the group consisting of:



[0239] R^{12a} is selected from the group consisting of hydrogen, C₁-C₃ alkyl, (C₁-C₄ alkoxy)C₁-C₄ alkyl; and (hydroxy)C₁-C₄ alkyl;

[0240] R^{13a} is selected from the group consisting of C₁-C₄ alkyl; amino; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; unsubstituted 4- to 14-

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membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl;

[0241] R^{13b} is selected from the group consisting of C₁-C₄ alkyl; amino; C₁-C₄ haloalkyl; C₁-C₄ alkoxy; (hydroxy)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (amino)alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy;

[0242] R²¹ is selected from the group consisting of hydrogen, -C(=O)R^{13b}, C₁-C₄ alkyl, C₁-C₄ haloalkyl, unsubstituted 4- to 14-membered heterocyclo, and -S(=O)₂R²⁴;

[0243] R²² is C₁-C₄ alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl;

[0244] R²⁴ is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl;

[0245] R²⁵ is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

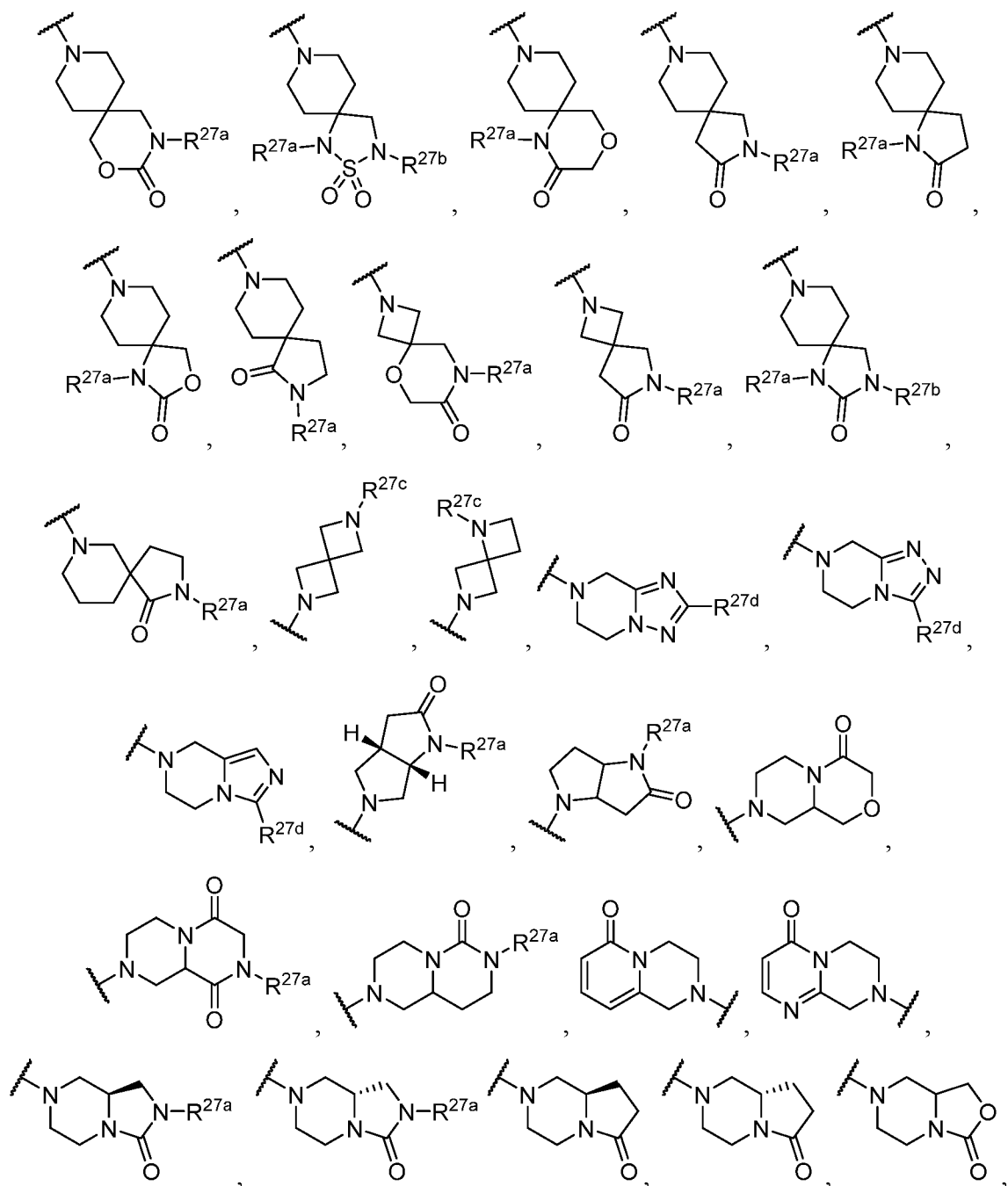
[0246] R^{25b} and R^{25c} are independently selected from the group consisting of C₁-C₄ alkyl and C₁-C₄ haloalkyl;

[0247] R²⁶ is selected from the group consisting of unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; and

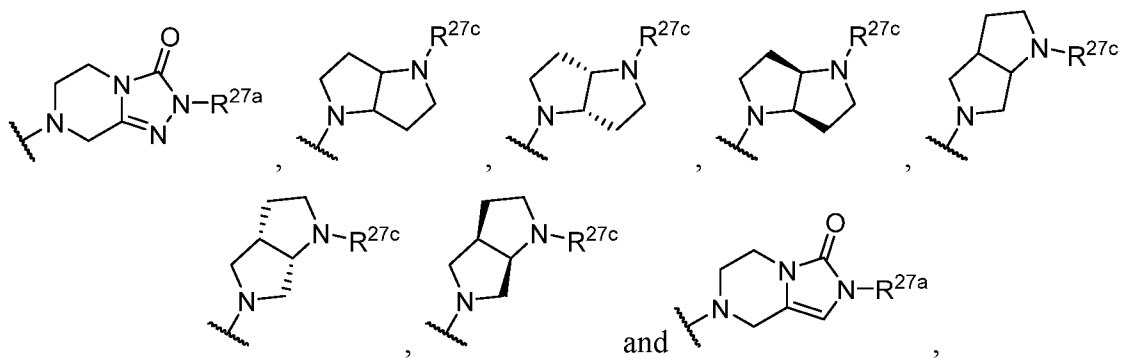
[0248] R^{21a} and R^{25a} taken together with the atoms to which they are attached form an optionally substituted 4- to 8-membered heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

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[0249] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is selected from the group consisting of:



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wherein:

[0250] R^{27a} and R^{27b} are each independently selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; and (hydroxy) C_1 - C_4 alkyl;

[0251] R^{27c} is selected from the group consisting of hydrogen; $-C(=O)R^{13b}$; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; and $-S(=O)_2R^{24}$;

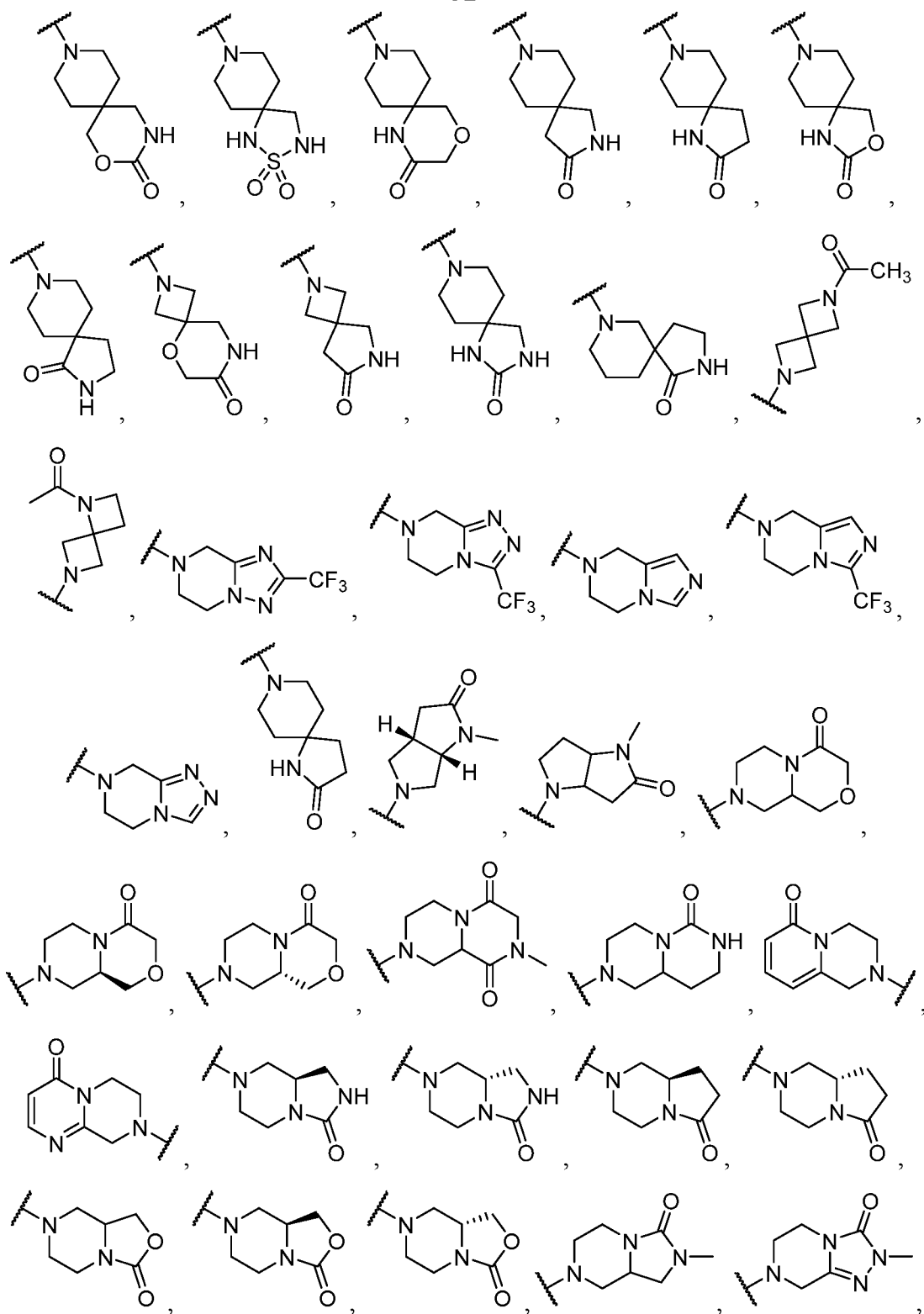
[0252] R^{27d} is selected from the group consisting of hydrogen; C_1 - C_4 alkyl; and C_1 - C_4 haloalkyl;

[0253] R^{13b} is selected from the group consisting of C_1 - C_4 alkyl; amino C_1 - C_4 haloalkyl; C_1 - C_4 alkoxy; (hydroxy) C_1 - C_4 alkyl; $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; (amino)alkyl; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; $(C_3$ - C_6 cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy; and

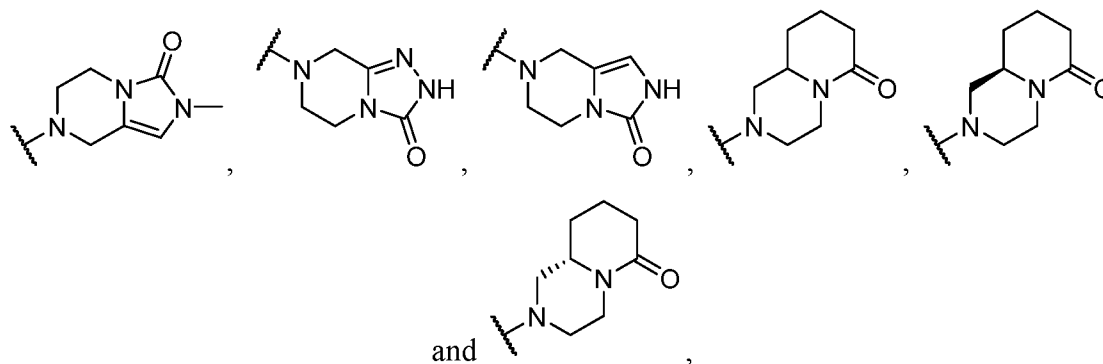
[0254] R^{24} is selected from the group consisting of C_1 - C_4 alkyl and (hydroxy) C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0255] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is selected from the group consisting of

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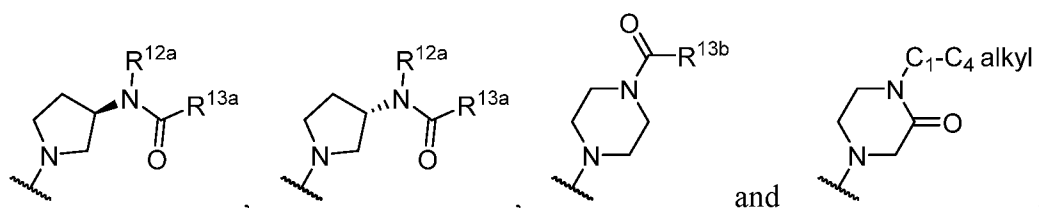
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or a pharmaceutically acceptable salt or solvate thereof

[0256] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is selected from the group consisting of unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of $-N(R^{12a})C(=O)R^{13a}$, $-C(=O)R^{13b}$, and C_1 - C_4 alkyl; unsubstituted 5- to 10-membered heteroaryl; and substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0257] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo is selected from the group consisting of:



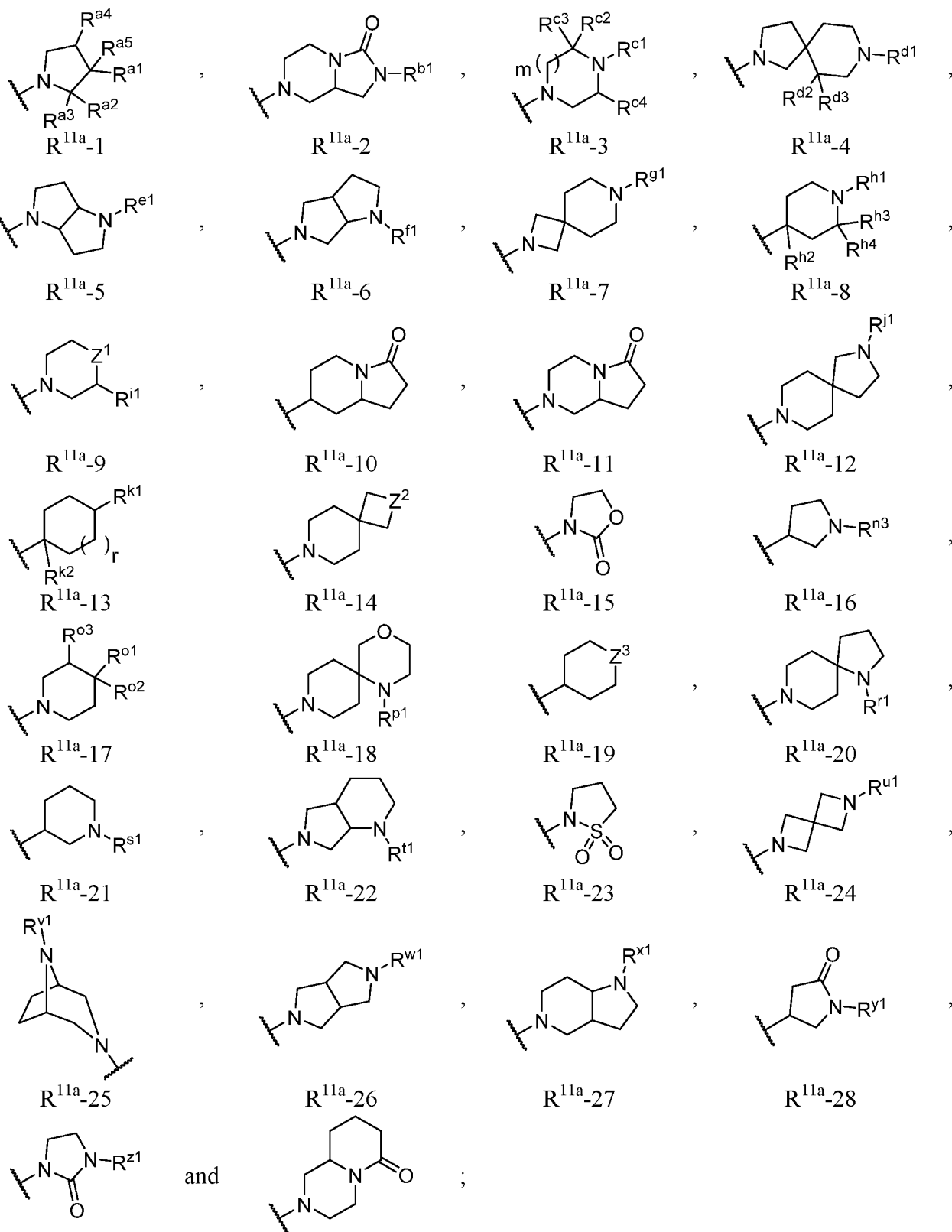
or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{12a} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl; R^{13a} is C_1 - C_4 alkyl; and R^{13b} is C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{12a} is selected from the group consisting of hydrogen and methyl; R^{13a} is methyl; and R^{13b} is methyl, or a pharmaceutically acceptable salt or solvate thereof.

[0258] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is any one or more of the R^{2b} groups provided in connection with Formula III, *see* above, or a pharmaceutically acceptable salt or solvate thereof.

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[0259] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein:

[0260] R^{11a} is selected from the group consisting of:

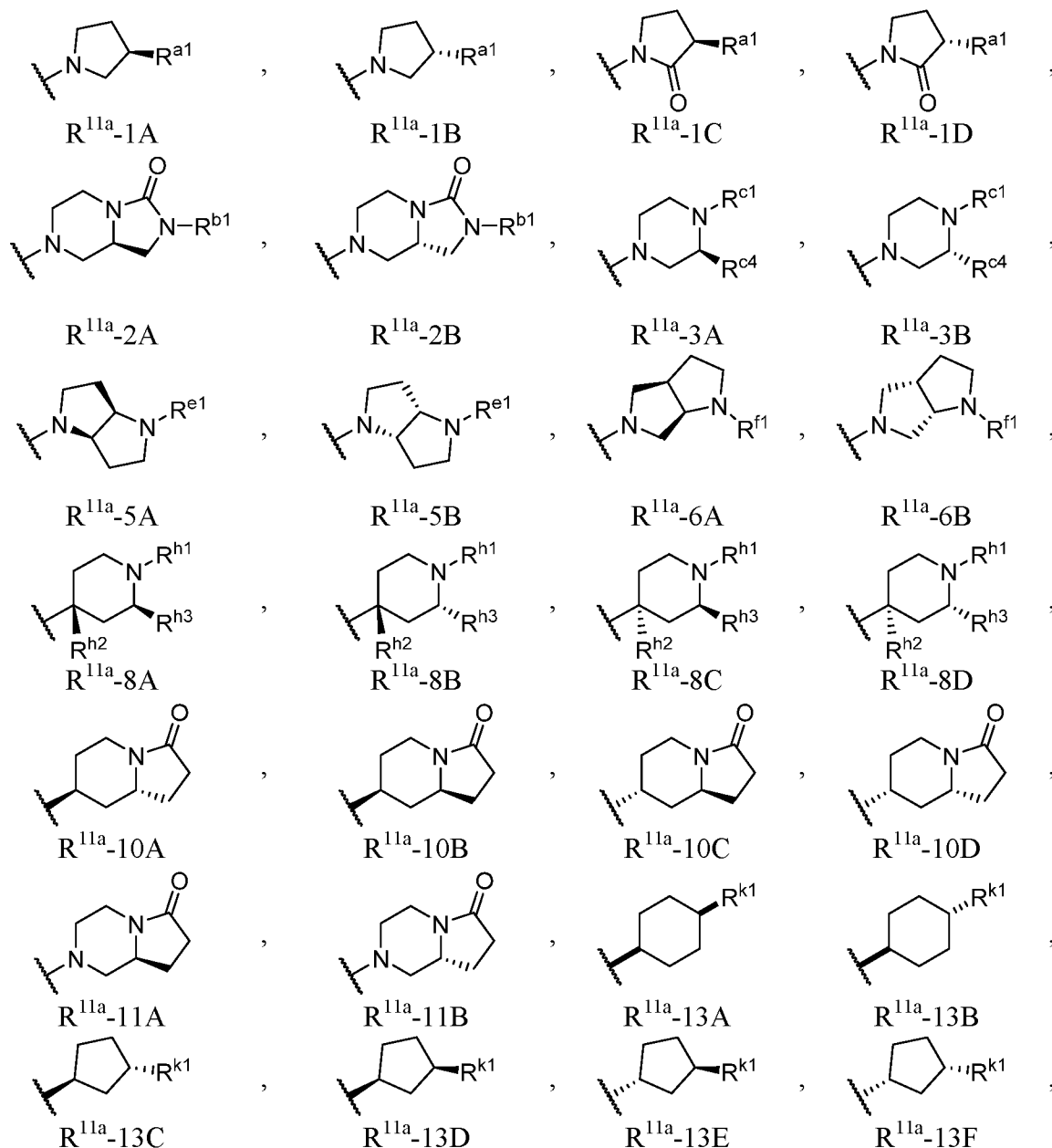


R^{11a}-29R^{11a}-30

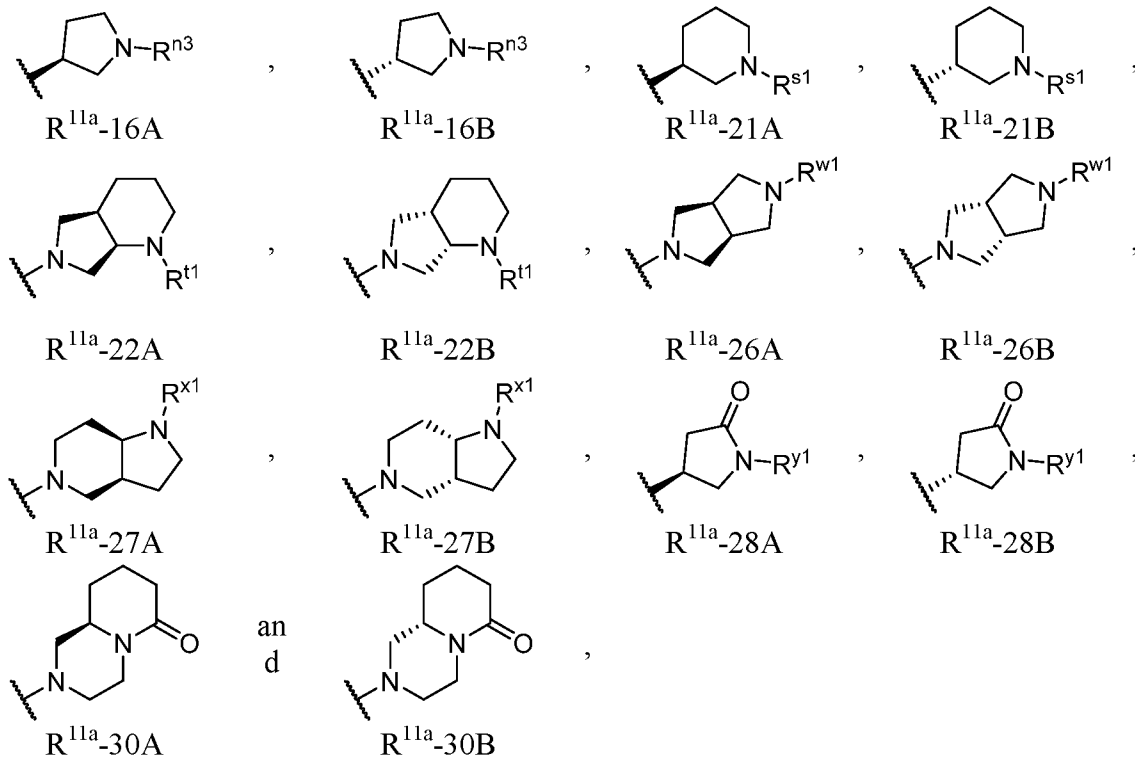
[0261] and R^{a1}, R^{a2}, R^{a3}, R^{a4}, R^{a5}, R^{b1}, R^{c1}, R^{c2}, R^{c3}, R^{c4}, m, R^{d1}, R^{d2}, R^{d3}, R^{e1}, R^{f1}, R^{g1}, R^{h1}, R^{h2}, R^{h3}, R^{h4}, Rⁱ¹, Z¹, R^{j1}, R^{k1}, R^{k2}, r, Z², Rⁿ³, R^{o1}, R^{o2}, R^{o3}, R^{p1}, Z³, R^{r1}, R^{s1}, R^{t1}, R^{u1}, R^{v1}, R^{w1}, R^{x1}, R^{y1}, and R^{z1} are as defined in connection with Formula III; or a pharmaceutically acceptable salt or solvate thereof.

[0262] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein:

[0263] R^{11a} is selected from the group consisting of:



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[0264] and R^{a1} , R^{a5} , R^{b1} , R^{c1} , R^{f1} , R^{h1} , R^{h2} , R^{h3} , R^{k1} , R^{n3} , R^{s1} , R^{t1} , R^{w1} , R^{x1} , and R^{y1} are as defined in connection with Formula III; or a pharmaceutically acceptable salt or solvate thereof.

[0265] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae IV, IV-A, IV-B, IV-C, or IV-D, wherein R^{11a} is R^{11a-1}, R^{11a-1A}, R^{11a-1B}, R^{11a-1C}, or R^{11a-1D}, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{a1} is -N(R^{3a})C(=O)R^{4a}. In another embodiment, R^{a1} is -NR^{5a}R^{5b}. In another embodiment, R^{a1} is -NR^{5a}R^{5b} and R^{5a} and R^{5b} are independently selected from the group consisting of hydrogen and C₁-C₄ alkyl. In another embodiment, R^{a1} is optionally substituted 4- to 10-membered heterocyclo.

[0266] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a}-2, R^{11a}-2A, or R^{11a}-2b, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{b1} is C₁-C₄ alkyl.

[0267] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-3} , R^{11a-3A} , or R^{11a-3B} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{c1} is selected from the group consisting of C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$. In another embodiment, R^{c2} and R^{c3} are each hydrogen. In another embodiment, R^{c2} and

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R^{c3} taken together with the carbon atom to which they are attached form a $C(=O)$ group.

In another embodiment, R^{c4} is hydrogen. In another embodiment, m is 1.

[0268] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-4} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{d1} is $C(=O)R^{4c}$. In another embodiment, R^{d2} and R^{d3} are each hydrogen or fluoro.

[0269] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-5} , R^{11a-5A} , or R^{11a-5B} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{e1} is - $C(=O)R^{4c}$.

[0270] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-6} , R^{11a-6A} , or R^{11a-6B} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{f1} is $C(=O)R^{4c}$.

[0271] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-7} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{g1} is $C(=O)R^{4c}$.

[0272] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-8} , R^{11a-8A} , R^{11a-8B} , R^{11a-8C} , or R^{11a-8D} , or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{h1} is $-C(=O)R^{4c}$. In another embodiment, R^{h2} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl. In another embodiment, R^{h3} is hydrogen.

[0273] In another embodiment, Compounds of the Disclosure are compounds any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-9} , or a pharmaceutically acceptable salt or solvate thereof.

[0274] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a-10} , $R^{11a-10A}$, $R^{11a-10B}$, $R^{11a-10C}$, and $R^{11a-10d}$, or a pharmaceutically acceptable salt or solvate thereof.

[0275] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group

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consisting of R^{11a} -11, R^{11a} -11A and R^{11a} -11B, or a pharmaceutically acceptable salt or solvate thereof.

- [0276] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -12, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{11} is $-C(=O)R^{4c}$.
- [0277] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -13, R^{11a} -13A, R^{11a} -13B, R^{11a} -13C, R^{11a} -13D, R^{11a} -13E, and R^{11a} -13F, or a pharmaceutically acceptable salt or solvate thereof.
- [0278] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -14, or a pharmaceutically acceptable salt or solvate thereof.
- [0279] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -15, or a pharmaceutically acceptable salt or solvate thereof.
- [0280] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -16, R^{11a} -16A and R^{11a} -16B, or a pharmaceutically acceptable salt or solvate thereof. In another embodiment, R^{n3} is $-C(=O)R^{4c}$.
- [0281] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -17, or a pharmaceutically acceptable salt or solvate thereof.
- [0282] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -18, or a pharmaceutically acceptable salt or solvate thereof.
- [0283] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -19, or a pharmaceutically acceptable salt or solvate thereof.
- [0284] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -20, or a pharmaceutically acceptable salt or solvate thereof.

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- [0285] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -21, R^{11a} -21A and R^{11a} -21B, or a pharmaceutically acceptable salt or solvate thereof.
- [0286] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -22, R^{11a} -22A and R^{11a} -22B, or a pharmaceutically acceptable salt or solvate thereof.
- [0287] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -23, or a pharmaceutically acceptable salt or solvate thereof.
- [0288] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -24, or a pharmaceutically acceptable salt or solvate thereof.
- [0289] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -25, or a pharmaceutically acceptable salt or solvate thereof.
- [0290] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -26, R^{11a} -26A and R^{11a} -26B, or a pharmaceutically acceptable salt or solvate thereof.
- [0291] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -27, R^{11a} -27A and R^{11a} -27B, or a pharmaceutically acceptable salt or solvate thereof.
- [0292] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is selected from the group consisting of R^{11a} -28, R^{11a} -28A and R^{11a} -28B, or a pharmaceutically acceptable salt or solvate thereof.
- [0293] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a} -29, or a pharmaceutically acceptable salt or solvate thereof.

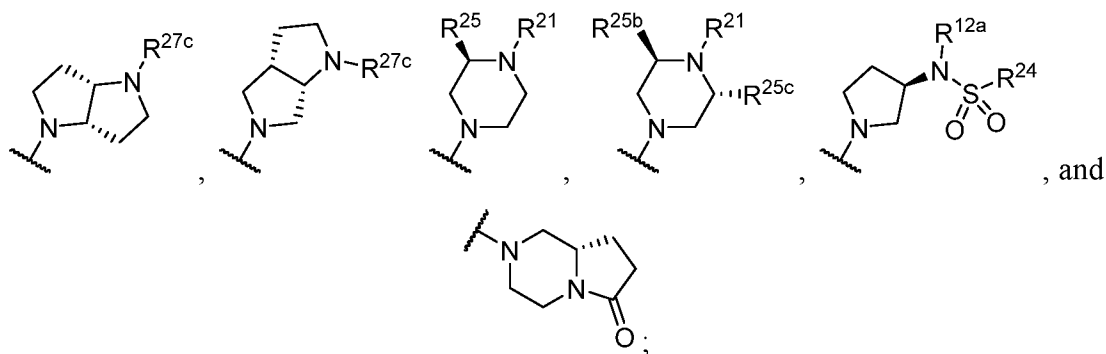
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[0294] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV**, **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein R^{11a} is R^{11a-30} , $R^{11a-30A}$, or $R^{11a-30B}$, or a pharmaceutically acceptable salt or solvate thereof.

[0295] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein:

[0296] Z^4 is $-\text{CH}_2-$;

[0297] R^{11a} is selected from the group consisting of:



[0298] R^{12a} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl;

[0299] R^{21} is $-\text{C}(=\text{O})\text{R}^{13b}$;

[0300] R^{27c} is $-\text{C}(=\text{O})\text{R}^{13b}$;

[0301] R^{13b} is selected from the group consisting of C_1 - C_4 alkyl and (hydroxy) C_1 - C_4 alkyl;

[0302] R^{24} is C_1 - C_4 alkyl;

[0303] R^{25} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_1 - C_4 haloalkyl;
and

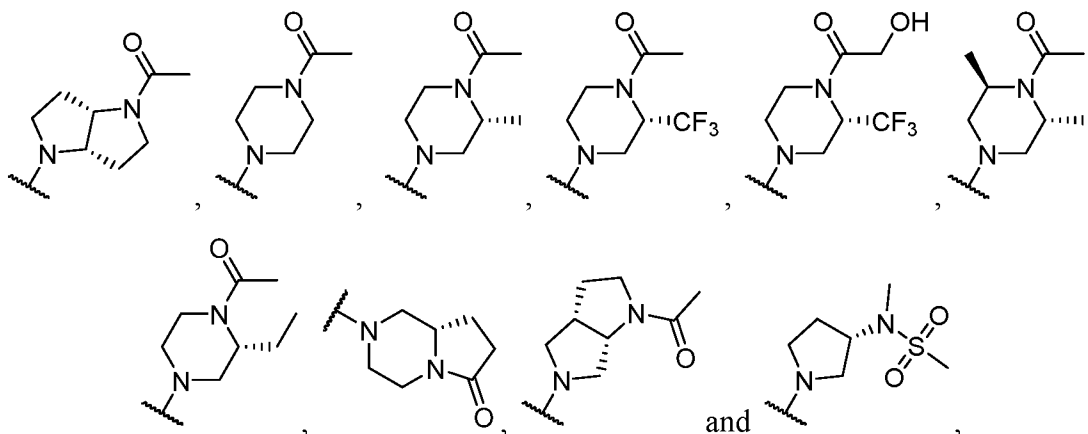
[0304] R^{25b} and R^{25c} are independently selected from the group consisting of C_1 - C_4 alkyl and C_1 - C_4 haloalkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0305] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **IV-A**, **IV-B**, **IV-C**, or **IV-D**, wherein:

[0306] Z^4 is $-\text{CH}_2-$;

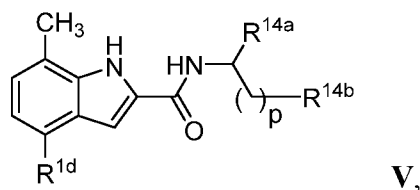
[0307] R^{11a} is selected from the group consisting of:

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or a pharmaceutically acceptable salt or solvate thereof.

[0308] In another embodiment, Compounds of the Disclosure are compounds Formula V:



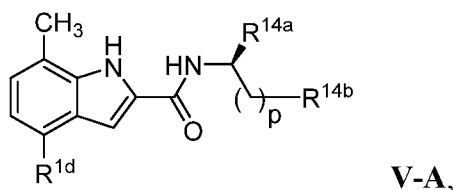
wherein:

[0309] R^{14a} is selected from the group consisting of optionally substituted alkyl and optionally substituted heteroaryl;

[0310] R^{14b} is selected from the group consisting of optionally substituted alkyl, optionally substituted heteroaryl, optionally substituted aryl, optionally substituted heterocyclo, optionally substituted cycloalkyl, and carboxamido; and

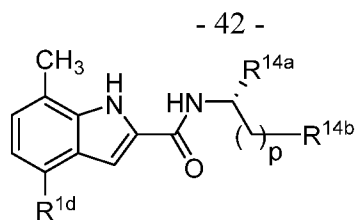
[0311] p is 0, 1, 2, or 3; or a pharmaceutically acceptable salt or solvate thereof.

[0312] In another embodiment, Compounds of the Disclosure are compounds having Formula V-A:



wherein R^{1d}, R^{14a}, R^{14b}, and p are as defined in connection with Formula V, or a pharmaceutically acceptable salt or solvate thereof.

[0313] In another embodiment, Compounds of the Disclosure are compounds having Formula V-B:



wherein R^{1d} , R^{14a} , R^{14b} , and p are as defined in connection with Formula V, or a pharmaceutically acceptable salt or solvate thereof.

[0314] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae V, V-A, or V-B, wherein:

[0315] R^{14a} is selected from the group consisting of (A) unsubstituted 5- to 10-membered heteroaryl; (B) substituted 5- or 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of (i) halo; (ii) C_1 - C_4 alkyl; (iii) C_1 - C_4 alkoxy; (iv) (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (v) (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; (vi) $-C(=O)NR^{15a}R^{15b}$; (vii) unsubstituted 5- to 10-membered heteroaryl; (viii) substituted 5- or 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, (3- to 8-membered heterocyclo) C_1 - C_4 alkyl, 5- to 9-membered heteroaryl, and $-NR^{15e}R^{15f}$; (ix) $-OR^{16}$ (x) unsubstituted C_3 - C_6 cycloalkyl; (xi) substituted C_3 - C_6 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_4 alkyl and $-N(R^{17a})C(=O)R^{18a}$; (xii) cyano; (xiii) unsubstituted 4- to 14-membered heterocyclo; (xiv) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of C_1 - C_4 alkyl, (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; (xv) (carboxy) C_1 - C_4 alkyl; (xvi) (carboxamido) C_1 - C_4 alkyl; and (xvii) carboxy; and (C) C_1 - C_6 alkyl;

[0316] R^{14b} is selected from the group consisting of: (A) unsubstituted 5- to 10-membered heteroaryl; (B) substituted 5- or 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, and (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (C) unsubstituted C_6 - C_{10} aryl; (D) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, and (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (E) unsubstituted 4- to 14-membered heterocyclo; (F) substituted 4- to 14-membered heterocyclo having one, two, three, or four substituents independently selected from the group consisting of hydroxy, amino, and C_1 - C_4 alkyl; (G) $-C(=O)NR^{15c}R^{15d}$; (H) unsubstituted C_3 - C_6 cycloalkyl; and (I) C_1 - C_6 alkyl;

[0317] p is 0, 1, 2, or 3;

[0318] R^{15a} and R^{15b} are independently selected from the group consisting of: (A) hydrogen; (B) C_1 - C_6 alkyl; (C) C_1 - C_6 haloalkyl; (D) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (E) (hydroxy) C_1 - C_4 alkyl; (F) (cyano)alkyl; (G) unsubstituted C_6 - C_{10} aryl; (H) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (M) unsubstituted C_3 - C_8 cycloalkyl; and (N) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_6 alkyl and $-NR^{15g}R^{15h}$; or

[0319] R^{15a} and R^{15b} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0320] R^{15c} and R^{15d} are independently selected from the group consisting of: (A) hydrogen; (B) C_1 - C_6 alkyl; (C) C_1 - C_6 haloalkyl; (D) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (E) (hydroxy) C_1 - C_4 alkyl; (F) (cyano)alkyl; (G) unsubstituted C_6 - C_{10} aryl; (H) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (M) unsubstituted C_3 - C_8 cycloalkyl; and (N) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_6 alkyl and $-NR^{15g}R^{15h}$; or

[0321] R^{15c} and R^{15d} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

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[0322] R^{15e} and R^{15f} are independently selected from the group consisting of: (A) hydrogen; (B) C_1-C_6 alkyl; (C) C_1-C_6 haloalkyl; (D) $(C_1-C_4 \text{ alkoxy})C_1-C_4$ alkyl; (E) $(\text{hydroxy})C_1-C_4$ alkyl; (F) $(\text{cyano})\text{alkyl}$; (G) unsubstituted C_6-C_{10} aryl; (H) substituted C_6-C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1-C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1-C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1-C_4 alkyl; (M) unsubstituted C_3-C_8 cycloalkyl; and (N) substituted C_3-C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1-C_6 alkyl and $-NR^{15g}R^{15h}$, or

[0323] R^{15e} and R^{15f} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0324] R^{15g} and R^{15h} are independently selected from the group consisting of: (A) hydrogen; (B) C_1-C_6 alkyl; (C) C_1-C_6 haloalkyl; (D) C_1-C_6 alkoxy; (E) $(C_1-C_4 \text{ alkoxy})C_1-C_4$ alkyl; (F) $(\text{hydroxy})C_1-C_4$ alkyl; (G) $(\text{cyano})\text{alkyl}$; (H) unsubstituted C_6-C_{10} aryl; (I) substituted C_6-C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1-C_4 alkyl; (J) unsubstituted 5- or 6-membered heteroaryl; (K) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1-C_4 alkyl; (L) unsubstituted 4- to 14-membered heterocyclo; (M) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1-C_4 alkyl; (N) unsubstituted C_3-C_8 cycloalkyl; and (O) substituted C_3-C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1-C_6 alkyl and $-NR^{15g}R^{15h}$, or

[0325] R^{15g} and R^{15h} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

[0326] R^{16} is $(\text{amino})(\text{hydroxy})C_1-C_4$ alkyl;

[0327] R^{17a} is selected from the group consisting of hydrogen and C_1-C_4 alkyl;

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[0328] R^{18a} is selected from the group consisting of: (A) C₁-C₆ alkyl; (B) C₁-C₆ haloalkyl; (C) C₁-C₆ alkoxy; (D) (C₁-C₄ alkoxy)C₁-C₄ alkyl; (E) (hydroxy)C₁-C₄ alkyl; (F) (cyano)alkyl; (G) unsubstituted C₆-C₁₀ aryl; (H) substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (M) unsubstituted C₃-C₈ cycloalkyl; and (N) substituted C₃-C₈ cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl,

[0329] or a pharmaceutically acceptable salt or solvate thereof.

[0330] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein R^{14a} is selected from the group consisting of unsubstituted 5- to 10-membered heteroaryl; and substituted 5- or 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of C₁-C₄ alkyl; C₁-C₄ alkoxy; (3- to 8-membered heterocyclo)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; -C(=O)NR^{15a}R^{15b}; unsubstituted 5- to 10-membered heteroaryl; substituted 5- or 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, (3- to 8-membered heterocyclo)C₁-C₄ alkyl, 5- to 9-membered heteroaryl, and -NR^{15c}R^{15f}; unsubstituted C₃-C₆ cycloalkyl; and substituted C₃-C₆ cycloalkyl having one, two, or three substituents independently selected from the group consisting of C₁-C₄ alkyl and -N(R^{17a})C(=O)R^{18a}, or a pharmaceutically acceptable salt or solvate thereof.

[0331] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein R^{14a} is a substituted pyridyl having one, two, or three substituents independently selected from the group consisting of C₁-C₄ alkyl; C₁-C₄ alkoxy; (3- to 8-membered heterocyclo)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; -C(=O)NR^{15a}R^{15b}; unsubstituted 5- to 10-membered heteroaryl; substituted 5- to 10-membered heteroaryl having one, two, or three substituents

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independently selected from the group consisting of halo, C₁-C₄ alkyl, (3- to 8-membered heterocyclo)C₁-C₄ alkyl, 5- to 9-membered heteroaryl, and -NR^{15e}R^{15f}; unsubstituted C₃-C₆ cycloalkyl; and substituted C₃-C₆ cycloalkyl having one, two, or three substituents independently selected from the group consisting of C₁-C₄ alkyl and -N(R^{17a})C(=O)R^{18a}, or a pharmaceutically acceptable salt or solvate thereof.

[0332] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein R^{14b} is selected from the group consisting of unsubstituted 5- to 10-membered heteroaryl; substituted 5- to 10-membered heteroaryl having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (C₃-C₆ cycloalkyl)C₁-C₄ alkyl; unsubstituted C₆-C₁₀ aryl; substituted C₆-C₁₀ aryl, having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (3- to 8-membered heterocyclo)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; and unsubstituted C₃-C₆ cycloalkyl, or a pharmaceutically acceptable salt or solvate thereof.

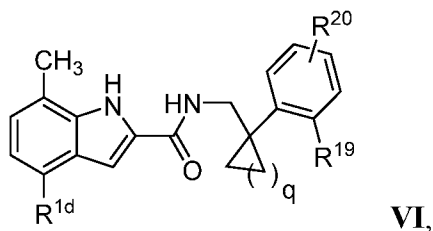
[0333] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein R^{14b} is selected from the group consisting of unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (C₃-C₆ cycloalkyl)C₁-C₄ alkyl; unsubstituted phenyl; substituted phenyl, having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (3- to 8-membered heterocyclo)C₁-C₄ alkyl; and unsubstituted C₃-C₆ cycloalkyl, or a pharmaceutically acceptable salt or solvate thereof.

[0334] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein p is 0, or a pharmaceutically acceptable salt or solvate thereof.

[0335] In another embodiment, Compounds of the Disclosure are compounds having any one of Formulae **V**, **V-A**, or **V-B**, wherein p is 1, or a pharmaceutically acceptable salt or solvate thereof.

[0336] In another embodiment, Compounds of the Disclosure are compounds having Formula **VI**:

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wherein:

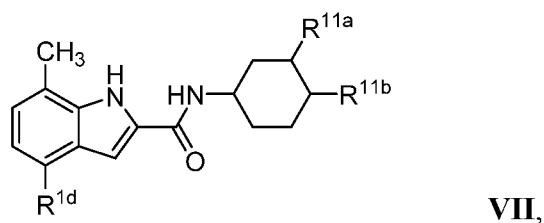
[0337] R^{19} is selected from the group consisting of unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl;

[0338] R^{20} is selected from the group consisting of hydrogen, halo, and C_1 - C_4 alkyl; and

[0339] q is 1, 2, or 3, or a pharmaceutically acceptable salt or solvate thereof.

[0340] In another embodiment, Compounds of the Disclosure are compounds having Formula **VI**, wherein q is 1.

[0341] In another embodiment, Compounds of the Disclosure are compounds having Formula **VII**:

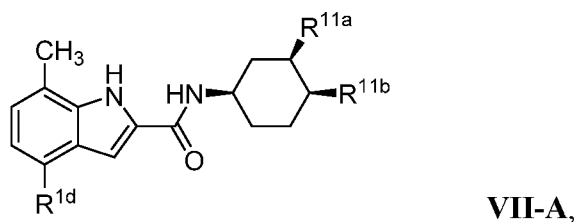


[0342] wherein:

[0343] R^{11b} is selected from the group consisting of C_1 - C_4 alkyl, halo, and C_1 - C_4 haloalkyl; and

[0344] R^{1d} and R^{11a} are as defined in connection with Formula **IV**, or a pharmaceutically acceptable salt or solvate thereof.

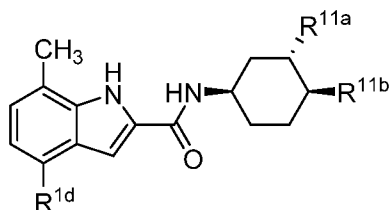
[0345] In another embodiment, Compounds of the Disclosure are compounds having Formula **VII-A**:



wherein R^{1d} , R^{11a} , and R^{11b} are as defined in connection with Formula **VII**, or a pharmaceutically acceptable salt or solvate thereof.

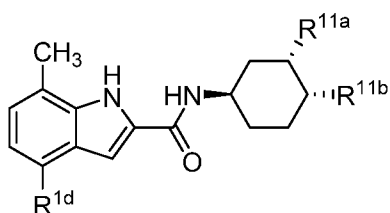
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[0346] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-B:

**VII-B,**

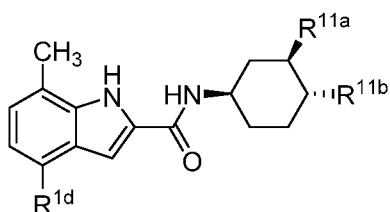
wherein R^{1d}, R^{11a}, and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

[0347] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-C:

**VII-C,**

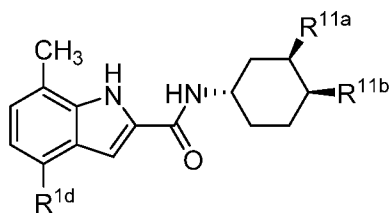
wherein R^{1d}, R^{11a}, and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

[0348] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-D:

**VII-D,**

wherein R^{1d}, R^{11a}, and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

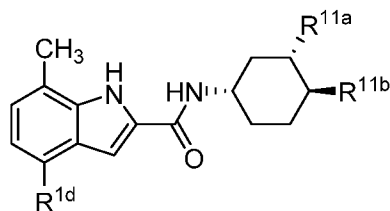
[0349] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-E:

**VII-E,**

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wherein R^{1d} , R^{11a} , and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

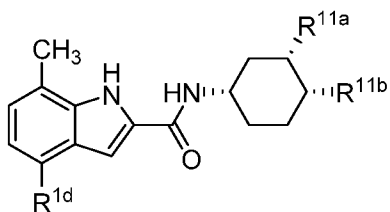
[0350] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-F:



VII-F,

wherein R^{1d} , R^{11a} , and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

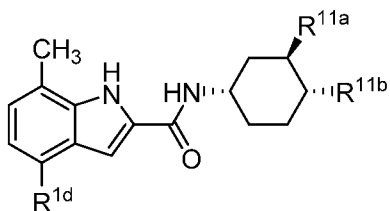
[0351] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-G:



VII-G,

wherein R^{1d} , R^{11a} , and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

[0352] In another embodiment, Compounds of the Disclosure are compounds having Formula VII-H:

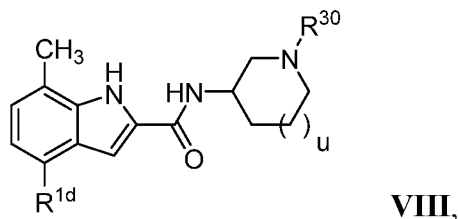


VII-H,

wherein R^{1d} , R^{11a} , and R^{11b} are as defined in connection with Formula VII, or a pharmaceutically acceptable salt or solvate thereof.

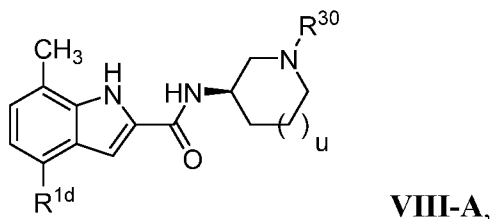
[0353] In another embodiment, Compounds of the Disclosure are compounds having Formula VIII:

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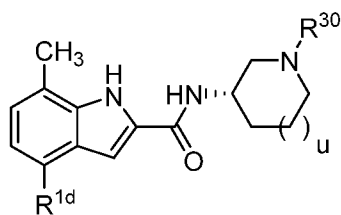
wherein:

- [0354]** R³⁰ is selected from the group consisting of hydrogen; C₁-C₆ alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; -C(=O)R^{13b}, and -S(=O)₂R²⁴;
- [0355]** R^{13b} is selected from the group consisting of C₁-C₄ alkyl; amino; C₁-C₄ haloalkyl; C₁-C₄ alkoxy; (hydroxy)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (amino)alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy;
- [0356]** R²⁴ is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl;
- [0357]** u is 0, 1, 2, or 3; and
- [0358]** R^{1d} is as defined in connection with Formula I, or a pharmaceutically acceptable salt or solvate thereof.
- [0359]** In another embodiment, Compounds of the Disclosure are compounds having Formula **VIII-A**:



wherein R^{1d}, R³⁰, and u are as defined in connection with Formula **VIII**, or a pharmaceutically acceptable salt or solvate thereof.

[0360] In another embodiment, Compounds of the Disclosure are compounds having Formula VIII-B:



VIII-B,

wherein R^{1d}, R³⁰, and u are as defined in connection with Formula **VIII**, or a pharmaceutically acceptable salt or solvate thereof.

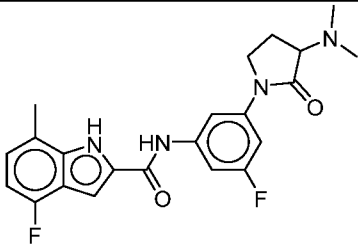
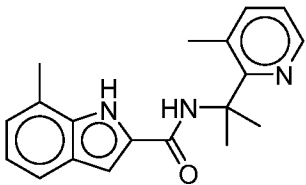
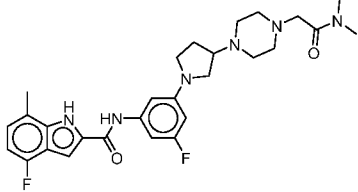
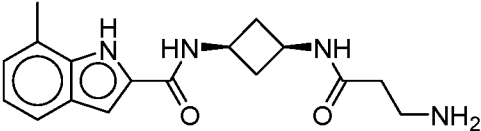
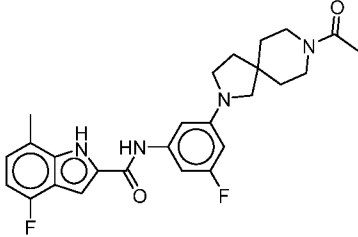
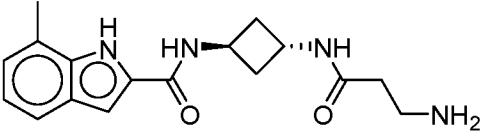
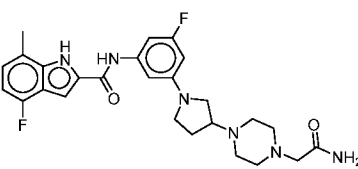
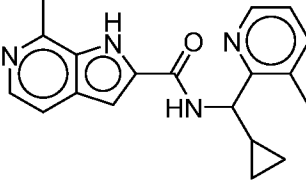
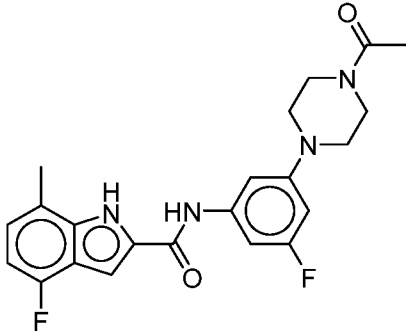
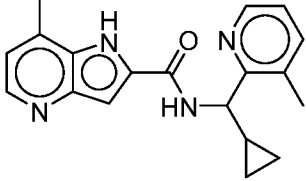
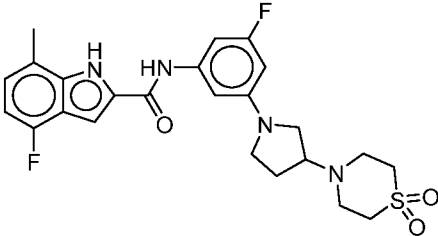
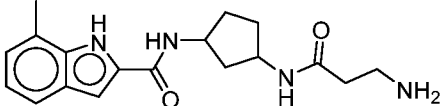
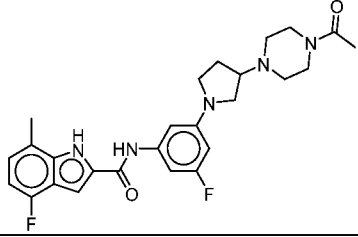
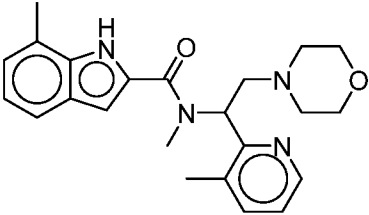
[0361] In another embodiment, Compounds of the Disclosure are compounds of Table 1, and the pharmaceutically acceptable salts or solvates thereof. Mass spectroscopy and representative biological data of Compounds of the Disclosure are provided in Table 1B. The "SMYD2" and "SYMD3" assays of Table 1B are described in WO 2016/040515.

[0362] In another embodiment, Compounds of the Disclosure are selected from the group consisting of Cpd. Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 824, 828, 839, 870, 922, 930, 942, 995, 1007, 1025, 1043, 1044, 1045, 1048, 1051, 1055, 1070, 1078, 1083, 1097, 1117, 1138, 1180, 1184, and 1192, and the pharmaceutically acceptable salts or solvates thereof. In another embodiment, Compounds of the Disclosure are selected from the group consisting of Cpd. Nos. 15, 922, 930, 942, 1055, 1070, 1117, 1180, 1184, and 1192, and the pharmaceutically acceptable salts or solvates thereof.

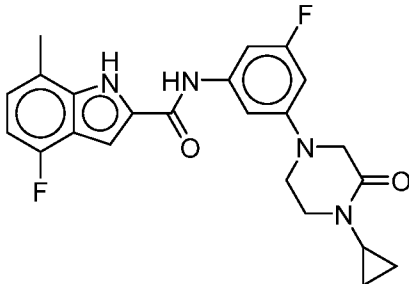
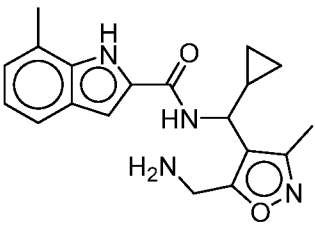
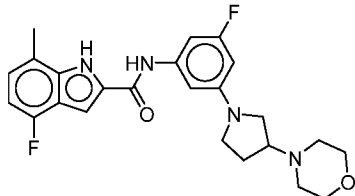
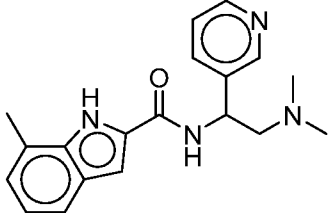
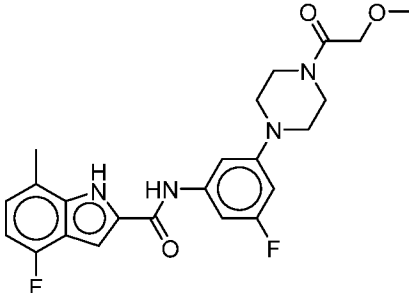
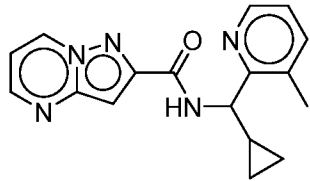
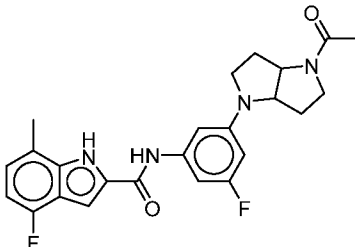
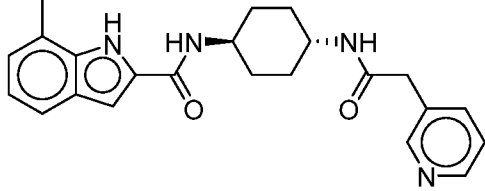
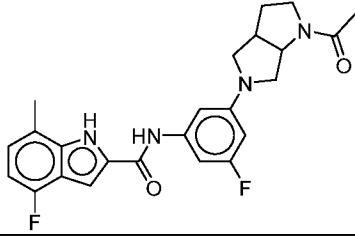
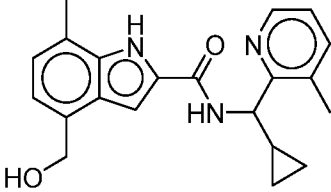
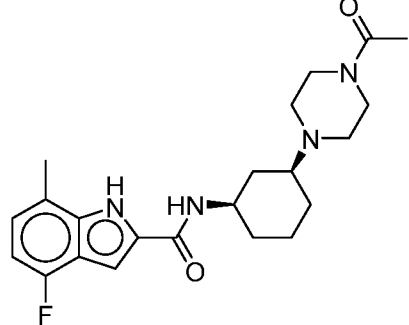
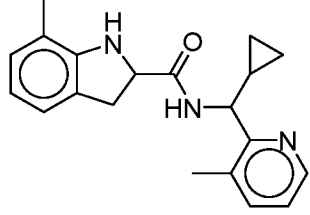
Table 1

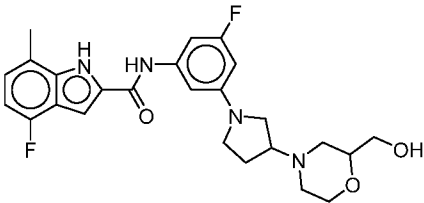
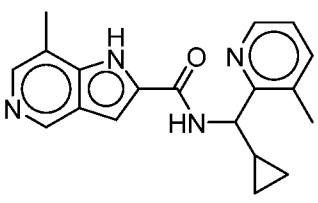
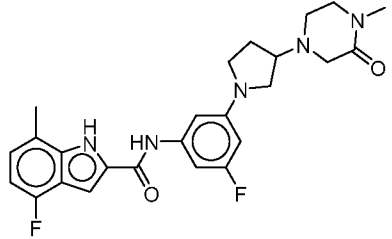
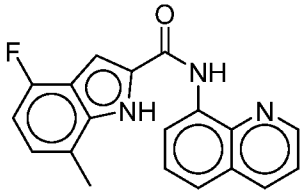
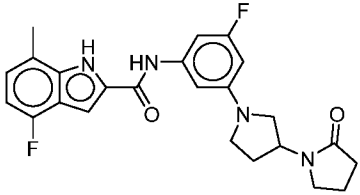
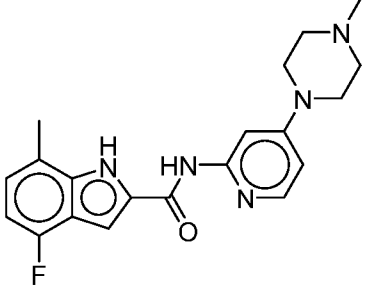
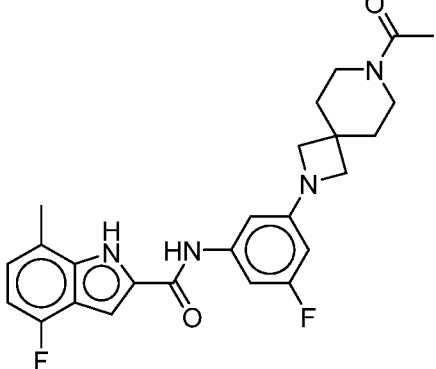
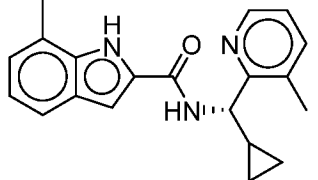
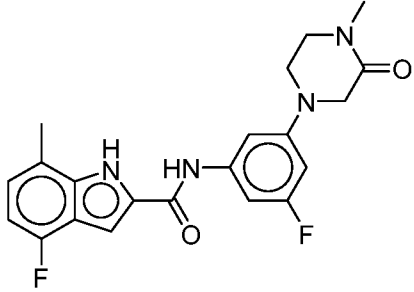
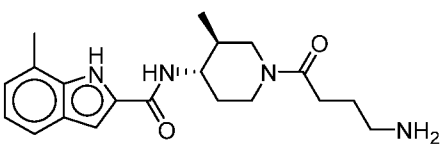
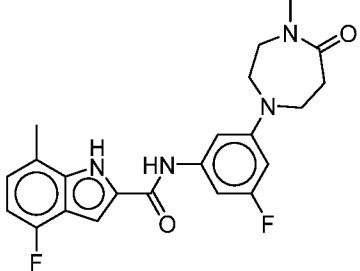
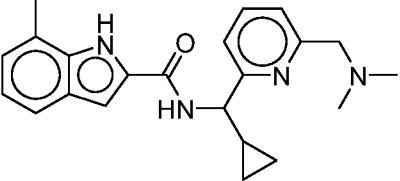
Cpd. No.	Chemical Structure	Cpd. No.	Chemical Structure
1		593	
2		594	

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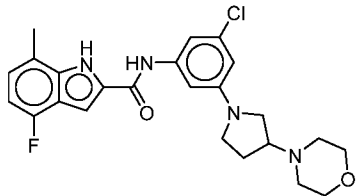
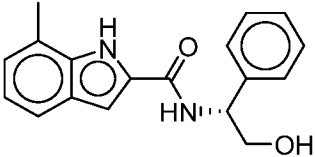
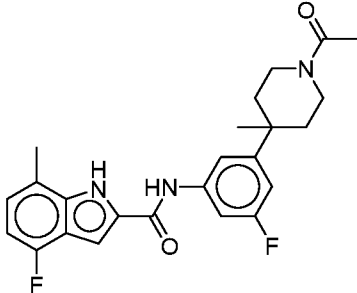
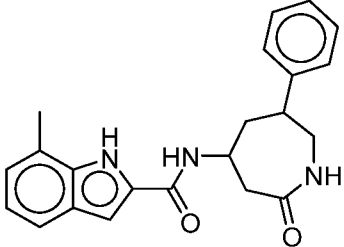
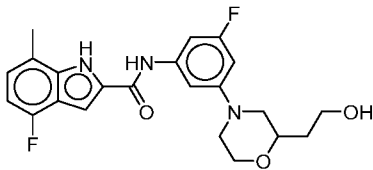
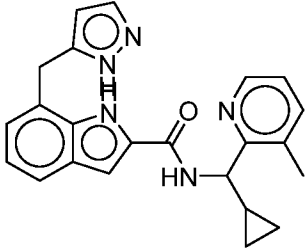
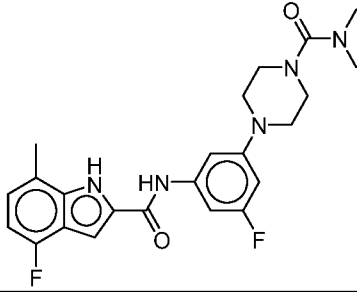
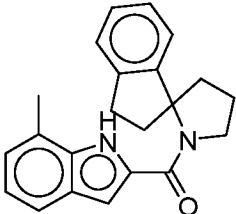
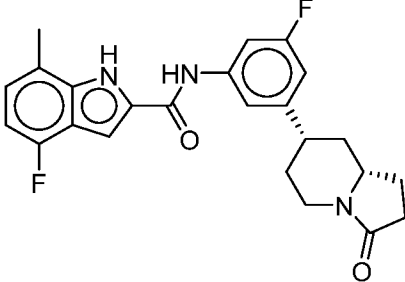
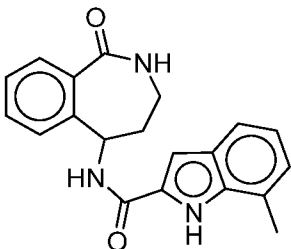
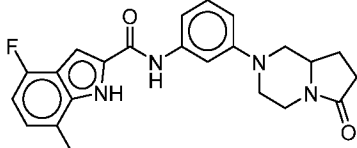
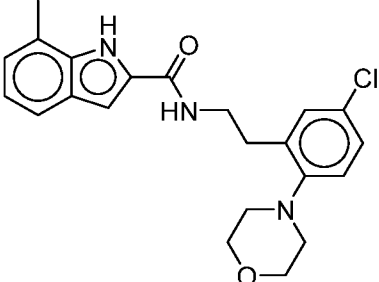
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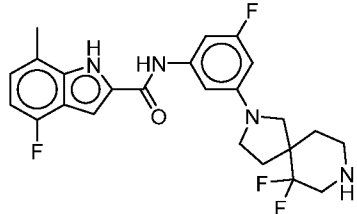
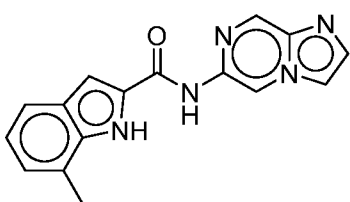
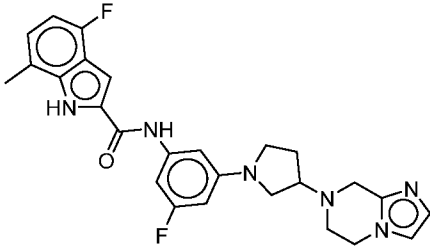
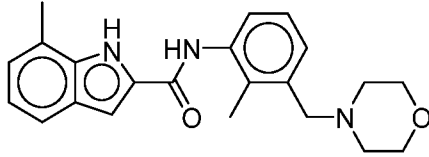
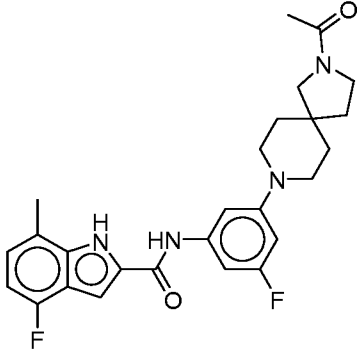
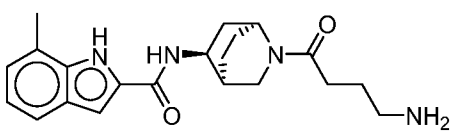
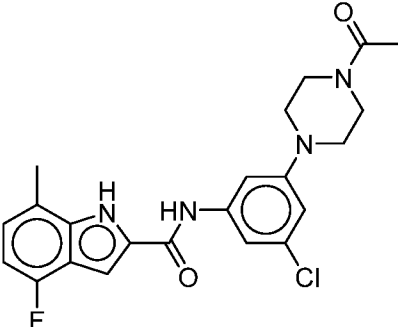
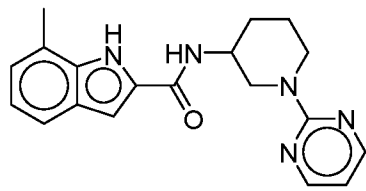
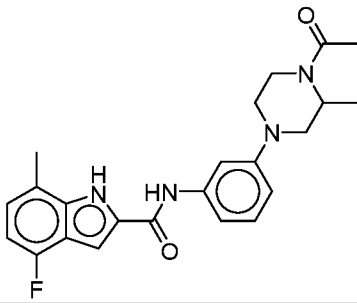
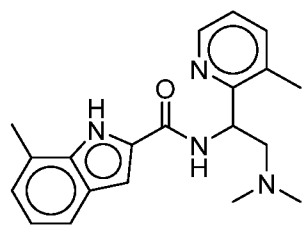
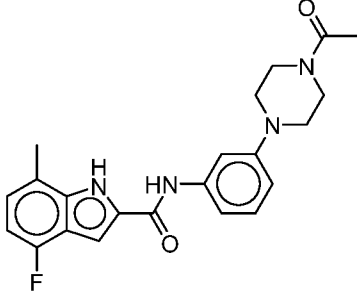
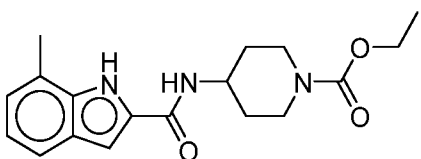
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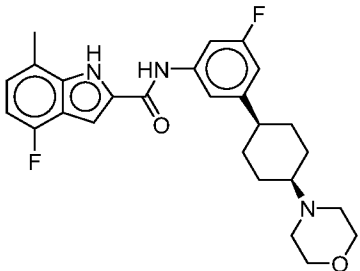
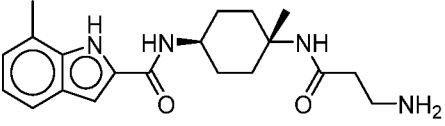
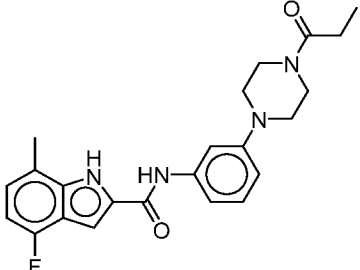
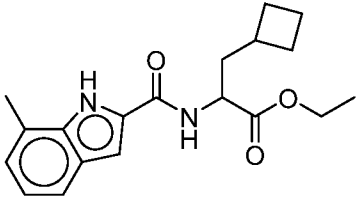
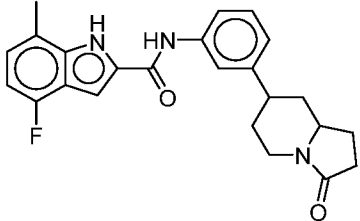
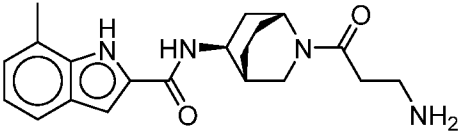
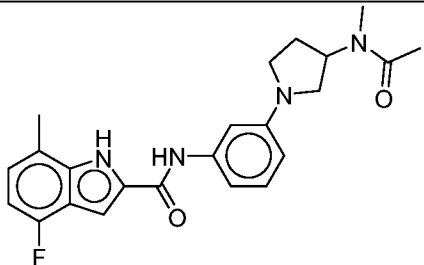
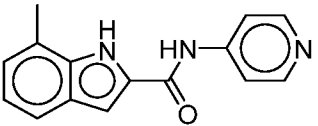
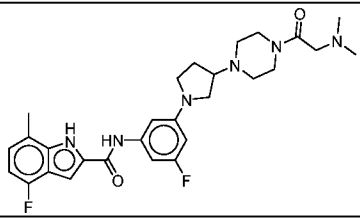
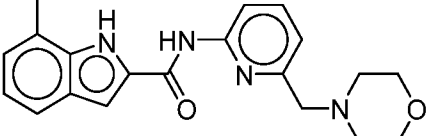
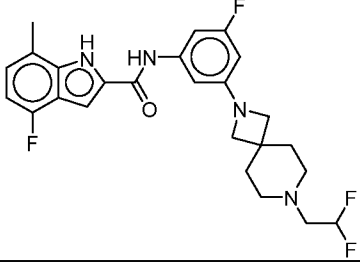
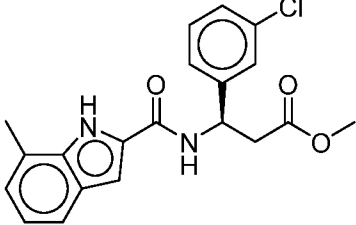
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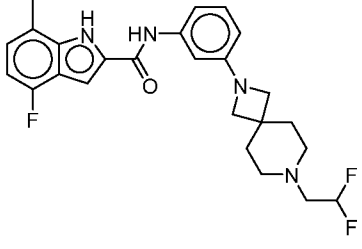
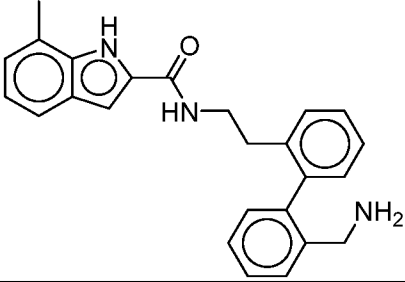
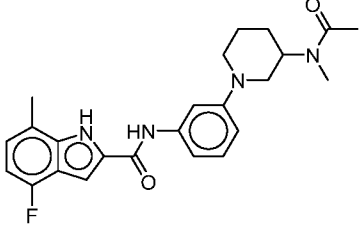
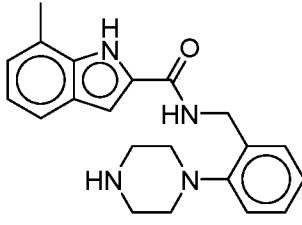
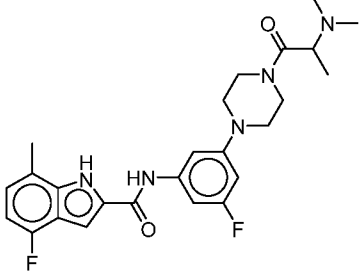
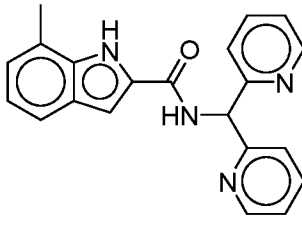
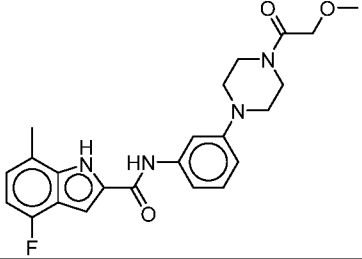
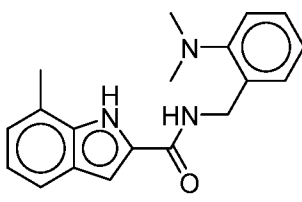
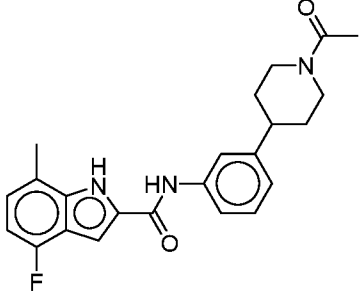
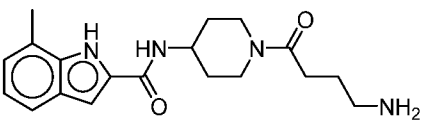
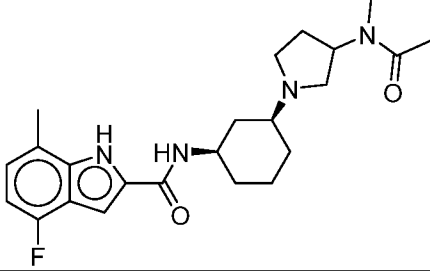
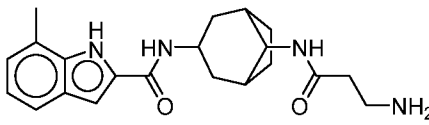
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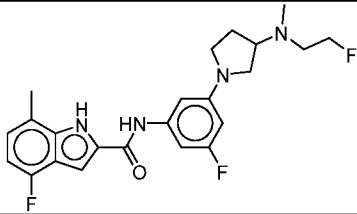
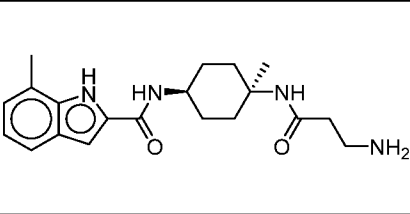
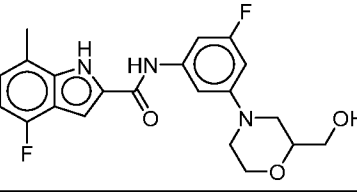
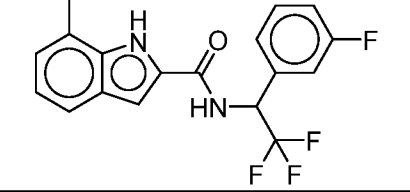
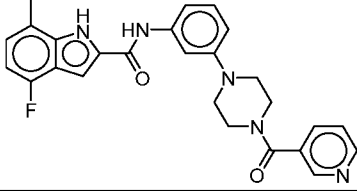
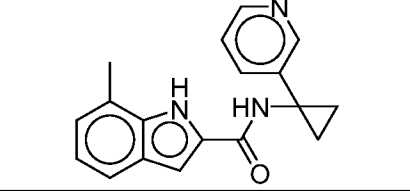
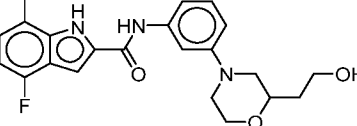
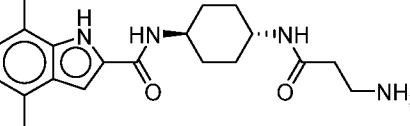
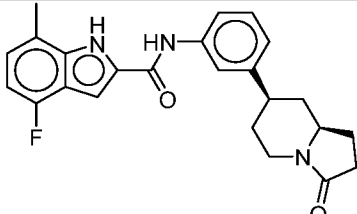
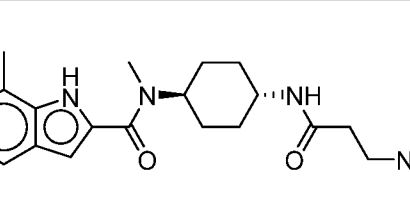
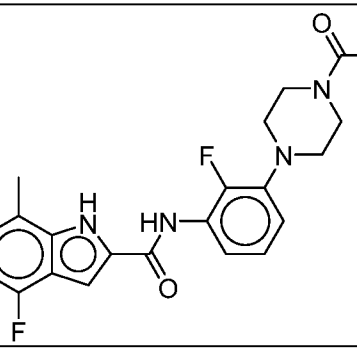
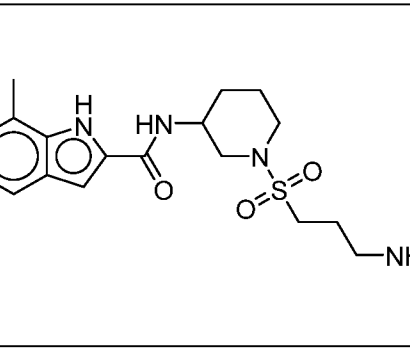
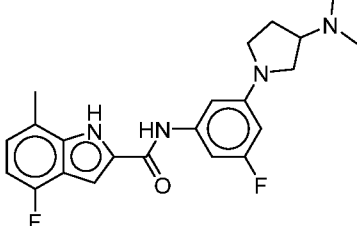
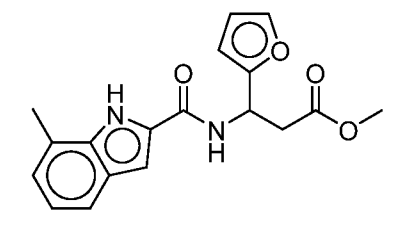
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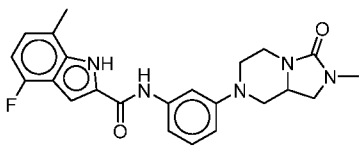
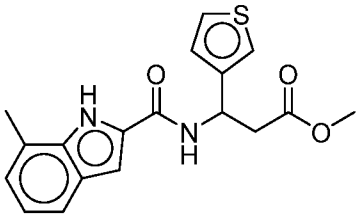
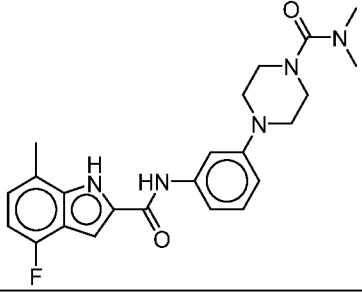
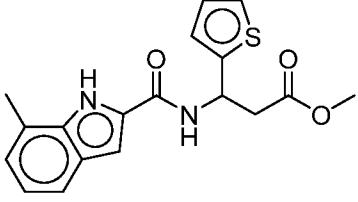
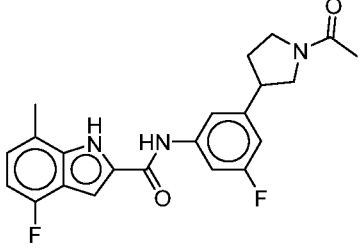
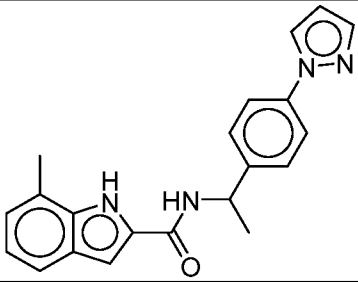
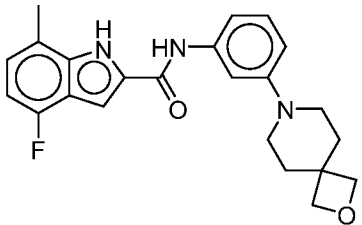
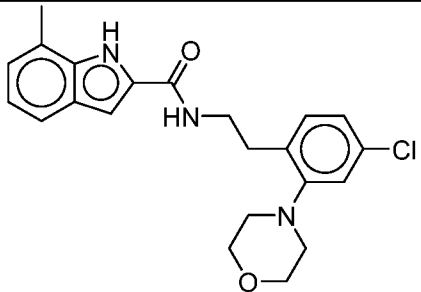
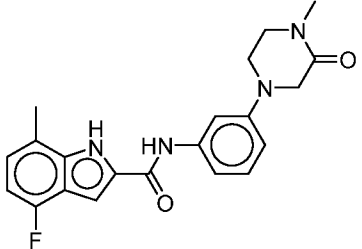
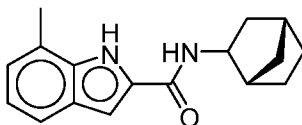
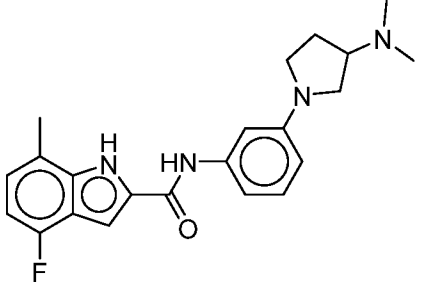
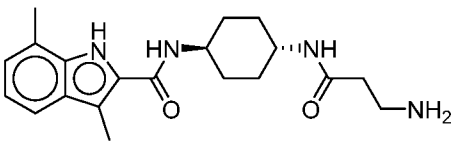
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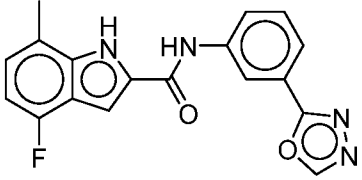
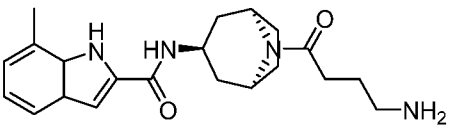
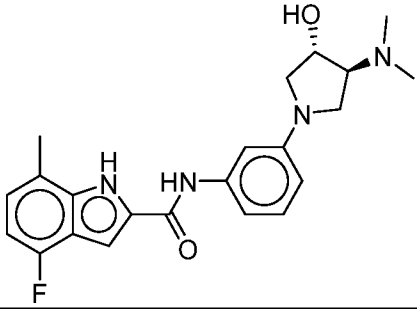
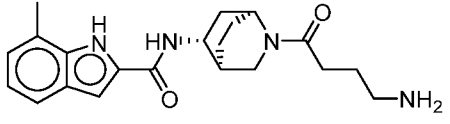
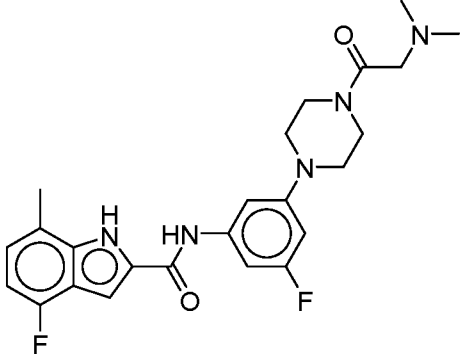
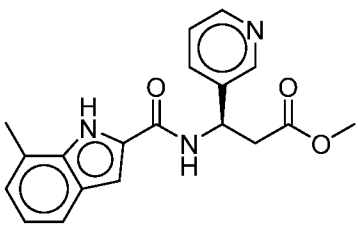
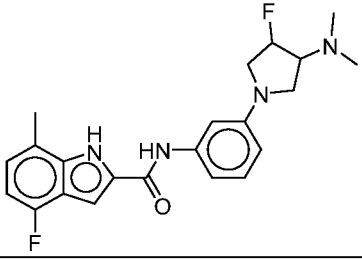
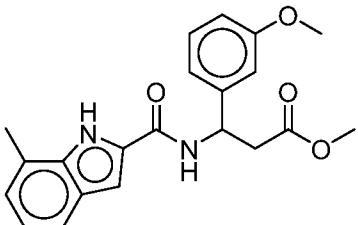
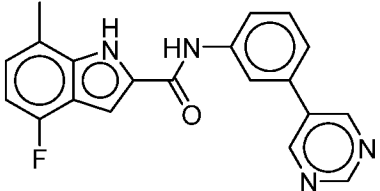
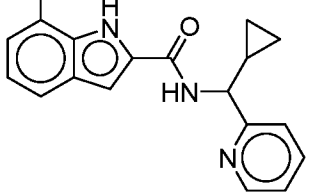
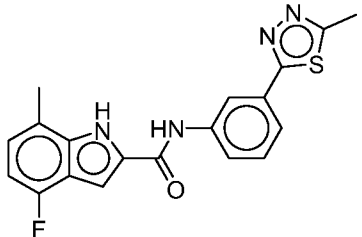
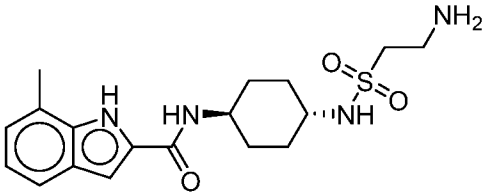
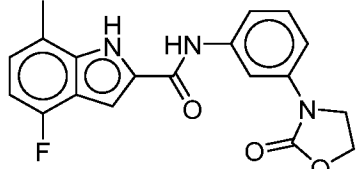
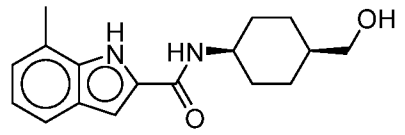
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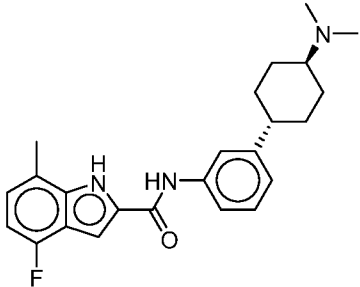
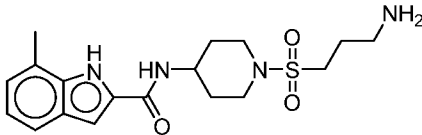
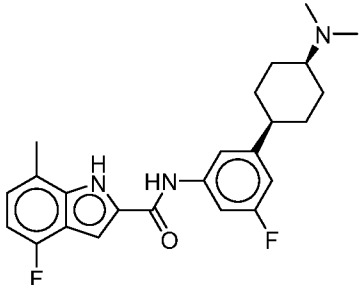
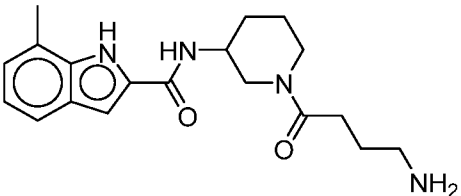
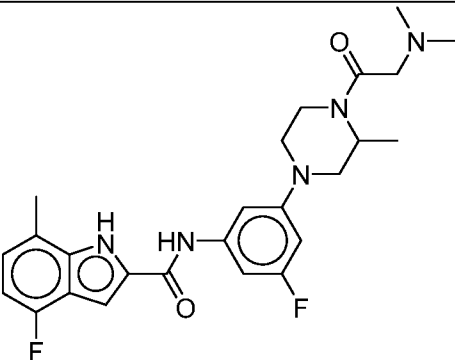
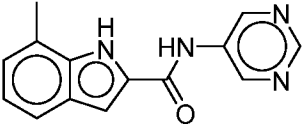
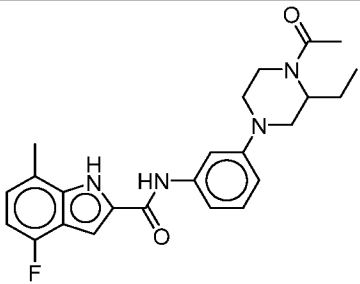
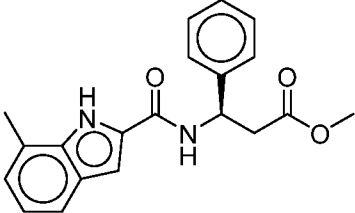
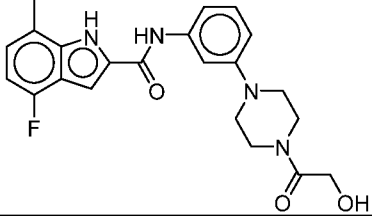
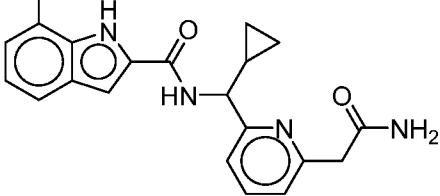
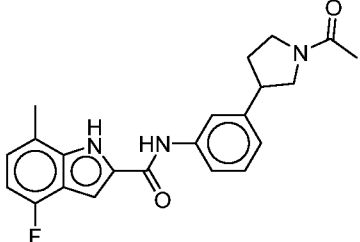
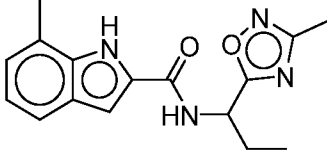
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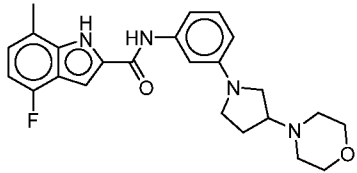
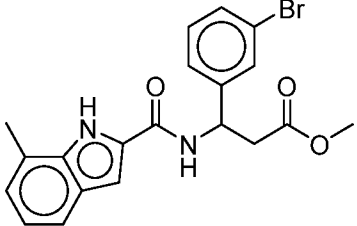
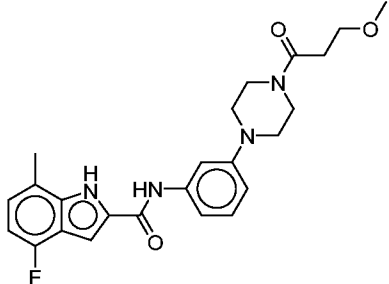
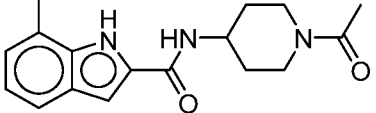
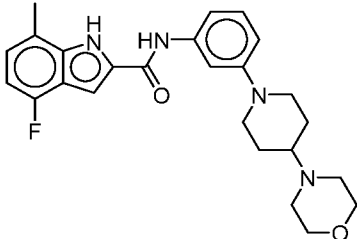
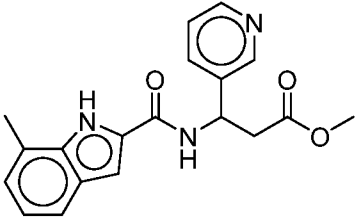
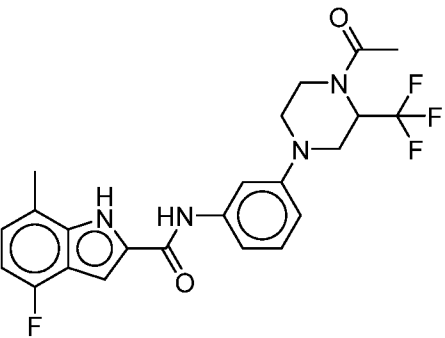
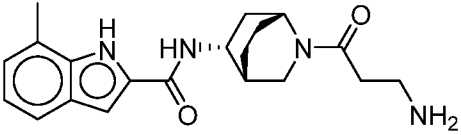
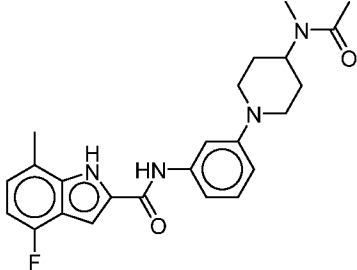
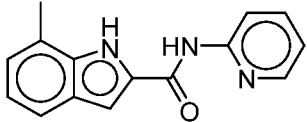
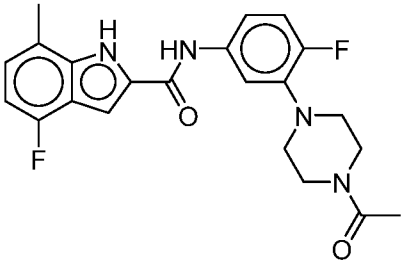
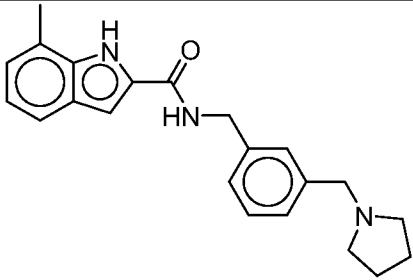
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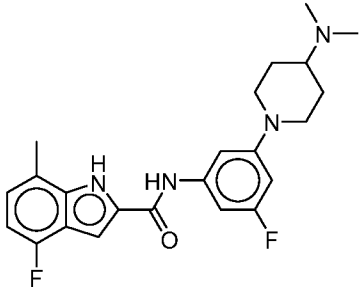
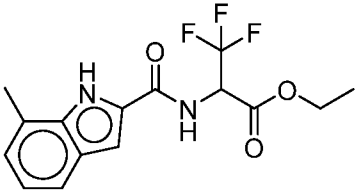
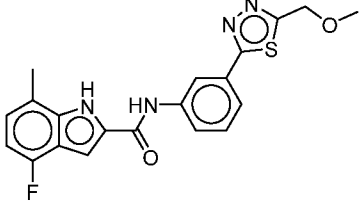
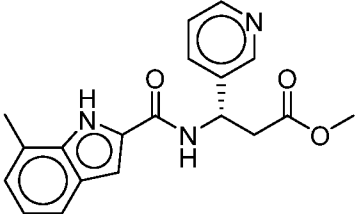
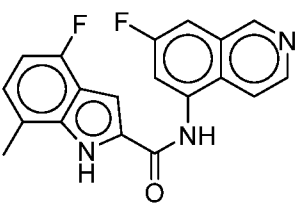
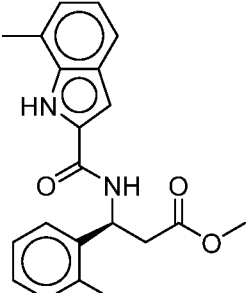
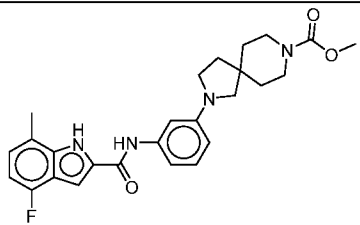
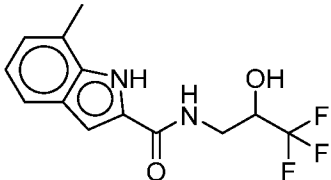
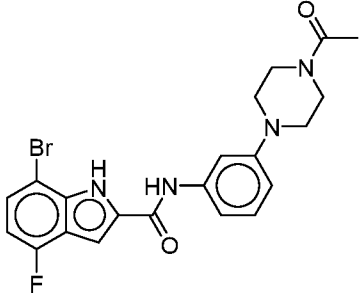
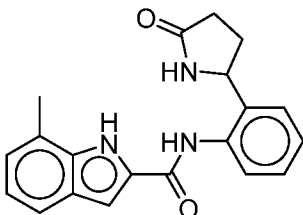
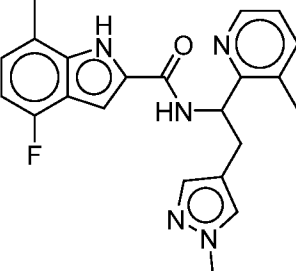
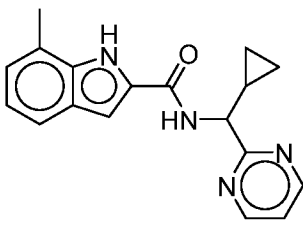
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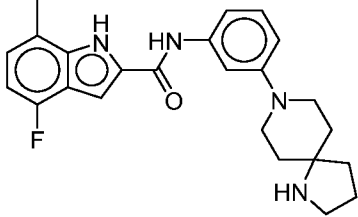
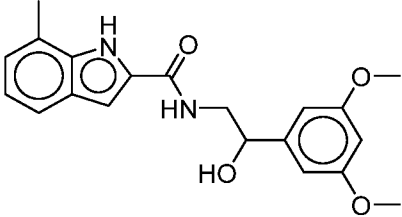
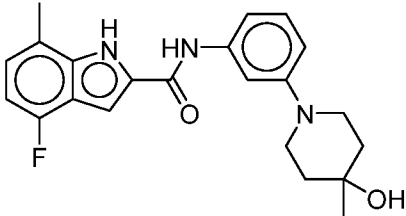
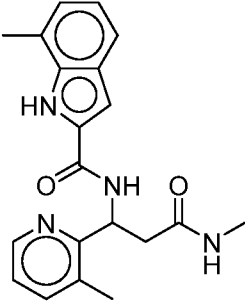
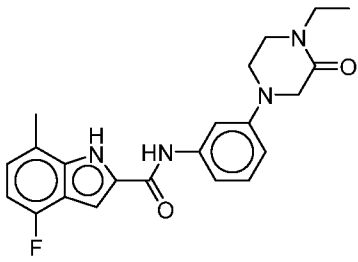
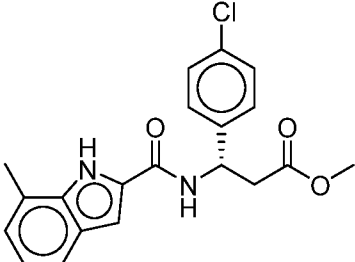
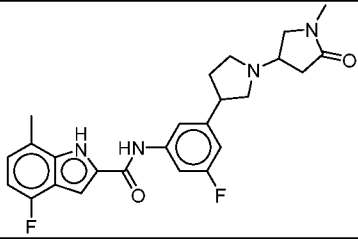
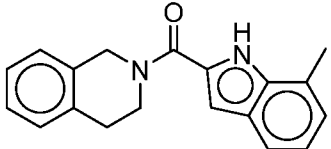
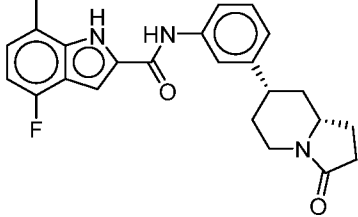
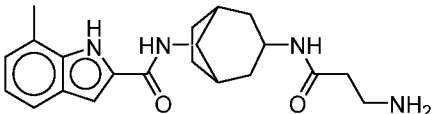
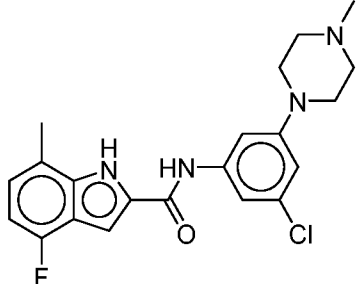
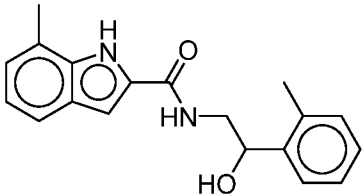
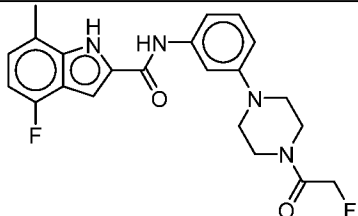
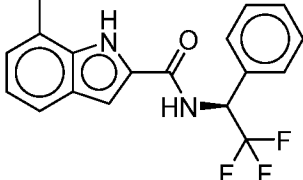
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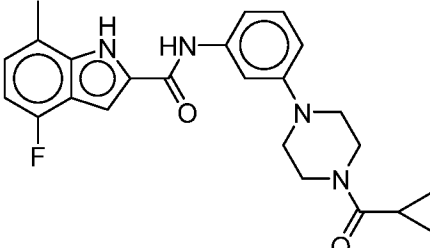
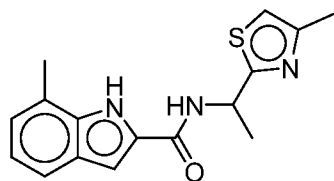
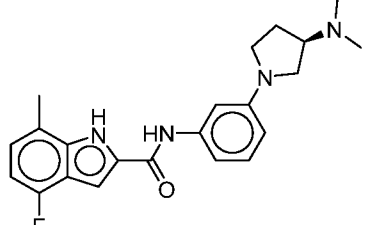
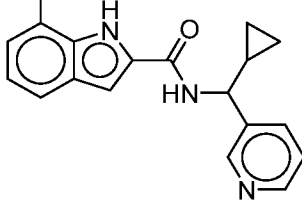
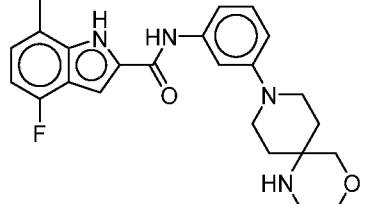
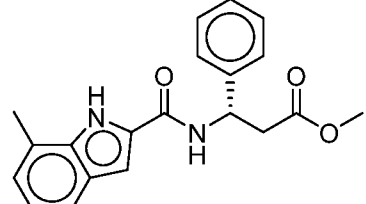
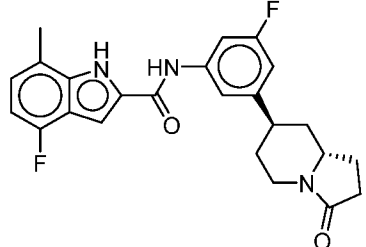
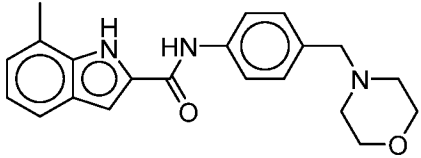
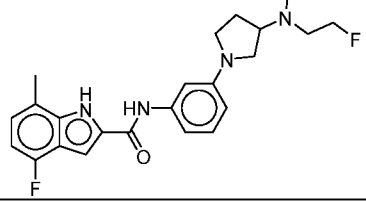
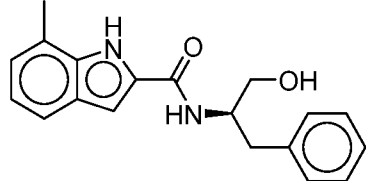
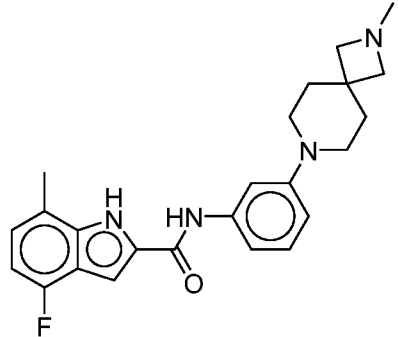
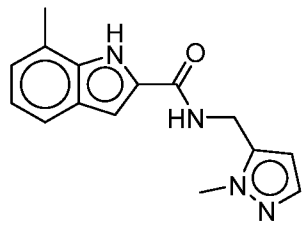
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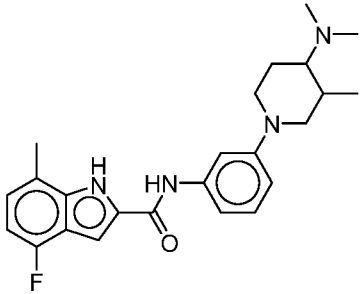
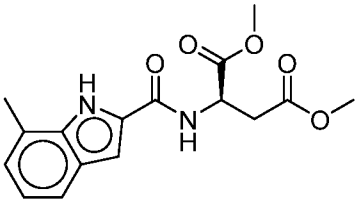
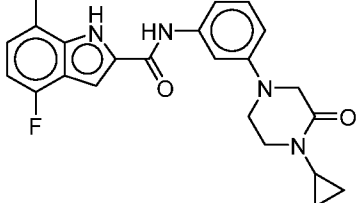
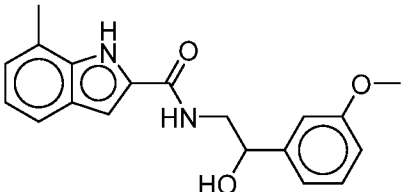
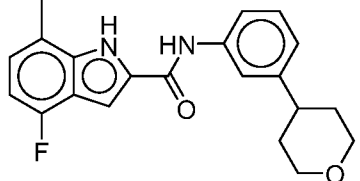
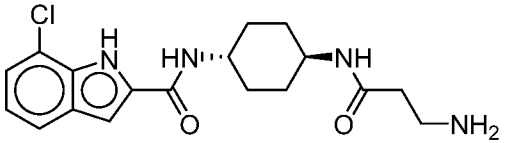
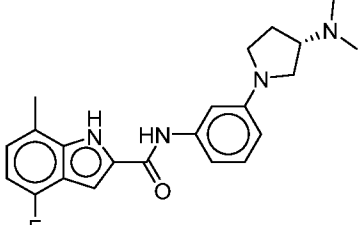
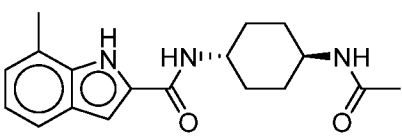
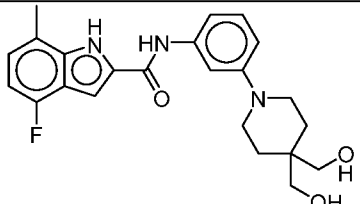
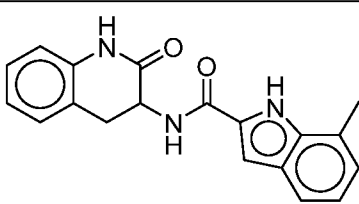
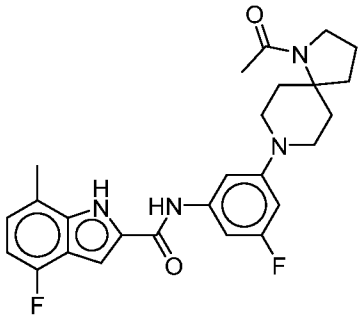
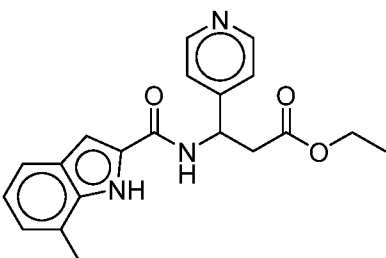
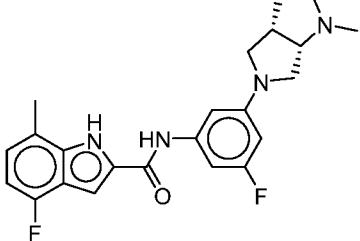
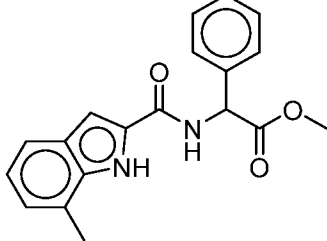
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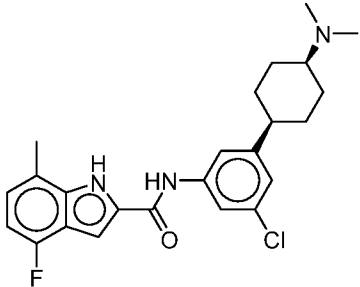
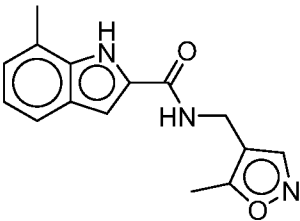
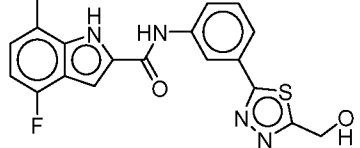
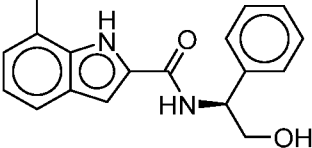
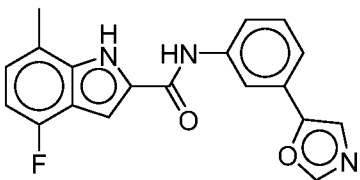
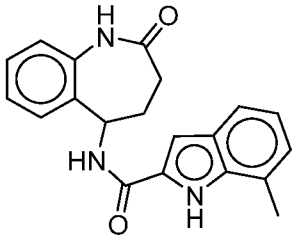
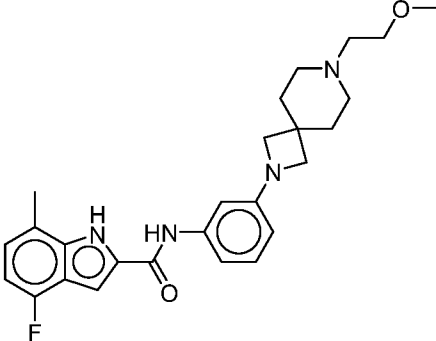
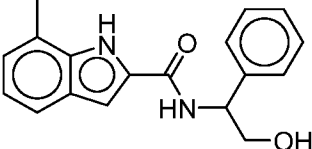
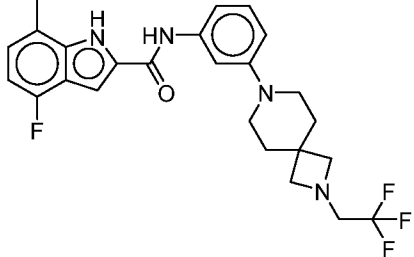
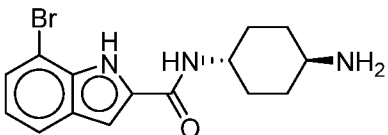
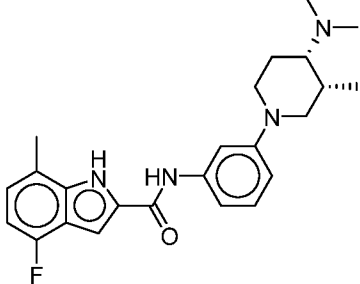
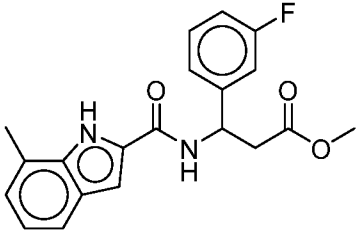
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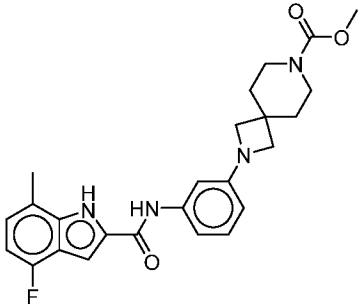
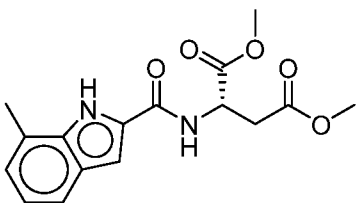
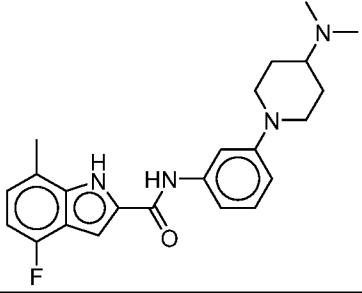
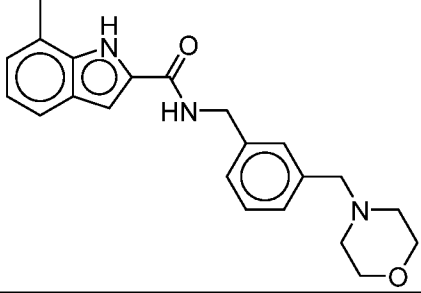
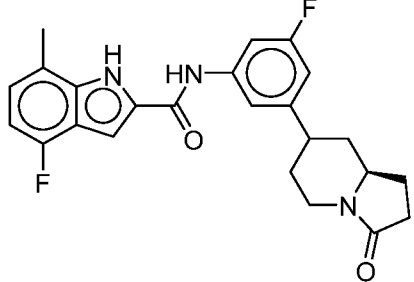
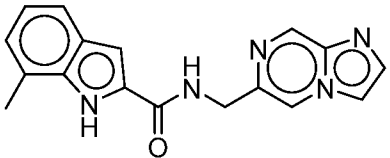
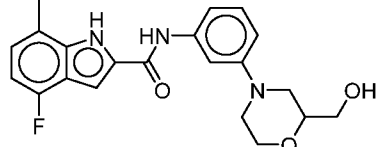
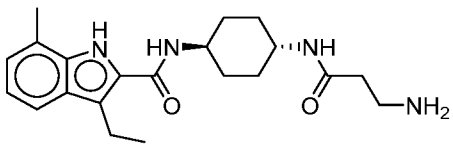
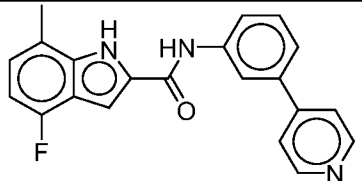
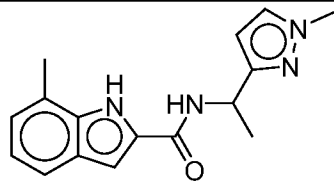
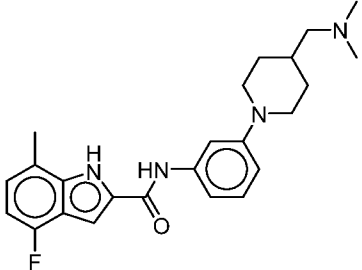
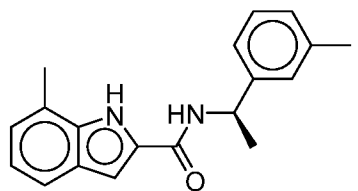
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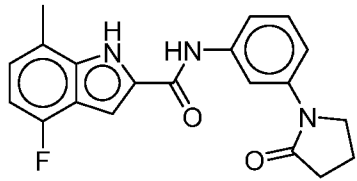
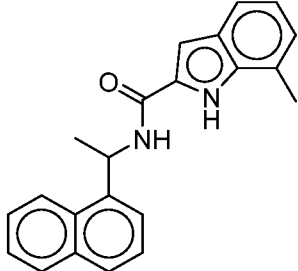
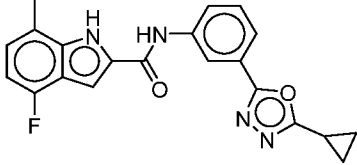
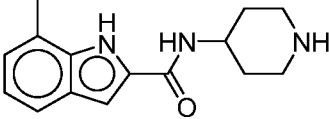
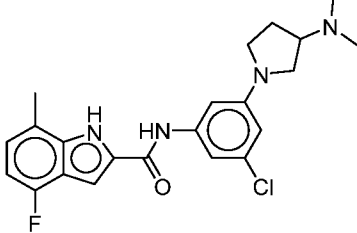
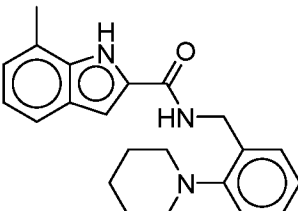
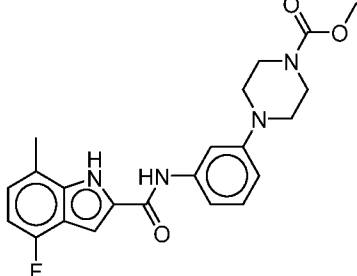
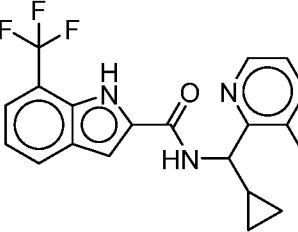
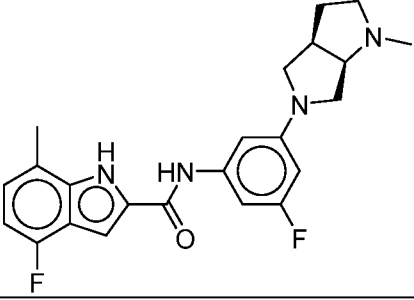
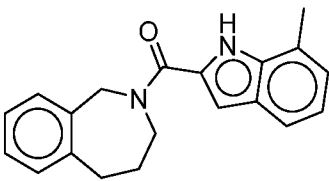
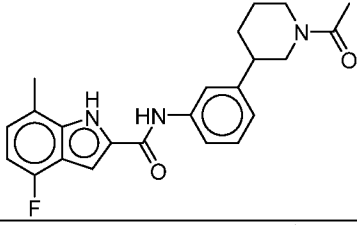
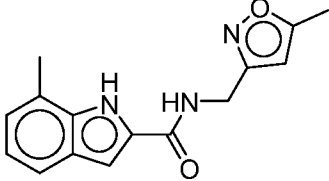
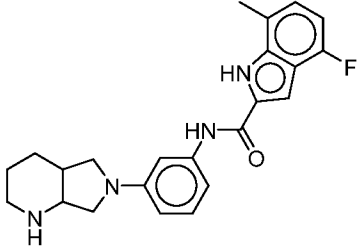
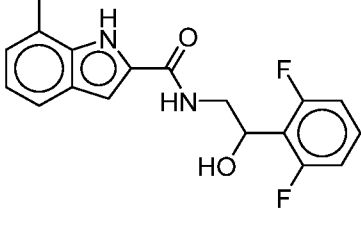
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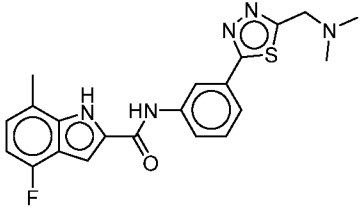
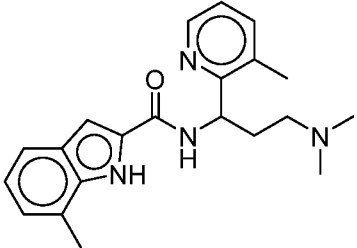
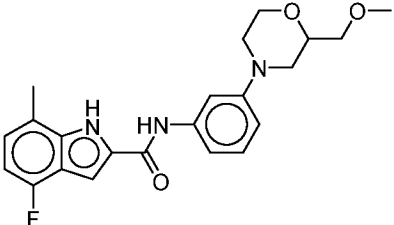
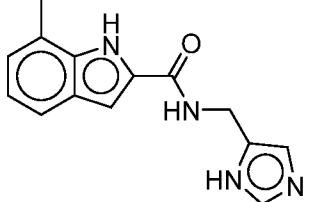
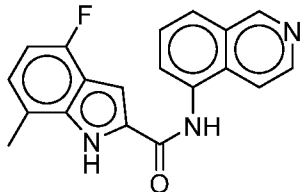
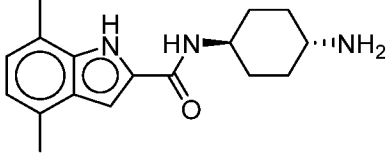
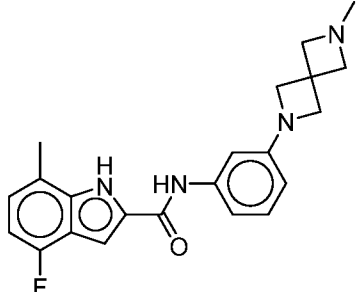
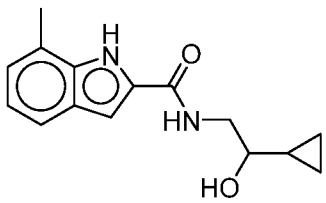
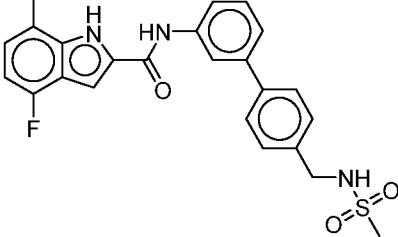
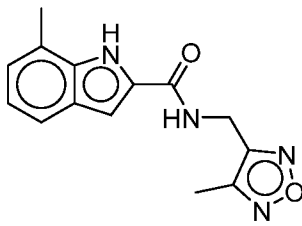
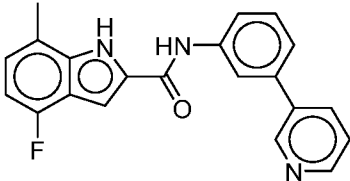
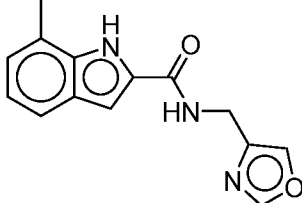
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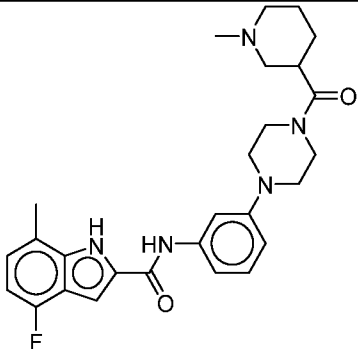
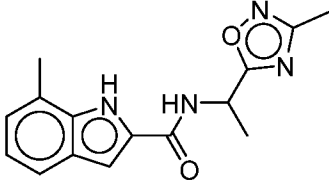
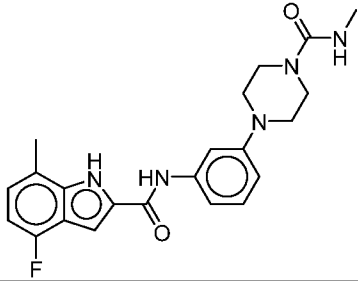
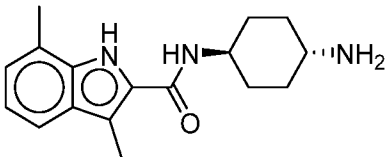
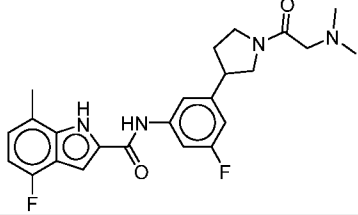
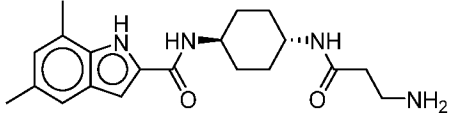
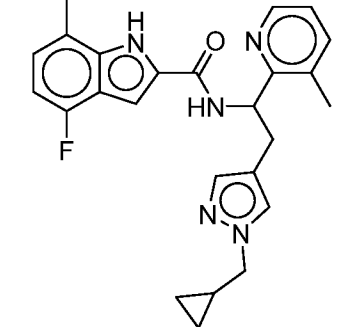
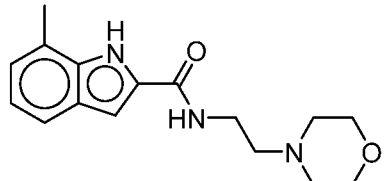
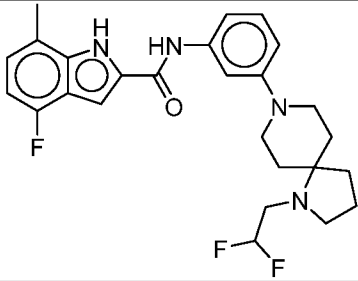
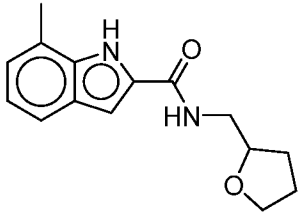
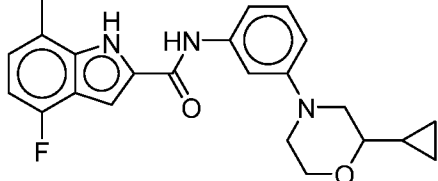
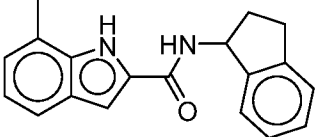
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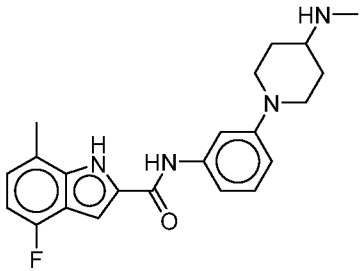
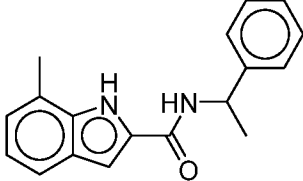
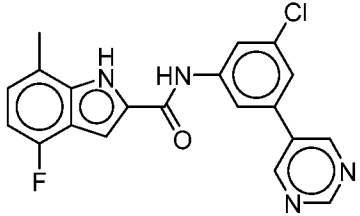
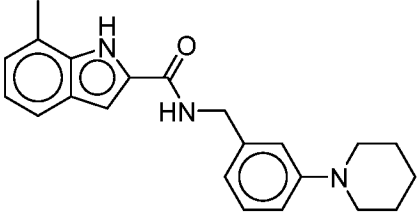
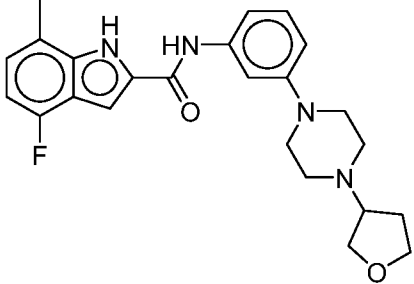
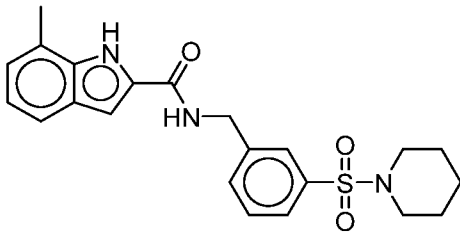
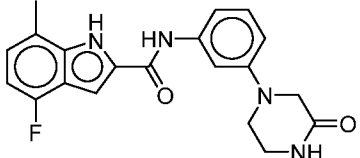
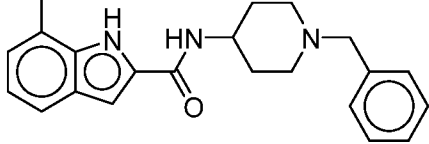
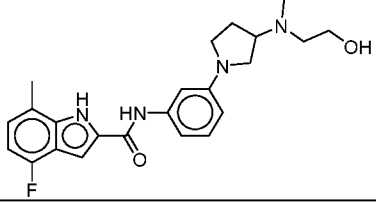
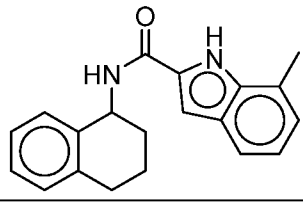
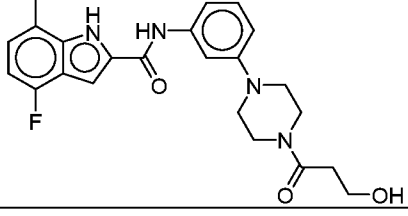
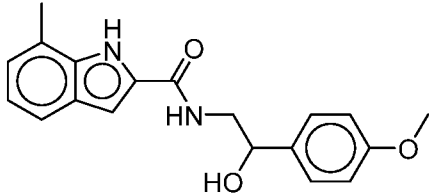
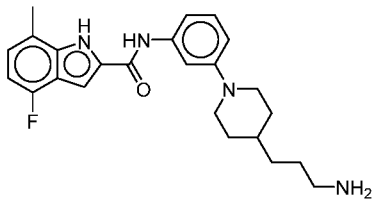
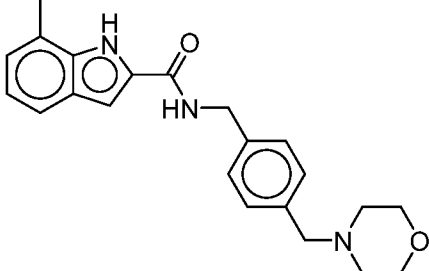
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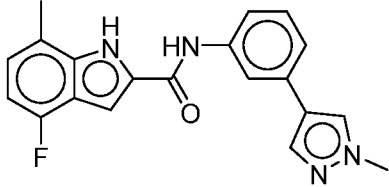
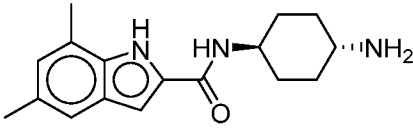
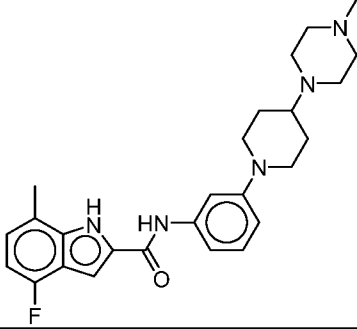
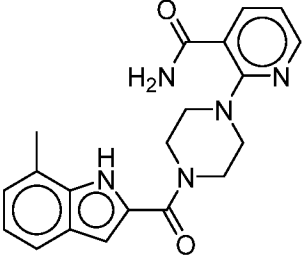
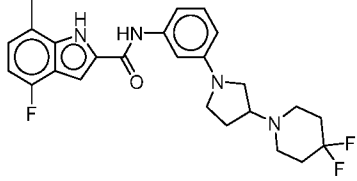
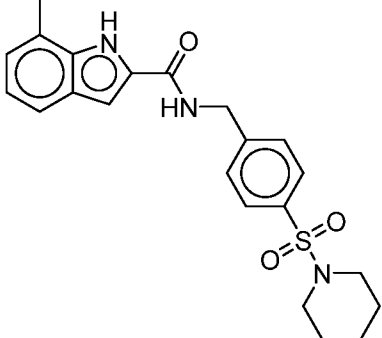
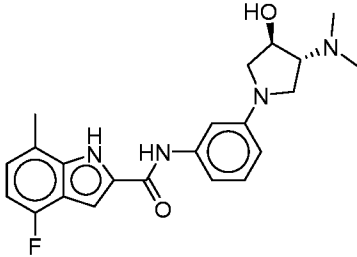
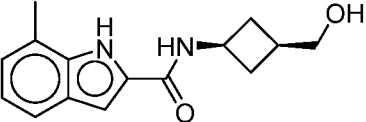
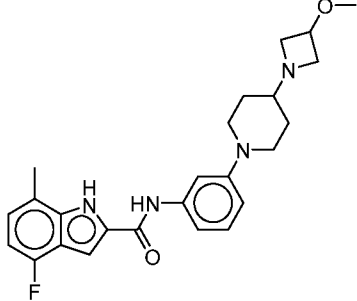
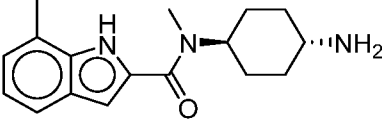
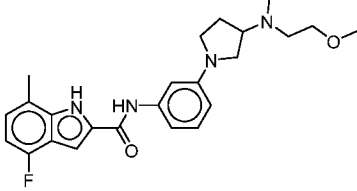
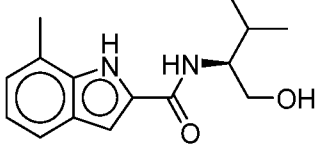
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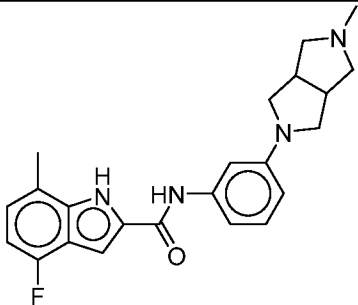
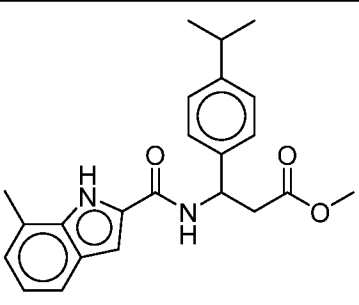
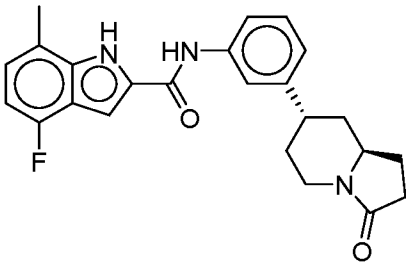
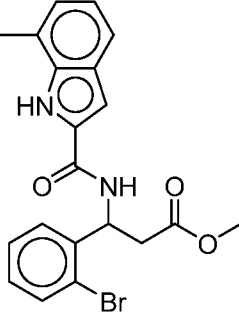
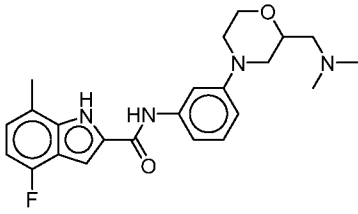
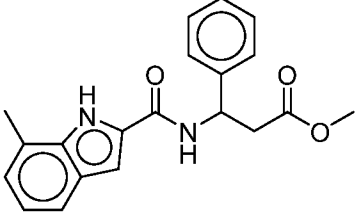
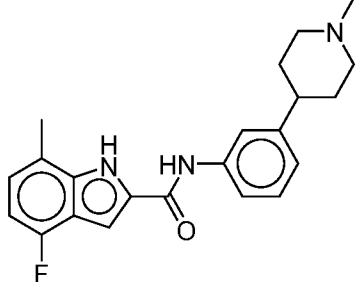
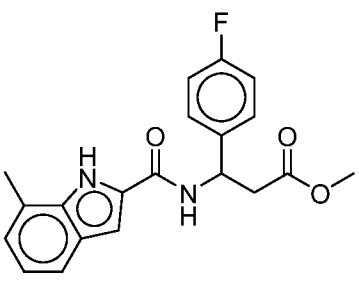
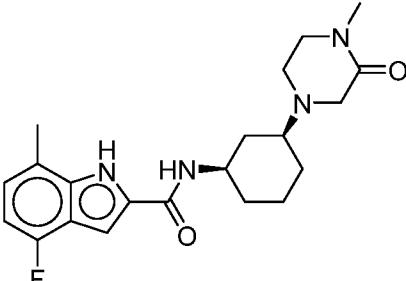
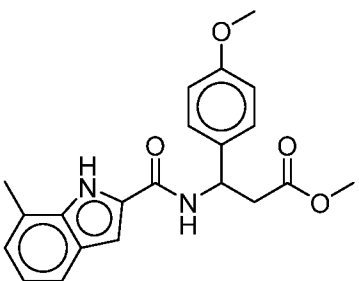
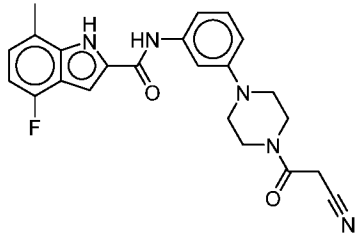
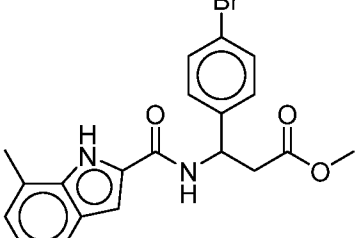
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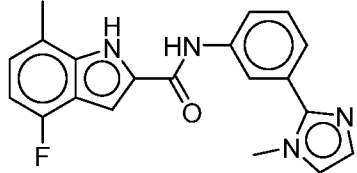
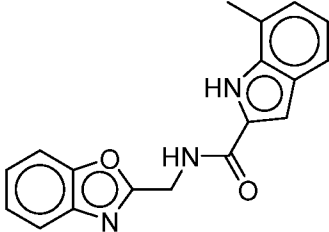
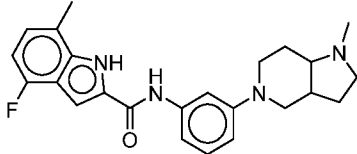
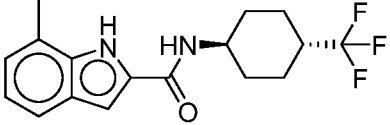
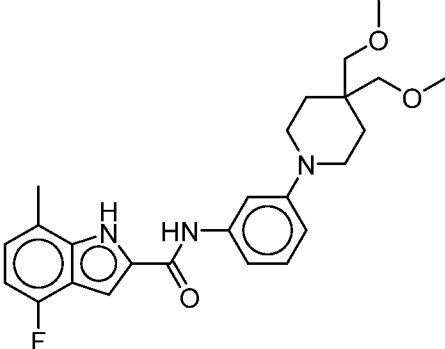
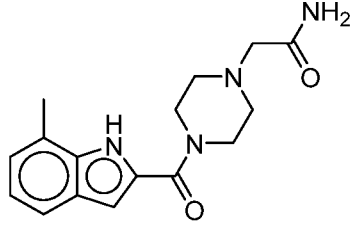
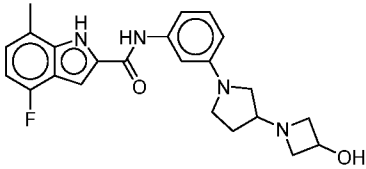
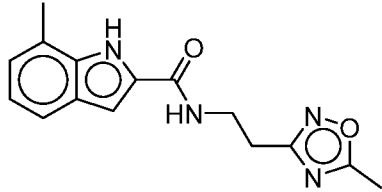
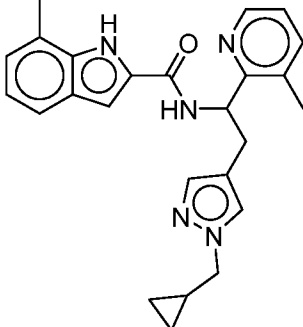
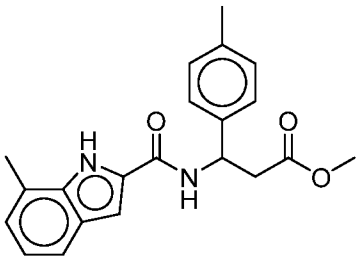
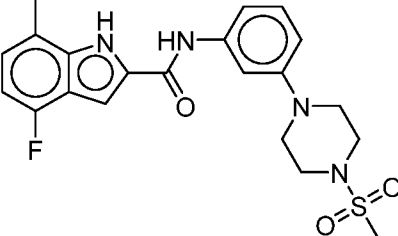
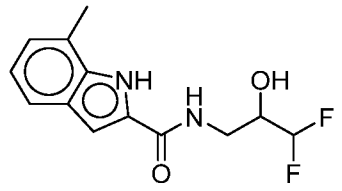
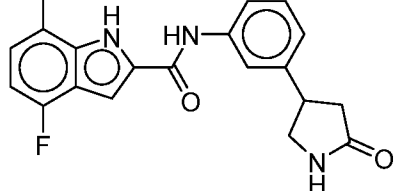
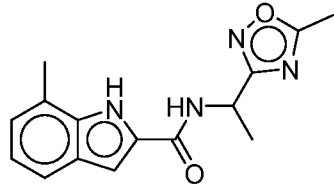
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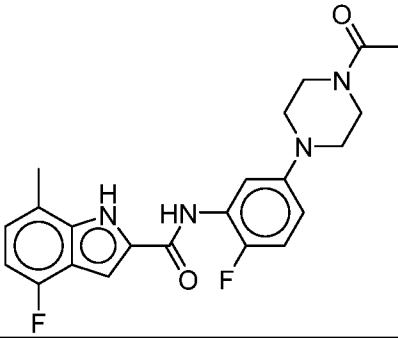
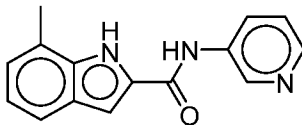
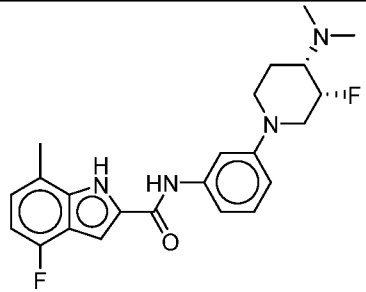
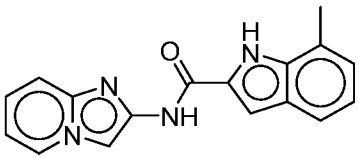
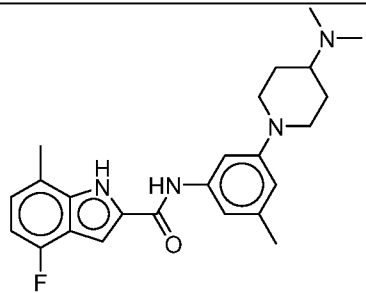
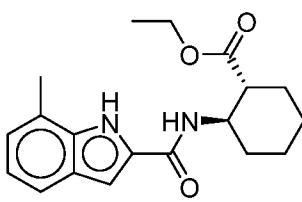
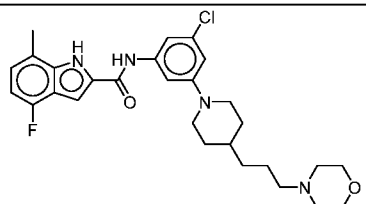
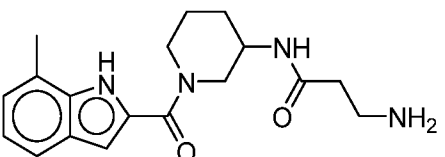
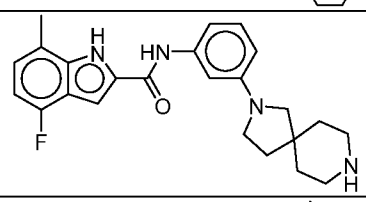
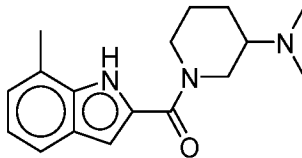
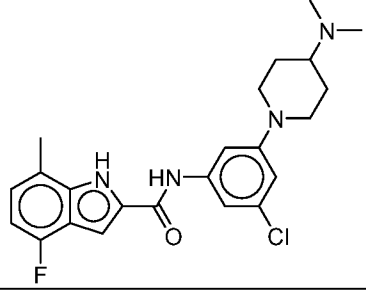
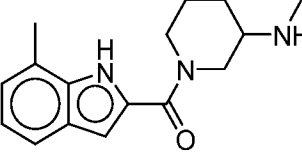
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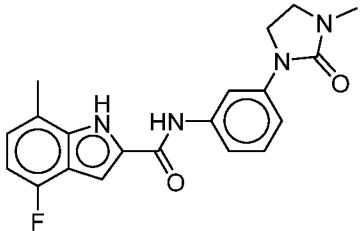
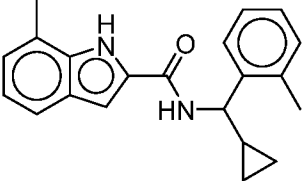
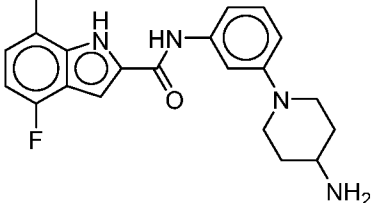
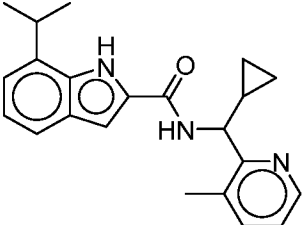
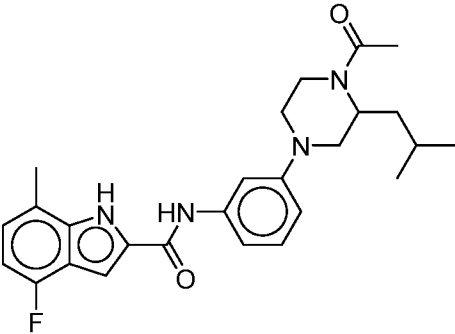
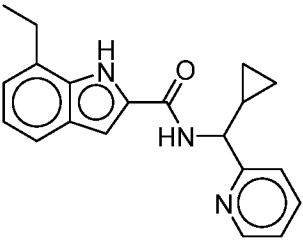
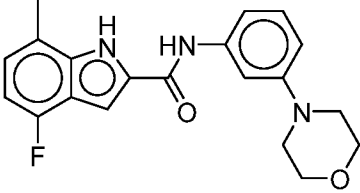
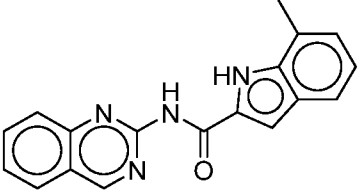
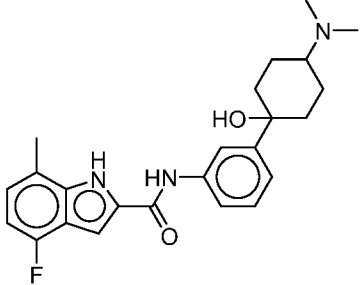
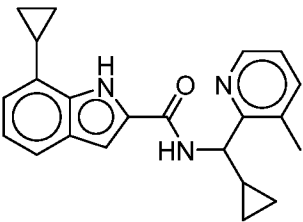
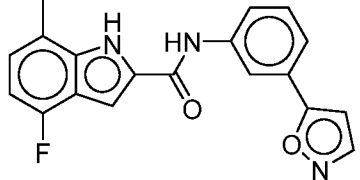
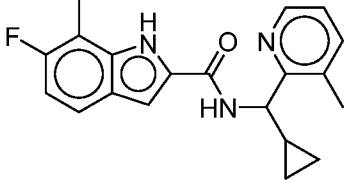
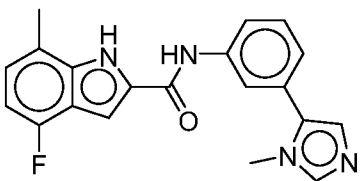
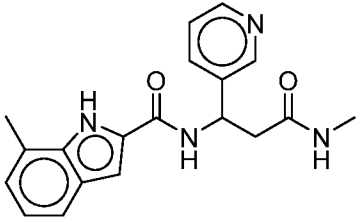
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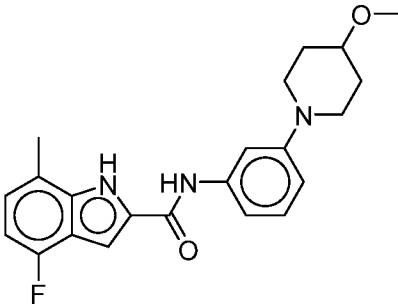
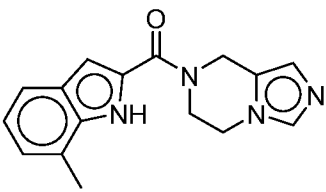
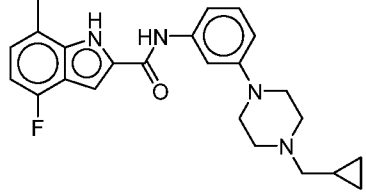
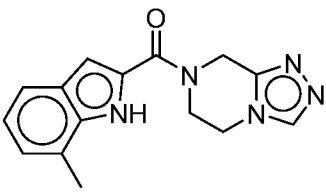
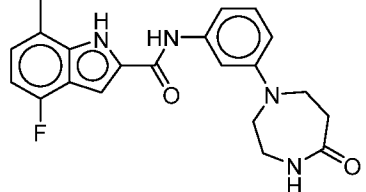
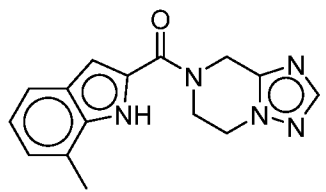
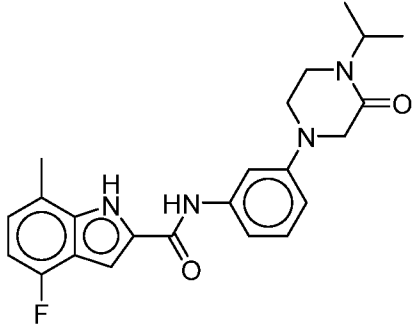
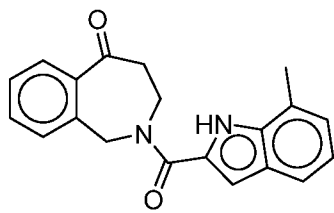
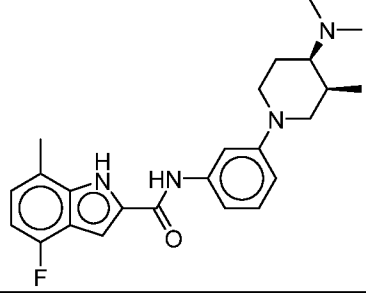
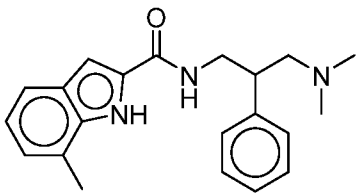
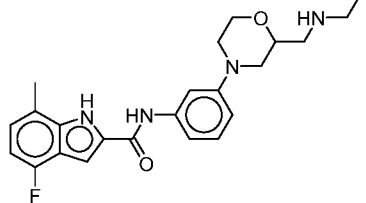
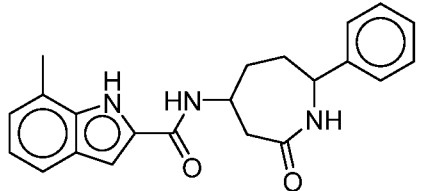
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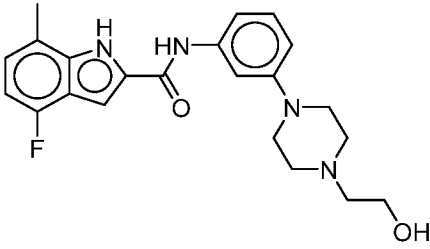
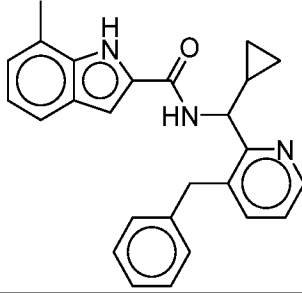
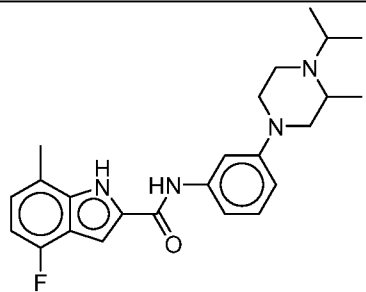
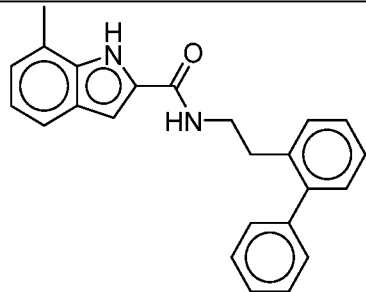
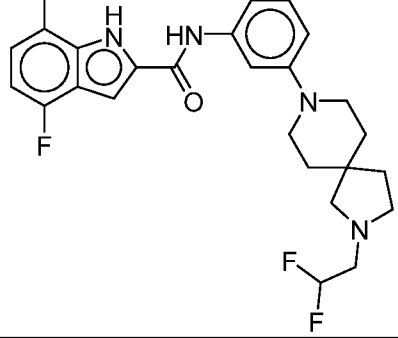
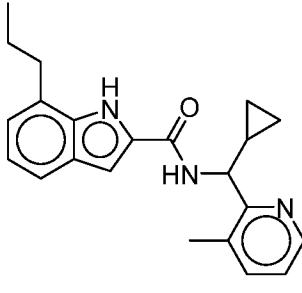
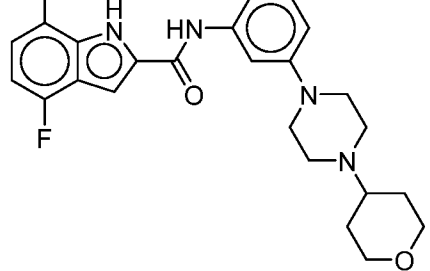
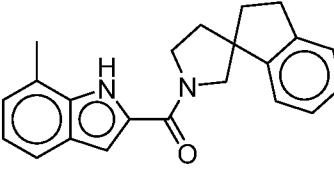
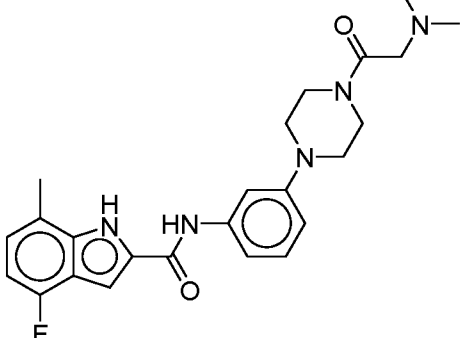
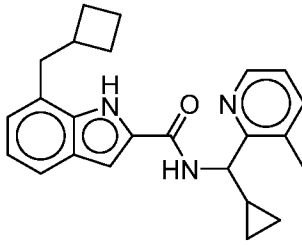
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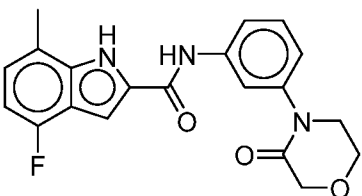
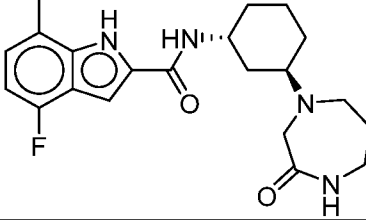
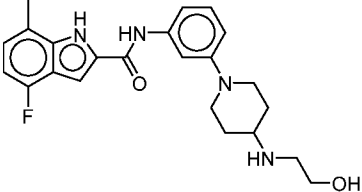
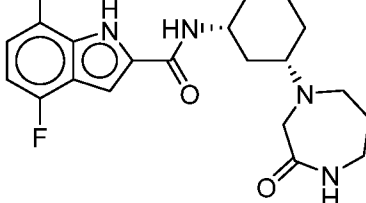
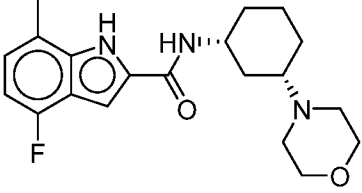
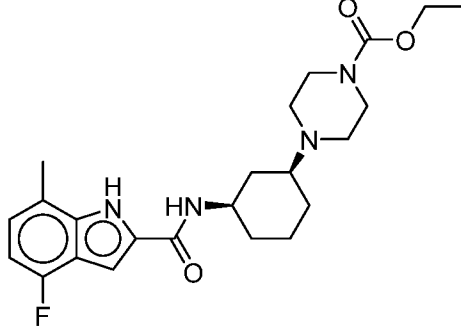
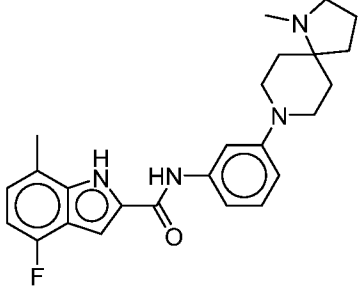
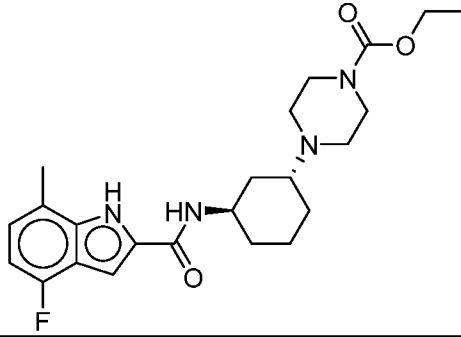
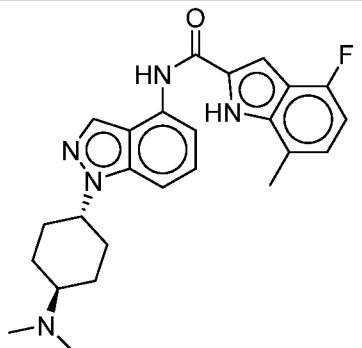
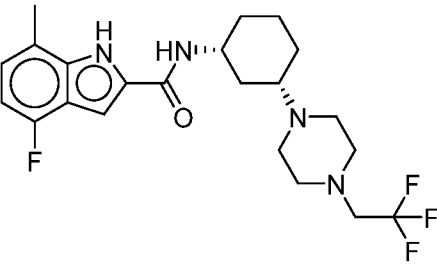
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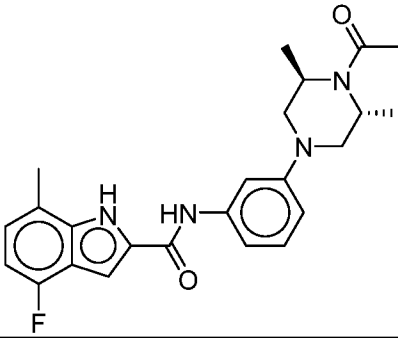
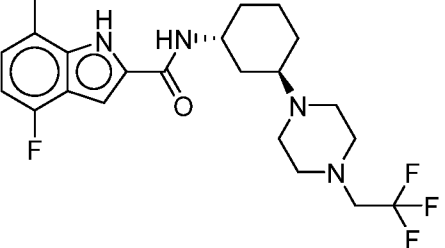
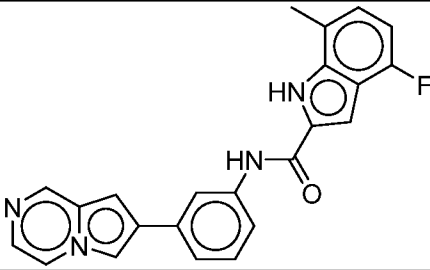
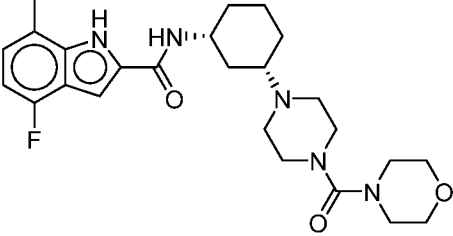
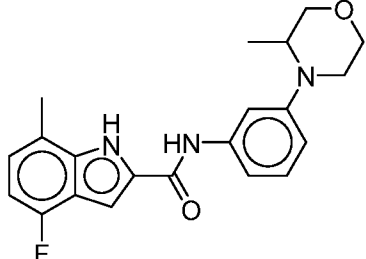
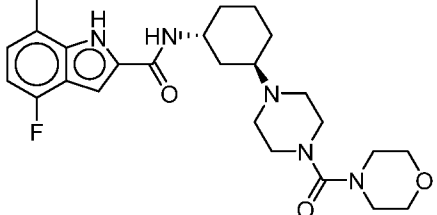
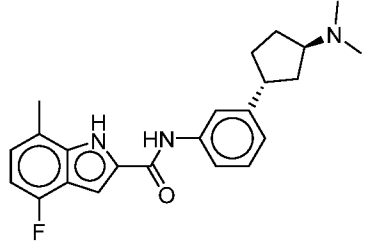
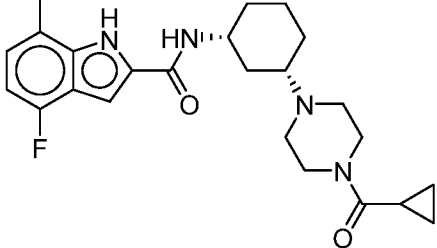
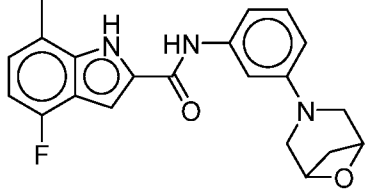
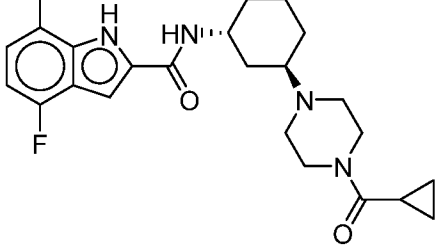
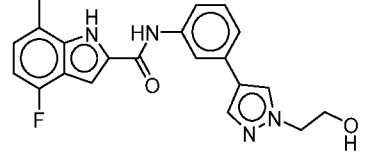
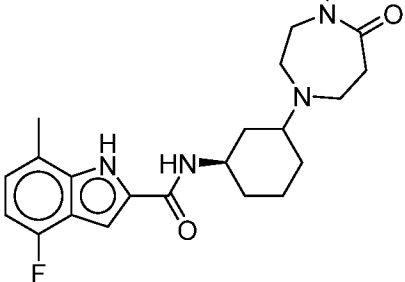
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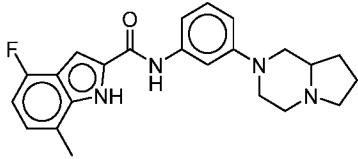
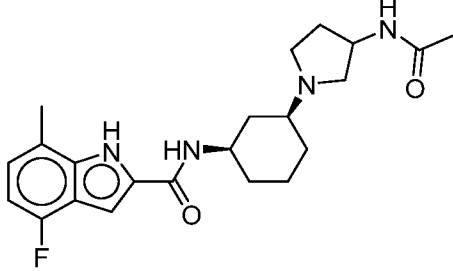
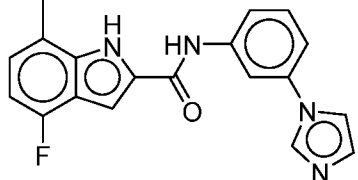
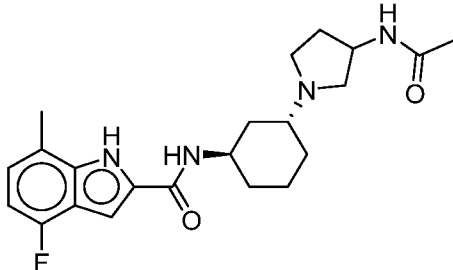
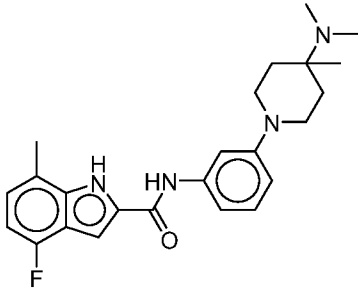
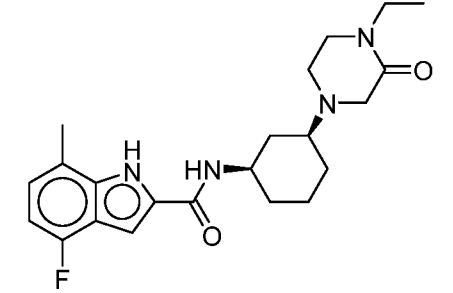
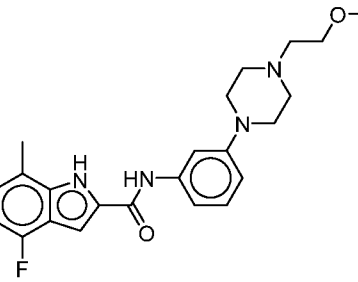
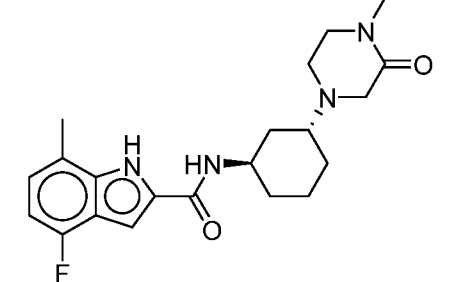
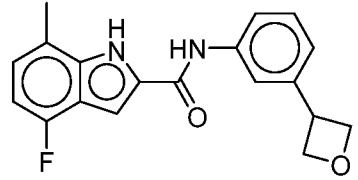
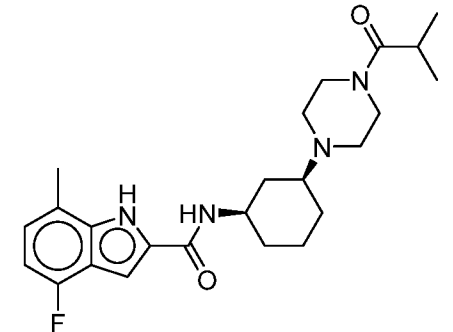
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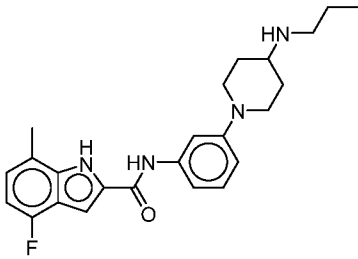
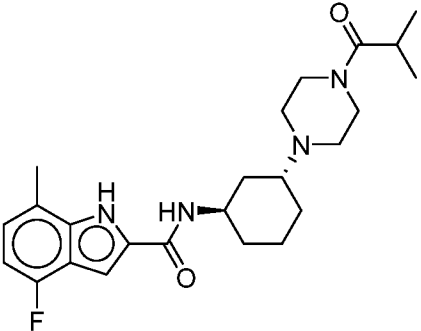
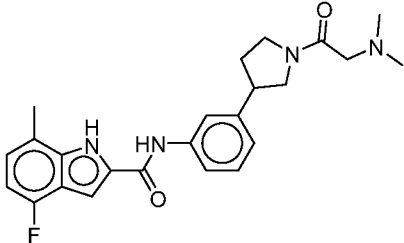
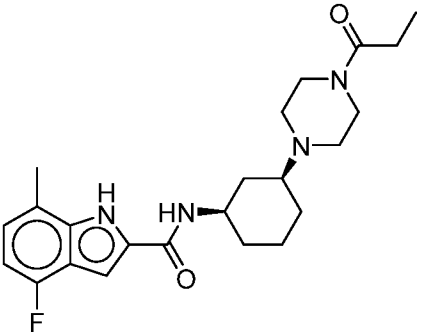
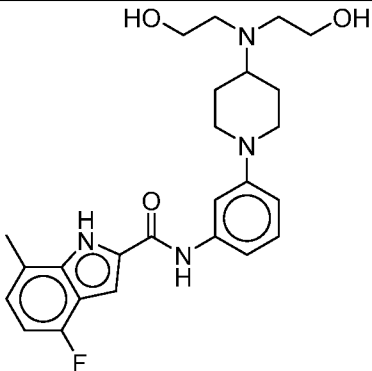
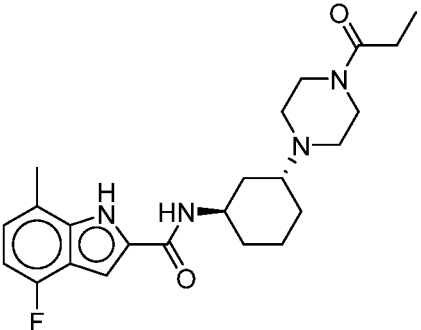
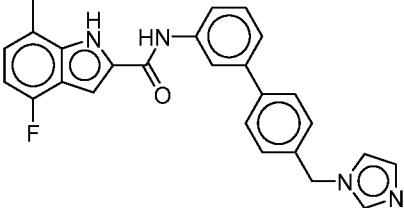
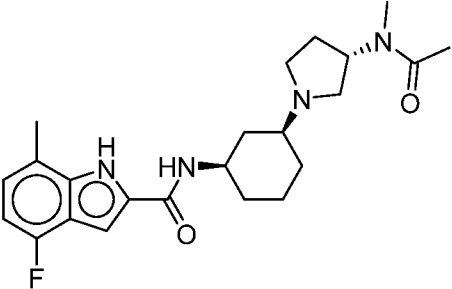
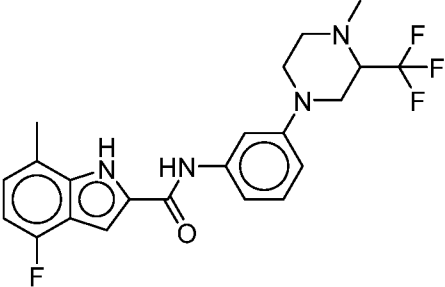
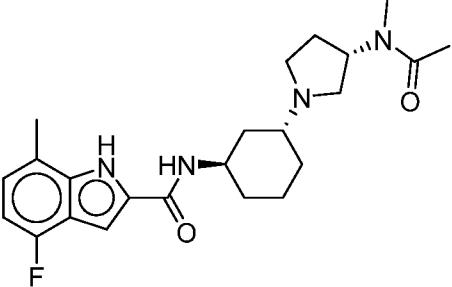
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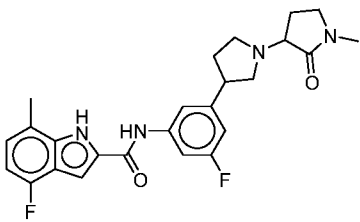
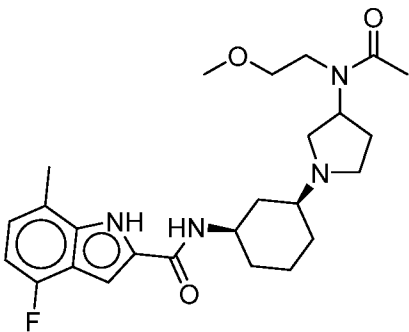
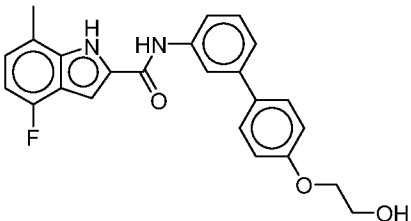
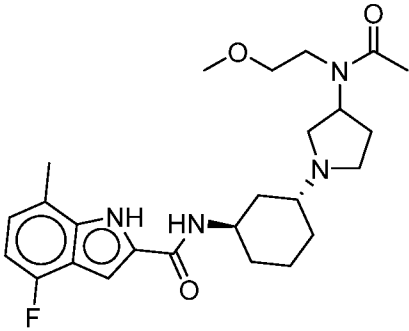
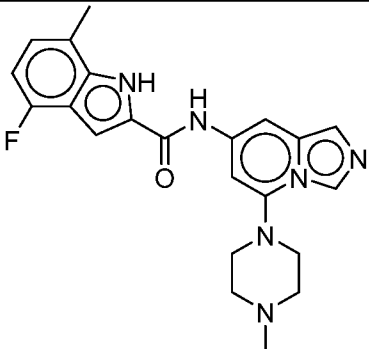
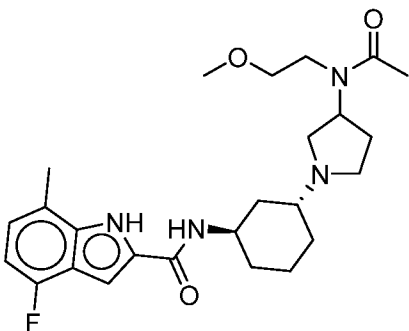
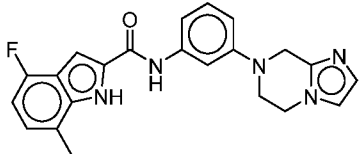
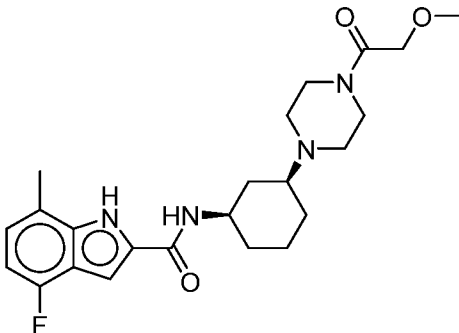
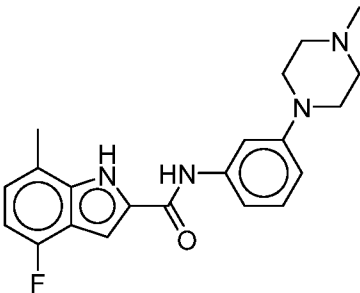
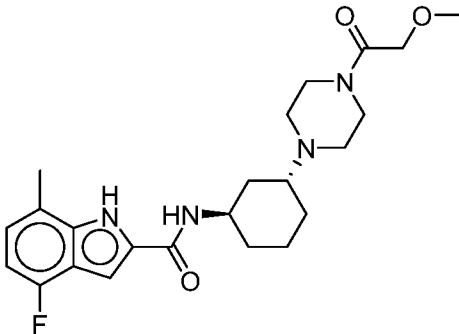
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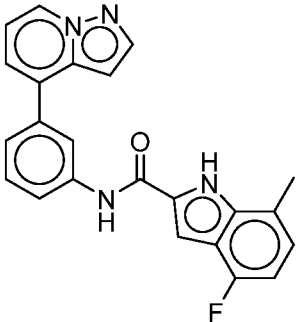
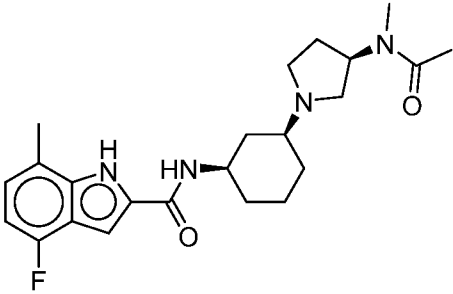
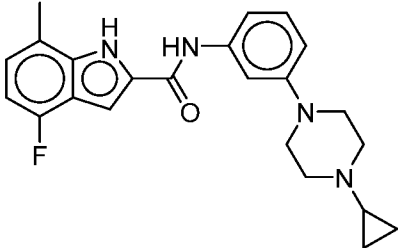
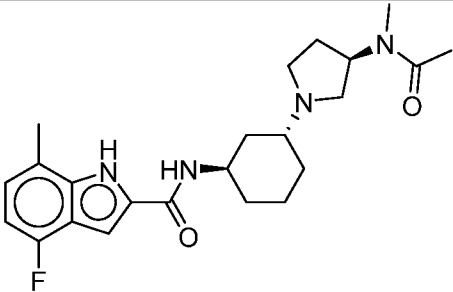
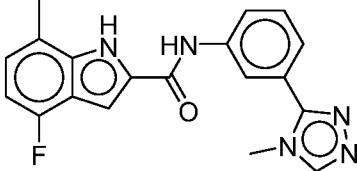
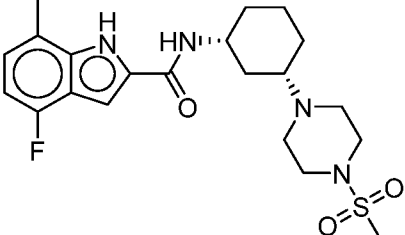
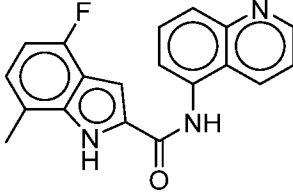
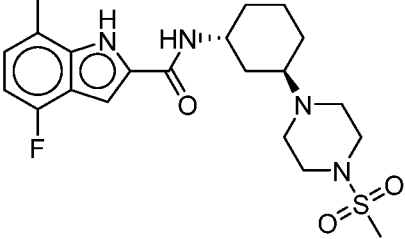
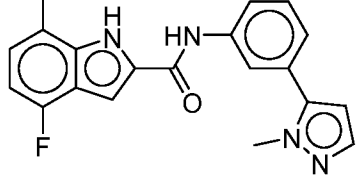
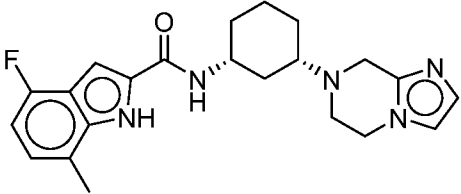
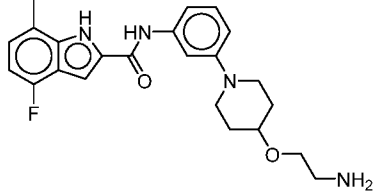
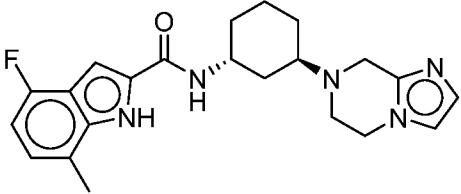
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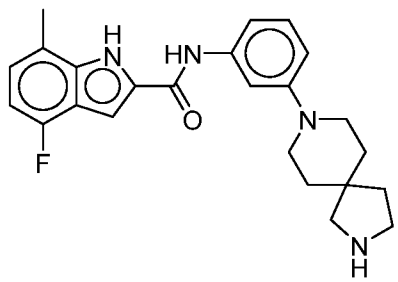
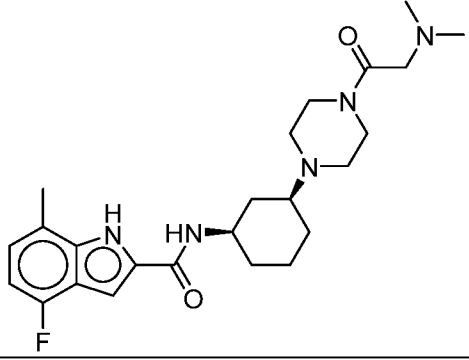
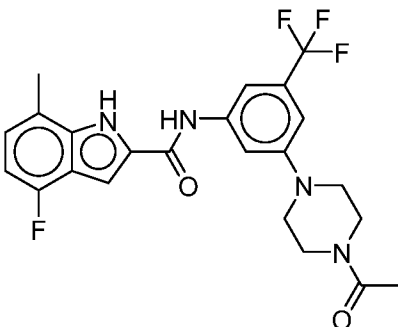
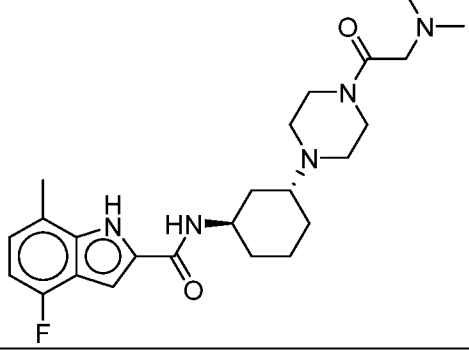
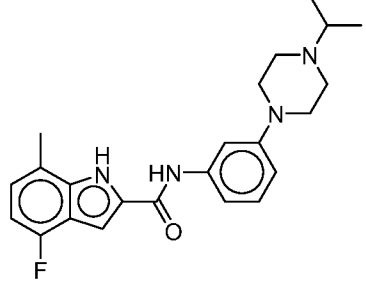
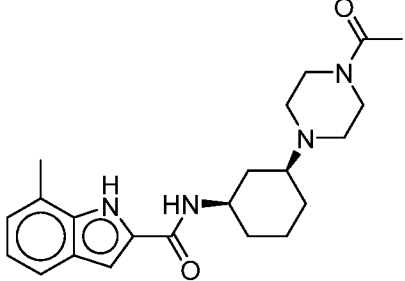
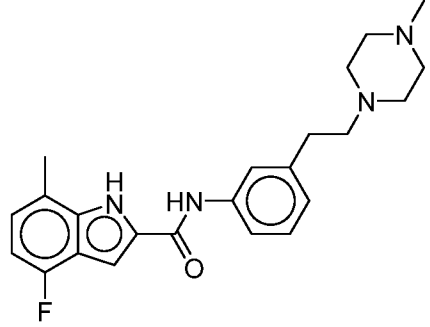
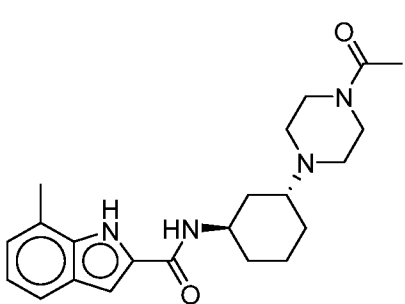
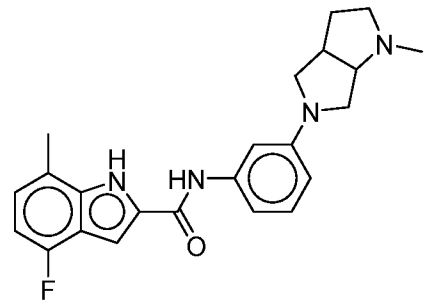
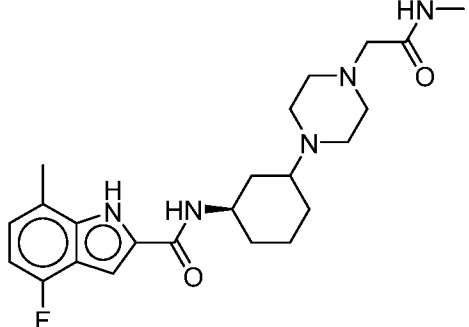
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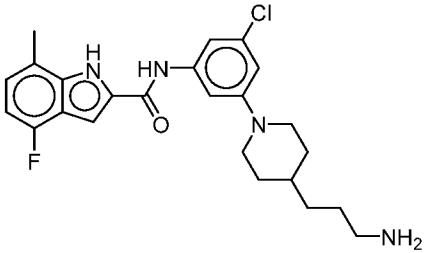
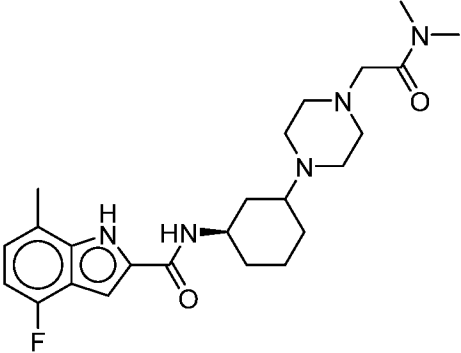
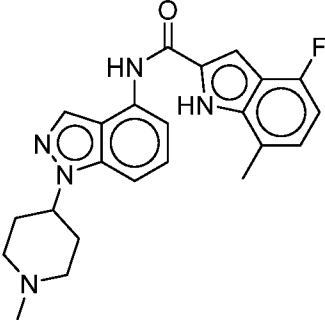
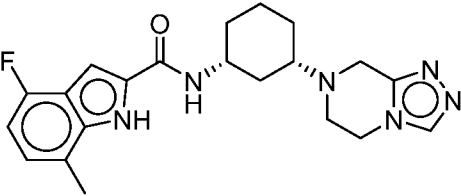
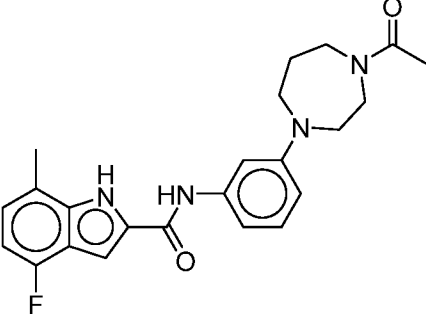
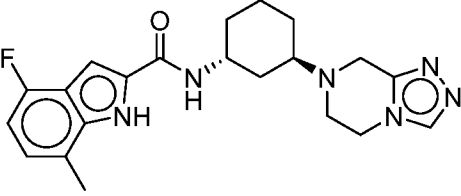
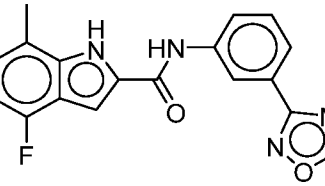
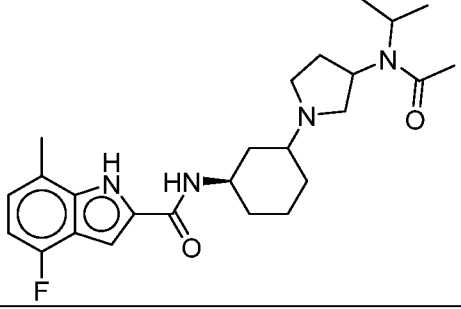
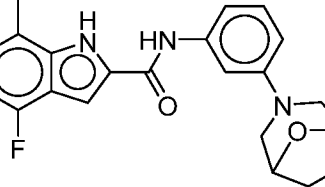
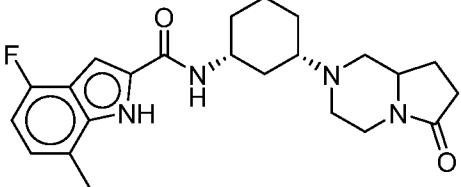
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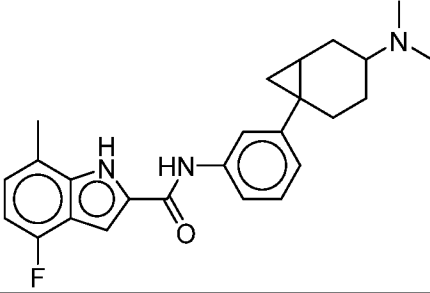
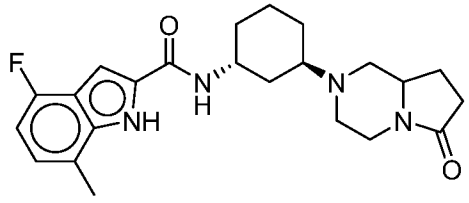
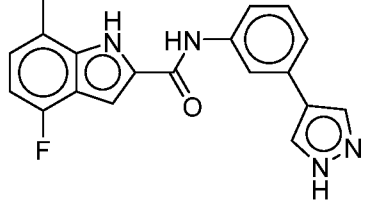
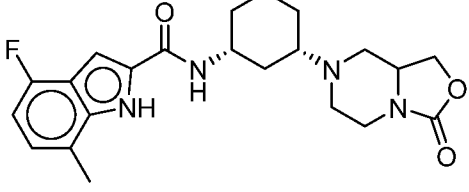
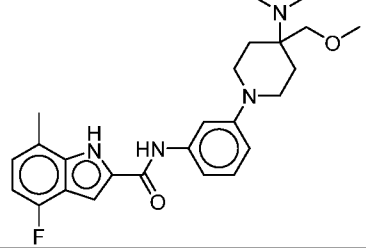
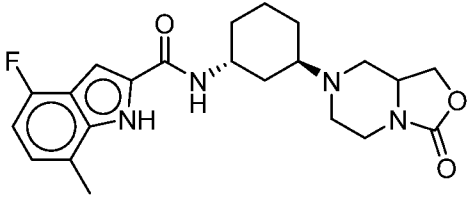
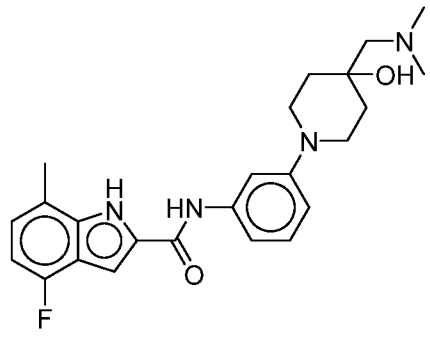
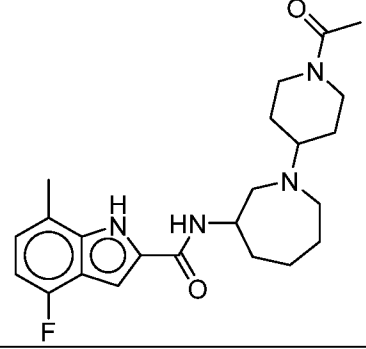
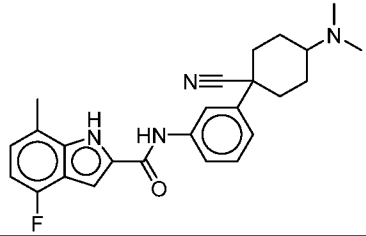
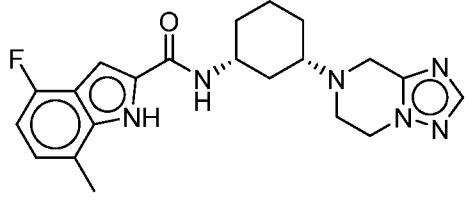
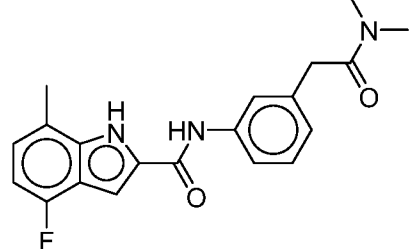
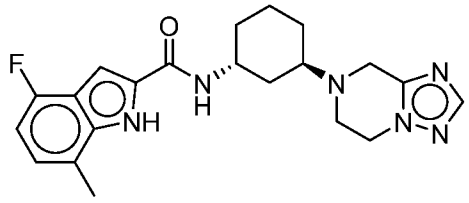
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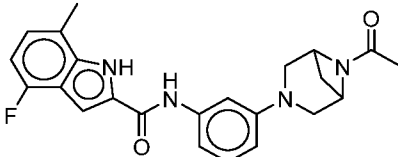
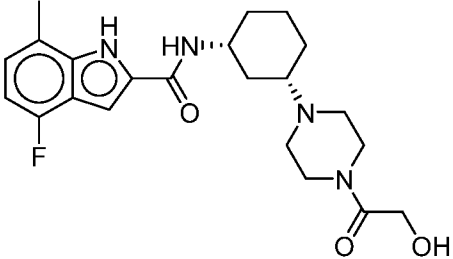
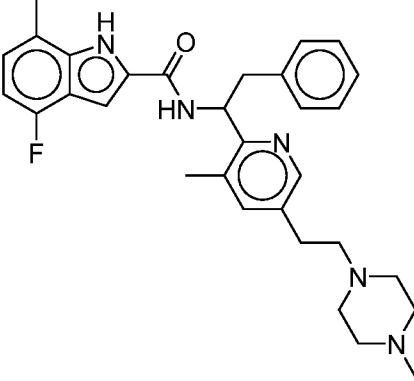
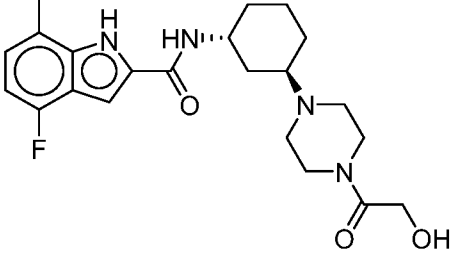
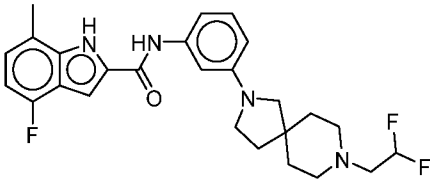
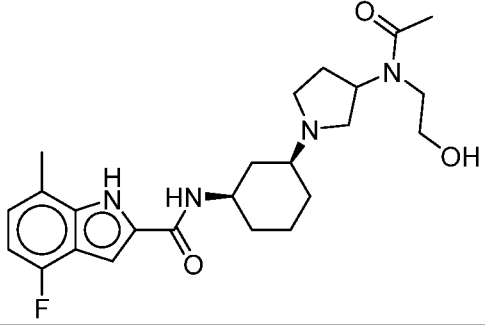
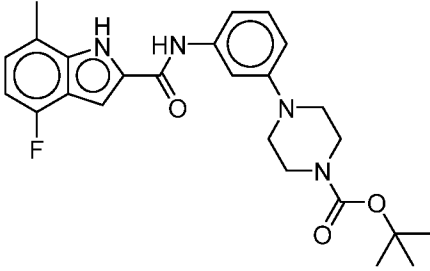
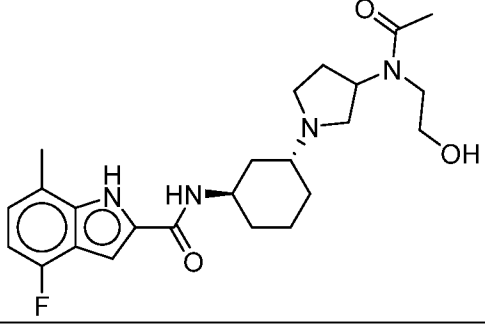
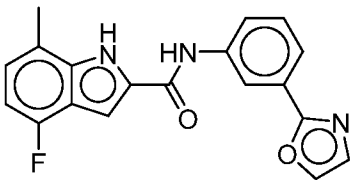
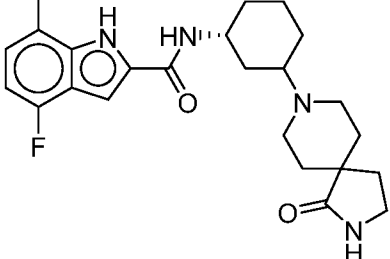
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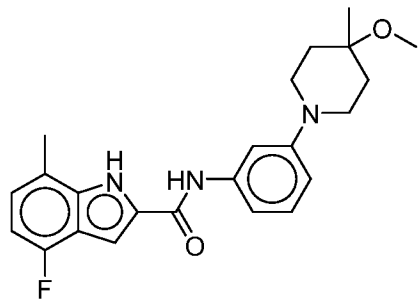
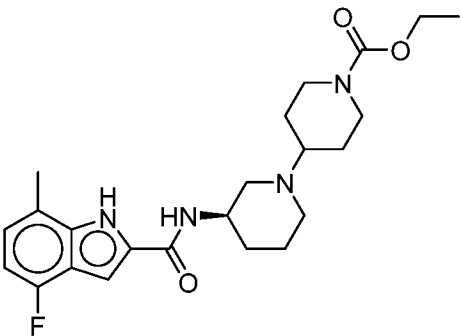
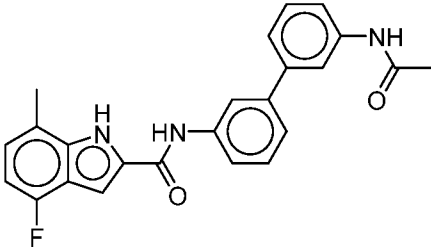
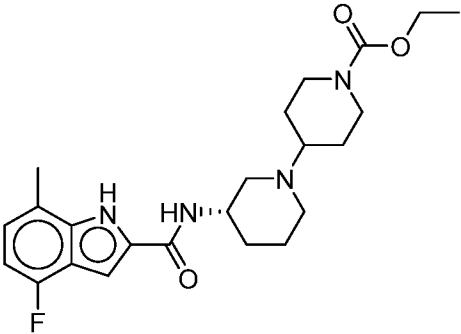
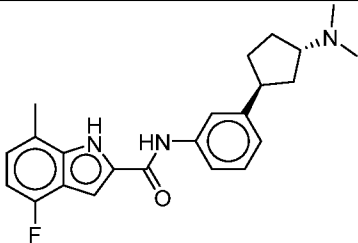
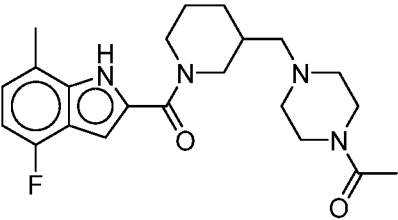
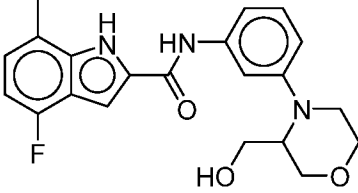
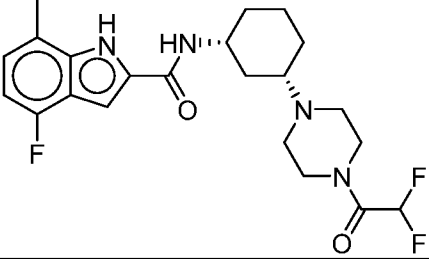
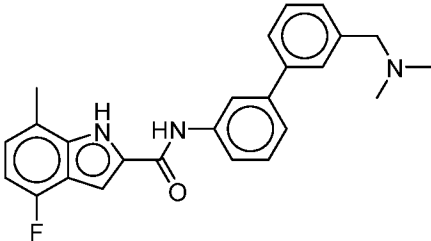
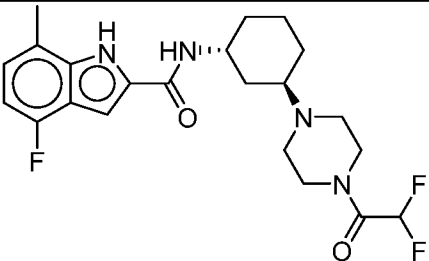
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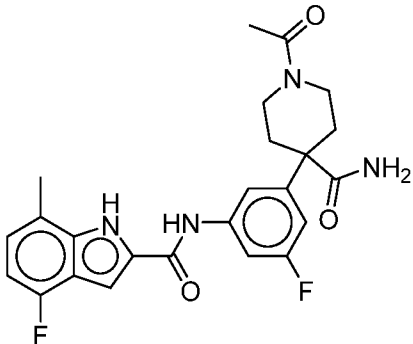
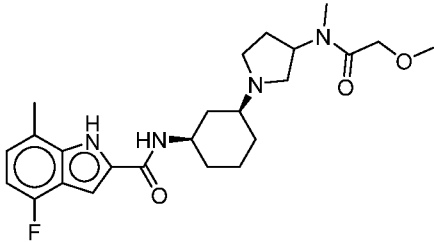
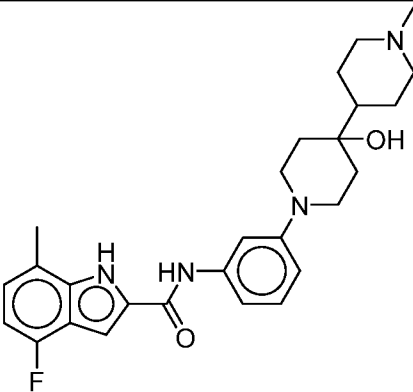
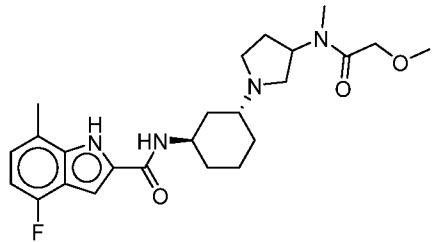
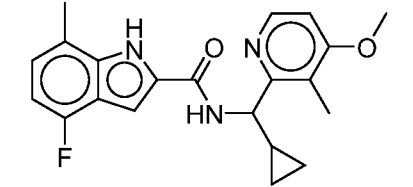
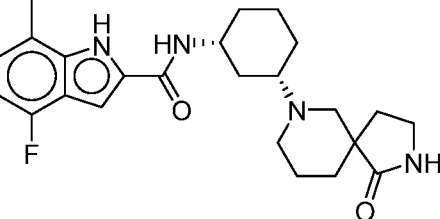
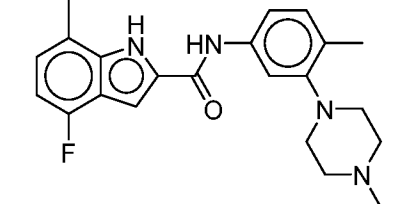
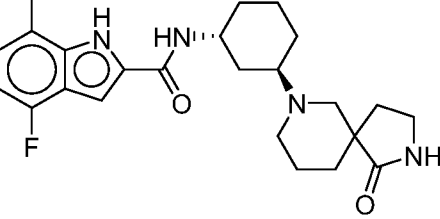
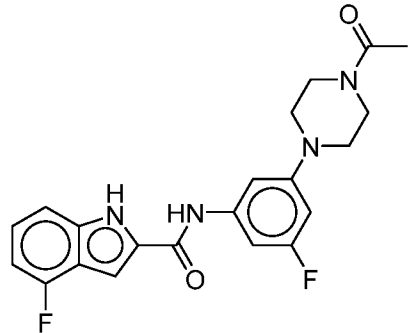
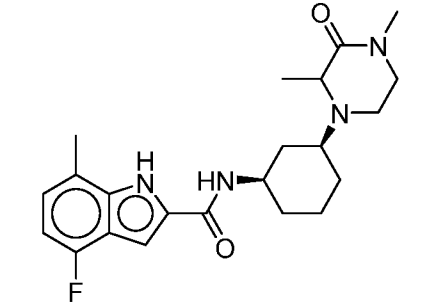
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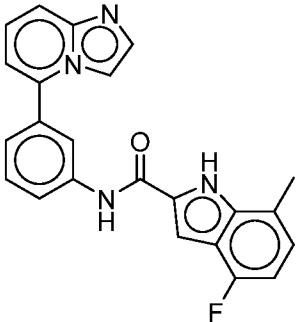
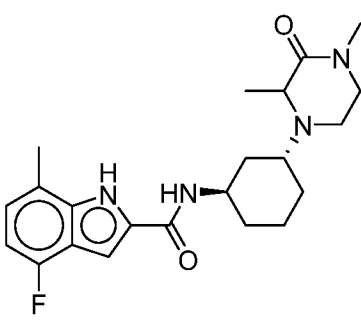
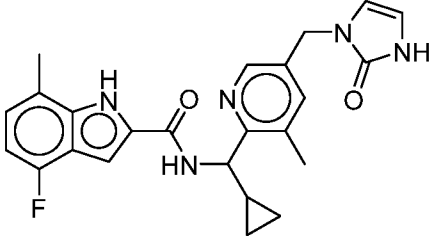
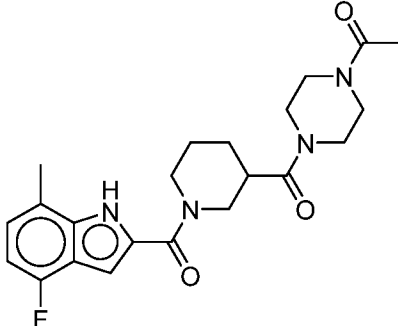
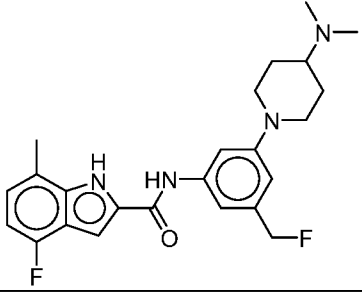
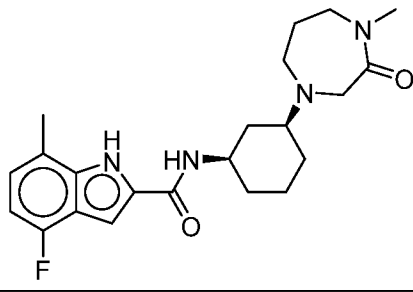
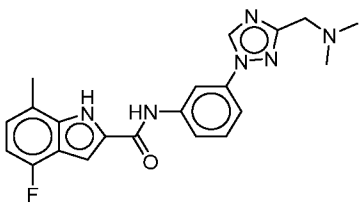
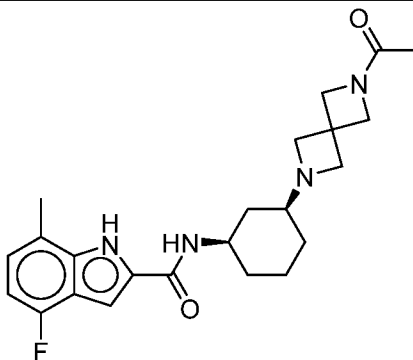
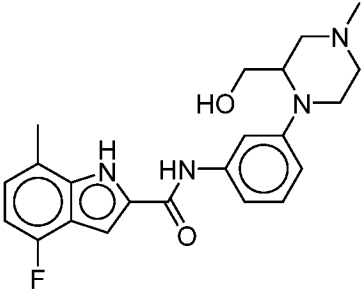
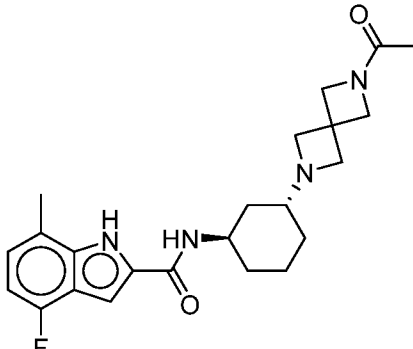
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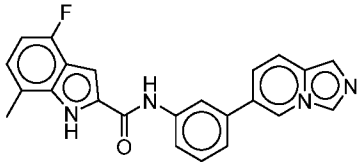
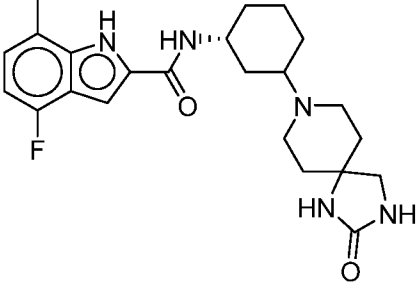
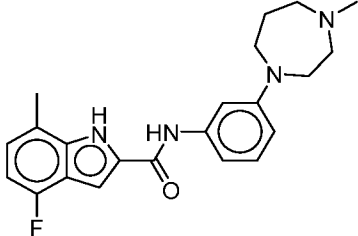
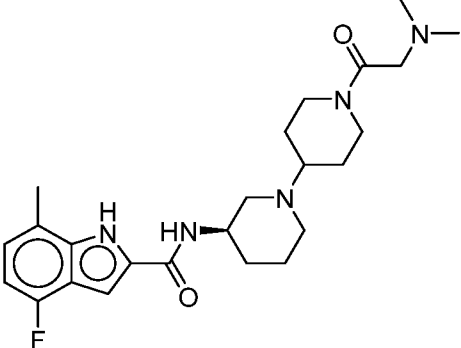
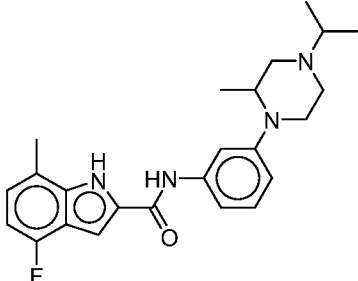
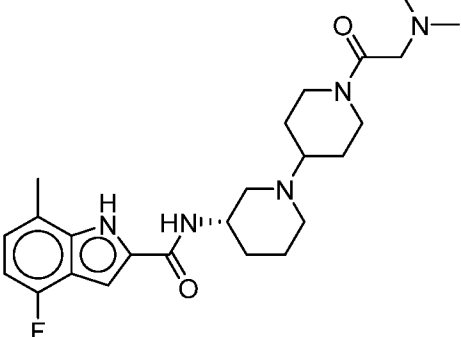
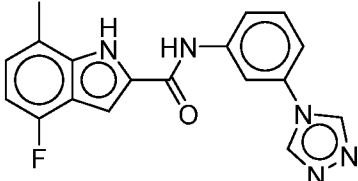
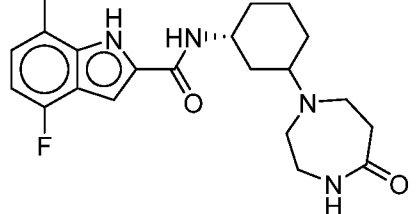
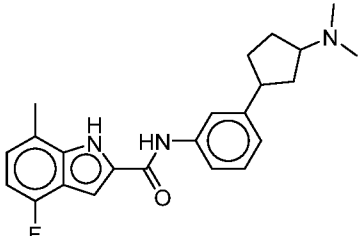
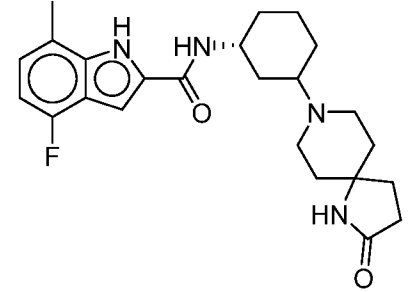
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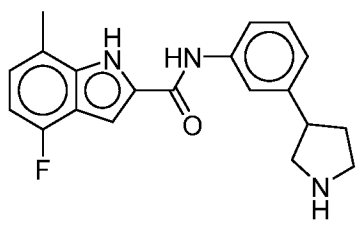
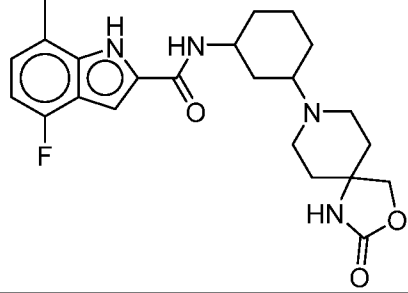
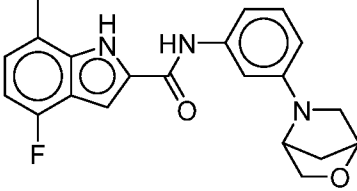
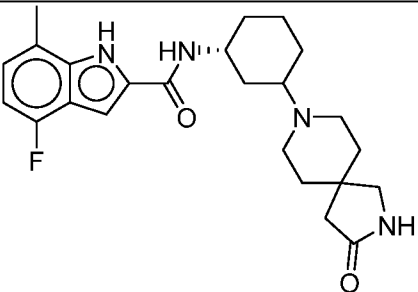
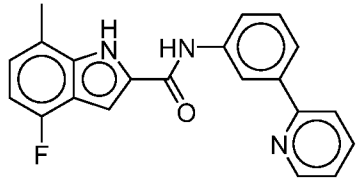
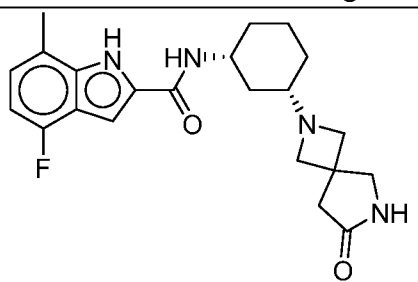
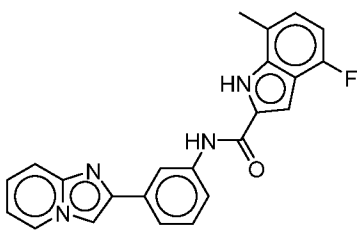
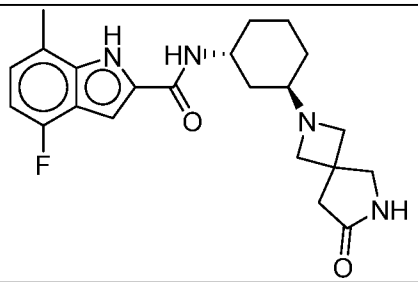
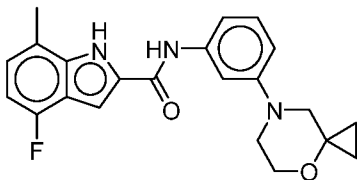
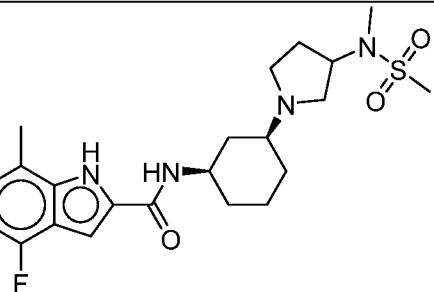
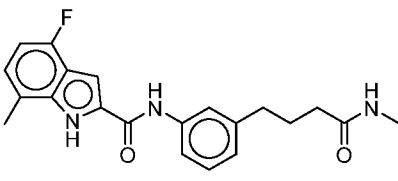
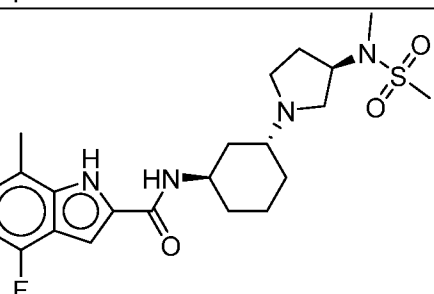
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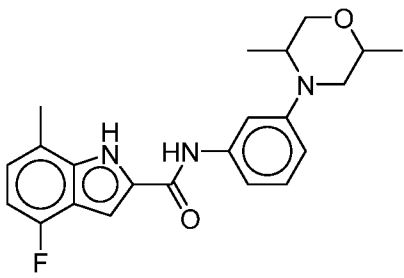
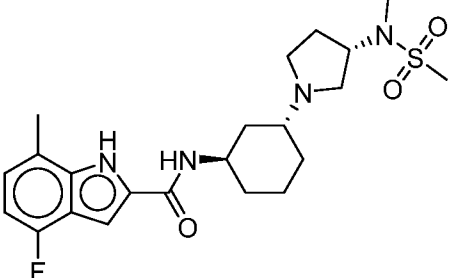
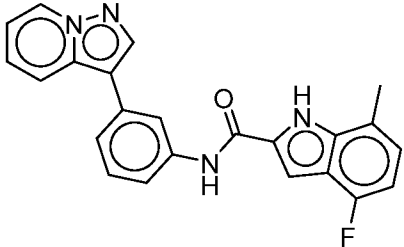
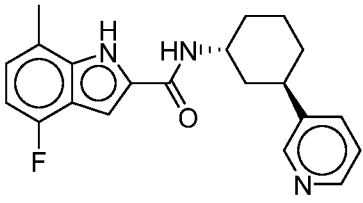
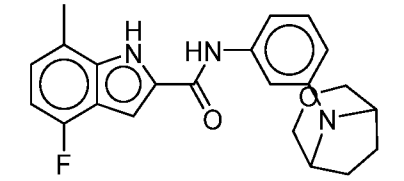
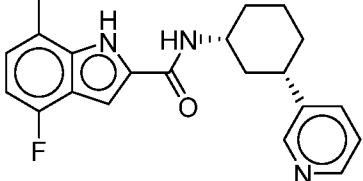
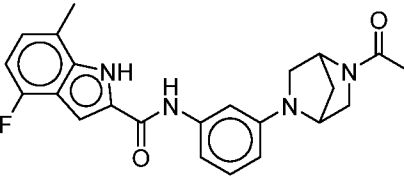
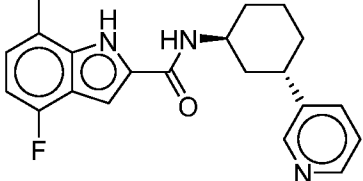
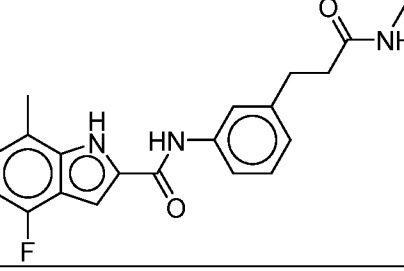
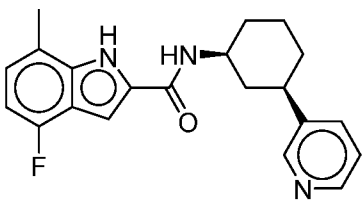
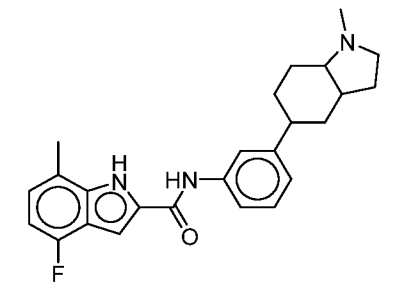
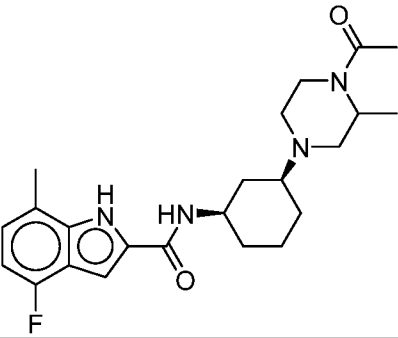
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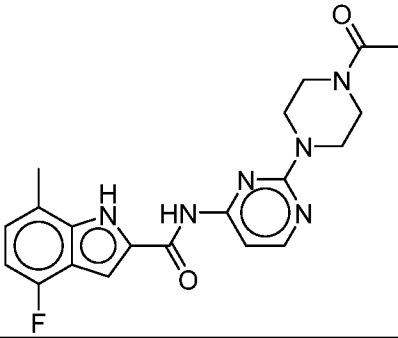
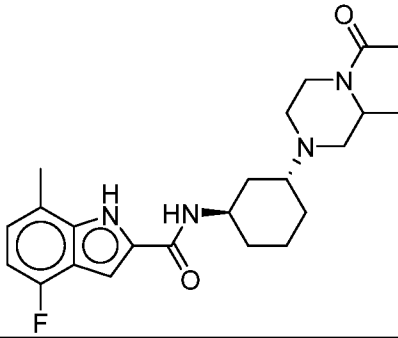
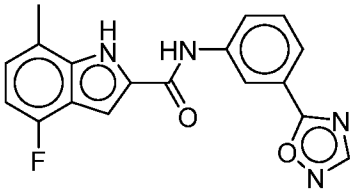
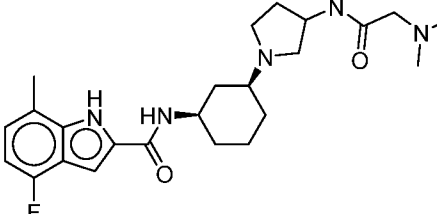
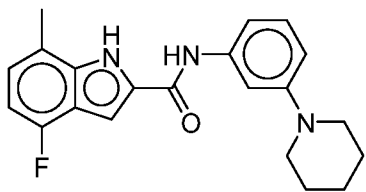
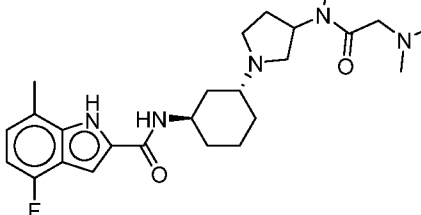
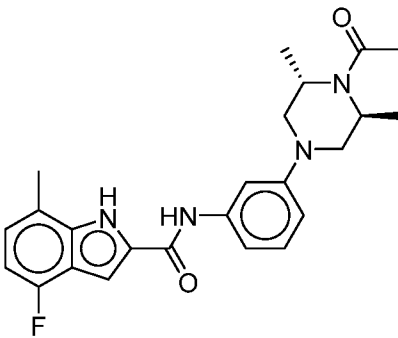
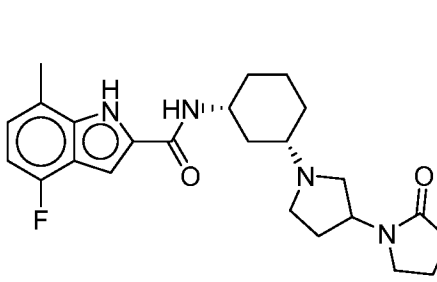
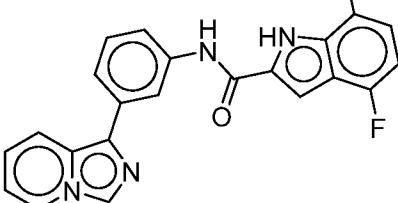
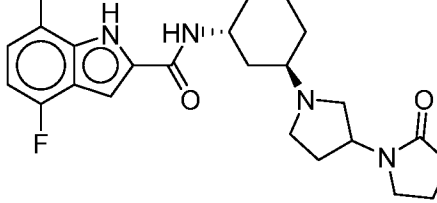
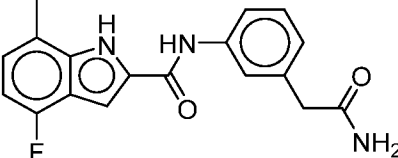
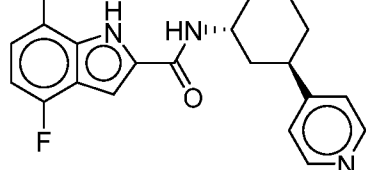
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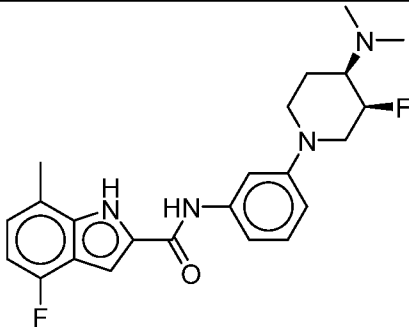
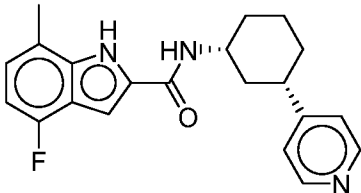
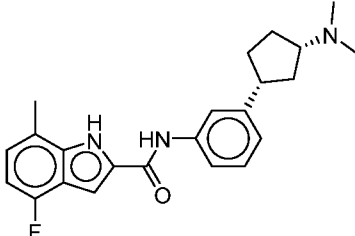
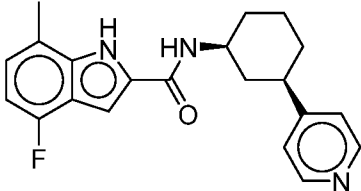
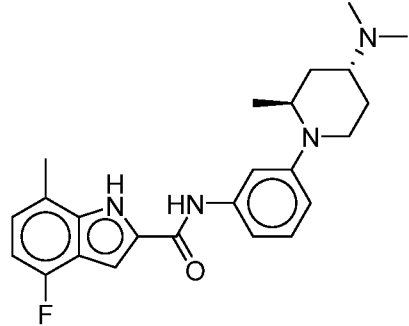
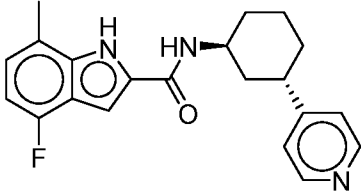
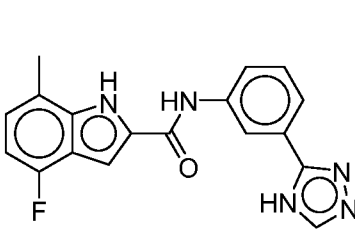
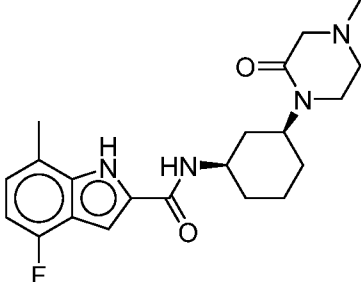
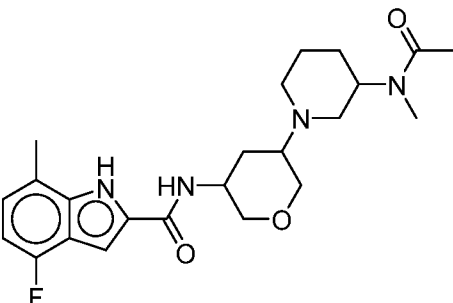
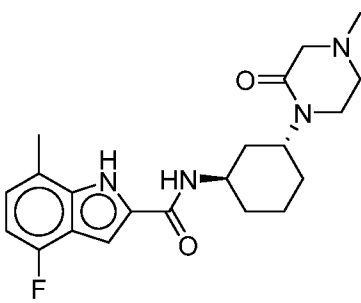
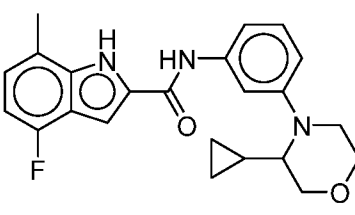
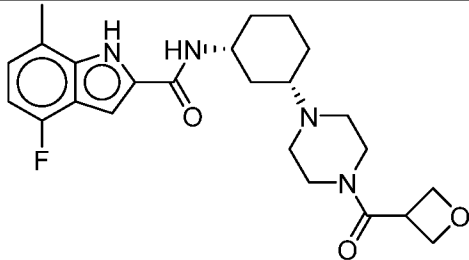
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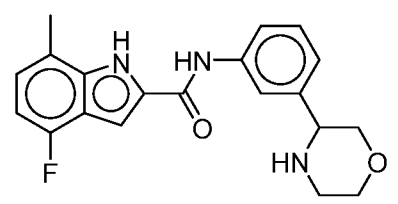
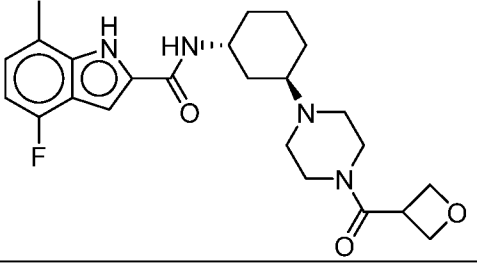
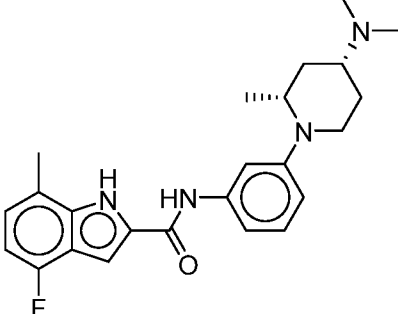
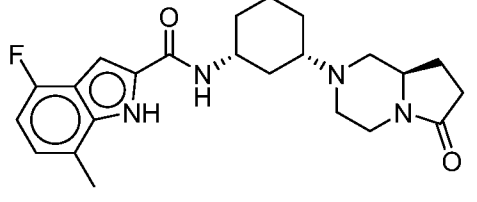
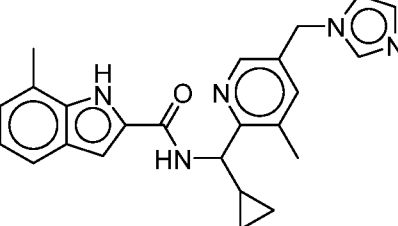
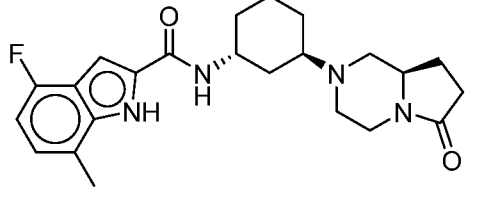
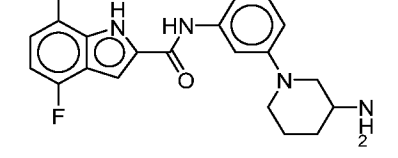
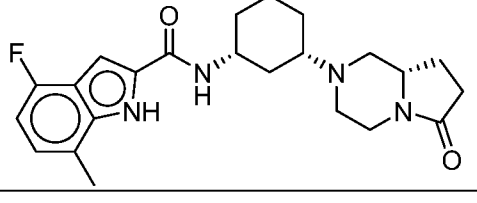
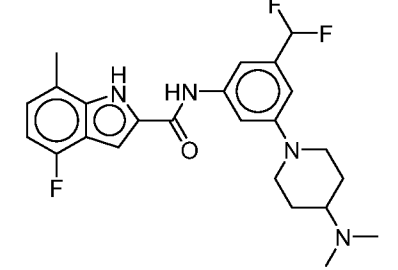
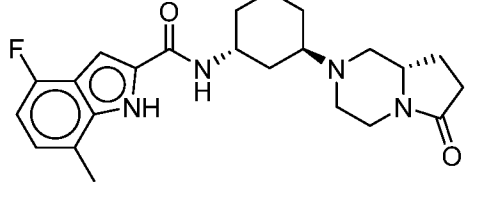
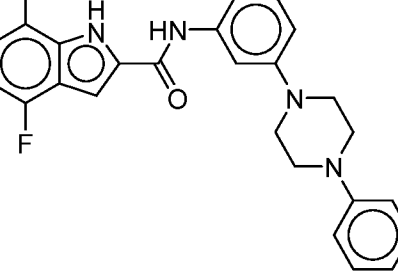
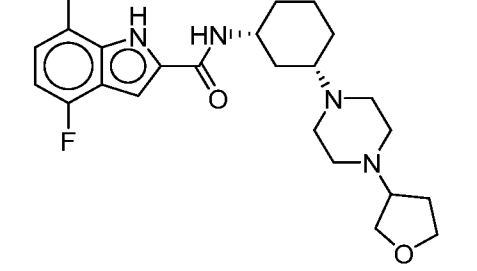
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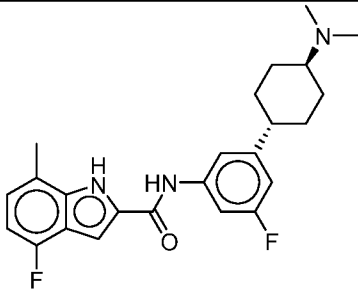
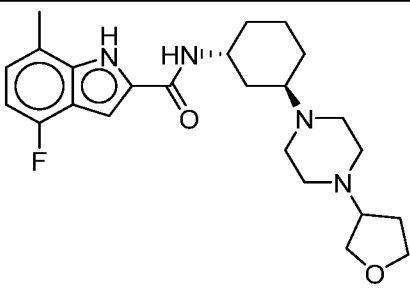
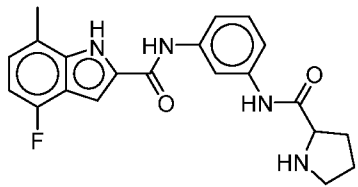
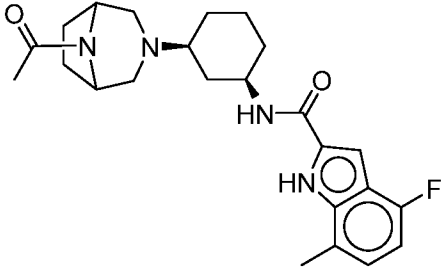
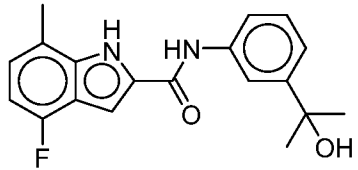
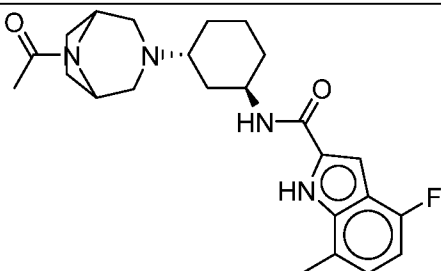
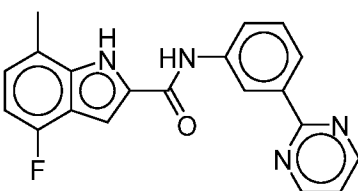
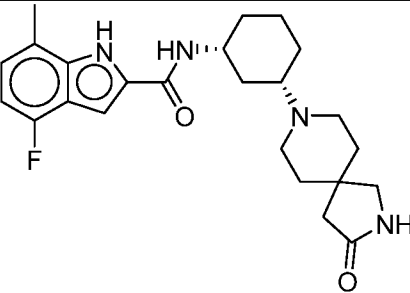
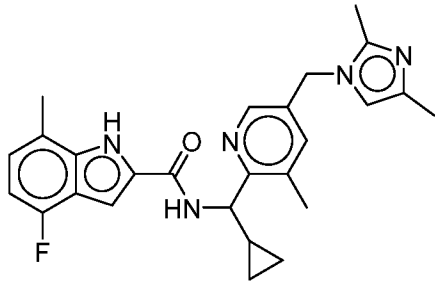
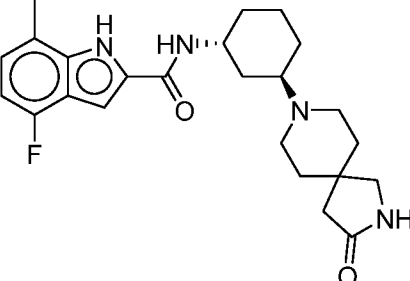
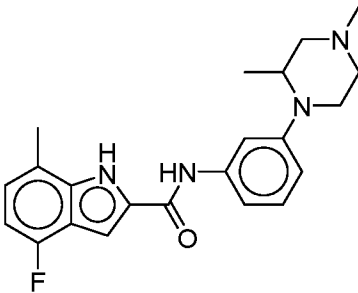
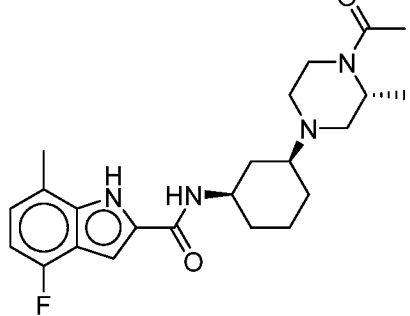
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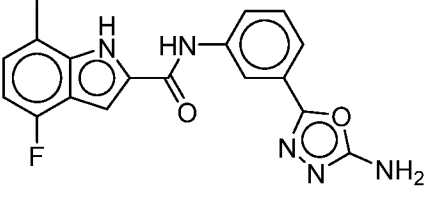
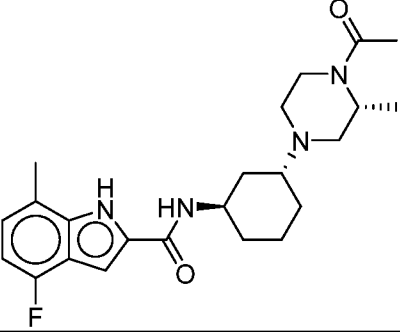
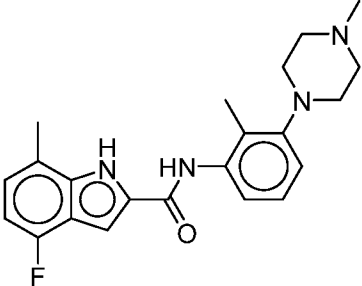
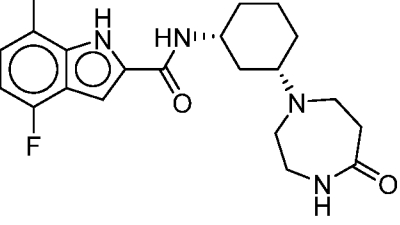
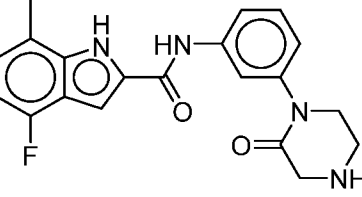
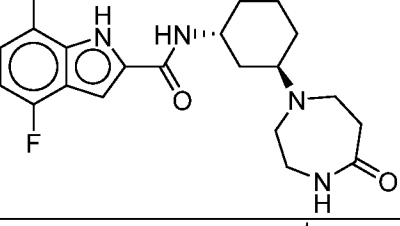
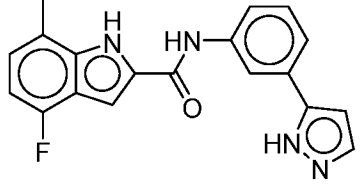
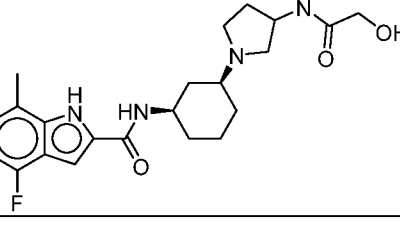
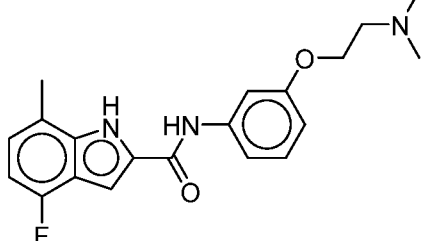
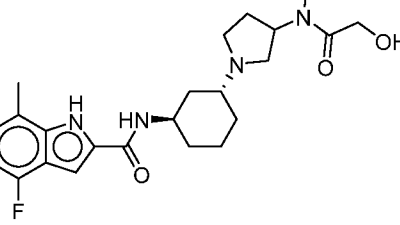
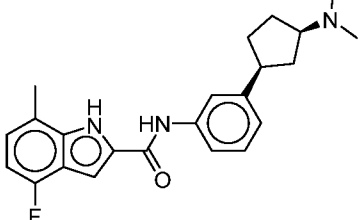
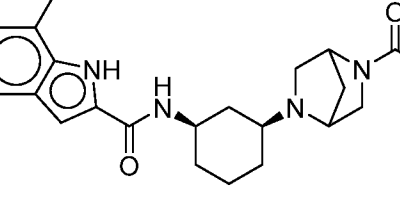
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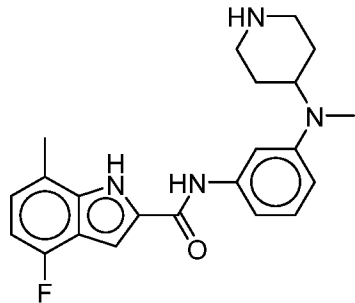
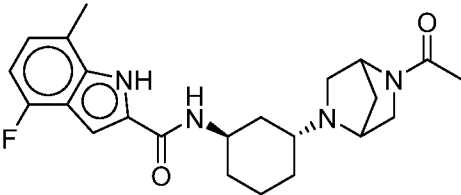
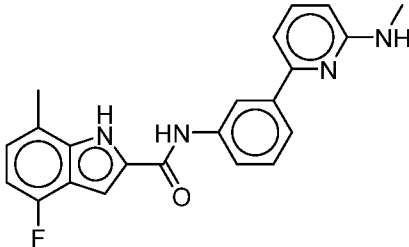
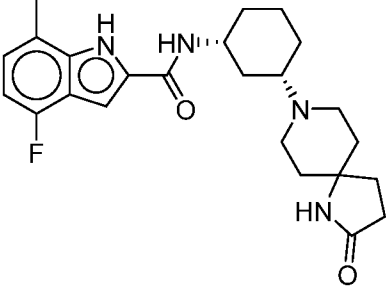
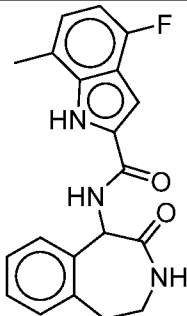
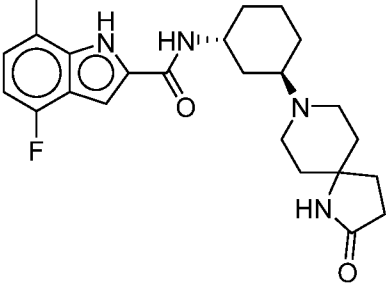
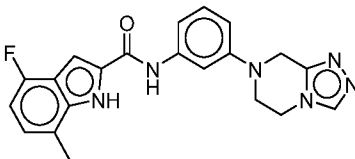
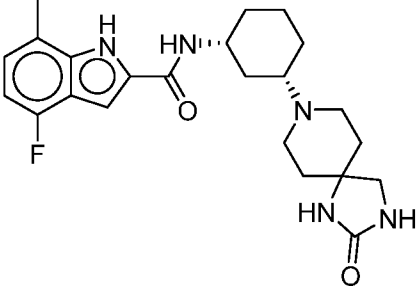
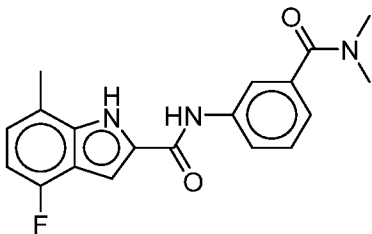
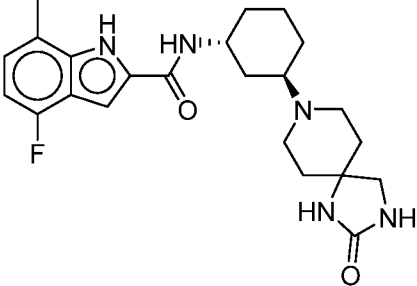
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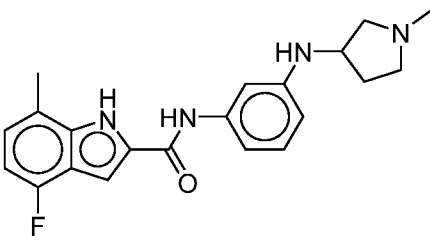
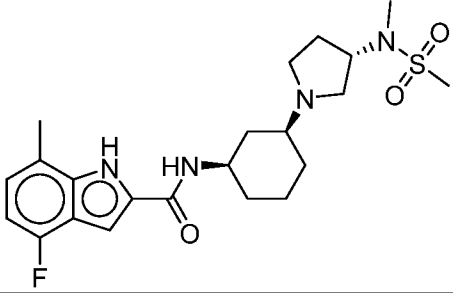
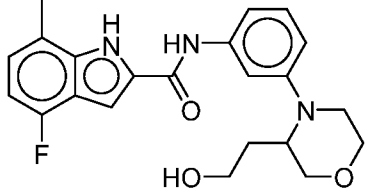
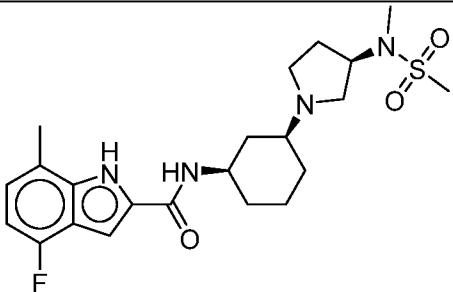
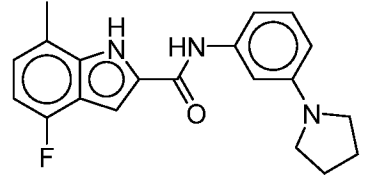
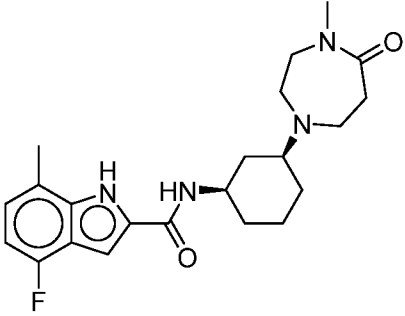
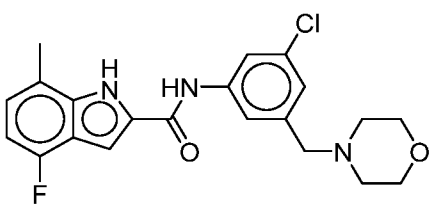
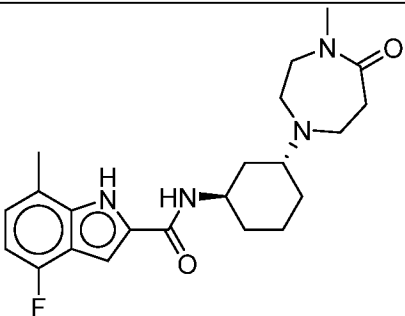
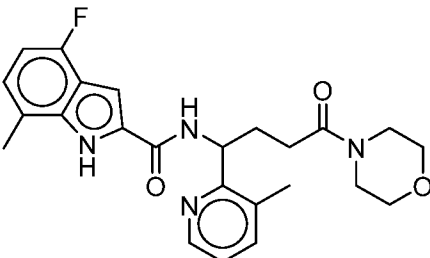
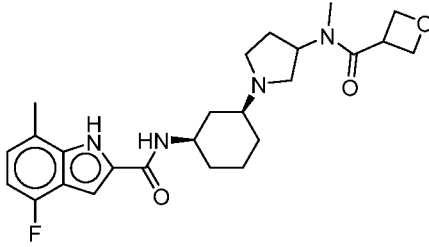
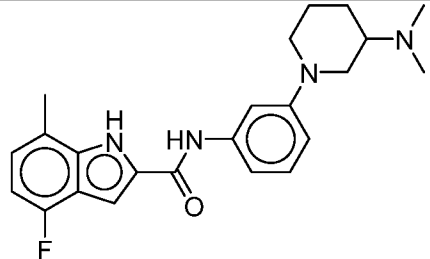
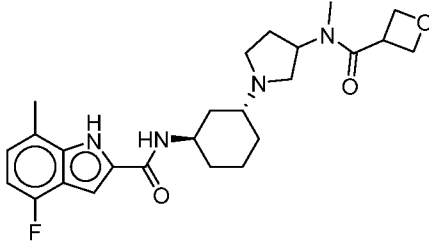
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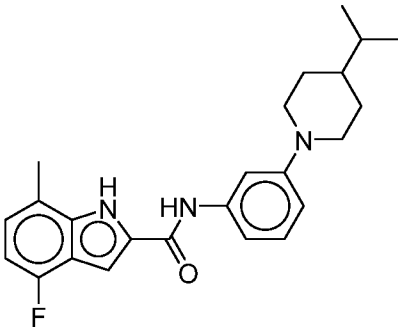
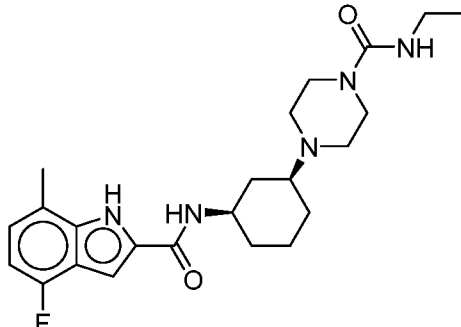
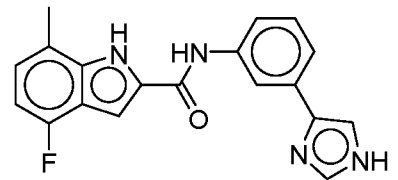
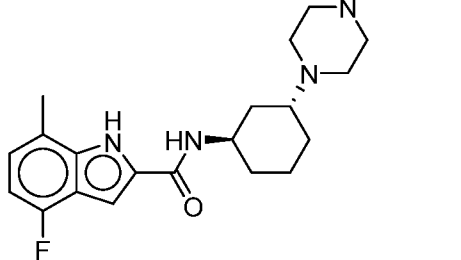
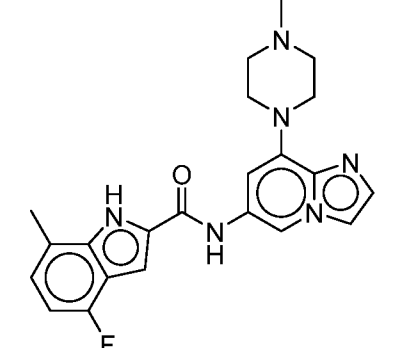
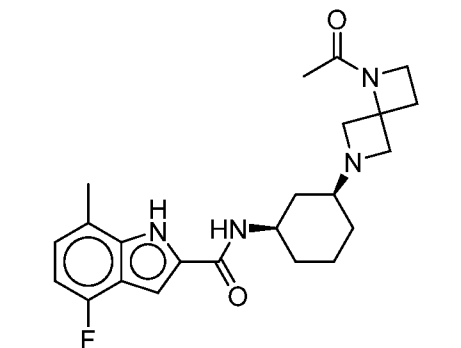
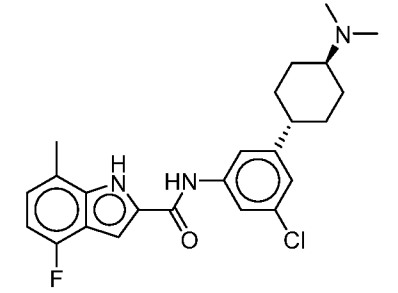
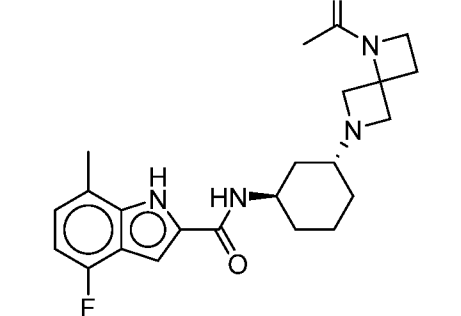
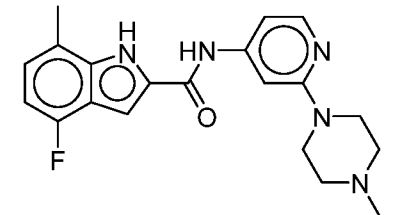
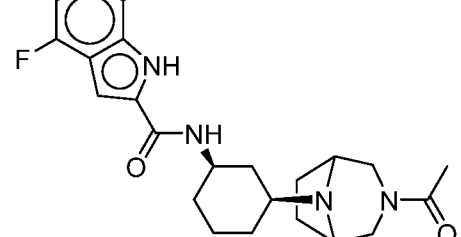
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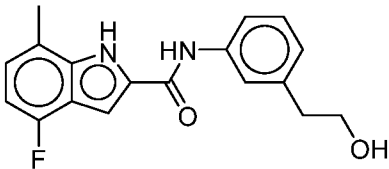
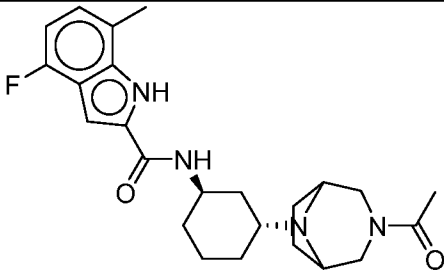
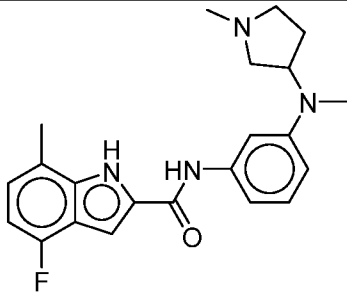
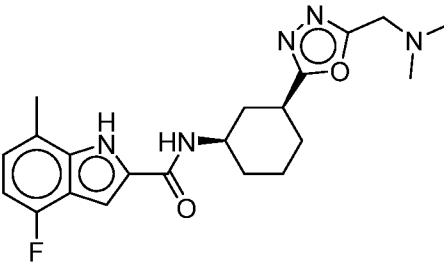
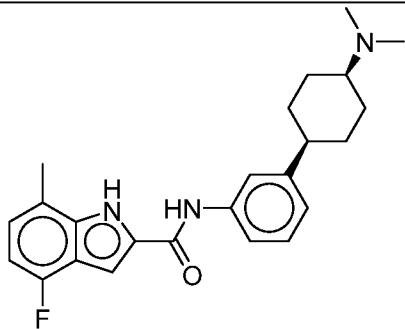
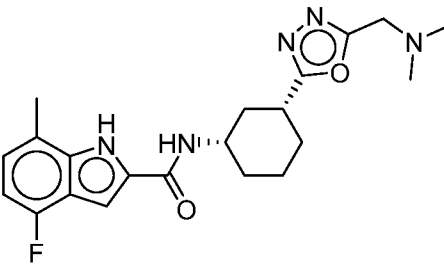
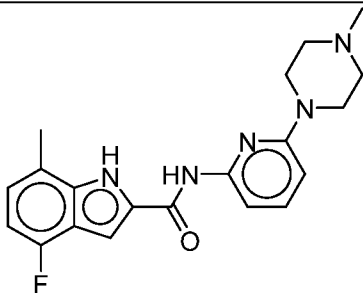
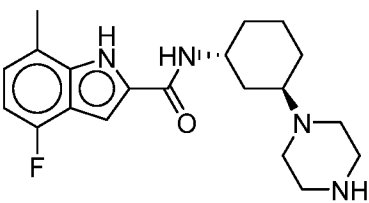
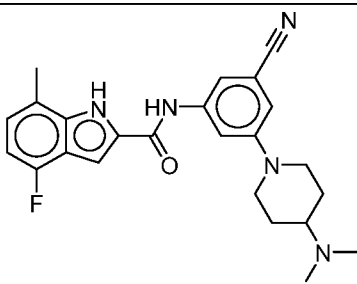
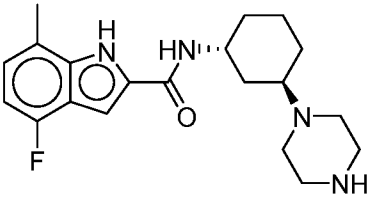
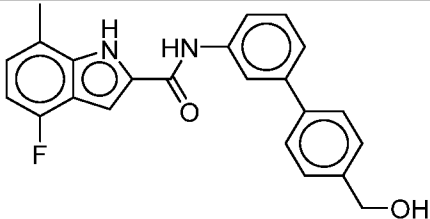
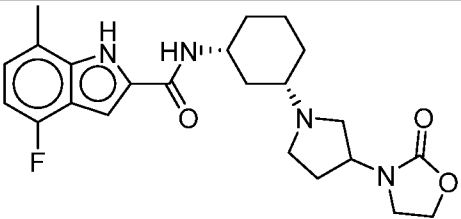
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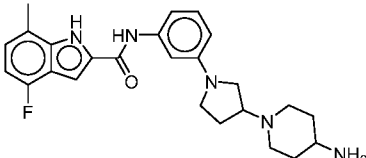
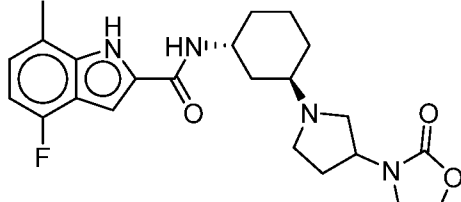
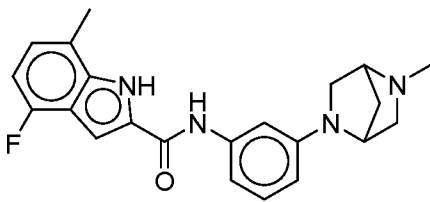
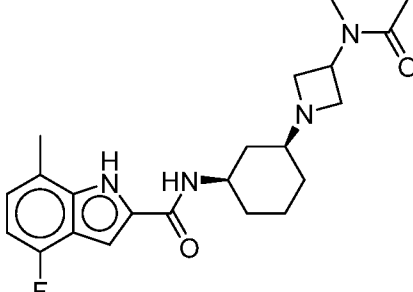
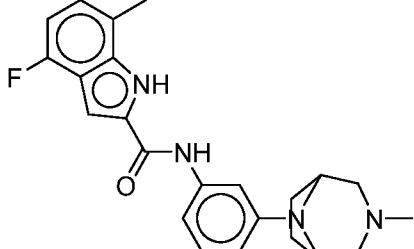
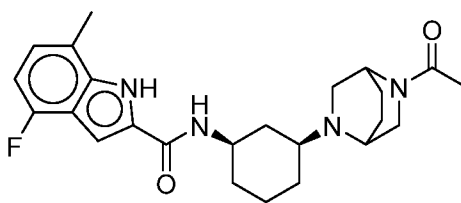
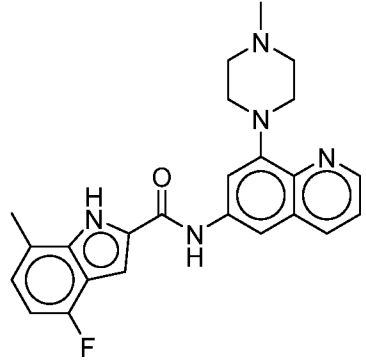
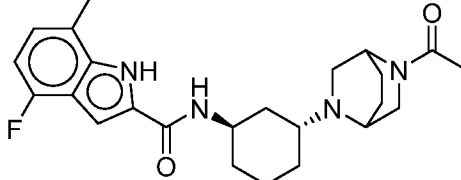
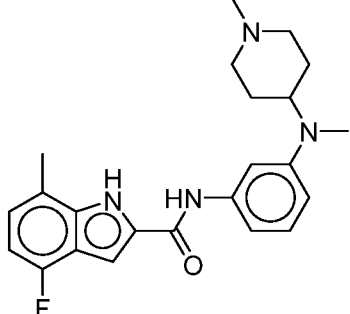
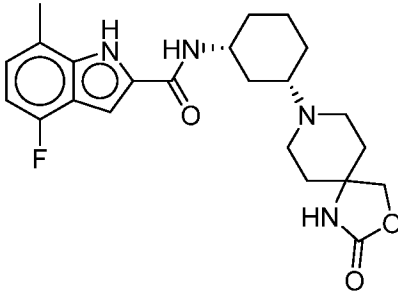
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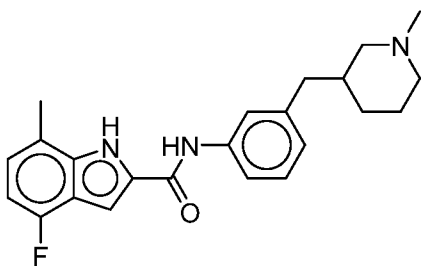
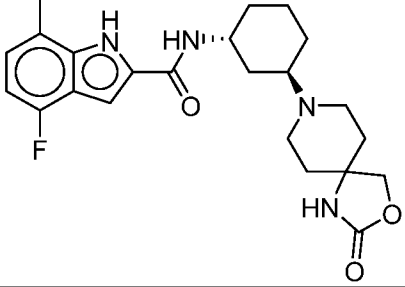
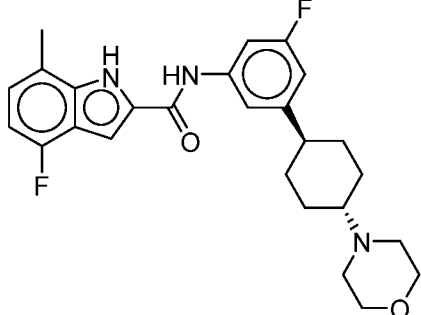
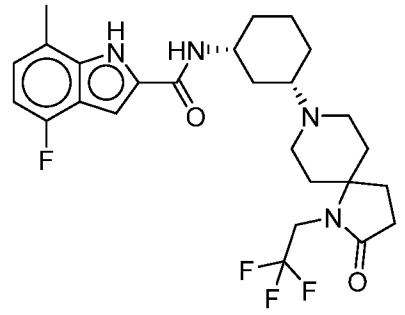
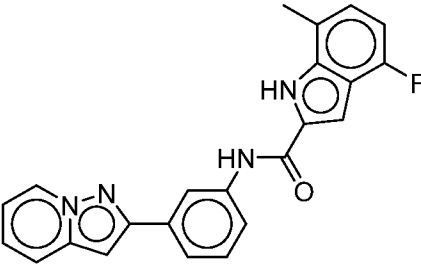
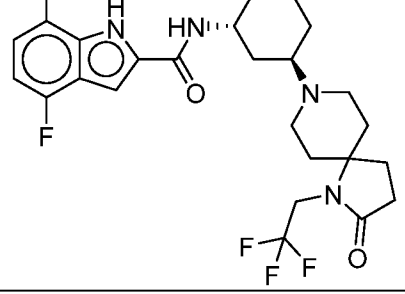
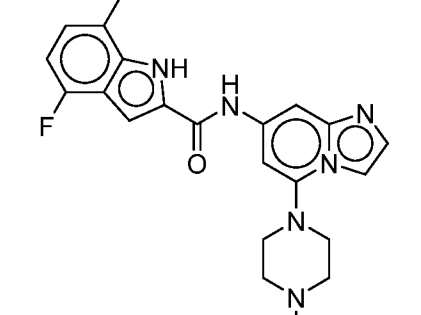
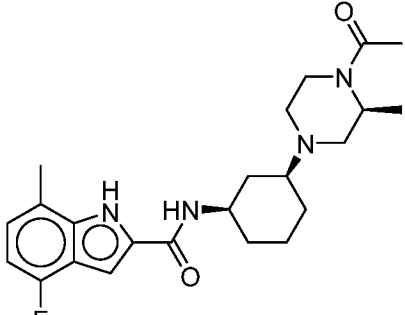
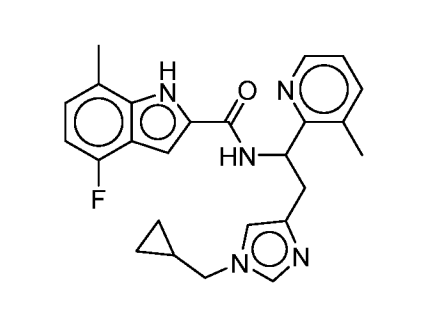
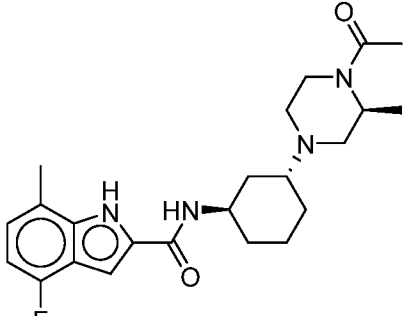
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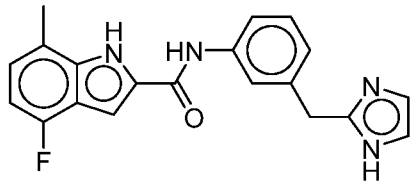
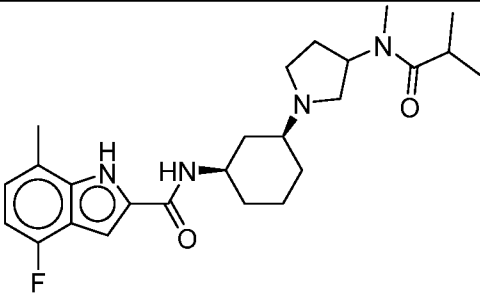
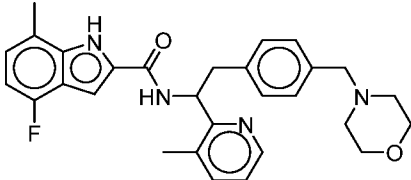
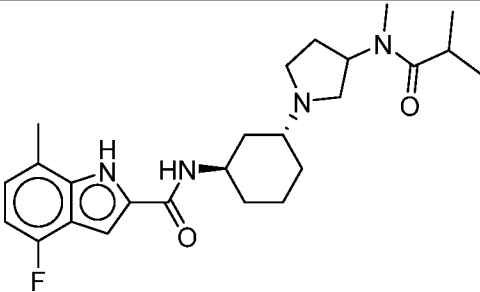
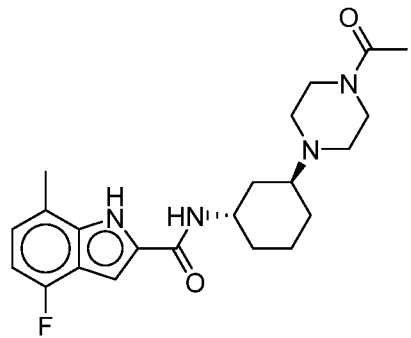
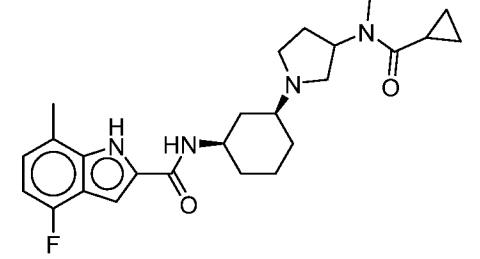
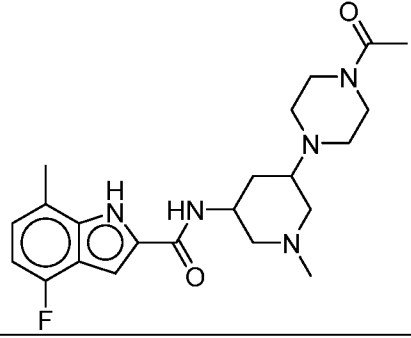
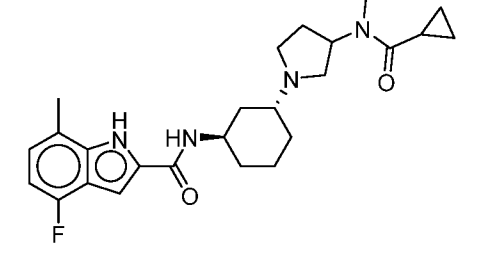
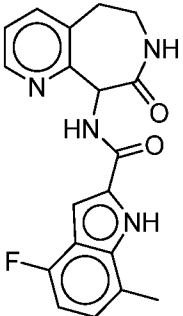
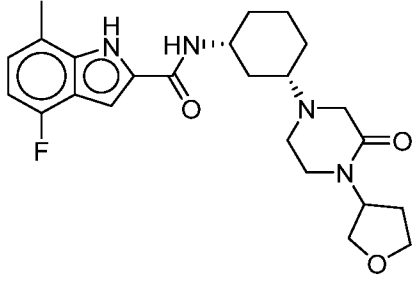
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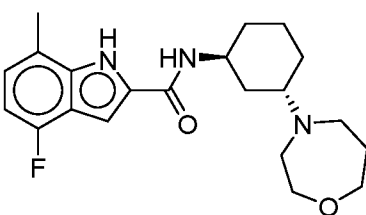
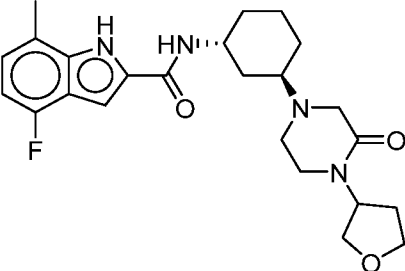
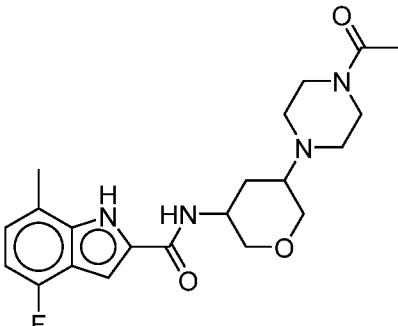
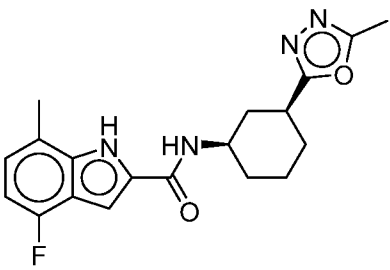
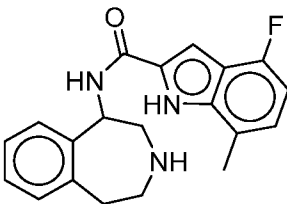
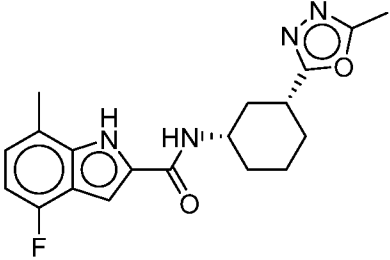
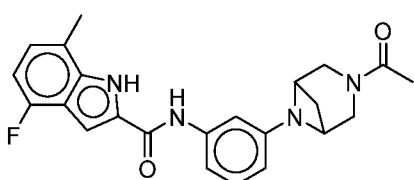
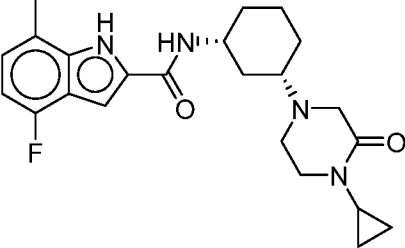
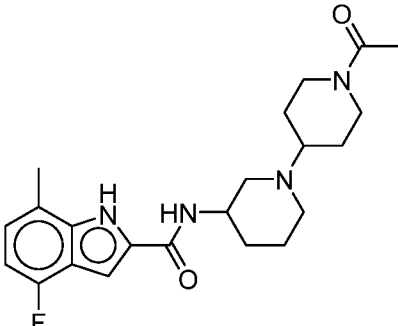
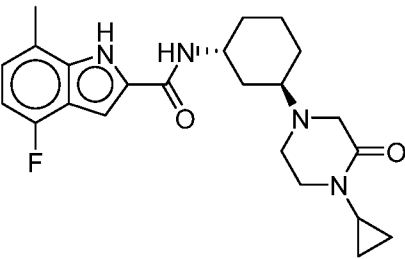
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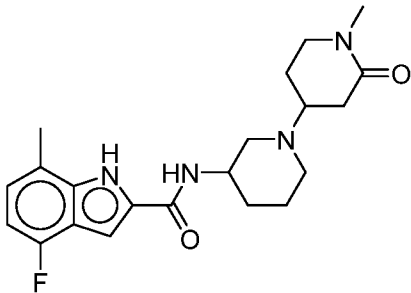
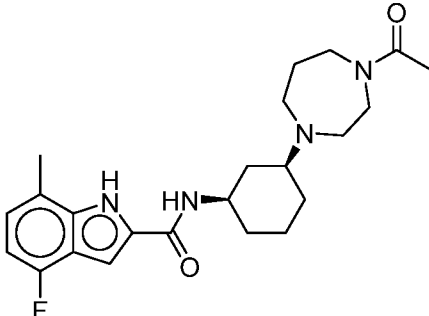
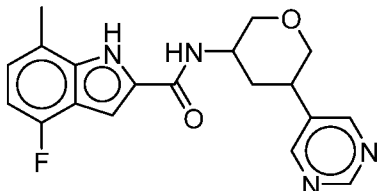
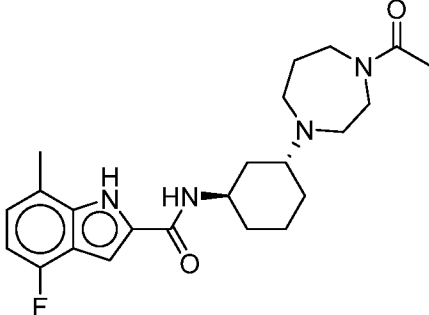
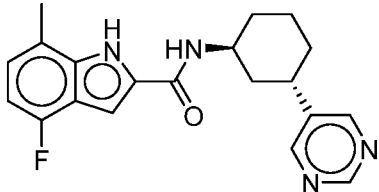
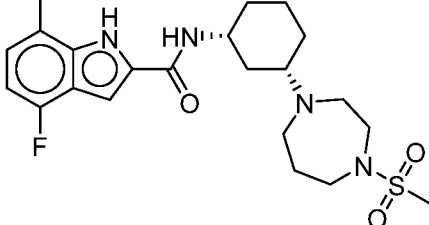
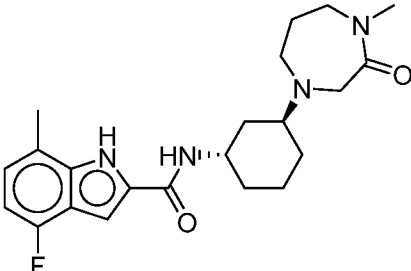
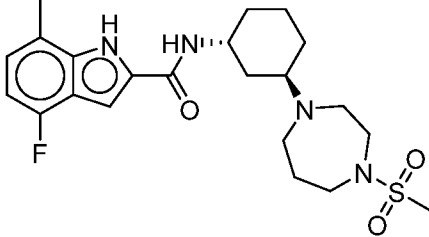
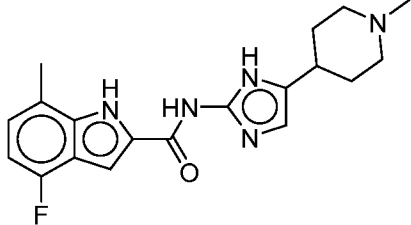
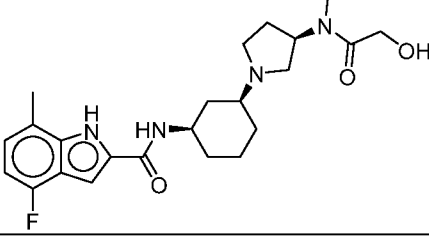
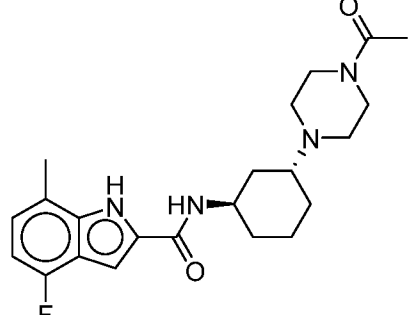
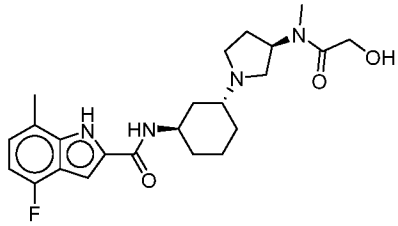
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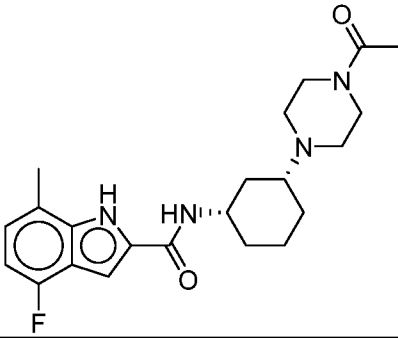
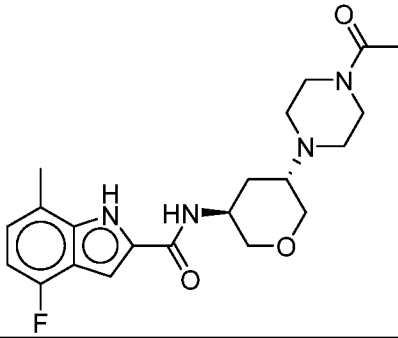
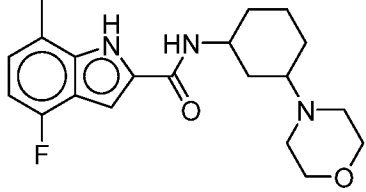
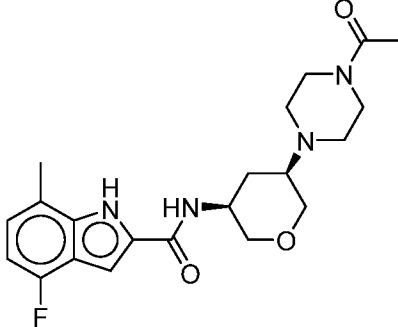
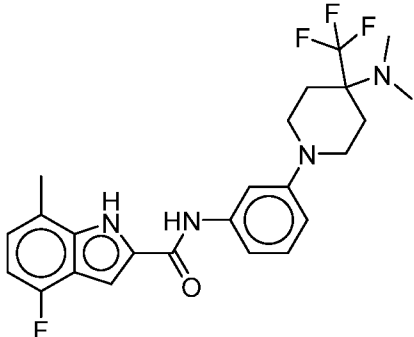
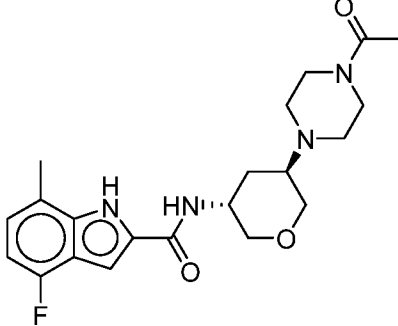
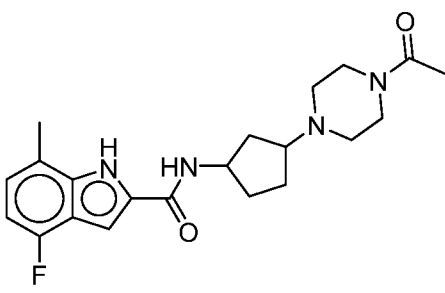
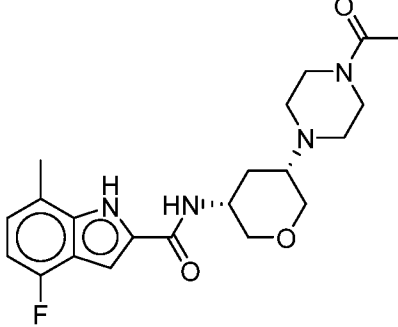
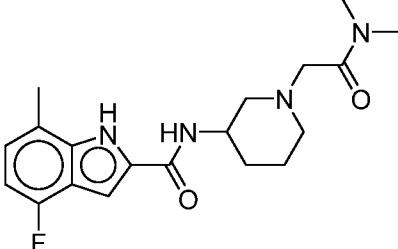
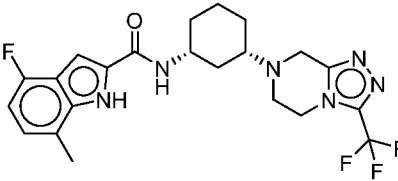
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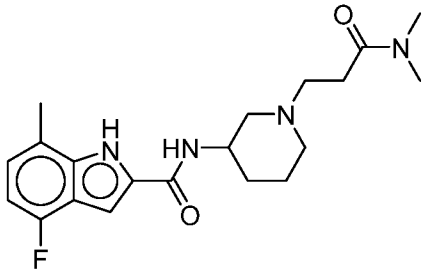
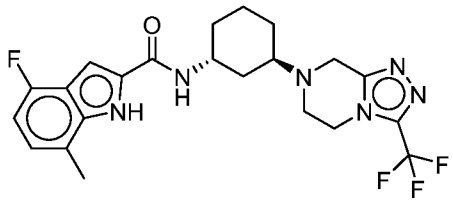
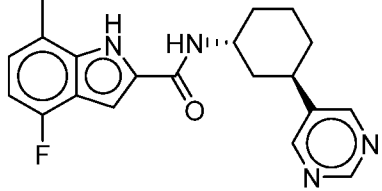
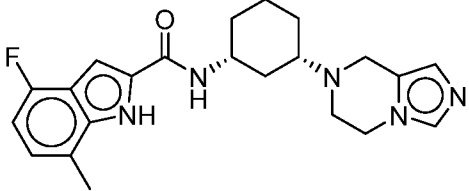
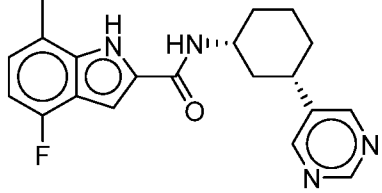
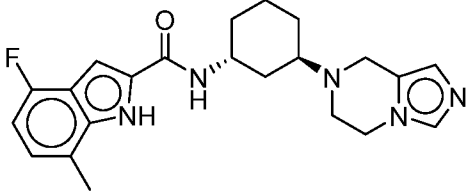
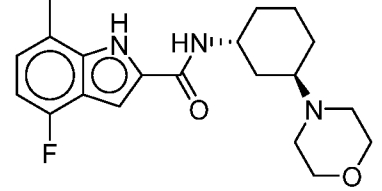
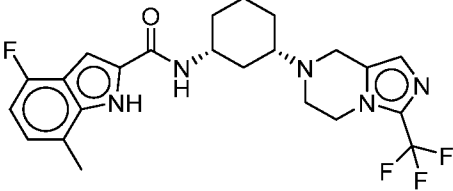
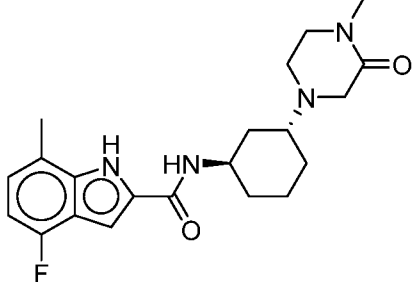
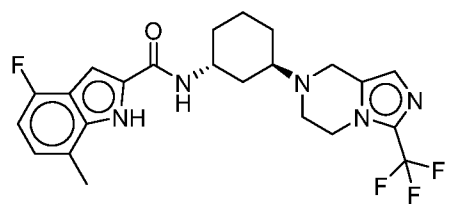
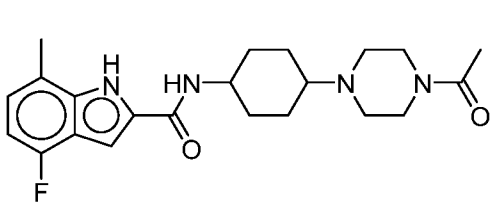
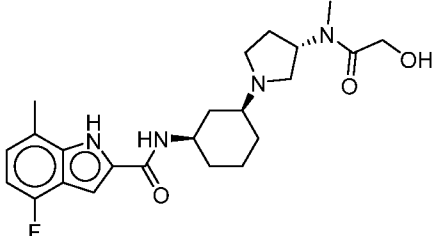
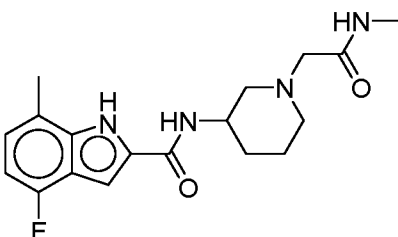
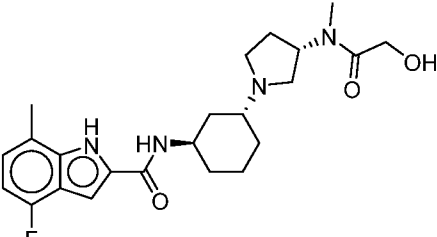
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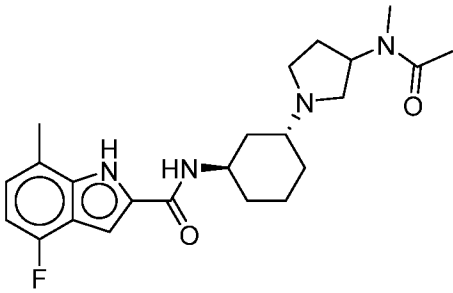
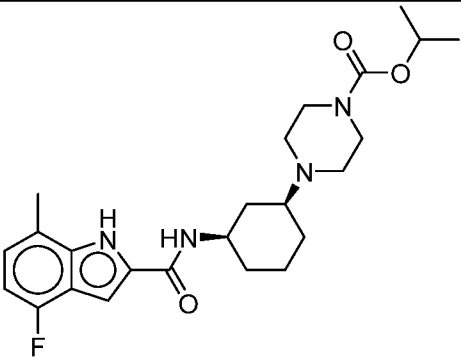
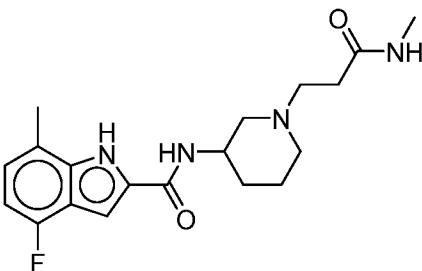
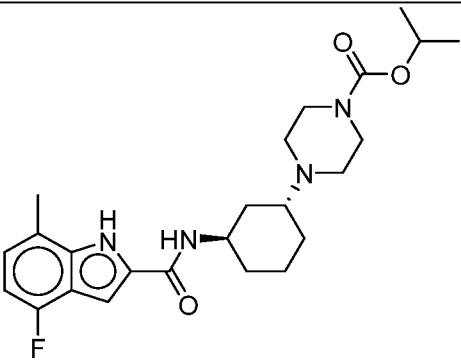
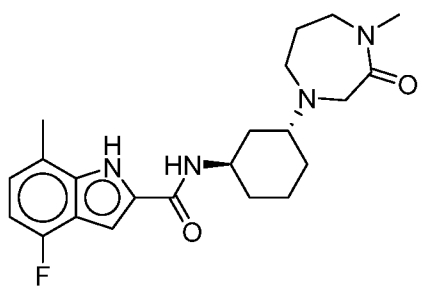
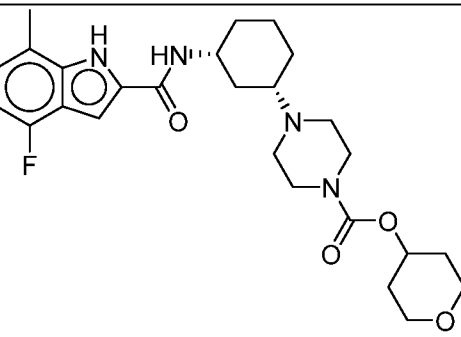
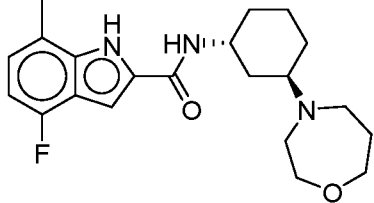
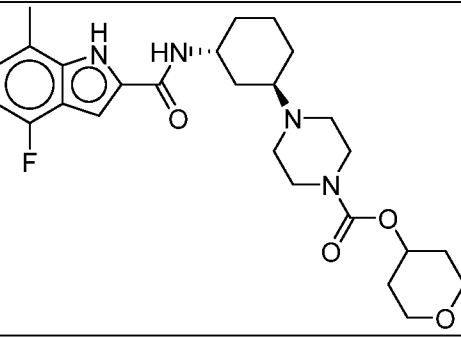
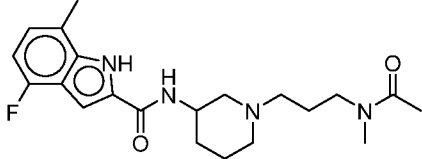
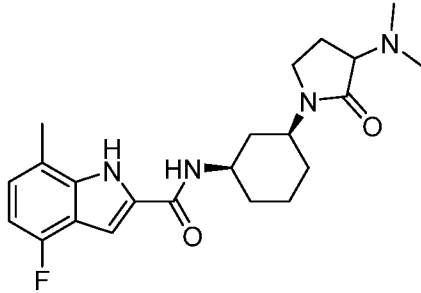
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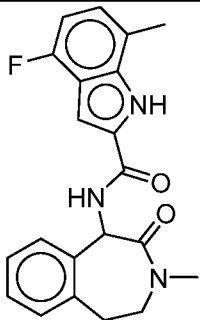
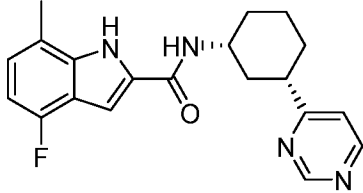
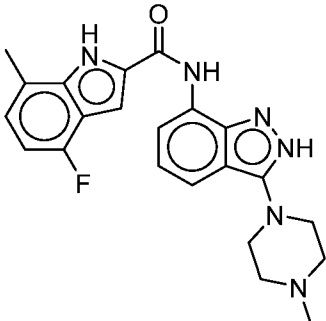
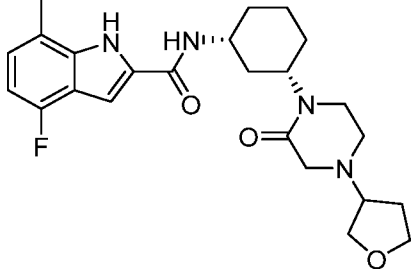
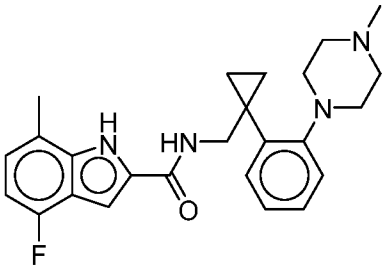
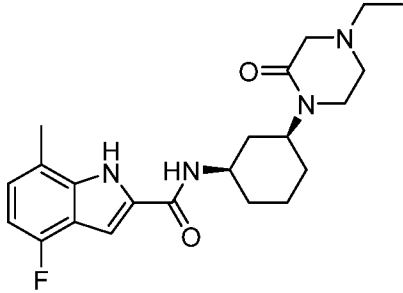
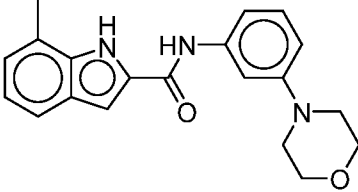
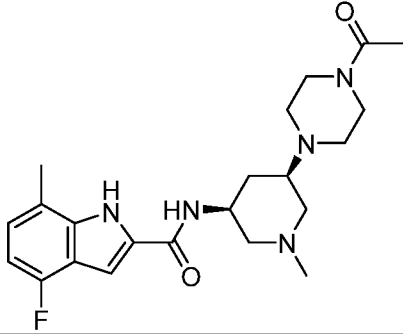
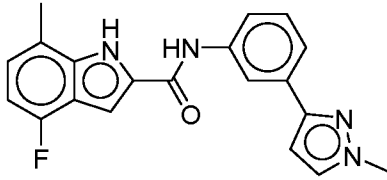
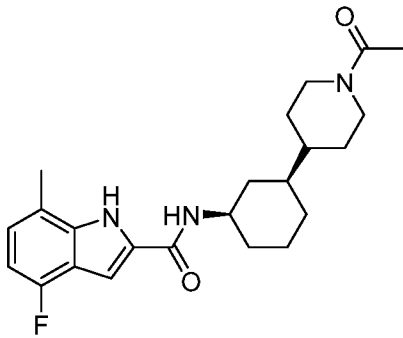
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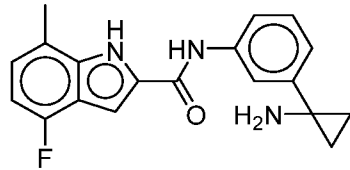
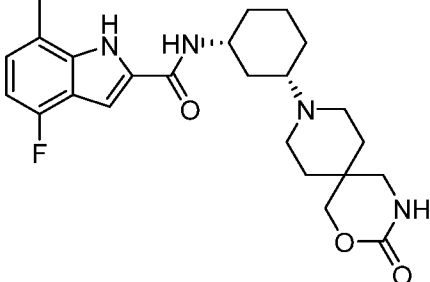
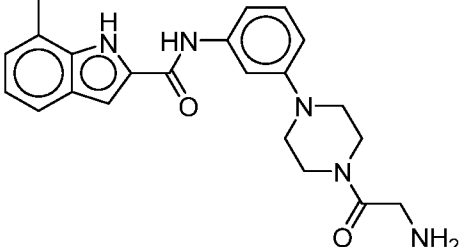
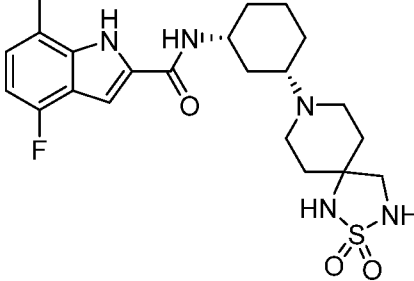
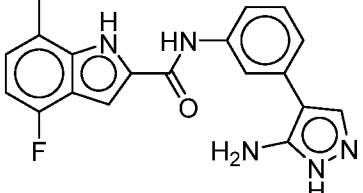
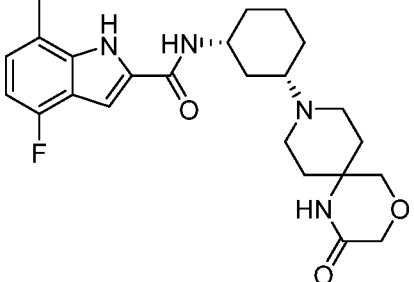
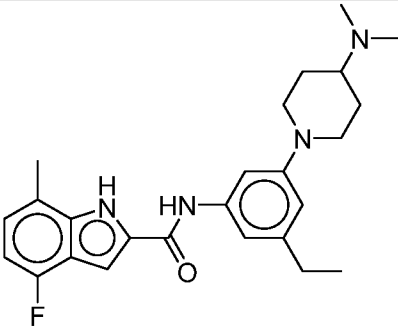
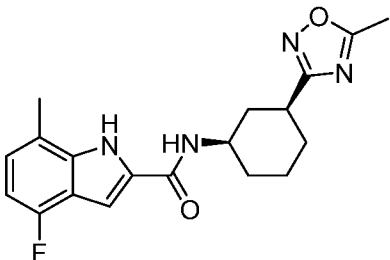
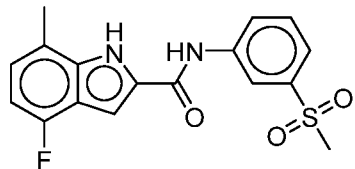
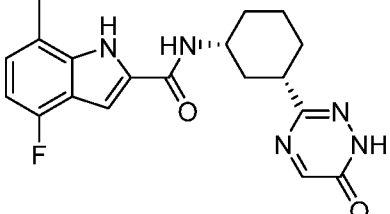
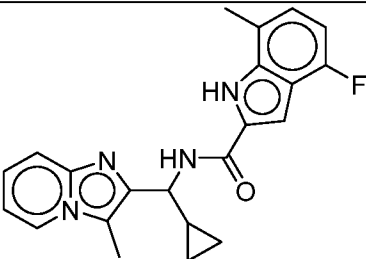
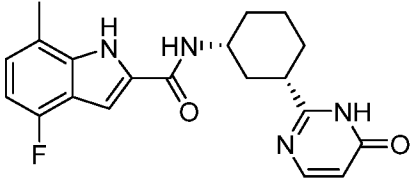
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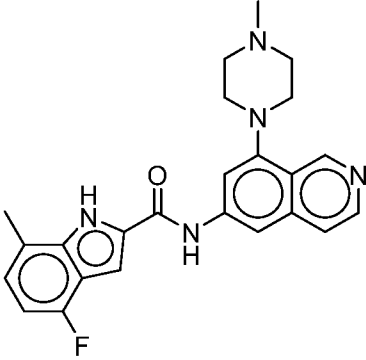
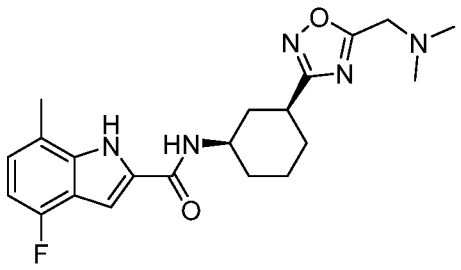
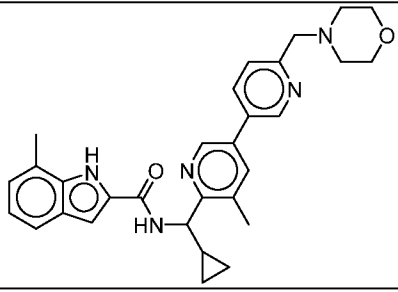
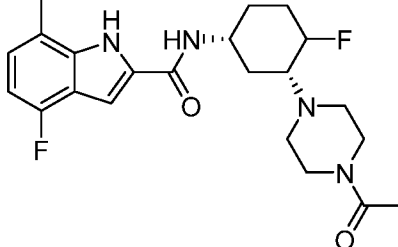
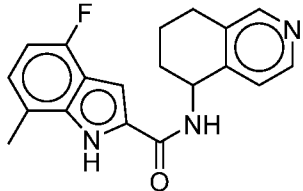
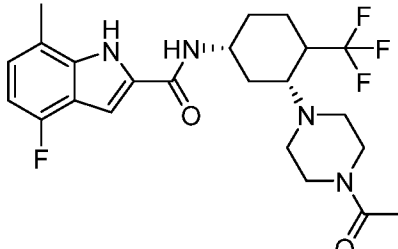
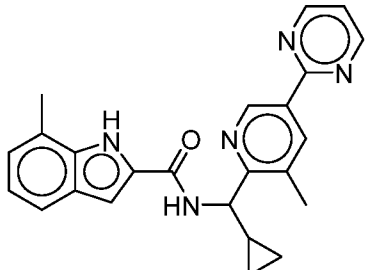
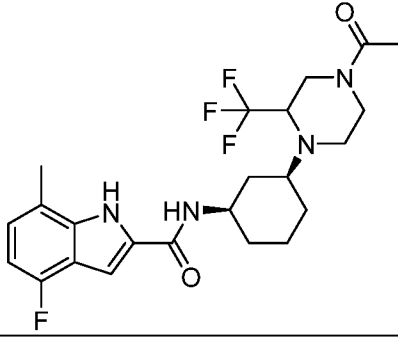
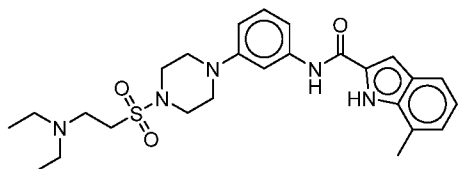
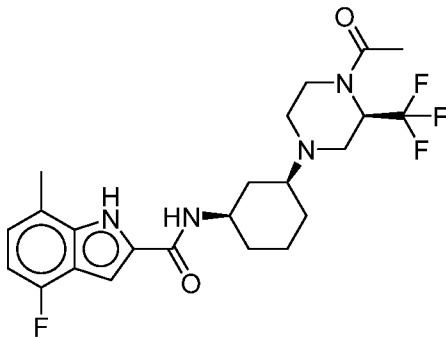
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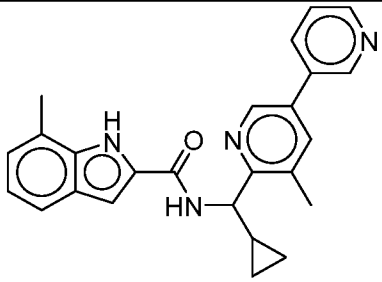
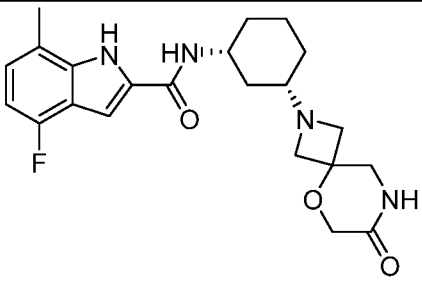
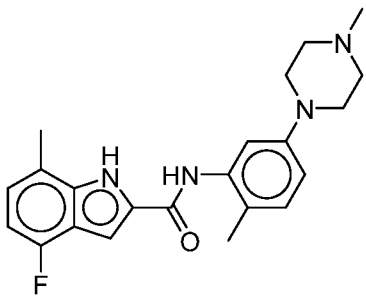
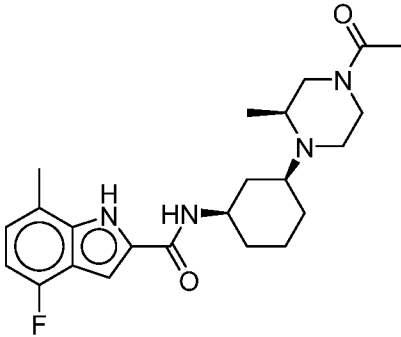
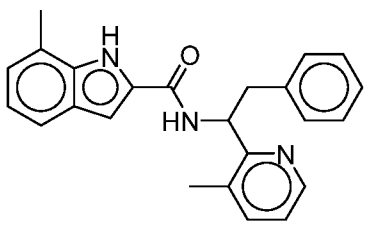
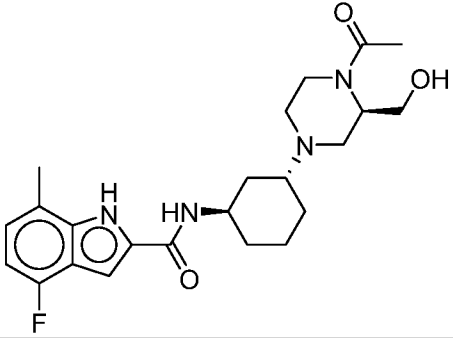
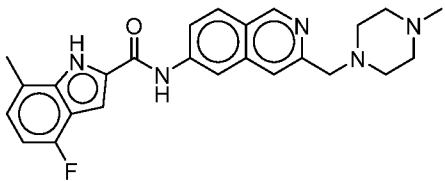
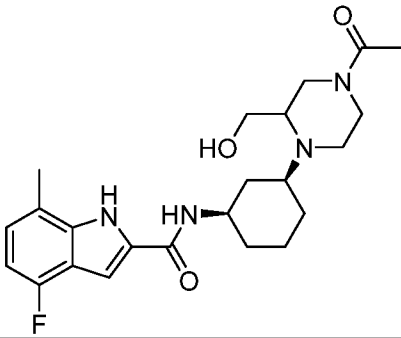
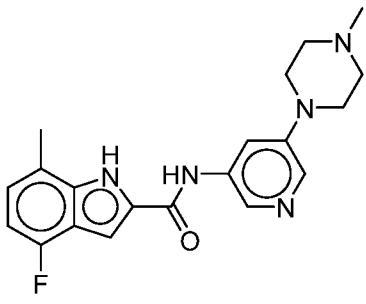
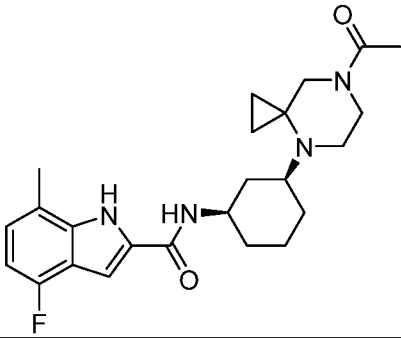
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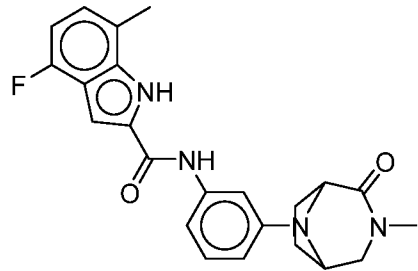
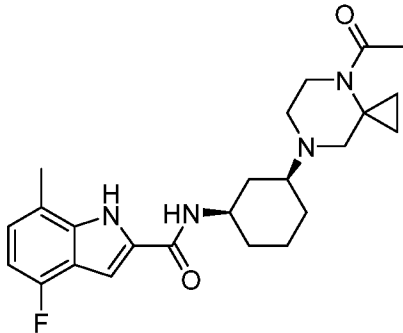
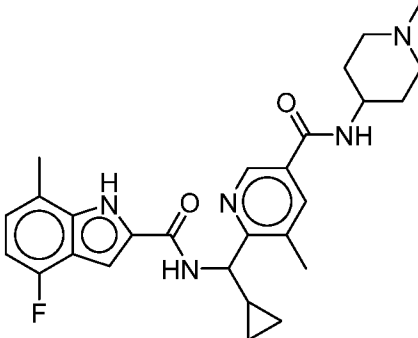
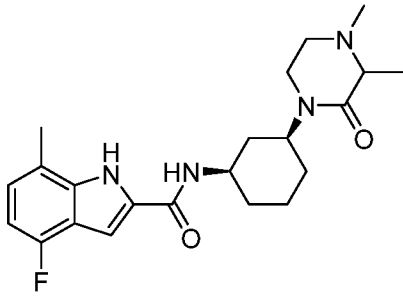
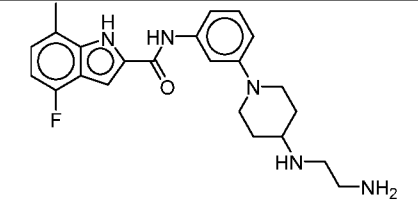
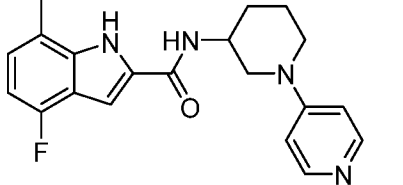
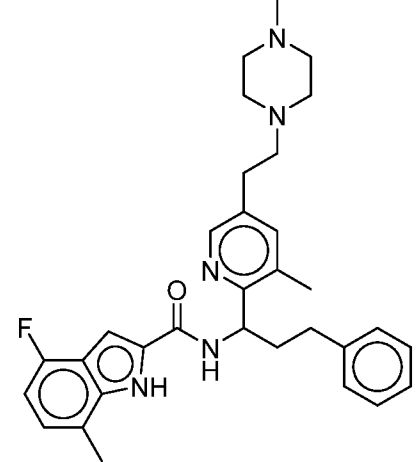
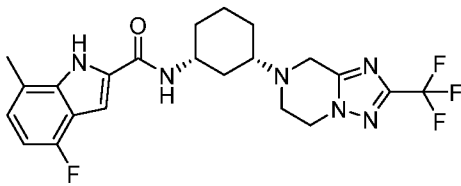
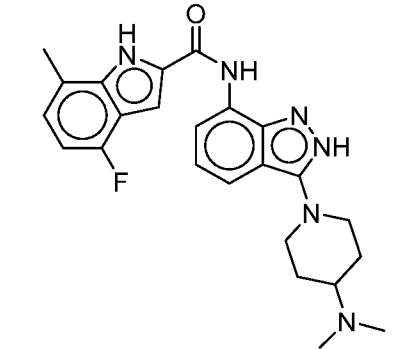
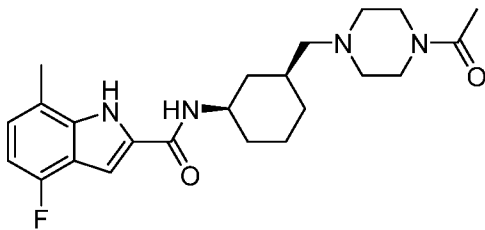
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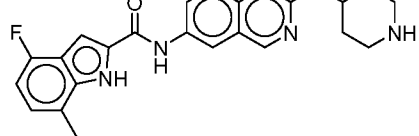
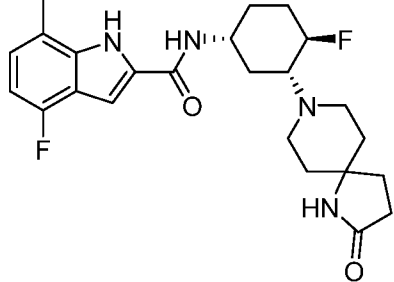
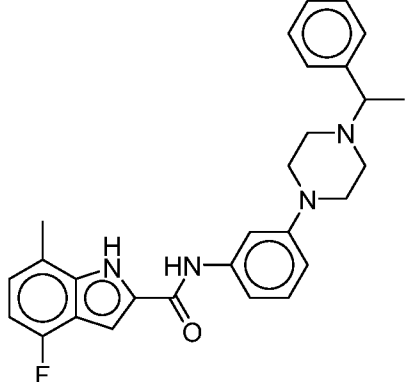
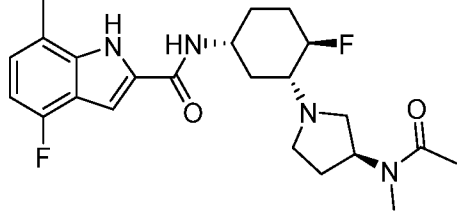
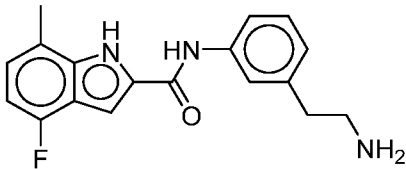
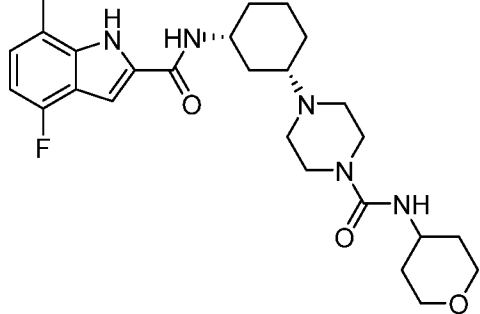
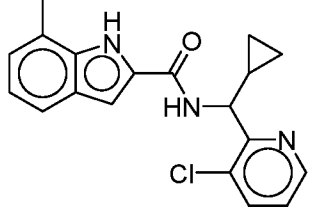
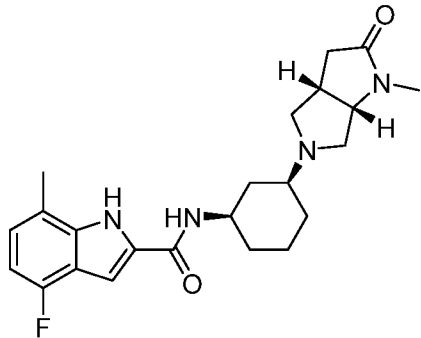
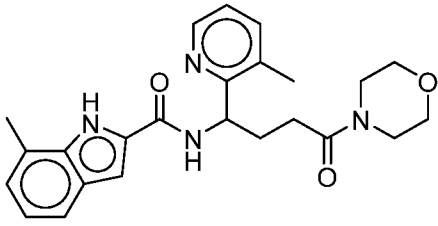
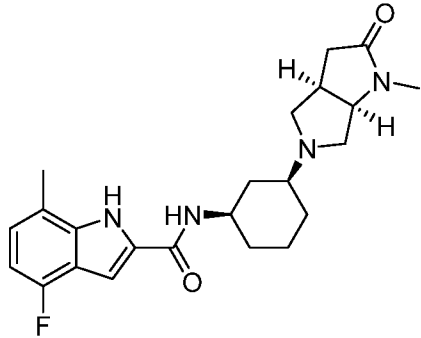
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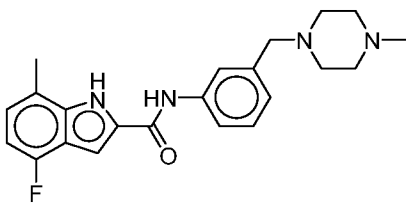
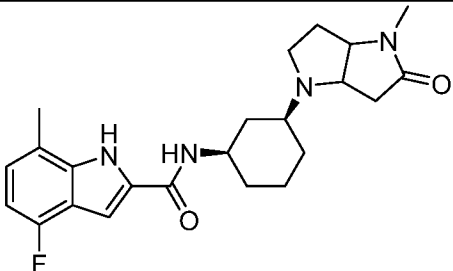
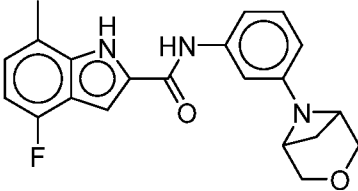
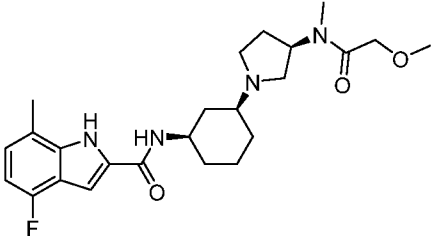
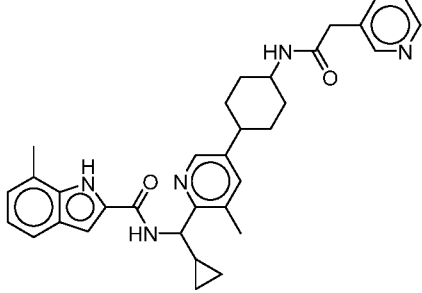
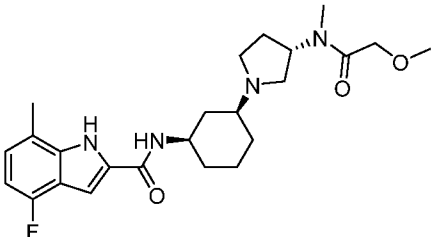
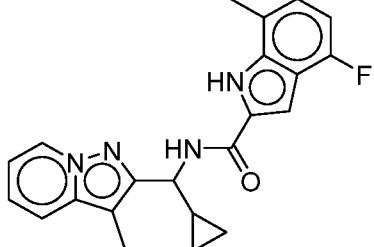
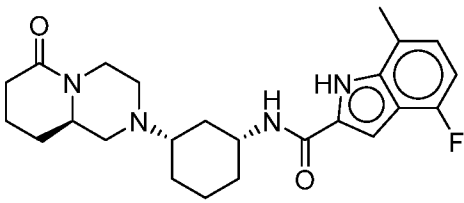
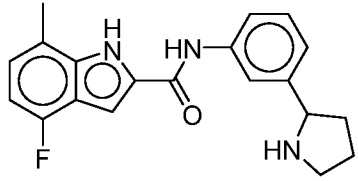
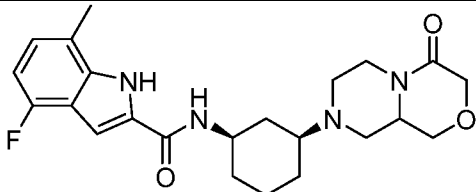
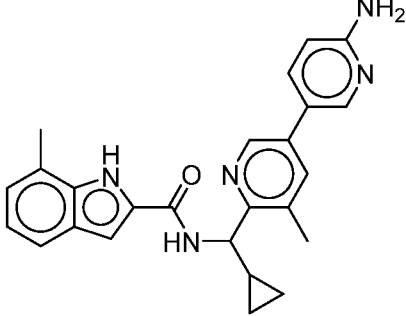
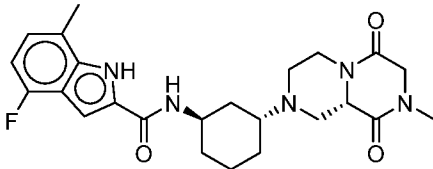
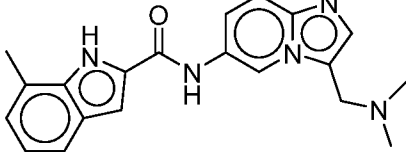
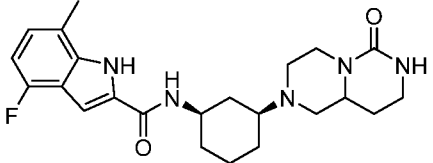
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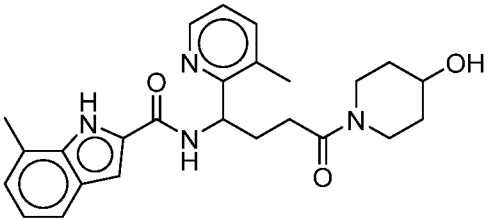
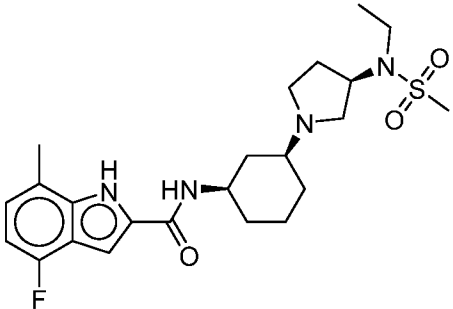
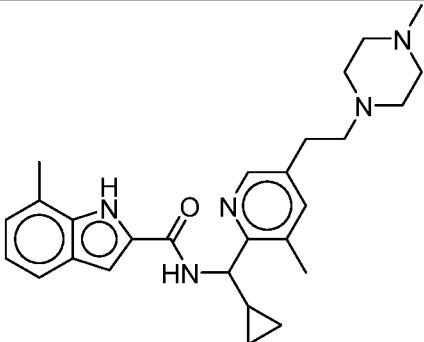
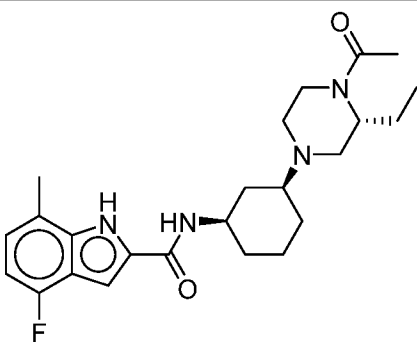
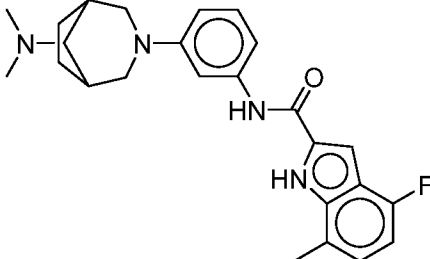
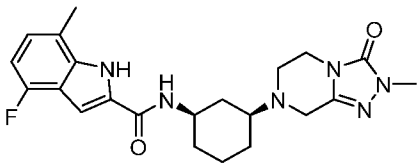
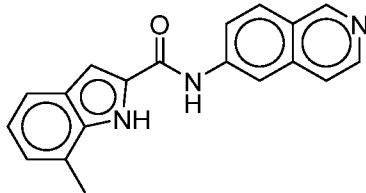
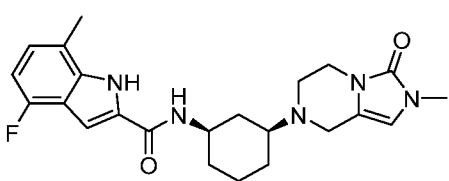
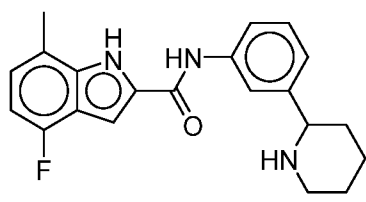
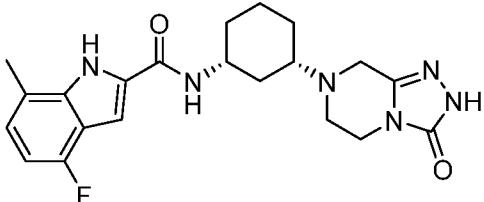
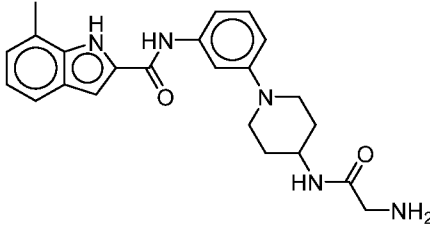
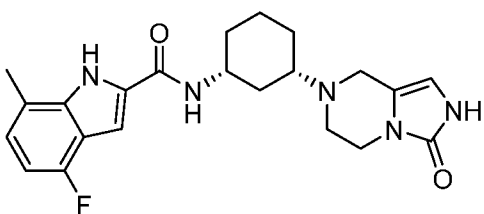
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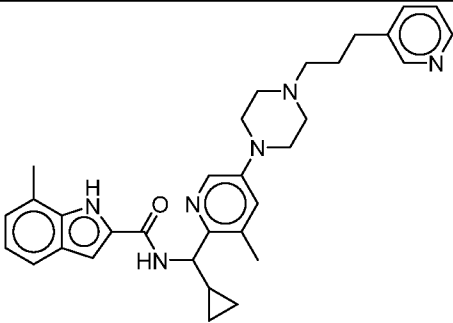
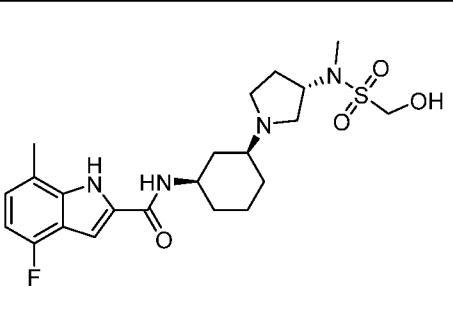
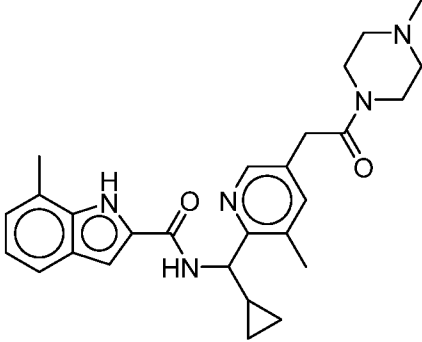
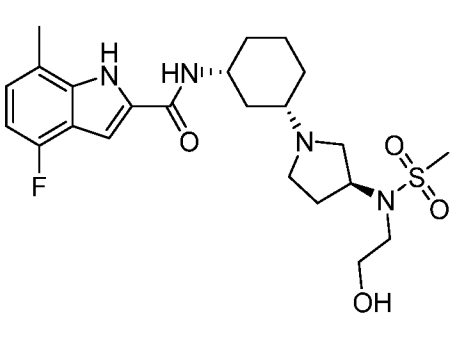
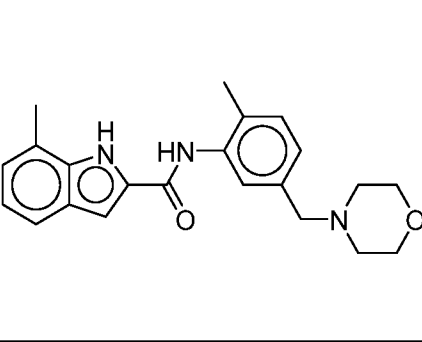
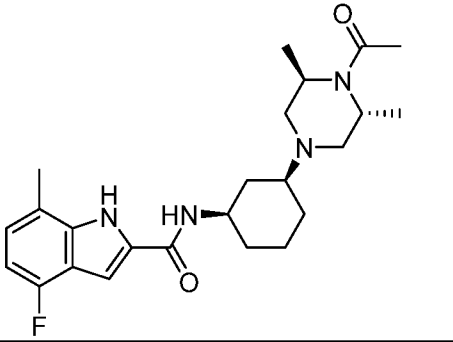
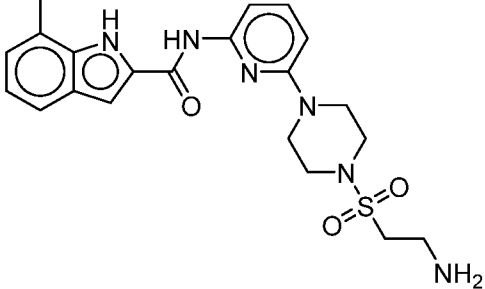
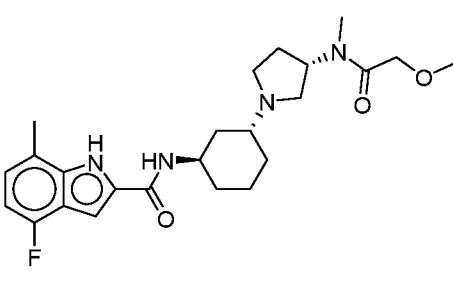
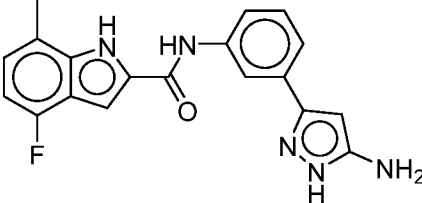
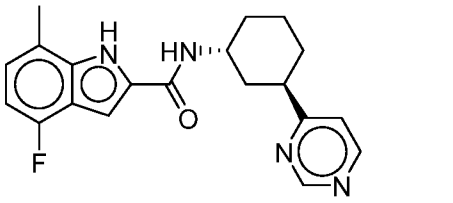
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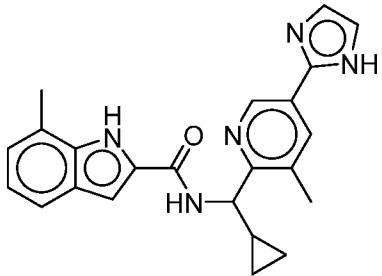
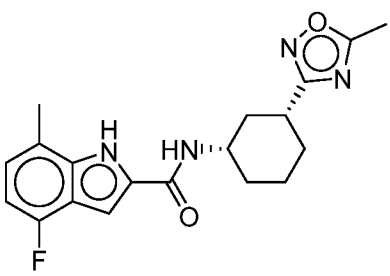
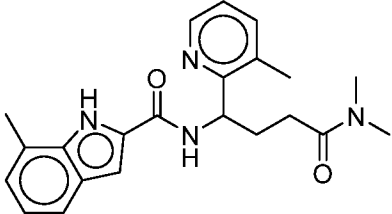
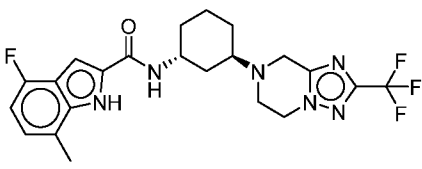
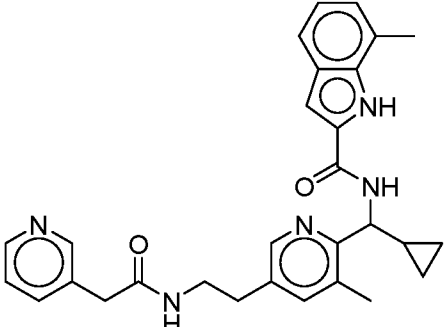
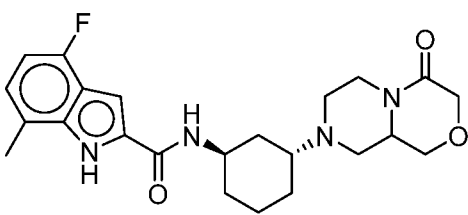
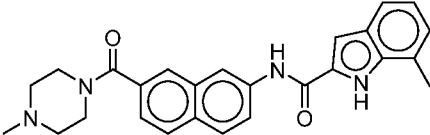
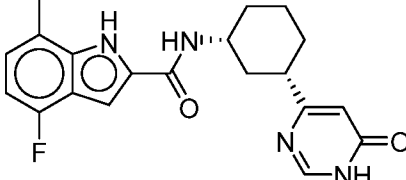
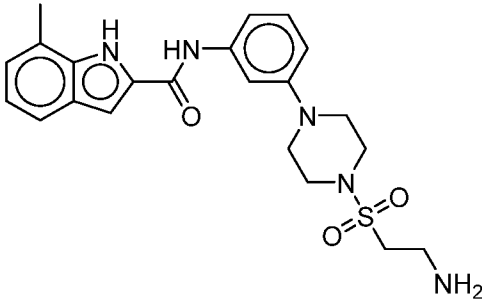
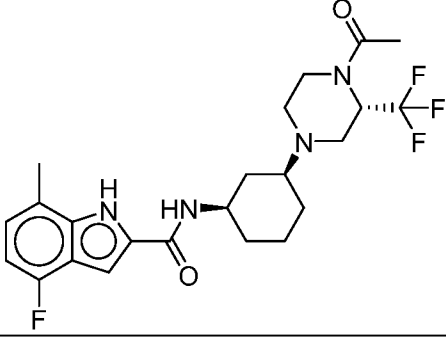
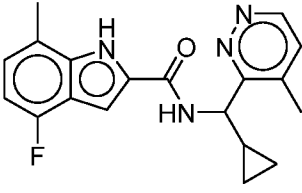
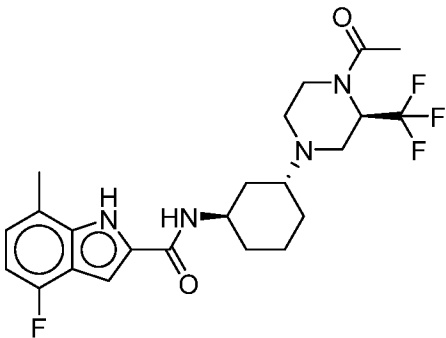
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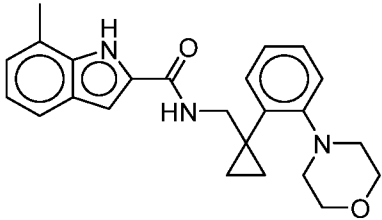
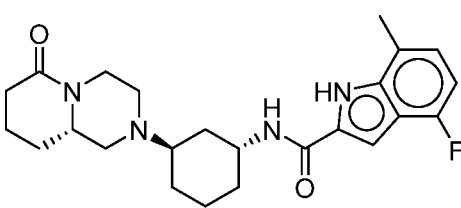
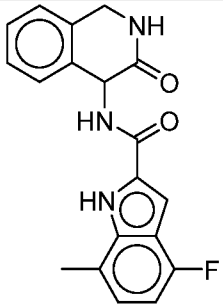
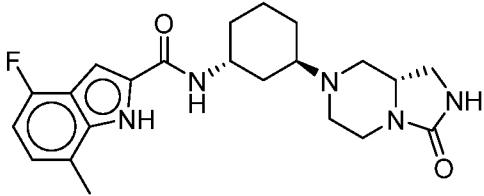
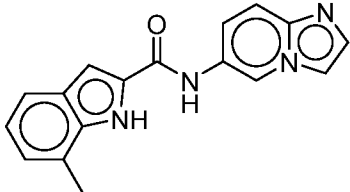
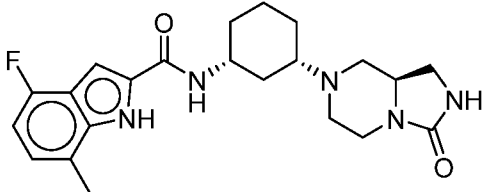
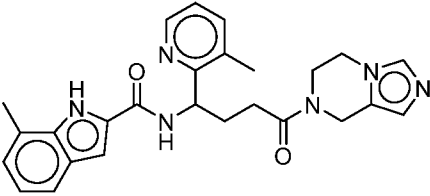
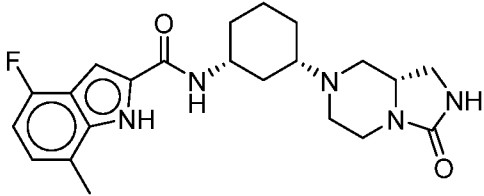
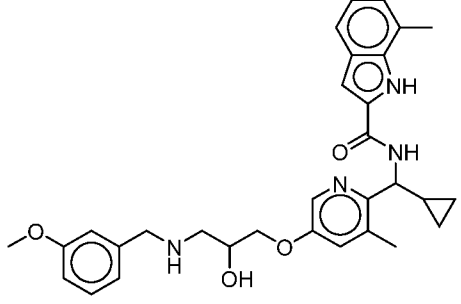
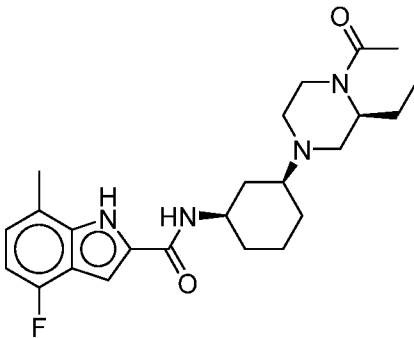
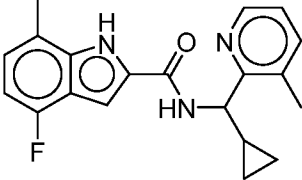
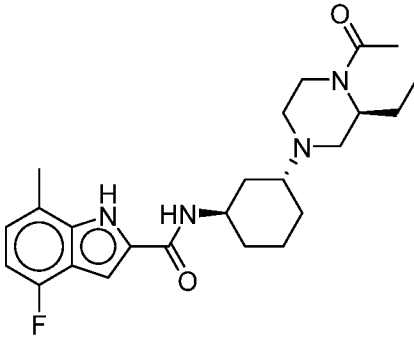
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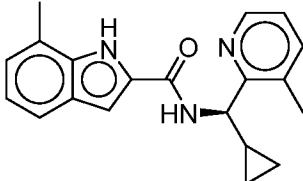
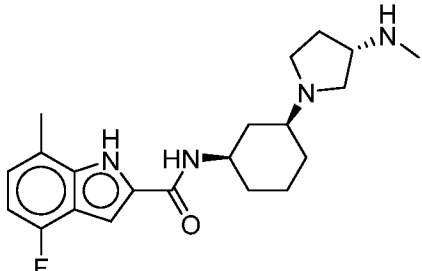
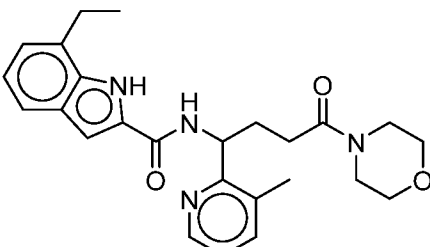
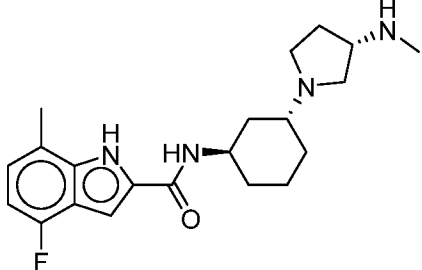
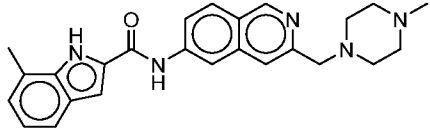
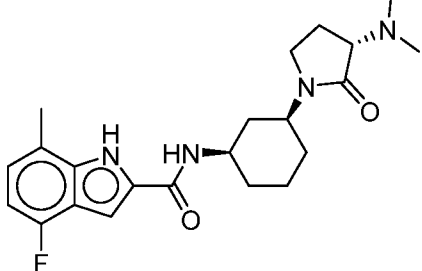
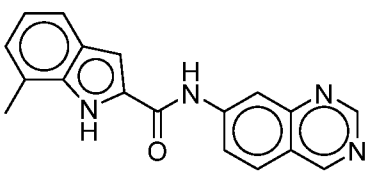
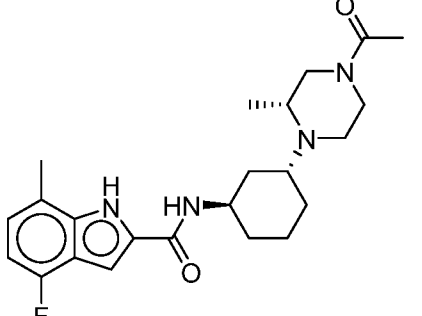
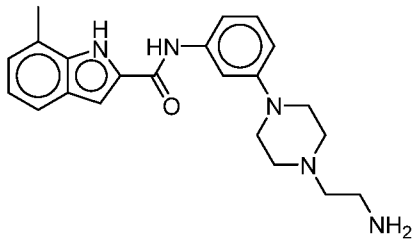
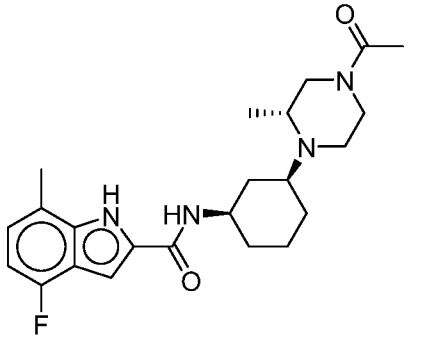
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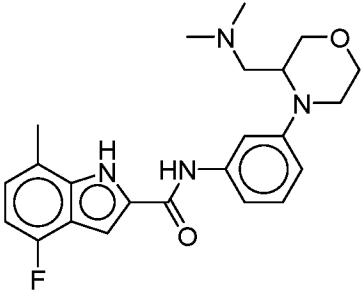
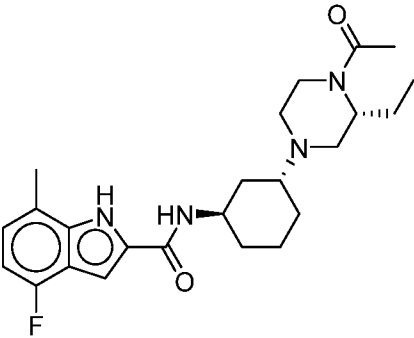
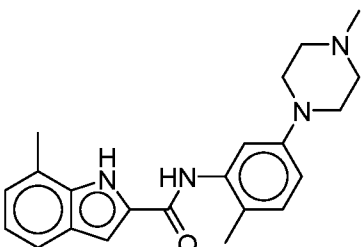
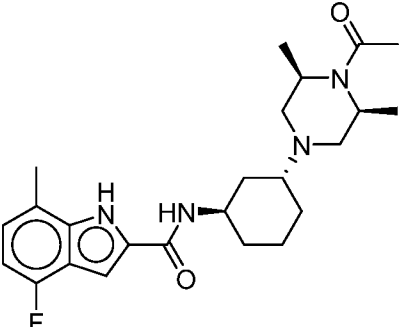
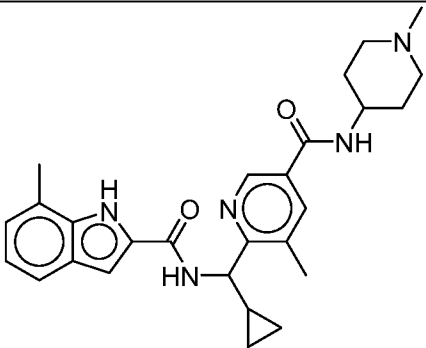
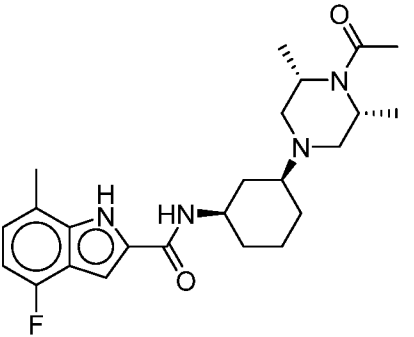
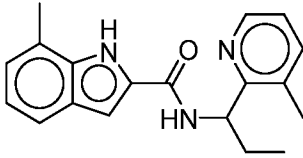
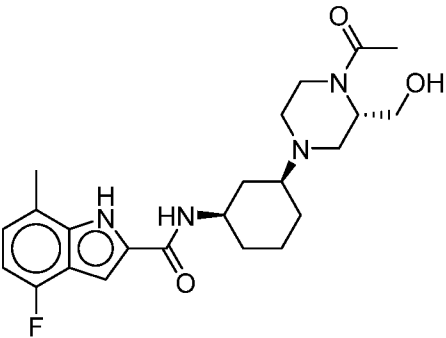
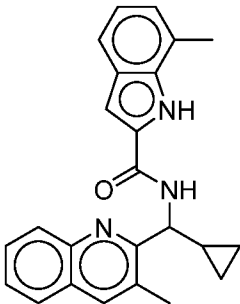
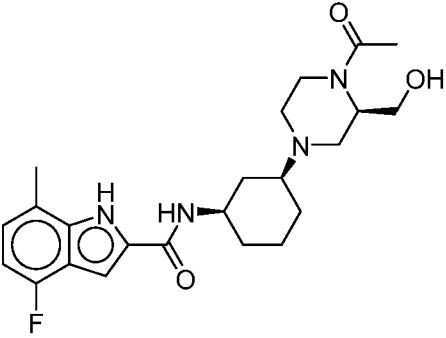
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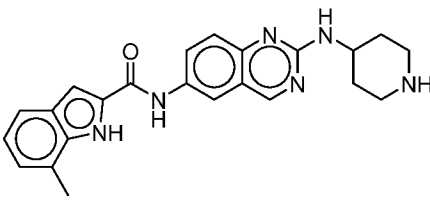
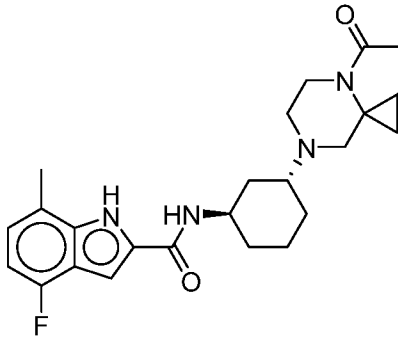
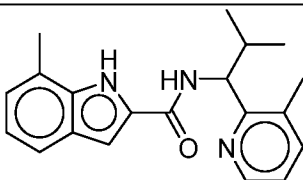
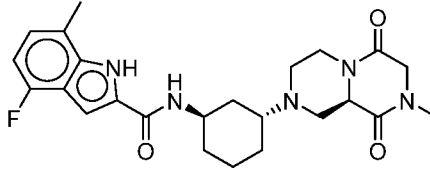
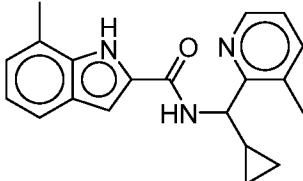
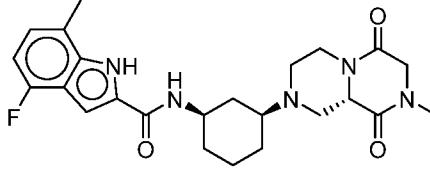
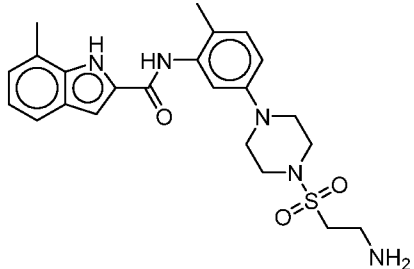
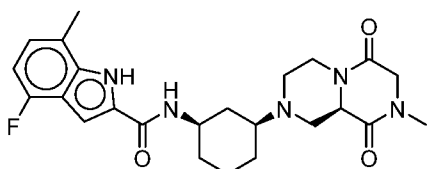
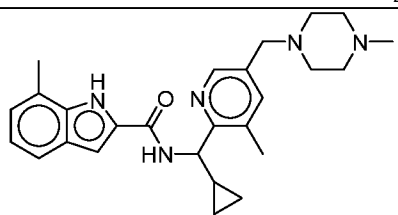
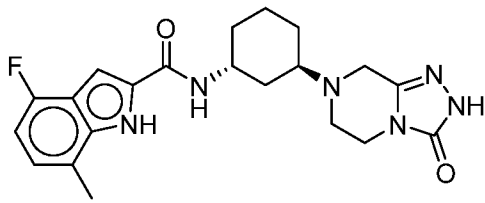
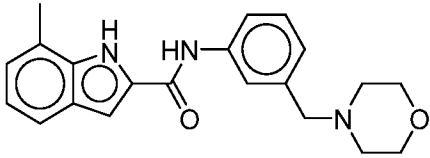
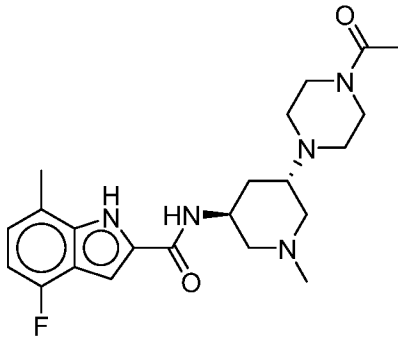
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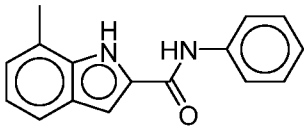
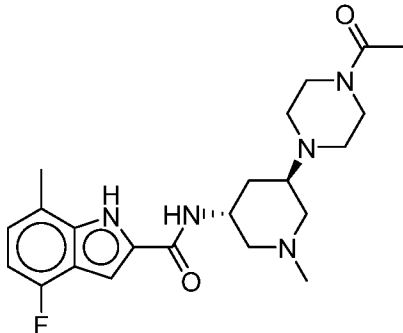
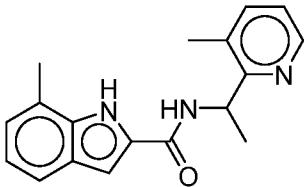
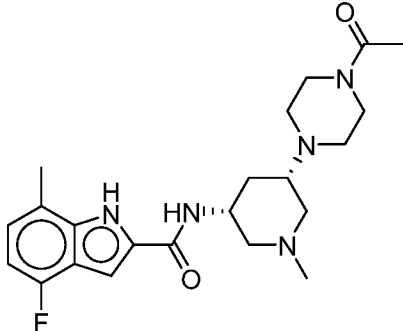
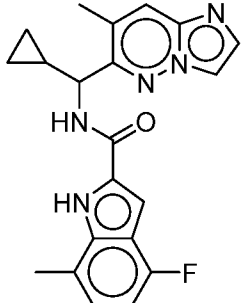
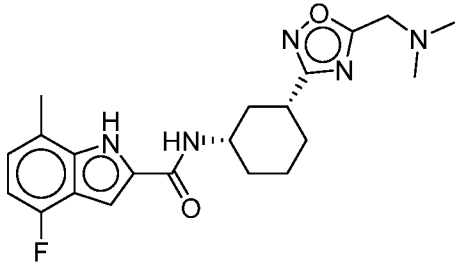
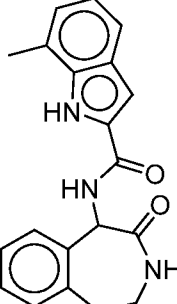
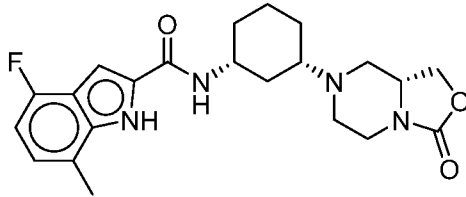
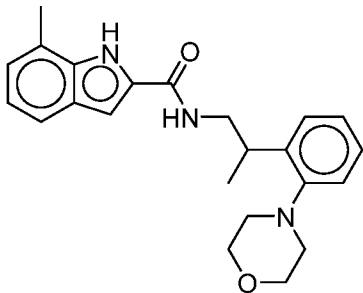
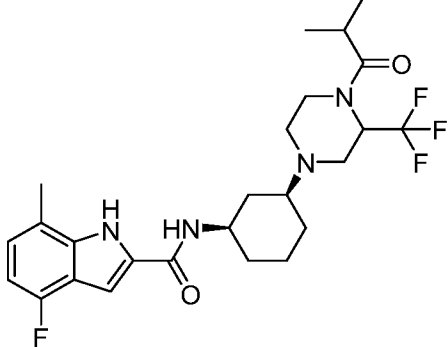
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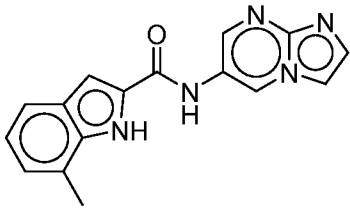
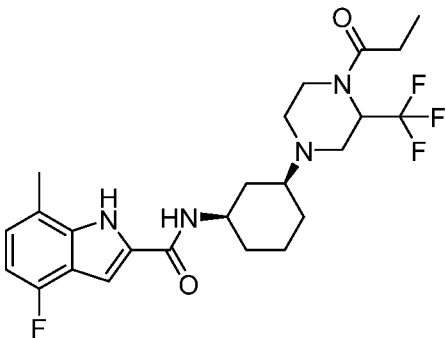
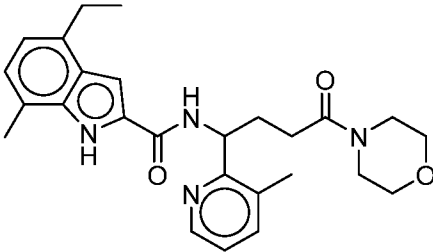
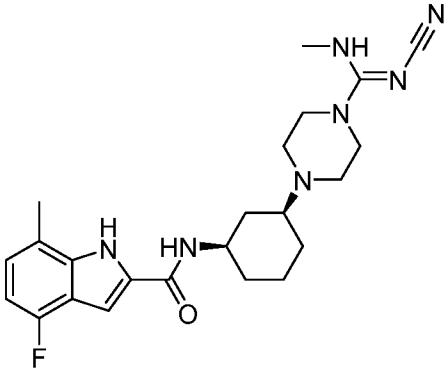
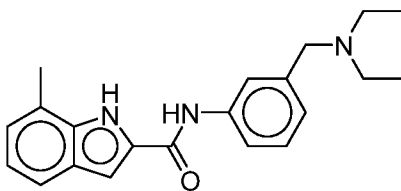
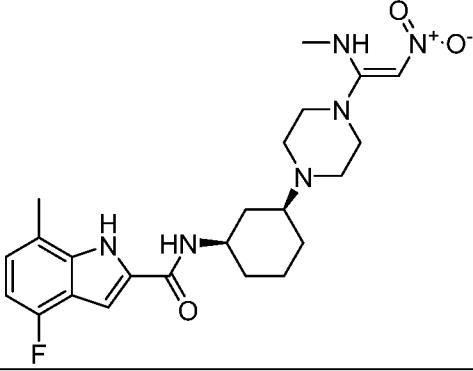
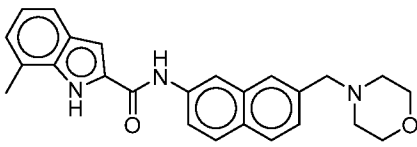
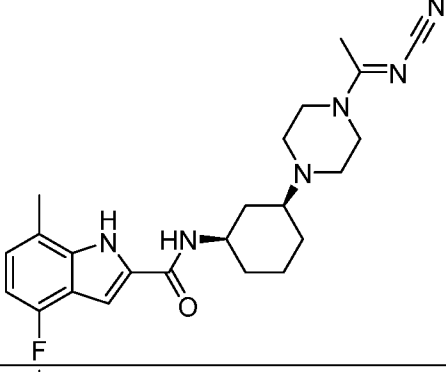
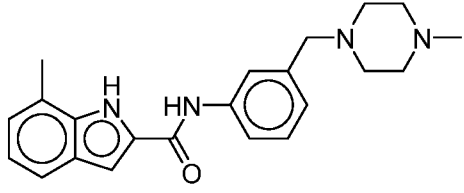
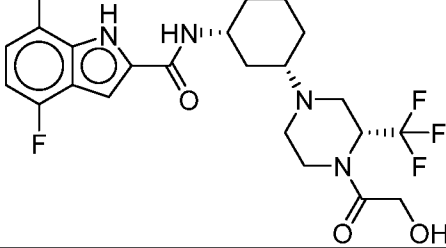
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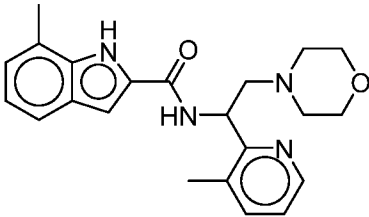
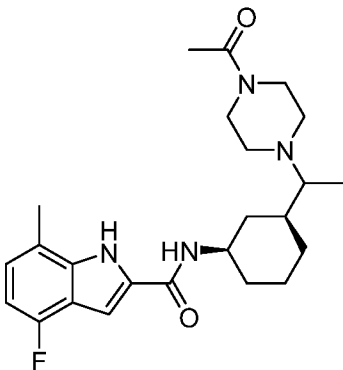
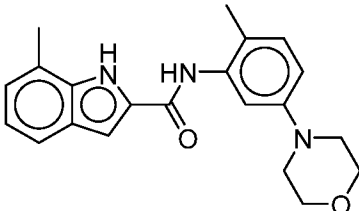
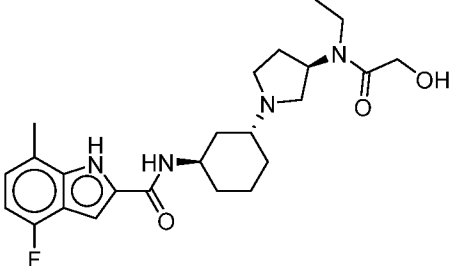
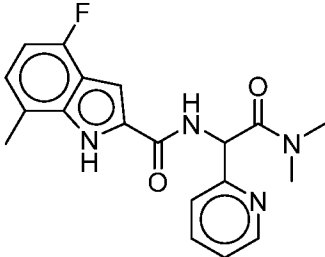
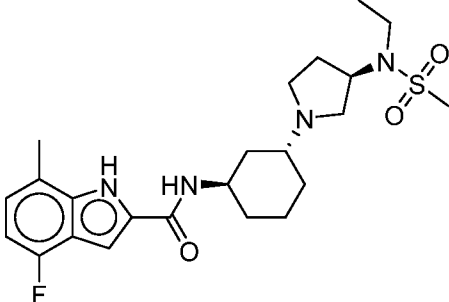
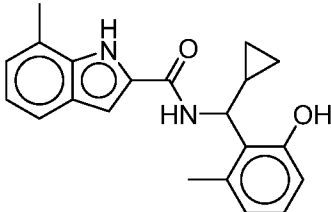
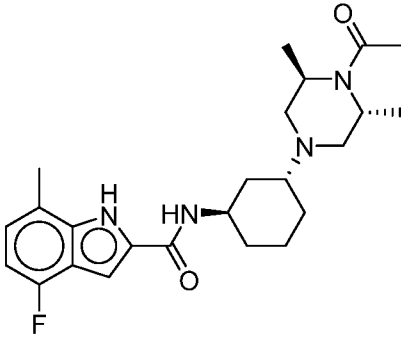
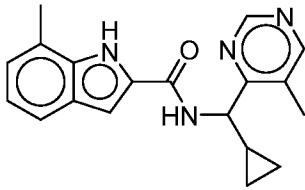
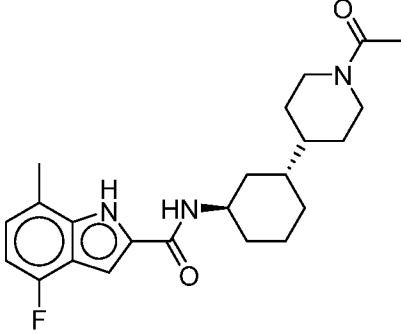
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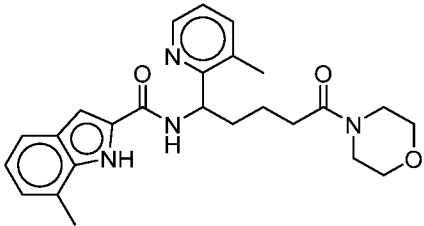
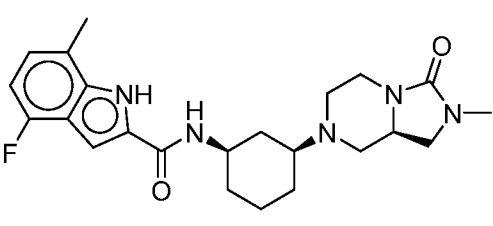
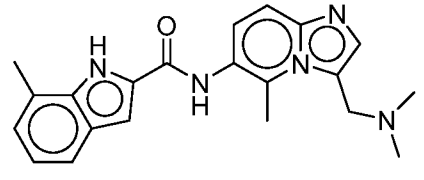
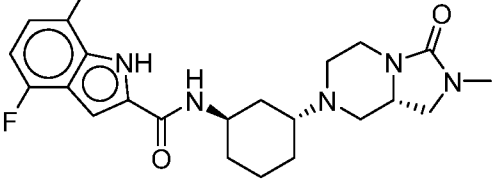
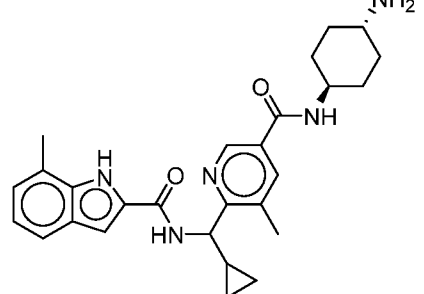
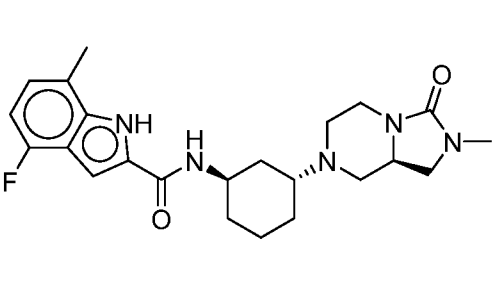
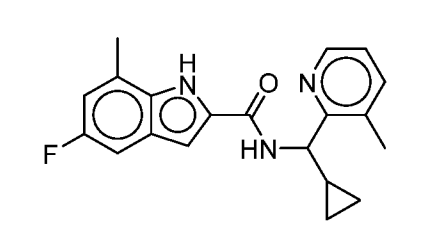
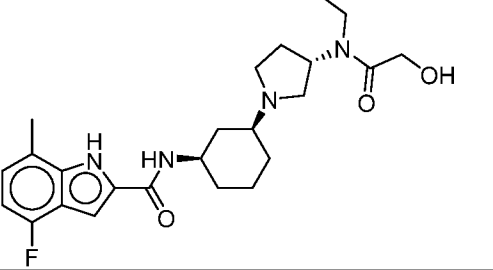
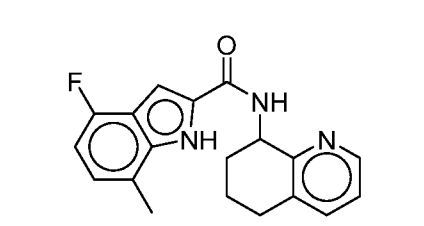
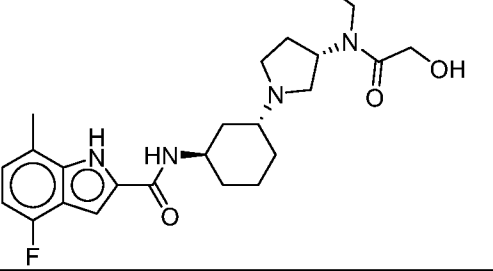
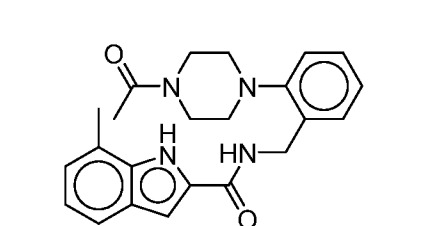
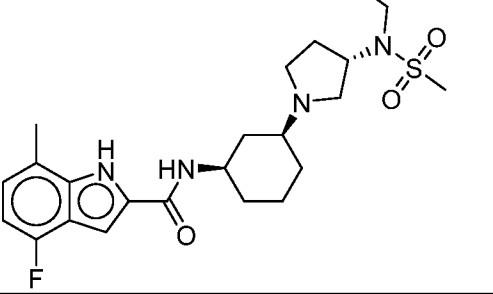
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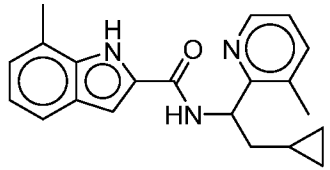
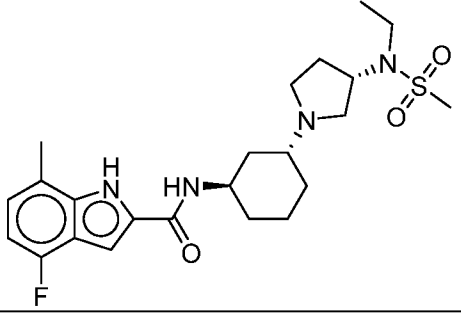
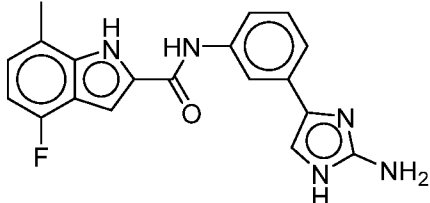
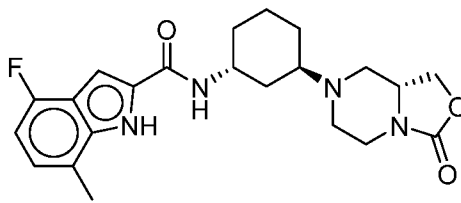
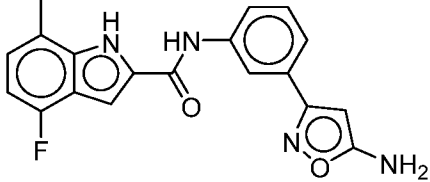
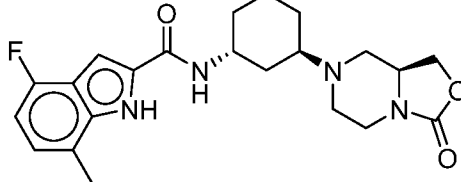
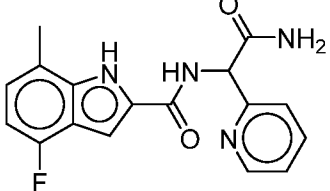
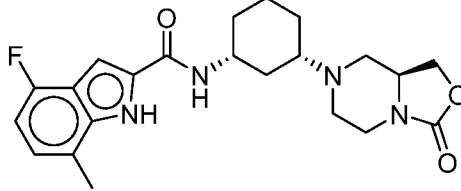
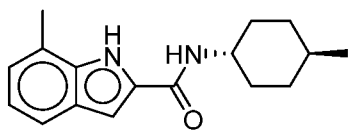
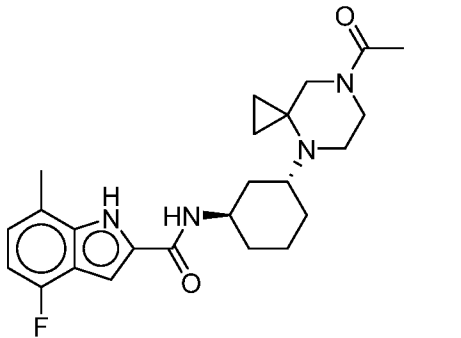
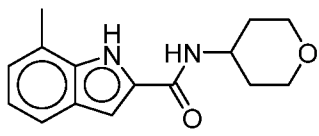
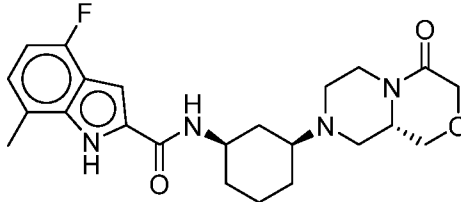
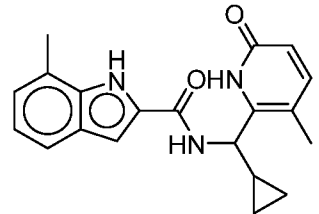
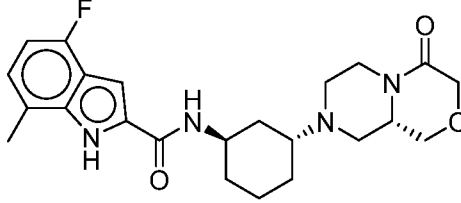
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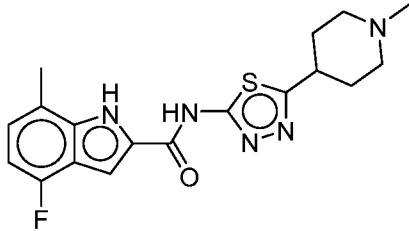
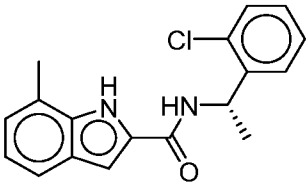
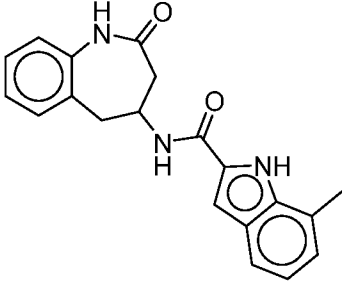
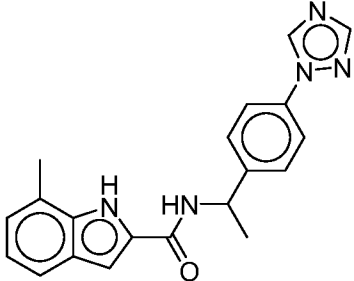
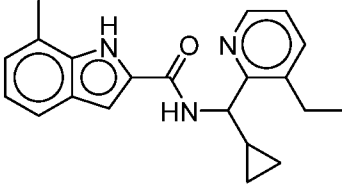
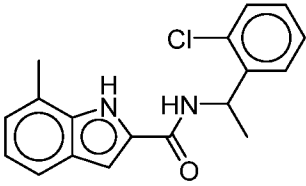
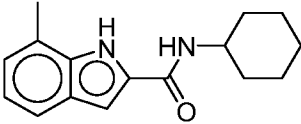
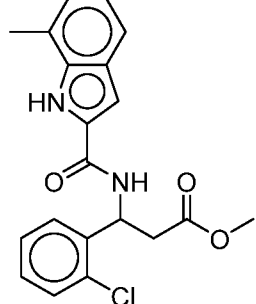
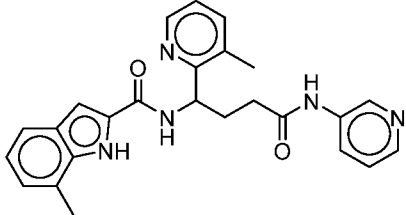
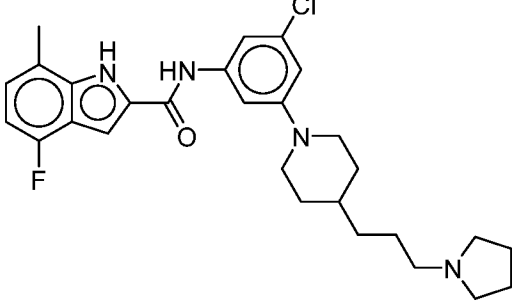
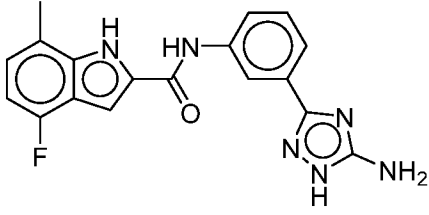
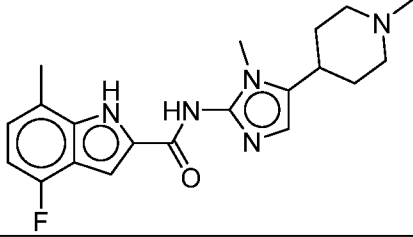
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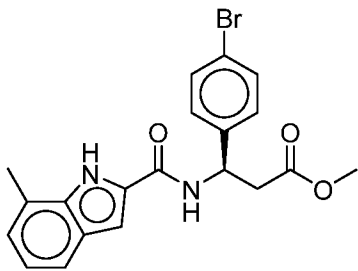
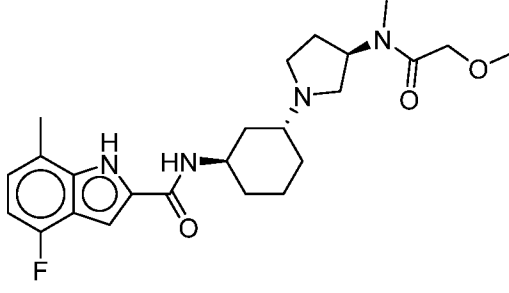
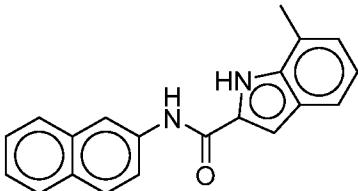
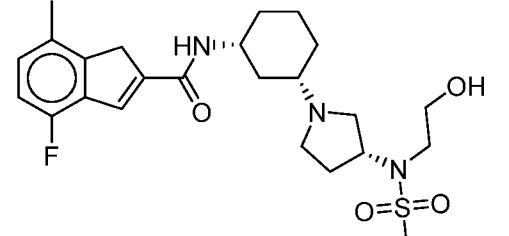
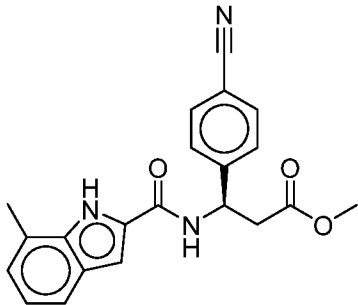
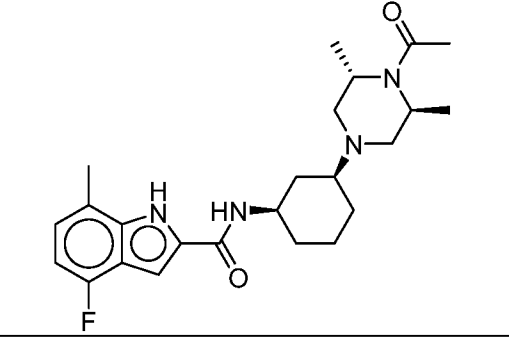
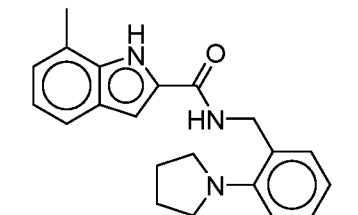
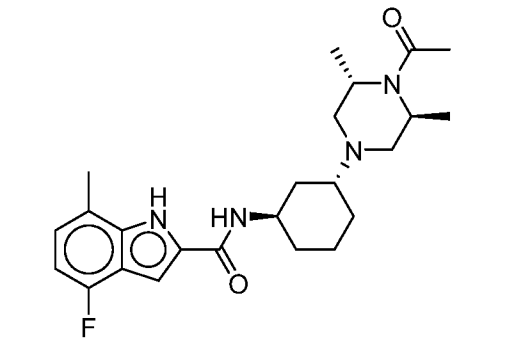
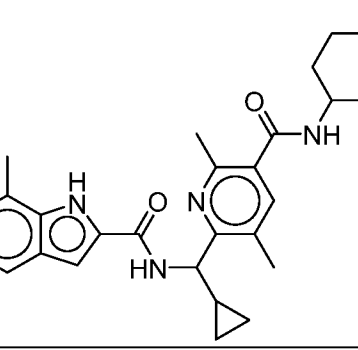
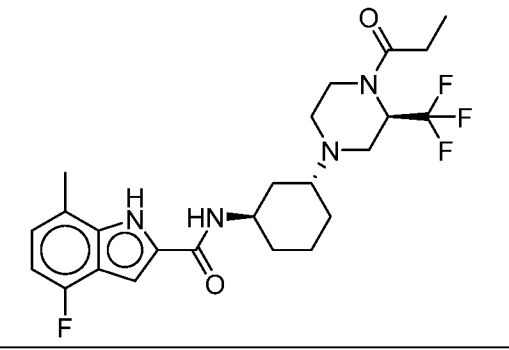
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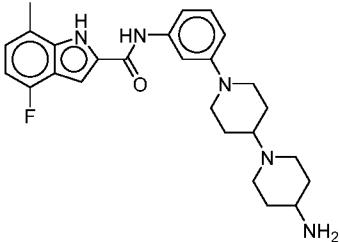
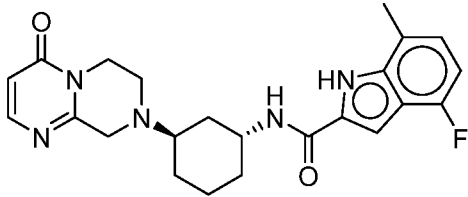
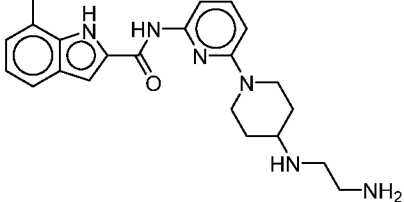
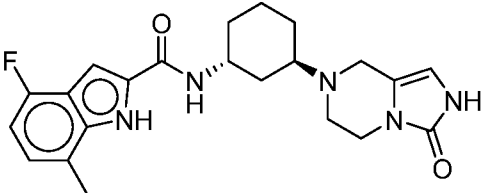
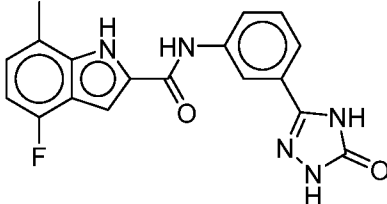
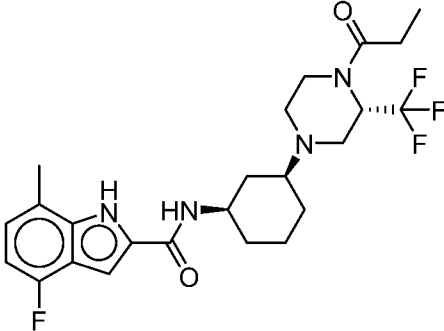
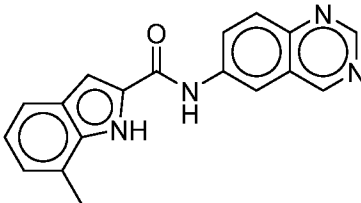
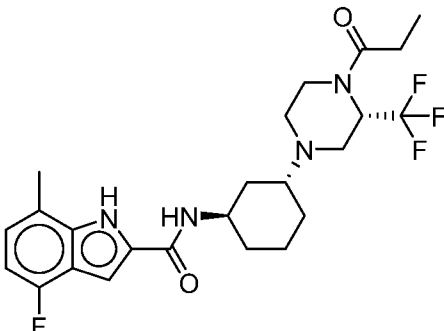
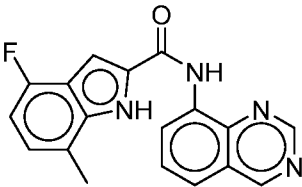
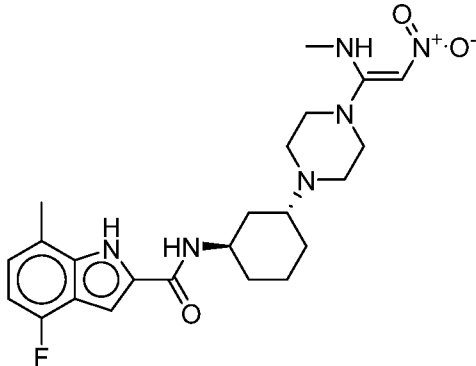
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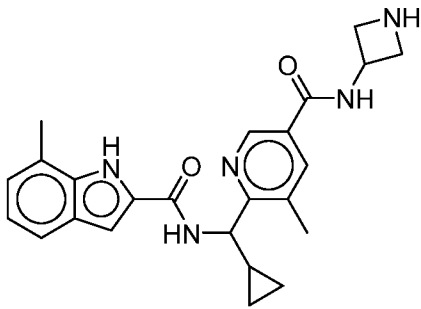
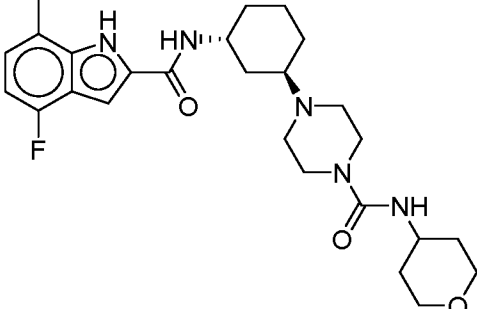
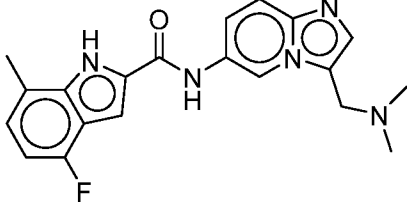
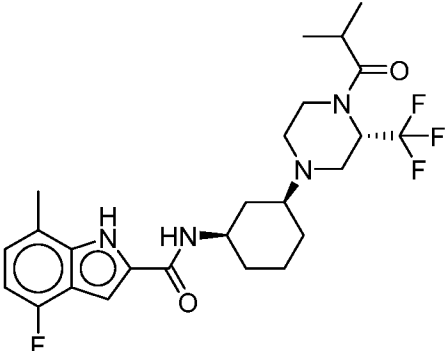
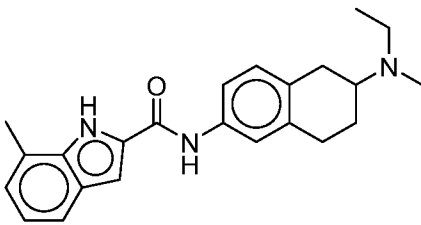
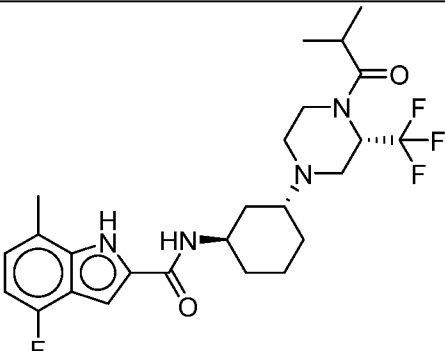
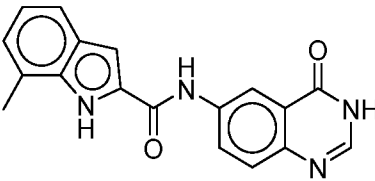
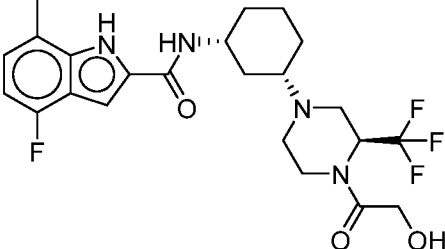
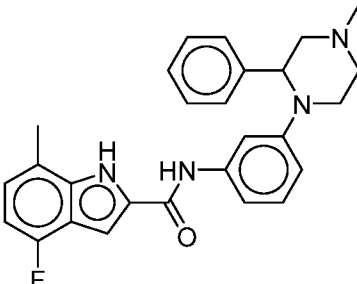
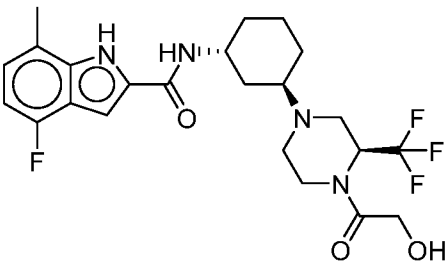
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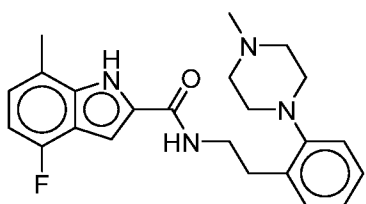
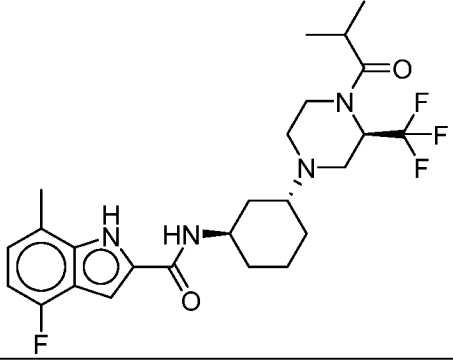
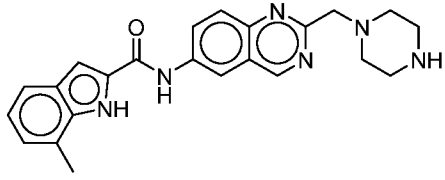
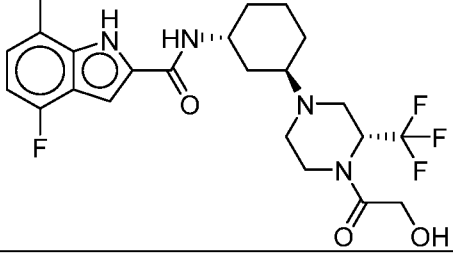
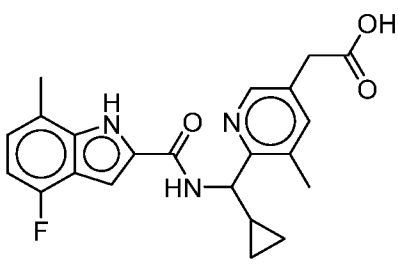
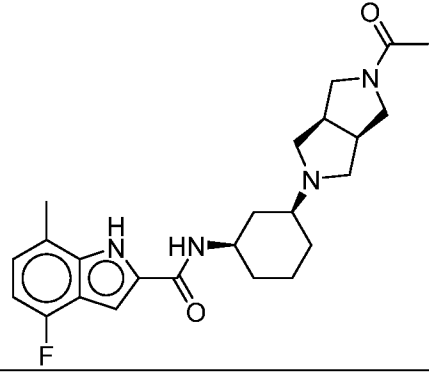
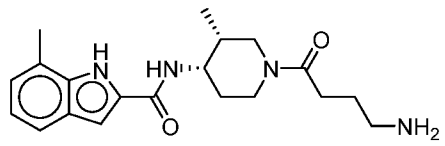
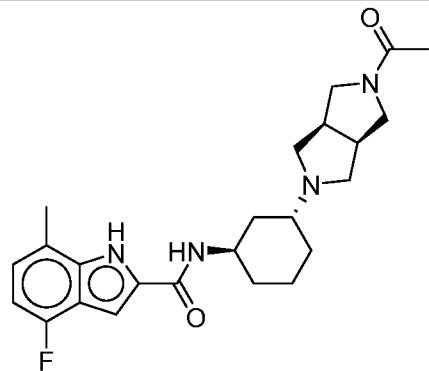
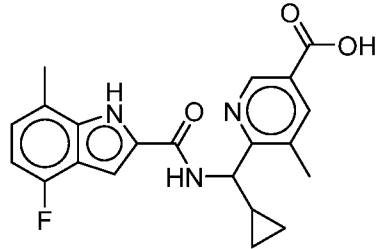
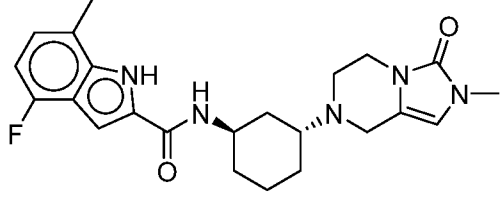
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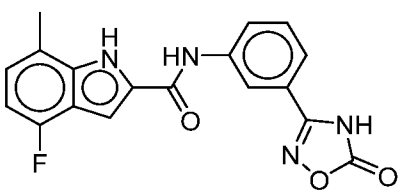
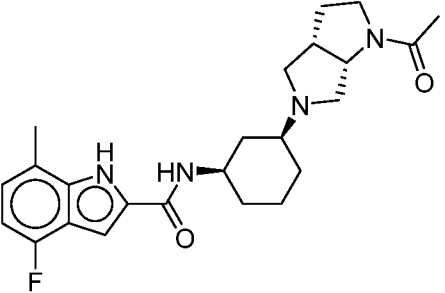
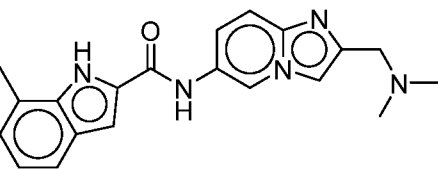
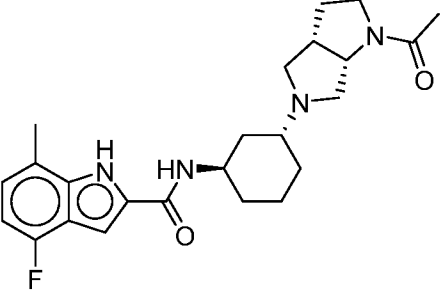
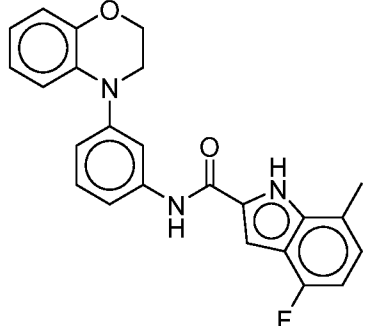
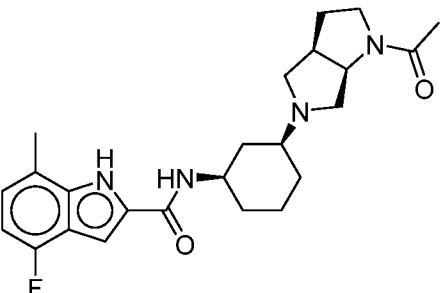
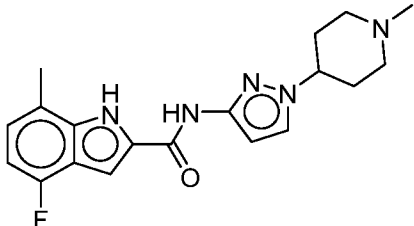
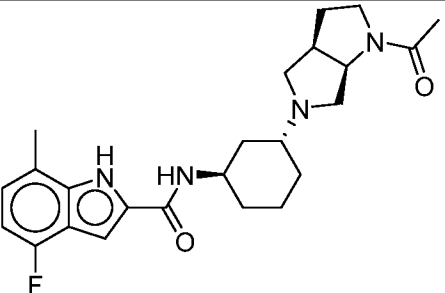
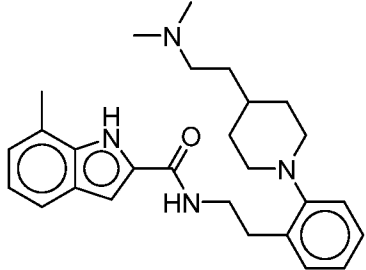
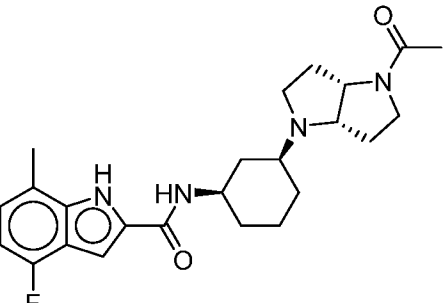
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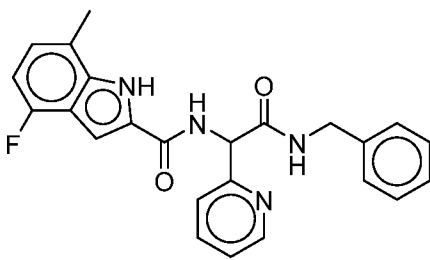
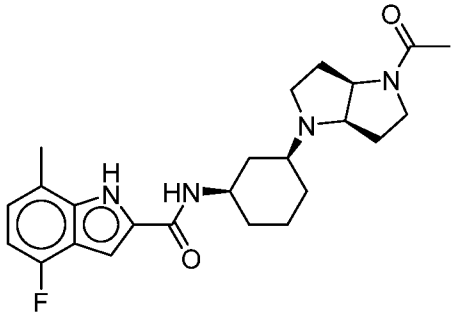
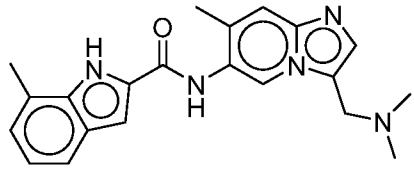
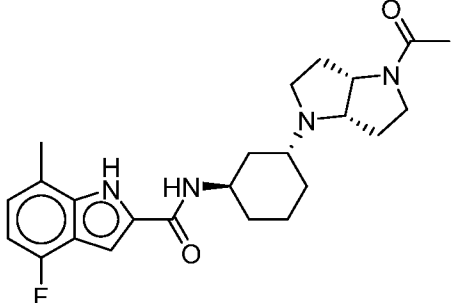
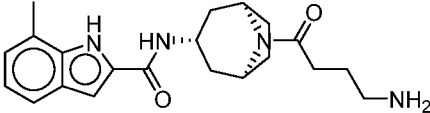
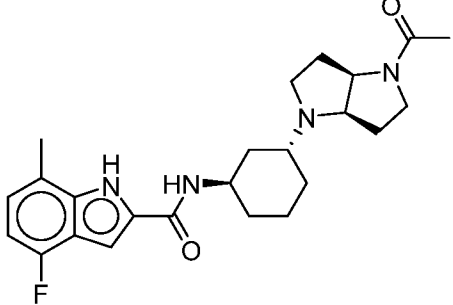
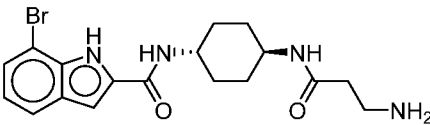
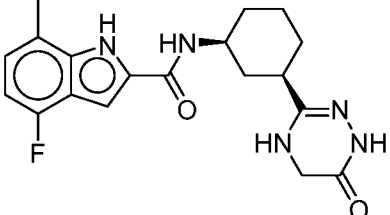
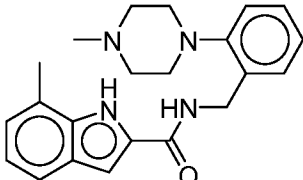
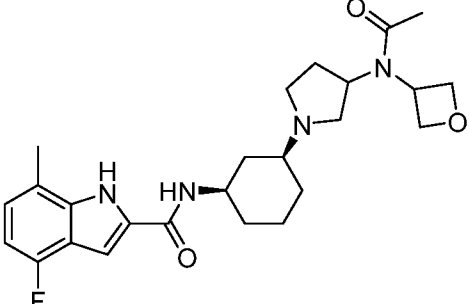
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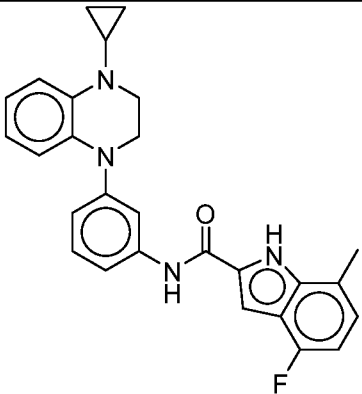
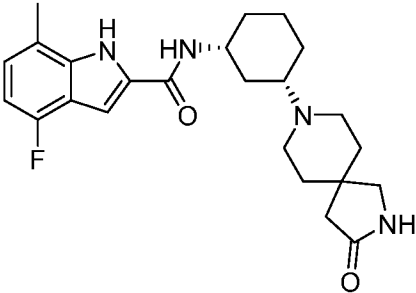
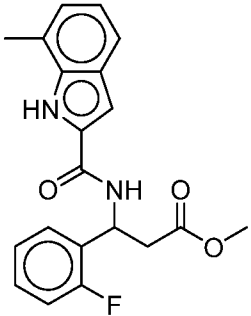
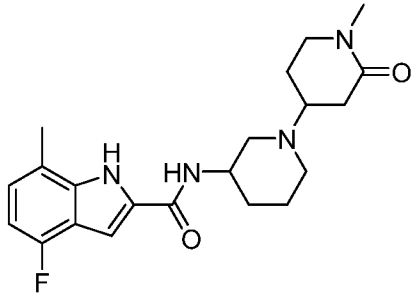
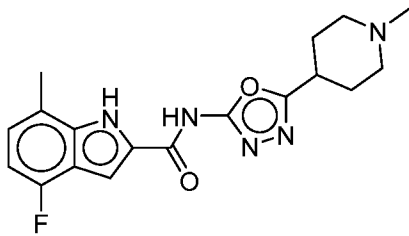
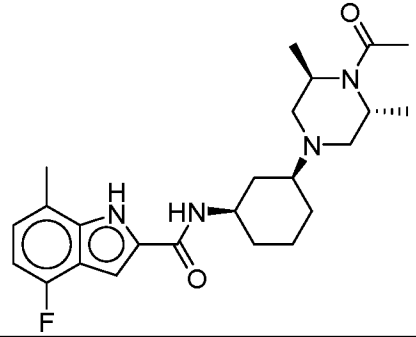
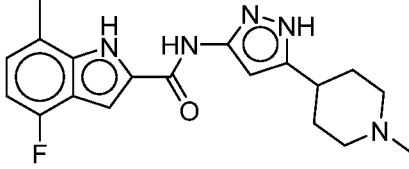
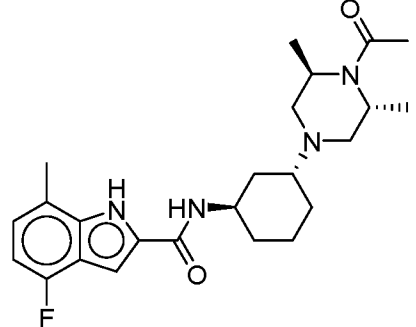
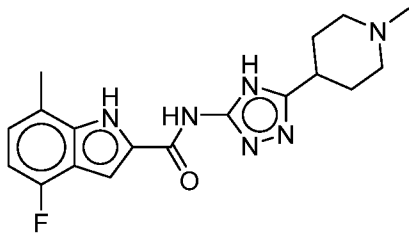
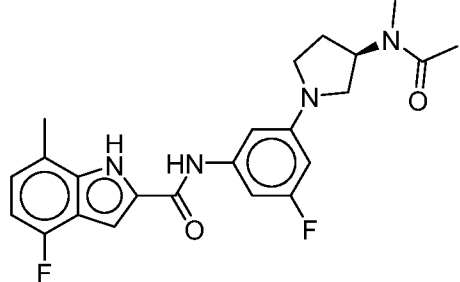
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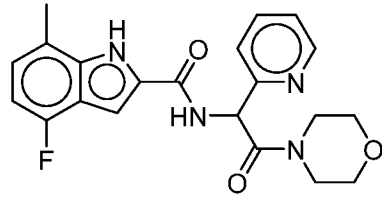
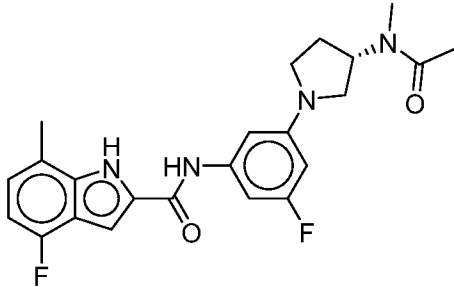
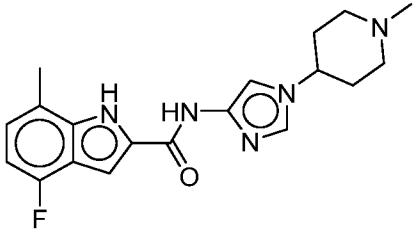
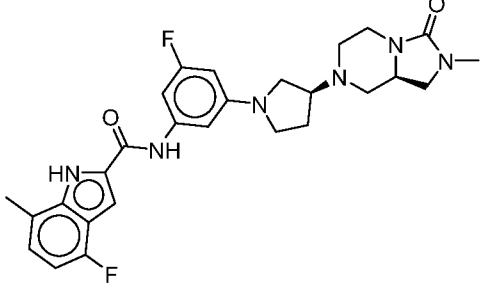
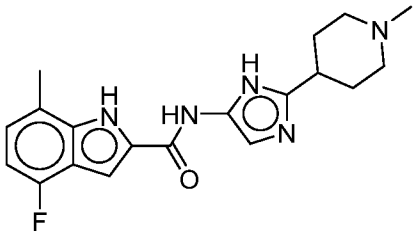
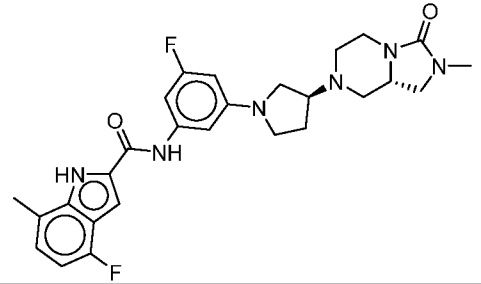
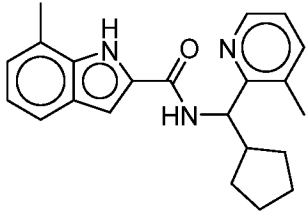
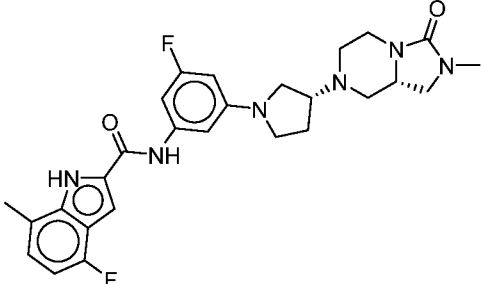
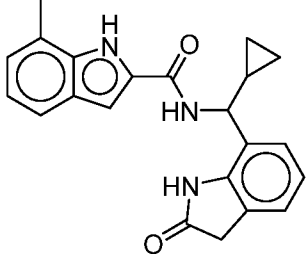
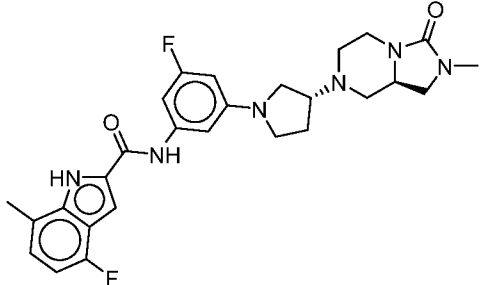
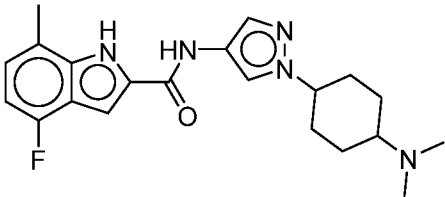
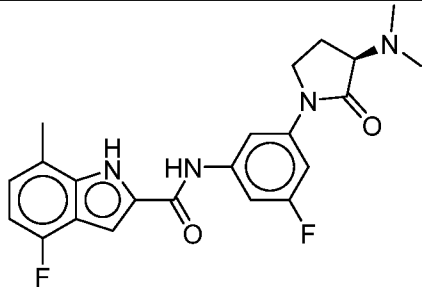
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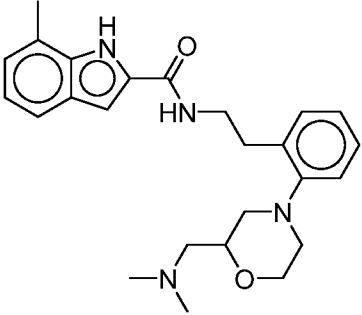
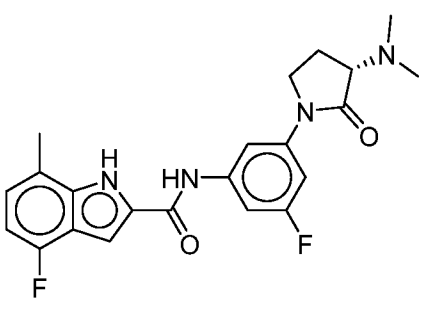
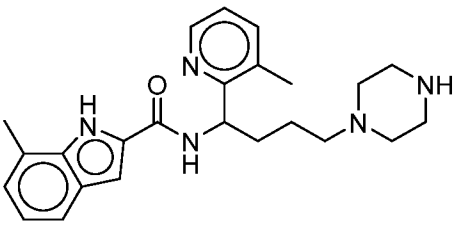
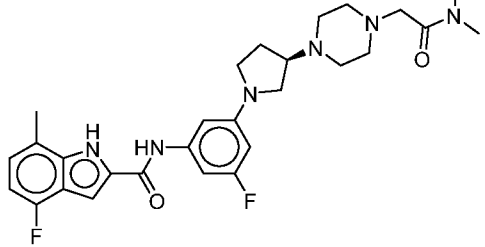
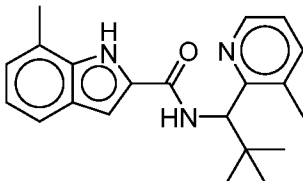
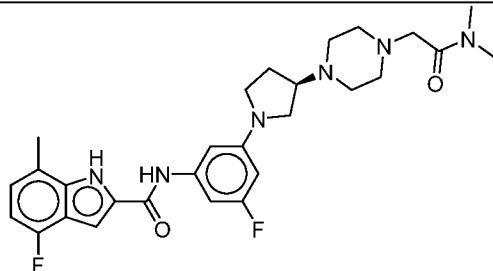
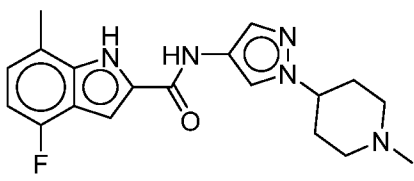
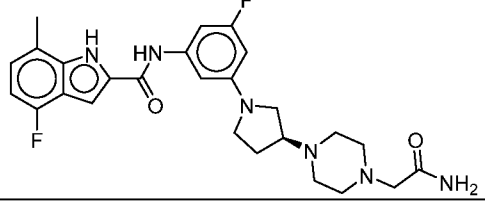
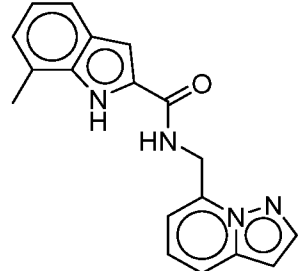
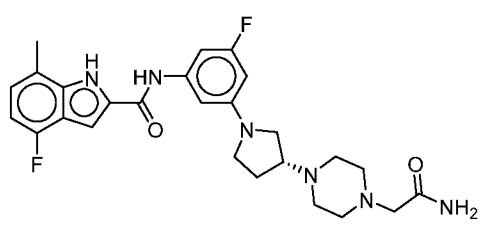
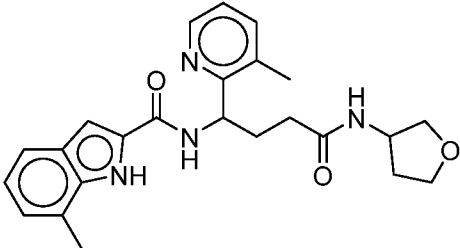
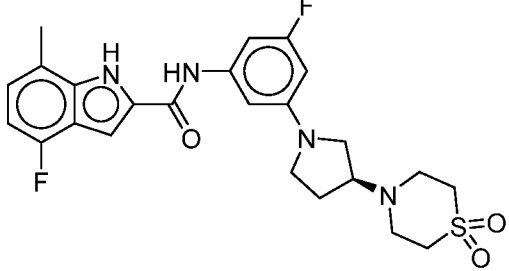
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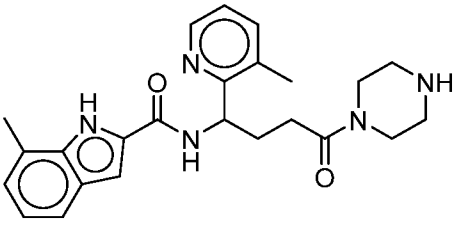
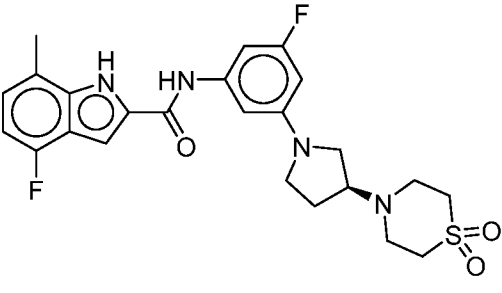
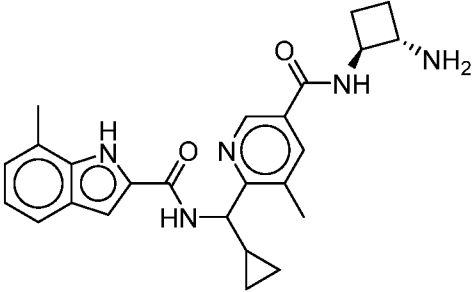
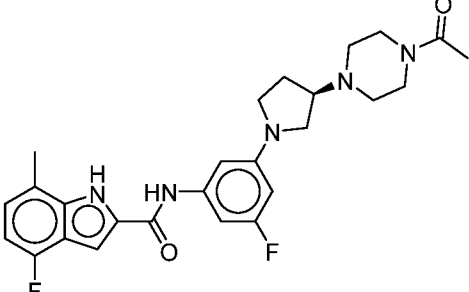
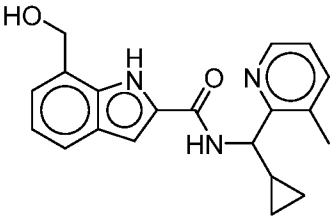
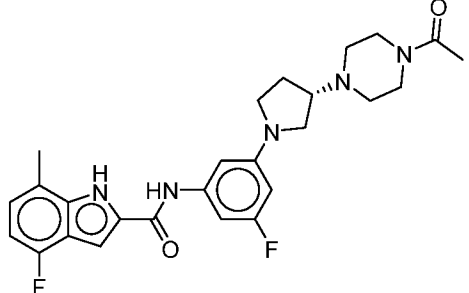
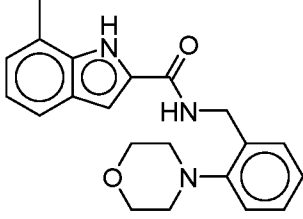
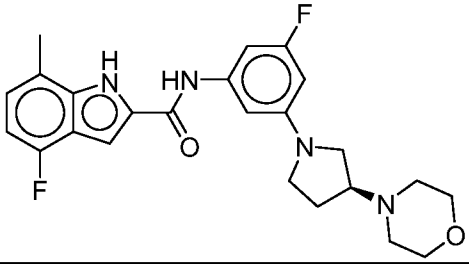
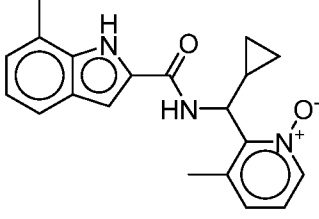
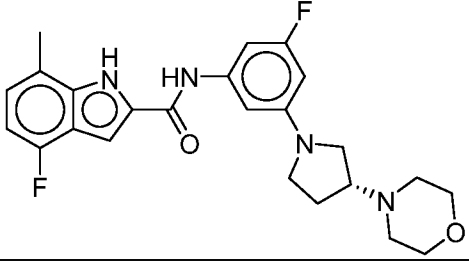
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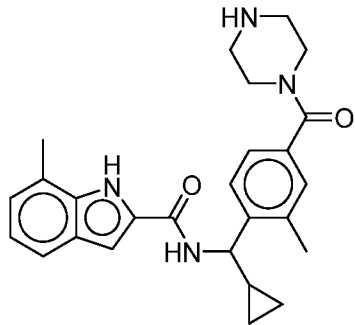
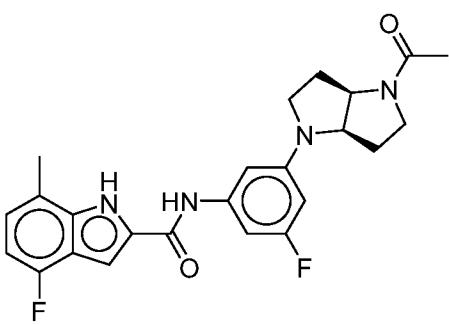
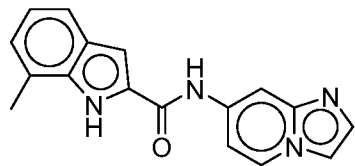
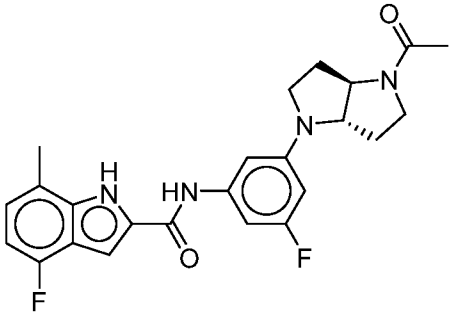
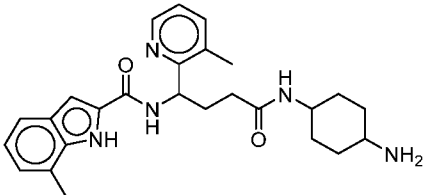
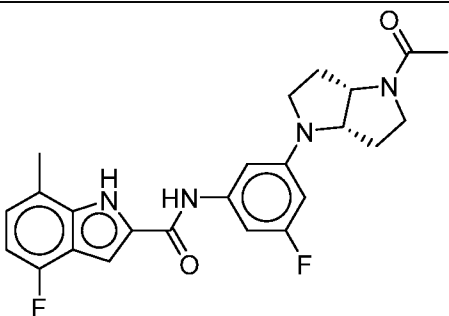
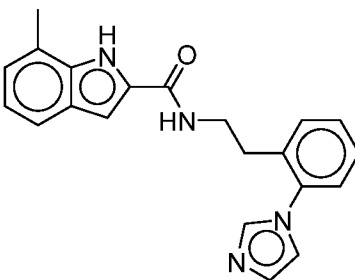
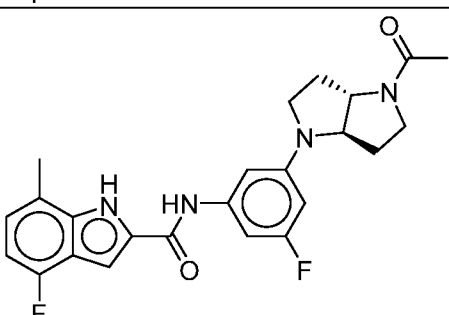
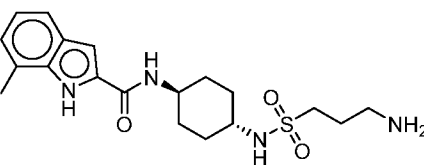
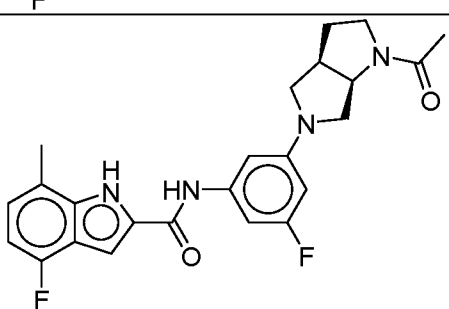
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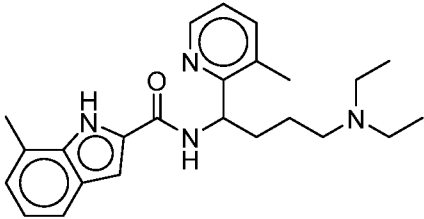
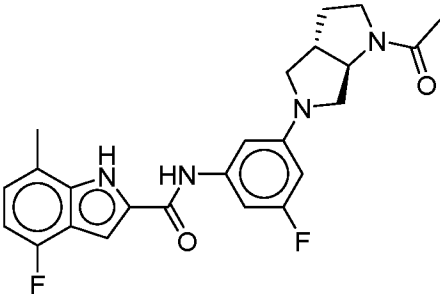
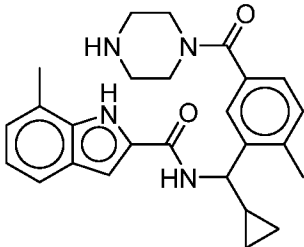
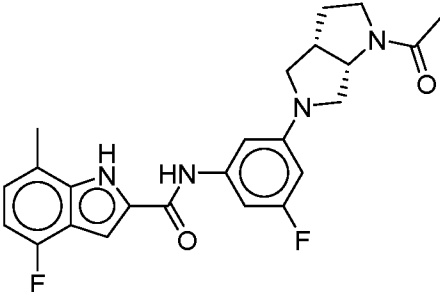
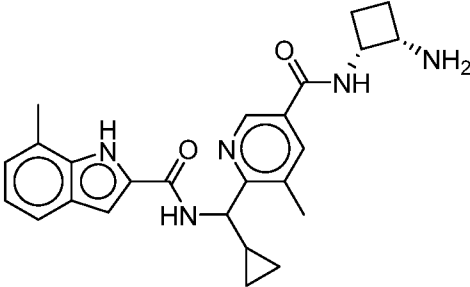
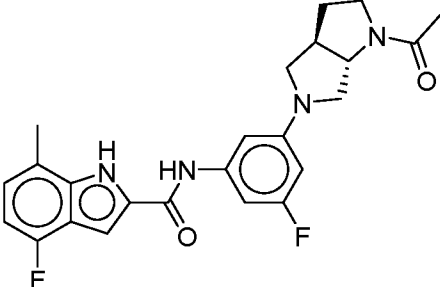
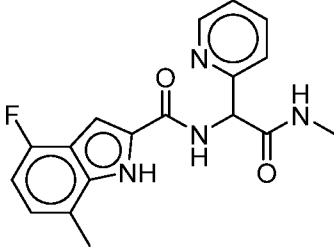
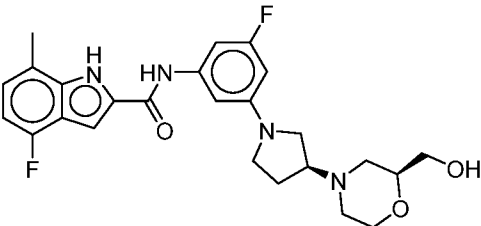
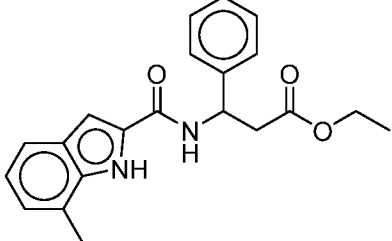
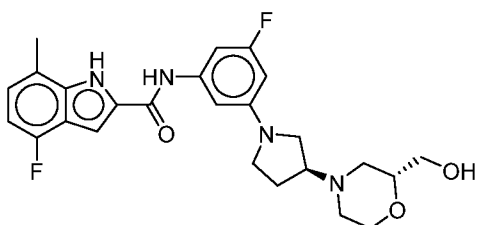
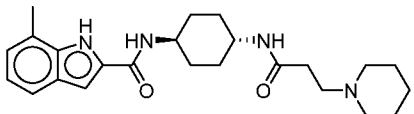
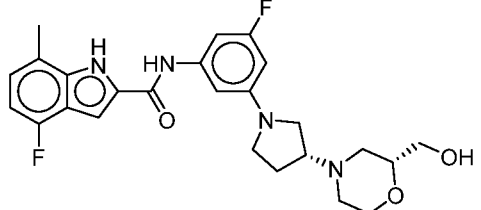
566		1201	
567		1202	
568		1203	
569		1204	
570		1205	
571		1206	

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572		1207	
573		1208	
574		1209	
575		1210	
576		1211	

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577		1212	
578		1213	
579		1214	
580		1215	
581		1216	

582		1217	
583		1218	
584		1219	
585		1220	
586		1221	
587		1222	

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588		1223	
589		1224	
590		1225	
591		1226	
592		1227	

Table 1B

Cpd. No.	Mass	Mass Ion Species	SETD2 (1434-1711)	SETD2 A549	SMYD2	SMYD3
1	427	M+1	0.007	0.03	>200	>200
2	531	M+23	0.005	0.03	134	>200
3	413	M+1	0.004	0.03	>200	>200
4	525	M+1	0.006	0.03	>200	>200

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5	489	M+23	0.008	0.04	182	189
6	519	M+23	0.006	0.04	>200	>200
7	413	M+1	0.01	0.04	>200	>200
8	416	M+1	0.009	0.04		
9	482	M+1	0.008	0.04	154	>200
10	425	M+1	0.01	0.04	>200	>200
11	441	M+1	0.006	0.04	>200	>200
12	443	M+1	0.01	0.05	>200	>200
13	439	M+1	0.01	0.05	>200	>200
14	439	M+1	0.007	0.05	172	>200
15	401	M+1	0.02	0.05	>200	>200
16	471	M+1	0.01	0.05	>200	>200
17	490	M+23	0.009	0.05	>200	>200
18	439	M+1	0.008	0.06	>200	33.9
19	453	M+1	0.01	0.06	>200	>200
20	399	M+1	0.009	0.06	59.3	57.4
21	434	M+23	0.01	0.06		
22	457	M+1	0.01	0.06	192	>200
23	437	M+1	0.01	0.06	>200	>200
24	416	M+1	0.02	0.06		
25	442	M+1	0.01	0.07		
26	424	M+1	0.01	0.07		
27	407	M+1	0.02	0.07	>200	>200
28	461	M+1	0.01	0.07		
29	477	M+1	0.02	0.07		
30	489	M+23	0.008	0.07	>200	>200
31	429	M+1	0.01	0.08	>200	>200
32	409	M+1	0.02	0.08		
34	395	M+1	0.02	0.08	190	>200
35	454	M+1	0.006	0.08	131	>200
36	409	M+1	0.03	0.09		
37	406	M+1	0.02	0.09		
38	431	M+23	0.01	0.09		
39	525	M+1	0.004	0.09	65.6	59.9
40	475	M+1	0.04	0.1		
41	457	M+1	0.03	0.1		
42	423	M+1	0.02	0.1		
43	492	M+23	0.007	0.1		
44	447	M+23	0.04	0.1		
45	394	M+1	0.03	0.1		
46	415	M+1	0.03	0.1		
47	431	M+1	0.01	0.1		
48	402	M+1	0.02	0.1		
49	458	M+1	0.03	0.1		
50	398	M+1	0.06	0.1		
51	406	M+1	0.02	0.1		
52	435	M+23	0.07	0.1		

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53	399	M+1	0.005	0.1		
54	422	M+1	0.03	0.1		
55	424	M+1	0.05	0.1		
56	398	M+1	0.03	0.1		
57	393	M+1	0.03	0.1		
58	403	M+23	0.04	0.1		
59	381	M+1	0.01	0.1	68.7	12.4
60	337	M+1	0.03	0.1	>200	61.4
61	397	M+1	0.01	0.1		
62	456	M+1	0.009	0.1		
63	399	M+1	0.02	0.1		
64	347	M+1	0.06	0.1	43.5	17.4
65	367	M+1	0.02	0.1		
66	354	M+1	0.03	0.2		
68	394	M+1	0.006	0.2		
69	412	M+1	0.003	0.2		
70	470	M+1	0.009	0.2		
71	423	M+1	0.04	0.2		
72	411	M+1	0.03	0.2		
73	380	M+1	0.04	0.2		
74	423	M+1	0.03	0.2		
75	439	M+1	0.06	0.2		
76	437	M+1	0.03	0.2		
77	485	M+23	0.06	0.2		
78	423	M+1	0.04	0.2		
79	435	M+23	0.07	0.2		
80	413	M+1	0.003	0.2		
81	397	M+1	0.03	0.2		
82	338	M+1	0.04	0.2		
83	465	M+1	0.02	0.2		
84	459	M+1	0.04	0.2		
85	392	M+1	0.04	0.2		
86	407	M+1	0.005	0.2		
87	382	M+1	0.1	0.2		
88	395	M+1	0.05	0.2		
89	453	M+1	0.03	0.2		
90	406	M+1	0.03	0.2		
91	401	M+1	0.01	0.2	137	>200
92	413	M+1	0.03	0.2		
93	443	M+23	0.06	0.2		
94	381	M+1	0.02	0.2		
95	423	M+1	0.02	0.2		
96	424	M+1	0.04	0.2		
97	445	M+23	0.04	0.2		
98	407	M+1	0.009	0.2		
99	409	M+1	0.03	0.2	87.7	11
100	407	M+1	0.03	0.2		

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101	353	M+1	0.05	0.2		
102	381	M+1	0.02	0.2		
103	412	M+1	0.03	0.2		
104	467	M+1	0.03	0.2		
105	411	M+1	0.008	0.2		
106	428	M+1	0.003	0.2		
107	383	M+1	0.04	0.2		
108	336	M+1	0.06	0.2		
109	451	M+1	0.01	0.2		
110	475	M+1	0.1	0.2		
111	409	M+1	0.008	0.2		
112	451	M+1	0.03	0.2		
113	395	M+1	0.02	0.2	36.6	39.1
114	424	M+1	0.06	0.2		
115	384	M+1	0.05	0.2		
116	346	M+1	0.04	0.2		
117	409	M+1	0.02	0.2		
118	352	M+1	0.05	0.2		
119	377	M+1	0.03	0.2		
120	415	M+1	0.006	0.3		
121	433	M+23	0.05	0.3		
122	411	M+1	0.01	0.3		
123	394	M+1	0.05	0.3		
124	393	M+1	0.007	0.3		
125	388	M+1	0.08	0.3		
126	368	M+1	0.05	0.3		
127	487	M+23	0.04	0.3		
128	367	M+1	0.01	0.3		
129	368	M+1	0.06	0.3		
130	413	M+1	0.04	0.3		
131	353	M+1	0.1	0.3		
132	410	M+1	0.05	0.3		
133	398	M+1	0.1	0.3		
134	320	M+1	0.06	0.3	45.3	76
135	379	M+1	0.02	0.3		
136	474	M+23	0.4	0.3		
137	346	M+1	0.05	0.3		
138	478	M+1	0.01	0.3		
139	432	M+23	0.05	0.3		
140	441	M+1	0.01	0.3		
141	432	M+1	0.04	0.3		
142	471	M+1	0.04	0.3		
143	394	M+1	0.06	0.3		
144	381	M+1	0.02	0.3		
145	381	M+1	0.03	0.3		
146	423	M+1	0.2	0.3		
147	367	M+1	0.03	0.3		

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148	433	M+23	0.02	0.3		
149	447	M+23	0.07	0.3		
150	431	M+23	0.02	0.3	42.8	9.71
151	349	M+1	0.08	0.3		
152	450	M+1	0.01	0.3		
153	457	M+1	0.05	0.3		
154	397	M+1	0.03	0.3		
155	437	M+1	0.05	0.3		
156	425	M+1	0.03	0.3		
157	444	M+1	0.05	0.3		
159	455	M+1	0.08	0.3		
160	380	M+1	0.09	0.3		
161	418	M+1	0.03	0.3		
162	336	M+1	0.09	0.3		
163	421	M+1	0.03	0.3		
164	448	M+1	0.1	0.3		
165	393	M+1	0.01	0.3		
166	406	M+1	0.07	0.3		
167	411	M+1	0.05	0.3		
168	366	M+1	0.02	0.3	103	20.6
169	387	M+1	0.2	0.3		
170	442	M+23	0.05	0.3		
171	349	M+1	0.1	0.3		
172	407	M+1	0.02	0.3		
173	440	M+1	0.07	0.3		
174	409	M+1	0.05	0.3		
175	414	M+1	0.07	0.3		
176	431	M+1	0.1	0.3	>200	19.9
177	352	M+1	0.1	0.4		
178	393	M+1	0.01	0.4		
179	393	M+1	0.01	0.4		
180	421	M+1	0.03	0.4		
181	430	M+23	0.03	0.4		
182	407	M+1	0.02	0.4		
183	413	M+1	0.09	0.4		
184	393	M+1	0.01	0.4		
185	413	M+1	0.1	0.4		
186	435	M+23	0.03	0.4		
187	409	M+1	0.02	0.4		
188	513	M+1	0.02	0.4		
189	407	M+1	0.006	0.4		
190	429	M+1	0.008	0.4		
191	389	M+23	0.03	0.4		
192	367	M+1	0.03	0.4		
193	473	M+23	0.1	0.4		
194	354	M+1	0.1	0.4	>200	>200
195	410	M+1	0.04	0.4		

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196	336	M+1	0.1	0.4		
197	349	M+1	0.1	0.4		
198	382	M+1	0.07	0.4		
199	407	M+1	0.05	0.4		
200	381	M+1	0.05	0.4		
201	409	M+1	0.09	0.4		
202	409	M+1	0.02	0.4		
203	411	M+1	0.01	0.4		
204	397	M+1	0.08	0.4		
205	409	M+1	0.03	0.4		
206	493	M+23	0.09	0.4		
207	437	M+1	0.1	0.4		
208	438	M+1	0.06	0.4		
209	368	M+1	0.2	0.4		
210	411	M+1	0.03	0.4	122	7.94
211	360	M+1	0.1	0.4		
212	421	M+1	0.02	0.4		
213	434	M+1	0.007	0.5		
214	445	M+23	0.1	0.5		
215	385	M+1	0.07	0.5		
216	368	M+1	0.1	0.5		
217	380	M+1	0.01	0.5		
218	366	M+1	0.07	0.5		
219	379	M+1	0.06	0.5		
220	393	M+1	0.04	0.5		
221	335	M+1	0.1	0.5		
222	409	M+1	0.02	0.5		
223	411	M+1	0.09	0.5		
224	325	M+1	0.2	0.5		
225	409	M+1	0.03	0.5	90.7	8.66
226	423	M+1	0.06	0.5		
227	455	M+1	0.03	0.5		
228	425	M+1	0.08	0.5		
229	435	M+1	0.1	0.5		
230	452	M+1	0.04	0.5		
231	405	M+1	0.1	0.5		
232	407	M+1	0.06	0.5		
233	389	M+1	0.05	0.5		
234	367	M+1	0.07	0.5	>200	120
235	385	M+1	0.1	0.5		
236	393	M+1	0.2	0.6		
237	350	M+1	0.1	0.6		
238	320	M+1	0.2	0.6	>200	>200
239	349	M+1	0.2	0.6		
240	433	M+23	0.02	0.6	131	14.2
241	407	M+1	0.01	0.6		
242	463	M+1	0.1	0.6		

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243	395	M+1	0.05	0.6	104	3.14
244	395	M+1	0.08	0.6		
245	393	M+1	0.01	0.6		
246	443	M+1	0.009	0.6		
247	406	M+1	0.05	0.6		
248	409	M+1	0.1	0.6		
249	337	M+1	0.2	0.6		
250	380	M+1	0.1	0.6		
251	406	M+1	0.01	0.6		
252	335	M+1	0.2	0.6		
253	439	M+1	0.05	0.6		
254	447	M+23	0.06	0.6		
255	419	M+1	0.03	0.6		
256	354	M+1	0.2	0.6		
257	407	M+1	0.2	0.6		
258	514	M+1	0.04	0.6		
259	471	M+1	0.1	0.6		
260	453	M+1	0.2	0.7		
261	336	M+1	0.08	0.7		
262	396	M+1	0.2	0.7		
263	424	M+23	0.7	0.7		
264	380	M+1	0.02	0.7		
265	384	M+1	0.2	0.7		
266	402	M+1	0.06	0.7		
267	455	M+1	0.01	0.7		
268	465	M+1	0.06	0.7		
269	368	M+1	0.1	0.7		
270	381	M+1	0.05	0.8		
271	399	M+1	0.2	0.8		
272	385	M+1	0.1	0.8		
273	434	M+1	0.2	0.8		
274	427	M+1	0.04	0.8		
276	393	M+1	0.09	0.9		
277	397	M+1	0.2	0.9		
278	385	M+1	0.07	0.9		
279	381	M+1	0.04	0.9		
280	409	M+1	0.1	0.9		
281	336	M+1	0.2	0.9		
282	380	M+1	0.04	1.0		
283	338	M+1	0.04	1.0		
284	366	M+1	0.2	1.0		
285	346	M+1	0.04	1.0		
286	385	M+1	0.1	1.0		
287	380	M+1	0.2	1.0		
288	368	M+1	0.3	1.0		
289	382	M+1	0.4	1.1		
290	385	M+1	0.4	1.1		

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291	380	M+1	0.3	1.1		
292	429	M+23	0.7	1.1		
293	354	M+1	0.4	1.1		
294	406	M+1	0.03	1.1		
295	397	M+1	0.3	1.1		
296	337	M+1	0.1	1.1		
297	352	M+1	0.1	1.1		
298	445	M+23	0.3	1.1		
299	385	M+1	0.2	1.1		
300	326	M+1	0.2	1.2		
301	435	M+23	0.1	1.2		
302	380	M+1	0.03	1.2		
303	409	M+1	0.06	1.2		
304	358	M+23	0.3	1.2		
305	431	M+1	0.5	1.2		
306	394	M+1	0.4	1.2		
307	354	M+1	0.2	1.2		
308	409	M+1	0.1	1.3		
309	400	M+1	0.2	1.3	>200	>200
310	367	M+1	0.05	1.3		
311	445	M+1	0.03	1.3		
312	429	M+1	0.8	1.3		
313	412	M+1	0.03	1.3		
314	403	M+23	0.04	1.3		
315	349	M+23	0.6	1.4		
316	347	M+1	0.1	1.4		
317	446	M+1	0.1	1.4		
318	381	M+1	0.2	1.4		
319	352	M+1	0.1	1.4		
320	381	M+1	0.2	1.4		
321	367	M+1	0.2	1.5		
322	335	M+1	0.5	1.5		
323	356	M+1	0.07	1.5		
324	380	M+1	0.05	1.5		
325	381	M+1	0.07	1.5		
326	375	M+1	0.2	1.6		
327	352	M+1	0.5	1.6		
328	391	M+1	0.04	1.6	129	91.9
329	340	M+1	0.6	1.6		
330	367	M+1	0.07	1.6		
331	398	M+1	0.6	1.6		
332	338	M+1	0.2	1.6		
333	402	M+1	0.3	1.6		
334	439	M+1	0.7	1.6		
335	395	M+1	0.08	1.6		
336	394	M+1	0.4	1.6		
337	335	M+1	0.4	1.6		

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338	407	M+1	0.1	1.7		
339	428	M+1	0.04	1.7		
340	368	M+1	0.2	1.7	165	16.7
341	313	M+1	0.2	1.7		
342	381	M+1	0.1	1.8		
343	394	M+1	0.08	1.8		
344	368	M+1	0.2	1.8		
345	420	M+1	0.06	1.8		
346	375	M+1	0.1	1.8		
347	436	M+1	0.003	1.9		
348	379	M+1	0.07	1.9		
349	393	M+1	0.2	2.0		
350	418	M+1	0.08	>2		
351	395	M+1	0.09	>2		
352	380	M+1	0.1	>2		
353	454	M+1	0.1	>2		
354	385	M+1	0.3	>2		
355	407	M+1	0.5	>2		
356	432	M+1	0.6	>2		
357	349	M+1	0.7	>2		
358	487	M+1	0.9	>2		
359	401	M+1	0.9	>2		
360	416	M+1	1.2	>2		
361	353	M+1	1.3	>2		
362	374	M+1	1.4	>2		
363	403	M+1	1.5	>2		
364	338	M+1	2.0	>2		
365	407	M+1	2.6	>2		
366	401	M+1	3.0	>2		
367	387	M+1	4.2	>2		
368	355	M+1	6.1	>2		
369	353	M+1	6.3	>2		
370	401	M+1	6.8	>2		
371	356	M+1	>10	>2		
372	401	M+1	>10	>2		
373	401	M+1	>10	>2		
374	360	M+1	>10	>2		
375	463	M+1	>10	>2		
376	387	M+1	>10	>2		
377	361	M+1	>10	>2		
378	375	M+1	>10	>2		
379	353	M+1	>10	>2		
380	353	M+1	>10	>2		
381	360	M+1	>10	>2		
382	387	M+1	>10	>2		
383	401	M+1	>10	>2		
384	347	M+1	>10	>2		

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385	415	M+1	>10	>2		
386	361	M+1	>10	>2		
387	401	M+1	>10	>2		
388	374	M+1	>10	>2		
389	433	M+44	>10	>2		
390	366	M+1	0.5	2.0		
391	407	M+1	0.2	2.0		
392	421	M+1	0.06	2.0	76.6	79.7
393	336	M+1	0.7	2.0		
394	349	M+1	0.2	2.1		
395	365	M+43	0.1	2.2		
396	392	M+1	0.3	2.3	>200	24
397	350	M+1	0.5	2.4		
398	423	M+1	0.07	2.4		
399	347	M+1	1.8	2.4		
400	377	M+1	0.3	2.4	73.8	1.37
401	418	M+1	0.03	2.4		
402	496	M+1	0.3	2.5		
403	324	M+1	2.5	2.7		
404	398	M+1	0.3	2.8	>200	>200
405	498	M+1	0.4	2.8		
406	397	M+1	0.3	2.8	>200	7.92
407	381	M+1	0.3	2.8	148	98.1
408	370	M+1	0.4	2.9	>200	>200
409	432	M+1	0.1	3.0	59.5	9.81
410	368	M+1	0.7	3.0		
411	407	M+1	0.8	3.0		
412	478	M+1	0.1	3.1	108	58.4
413	410	M+1	0.03	3.1	66.9	6.75
414	528	M+1	0.08	3.2		
415	435	M+1	0.1	3.2		
416	419	M+1	0.04	3.3	21.2	16.5
417	457	M+1	0.9	3.4		
418	312	M+1	0.1	3.4		
419	340	M+1	0.8	3.4		
420	421	M+1	2.4	3.6		
421	381	M+1	0.4	3.6	>200	105
422	388	M+23	1.5	3.7		
423	536	M+1	0.6	3.8		
424	377	M+1	0.7	3.8		
425	338	M+1	0.3	3.9		
426	412	M+1	0.4	3.9		
427	348	M+1	0.4	4.0		
428	335	M+1	1.0	4.1		
429	496	M+1	0.1	4.3	87.1	9.66
430	500	M+1	0.6	4.4		
431	447	M+1	2.1	4.4		

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432	363	M+1	0.7	4.5		
433	447	M+1	0.03	4.6	81.4	22.5
434	435	M+1	4.3	4.6		
435	446	M+1	0.7	4.7		
436	421	M+1	0.3	4.7		
437	302	M+1	0.6	4.8		
438	352	M+1	0.3	4.9		
439	406	M+1	0.2	5.0	>200	20.9
440	523	M+1	0.8	5.0		
441	482	M+23	4.4	5.1		
442	364	M+1	2.1	5.1		
443	443	M+1	0.6	5.1		
444	350	M+1	0.4	5.2		
445	386	M+1	1.4	5.2		
446	379	M+1	6.3	5.4		
447	482	M+1	2.8	5.5		
448	427	M+1	0.9	5.5		
449	442	M+1	0.2	5.5	136	9.32
450	339	M+1	2.3	5.6		
451	432	M+1	0.4	5.6		
452	392	M+1	0.06	5.7	160	52.5
453	413	M+1	0.7	5.8		
454	348	M+1	2.8	5.9		
455	432	M+1	0.4	5.9		
456	364	M+1	1.4	6.1		
457	340	M+1	0.5	6.1	>200	>200
458	338	M+1	2.2	6.2		
459	291	M+1	1.5	6.2		
460	457	M+1	4.5	6.2		
461	529	M+1	0.5	6.3		
462	338	M+1	0.7	6.3		
463	320	M+1	1.2	6.4		
464	435	M+1	8.4	6.6		
465	414	M+1	0.4	6.6	136	72.3
466	303	M+1	1.9	7.0		
467	378	M+1	0.4	7.3		
468	411	M+1	0.9	7.5		
469	363	M+1	1.4	7.9		
470	460	M+1	0.6	8.0		
471	308	M+1	5.4	8.5		
472	370	M+1	0.9	8.5		
473	401	M+1	0.2	8.8		
474	322	M+1	4.2	8.9		
475	320	M+1	2.1	8.9		
476	456	M+1	0.8	9.1		
477	432	M+1	2.1	9.3		
478	350	M+1	4.1	9.4		

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479	251	M+1	4.2	9.5		
480	294	M+1	7.0	9.5		
481	378	M+1	1.9	9.7		
482	334	M+1	2.2	10.2		
483	378	M+1	4.1	10.3		
484	292	M+1	7.6	10.6		
485	449	M+1	10.0	10.8		
486	336	M+1	1.8	10.8		
487	400	M+1	1.6	11.0		
488	363	M+1	2.5	11.8		
489	379	M+1	7.9	11.8		
490	350	M+1	6.5	12.1		
491	355	M+1	12.1	12.2		
492	335	M+1	>50	12.5		
493	321	M+1	>50	13.1		
494	435	M+1	6.0	13.2		
495	362	M+1	1.8	13.3		
496	460	M+1	0.4	13.4	>200	79
497	338	M+1	5.5	13.8		
498	324	M+1	9.4	13.8		
499	391	M+1	9.1	13.9		
500	334	M+1	3.0	14.5		
501	350	M+1	0.4	14.6		
502	351	M+1	0.5	14.7		
503	327	M+1	9.7	14.8		
504	271	M+1	3.8	14.9		
505	259	M+1	11.2	14.9		
506	336	M+1	4.9	15.1		
507	374	M+1	1.1	15.1		
508	356	M+1	10.4	15.2		
509	403	M+1	22.4	15.4		
510	432	M+1	0.6	15.5		
511	364	M+1	11.6	15.8		
512	354	M+23	13.2	16.1		
513	334	M+1	4.0	17.4		
514	451	M+1	24.9	18.3		
515	437	M+1	25.1	18.5		
516	446	M+1	0.4	18.5		
517	403	M+1	3.7	18.5		
518	321	M+1	50.0	18.9		
519	374	M+1	50.0	19.3		
520	334	M+1	12.3	19.8		
521	334	M+1	6.9	19.9		
522	257	M+1	10.6	20.6		
523	428	M+1	8.8	20.8		
524	351	M+1	1.5	20.9		
525	415	M+1	12.6	20.9		

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526	301	M+1	1.9	22.6		
527	362	M+1	14.7	24.2		
528	334	M+1	10.0	24.6		
529	474	M+1	8.6	24.9		
530	450	M+1	0.007	>25	51	7.13
531	393	M+1	0.2	>25	83.3	9.57
532	351	M+1	0.2	>25		
533	303	M+1	0.4	>25		
534	339	M+18	0.4	>25		
535	418	M+1	0.6	>25		
536	366	M+1	0.8	>25		
537	376	M+1	0.9	>25		
538	319	M+1	1.0	>25		
539	443	M+1	1.6	>25		
540	395	M+1	1.7	>25		
541	401	M+1	2.0	>25		
542	396	M+1	2.4	>25		
543	357	M+1	2.6	>25		
544	382	M+1	2.9	>25		
545	353	M+1	3.1	>25		
546	348	M+1	3.9	>25		
547	402	M+1	4.0	>25		
548	356	M+1	5.1	>25		
549	433	M+1	5.8	>25		
550	417	M+1	6.5	>25		
551	362	M+1	6.7	>25		
552	369	M+1	7.7	>25		
553	407	M+1	8.3	>25		
554	363	M+1	8.7	>25		
555	441	M+1	9.2	>25		
556	355	M+1	9.9	>25		
557	358	M+1	>10	>25		
558	356	M+1	>10	>25		
559	357	M+1	>10	>25		
560	397	M+1	>10	>25		
561	356	M+1	>10	>25		
562	356	M+1	>10	>25		
563	348	M+1	10.1	>25		
564	360	M+1	10.9	>25		
565	384	M+1	11.6	>25		
566	421	M+1	12.9	>25		
567	406	M+1	13.6	>25		
568	336	M+1	13.9	>25		
569	356	M+1	14.0	>25		
570	305	M+1	15.0	>25		
571	421	M+1	15.9	>25		
572	420	M+1	16.6	>25		

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573	432	M+1	16.9	>25		
574	336	M+1	17.3	>25		
575	350	M+1	>18	>25		
576	336	M+1	18.6	>25		
577	431	M+1	21.8	>25		
578	291	M+1	22.5	>25		
579	448	M+1	23.0	>25		
580	345	M+1	24.5	>25		
581	393	M+1	28.2	>25		
582	393	M+1	31.2	>25		
583	431	M+1	32.4	>25		
584	432	M+1	33.7	>25		
585	341	M+1	34.0	>25		
586	351	M+1	36.4	>25		
587	411	M+1	37.4	>25		
588	357	M+1	40.4	>25		
589	399	M+1	43.6	>25		
590	357	M+1	50.0	>25		
591	321	M+1	>50	>25		
592	343	M+1	>50	>25		
593	329	M+1	>50	>25		
594	315	M+1	>50	>25		
595	308	M+1	>50	>25		
596	315	M+1	>50	>25		
597	315	M+1	>50	>25		
598	321	M+1	>50	>25		
599	321	M+1	>50	>25		
600	329	M+1	>50	>25		
601	393	M+1	>50	>25		
602	339	M+1	>50	>25		
603	323	M+1	>50	>25		
604	308	M+1	>50	>25		
605	391	M+1	>50	>25		
606	350	M+1	>50	>25		
607	322	M+1	>50	>25		
608	321	M+1	>50	>25		
609	320	M+1	>50	>25		
612	368	M+1	>50	>25		
613	320	M+1	51.5	>25		
614	357	M+1	62.7	>25		
615	363	M+1	71.1	>25		
616	295	M+1	105.0	>25		
617	362	M+1	>200	>25		
618	386	M+1	>200	>25		
619	331	M+1	>200	>25		
620	334	M+1	>200	>25		
622	398	M+1	>200	>25		

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623	292	M+1	>200	>25		
624	364	M+1	10.9			
625	369	M+1	11.0			
626	336	M+1	12.5			
627	337	M+1	13.2			
628	330	M+1	13.3			
629	357	M+1	14.5			
630	329	M+1	14.6			
631	355	M+1	15.3			
632	252	M+1	15.6			
633	351	M+1	16.2			
634	371	M+1	16.3			
635	384	M+1	16.5			
636	349	M+1	16.8			
637	343	M+1	17.5			
638	308	M+1	18.1			
639	343	M+1	18.5			
640	369	M+1	18.5			
641	357	M+1	18.5			
642	351	M+1	18.6			
643	292	M+1	18.6			
644	357	M+1	19.5			
645	357	M+1	19.9			
646	379	M+1	20.3			
648	327	M+1	22.3			
649	343	M+1	22.3			
650	343	M+1	>23			
652	345	M+1	24.8			
653	398	M+1	>25			
654	269	M+1	25.1			
655	357	M+1	25.1			
656	369	M+1	25.2			
657	369	M+1	25.7			
658	338	M+1	26.8			
659	367	M+1	27.4			
660	306	M+1	27.9			
661	379	M+1	28.7			
662	287	M+1	29.7			
663	379	M+1	31.5			
664	343	M+1	31.7			
665	253	M+1	32.7			
666	337	M+1	>33			
667	363	M+1	34.5			
668	299	M+1	34.5			
669	415	M+1	35.2			
670	300	M+1	35.4			
671	338	M+1	35.4			

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672	355	M+1	35.9			
673	252	M+1	36.0			
674	348	M+1	37.0			
675	329	M+1	37.7			
676	338	M+1	38.1			
677	351	M+1	39.5			
678	287	M+1	39.7			
679	334	M+1	43.1			
680	307	M+1	44.8			
681	355	M+1	45.0			
682	351	M+1	45.4			
683	371	M+1	48.2			
684	291	M+1	>50			
685	369	M+1	50.5			
686	331	M+23	51.3			
687	333	M+1	51.6			
688	300	M+1	52.1			
689	306	M+1	53.3			
690	337	M+1	55.8			
691	350	M+1	56.2			
692	309	M+1	56.9			
693	269	M+1	58.9			
694	319	M+1	62.1			
695	347	M+23	62.1			
697	363	M+1	62.8			
698	314	M+1	63.0			
699	320	M+1	66.7			
700	352	M+1	68.9			
701	323	M+1	69.2			
702	270	M+1	69.6			
703	295	M+1	70.7			
704	334	M+1	70.9			
705	295	M+1	71.6			
706	336	M+1	71.9			
707	355	M+1	72.0			
708	319	M+1	74.0			
709	364	M+1	78.4			
710	306	M+1	83.4			
711	371	M+1	85.9			
712	283	M+1	86.4			
713	293	M+1	91.2			
714	329	M+1	98.9			
715	258	M+1	98.9			
716	348	M+1	>100			
717	374	M+1	>100			
718	305	M+1	102.7			
719	270	M+1	107.4			

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720	331	M+1	108.7			
721	284	M+1	113.5			
722	349	M+1	116.2			
723	281	M+1	116.3			
724	351	M+1	117.4			
725	337	M+1	122.6			
726	333	M+1	123.7			
727	363	M+1	125.1			
728	351	M+1	127.4			
729	255	M+1	128.8			
730	286	M+1	>130			
731	259	M+1	136.6			
732	271	M+1	136.9			
733	256	M+1	146.8			
735	285	M+1	165.4			
736	286	M+1	167.9			
738	357	M+1	179.4			
746	288	M+1	>200			
747	259	M+1	>200			
748	291	M+1	>200			
749	279	M+1	>200			
750	348	M+1	>200			
751	412	M+1	>200			
752	348	M+1	>200			
753	305	M+1	>200			
754	347	M+23	>200			
755	364	M+1	>200			
756	286	M+1	>200			
757	364	M+1	>200			
758	412	M+1	>200			
759	259	M+1	>200			
761	286	M+1	>200			
763	261	M+1	>200			
764	371	M+1	>200			
765	309	M+1	>200			
766	332	M+1	>200			
767	335	M+1	>200			
768	270	M+1	>200			
769	297	M+1	>200			
771	286	M+1	>200			
773	379	M+1	>200			
774	417		>200			
775	337	M+1	>200			
776	355	M+1	>200			
777	367	M+1	>200			
778	416		>200			
779	306	M+1	>200			

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780	325	M+1	>200			
781	301	M+1	>200			
782	285	M+1	>200			
783	351	M+1	>200			
784	269	M+1	>200			
785	285	M+1	>200			
786	272	M+1	>200			
787	287	M+1	>200			
788	347	M+1	>200			
790	347	M+1	>200			
791	368	M+1	>200			
793	336	M+1	>200			
794	258	M+1	>200			
795	252	M+1	>200			
796	291	M+1	>200			
797	329	M+1	>200			
798	329	M+1	>200			
799	286	M+1	>200			
800	272	M+1	>200			
801	319	M+1	>200			
802	348	M+1	>200			
803	320	M+1	>200			
804	303	M+1	>200			
805	346	M+1	>200			
808	338	M+1	>200			
809	337	M+1	>200			
810	281	M+1	>200			
811	282	M+1	>200			
812	282	M+1	>200			
814	319	M+1	>200			
815	336	M+1	>200			
816	362	M+1	>200			
817	396	M+1	>200			
818	355	M+1	>200			
819	348	M+1	>200			
820	331	M+1	>200			
821	374	M+1	>200			
822	387	M+1	8.3			
823	387	M+1	0.4	0.4		
824	431	M+1	0.01	0.04	>200	>200
825	431	M+1	1.2			
826	441	M+1	0.1	0.5		
827	441	M+1	7.6			
828	472	M+1	0.02	0.04	>200	>200
829	472	M+1	1.5			
830	427	M+1	0.04			
831	427	M+1	2.3			

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832	401	M+1	0.6			
833	401	M+1	0.04	0.4		
834	401	M+1	5.0			
835	401	M+1	0.1			
836	401	M+1	4.0			
837	429	M+1	0.02	0.1		
838	429	M+1				
839	415	M+1	0.01	0.04		
840	415	M+1	0.9	>2		
841	415	M+1	0.02	0.1	>200	>200
842	415	M+1	4.5	>2		
843	459	M+1	0.2	0.8		
844	459	M+1	8.5	>2		
845	429	M+1	6.1	>2		
846	431	M+1	0.02	0.1		
847	431	M+1	1.0	>2		
848	415	M+1	0.02	0.1		
849	415	M+1	5.9	>2		
850	437	M+1	0.1	0.2		
851	437	M+1	3.2	>2		
852	396	M+1	0.1	1.0		
853	396	M+1	9.7			
854	444	M+1	0.02	0.5		
855	444	M+1	4.7	>2		
856	383	M+1	0.2	0.3		
857	383	M+1	7.4	>2		
858	430	M+1	0.4	>2		
859	444	M+1	0.5	1.9		
860	396	M+1	0.1	1.6		
861	396	M+1	1.9	>2		
862	443	M+1	0.4	>2		
863	413	M+1	0.01	0.02	197	>200
864	413	M+1	0.2	1.2		
865	415	M+1	0.03	0.1		
866	415	M+1	0.9	>2		
867	415	M+1	0.4	>2		
868	397	M+1	0.1	0.2		
869	397	M+1	6.6	>2		
870	417	M+1	0.01	0.04	>200	>200
871	417	M+1	0.7	1.3		
872	445	M+1	0.1	1.2		
873	445	M+1	1.1	>2		
874	427	M+1	0.4	>2		
875	431	M+1	0.7	>2		
876	431	M+1	> 10	>2		
877	401	M+1	> 10	>2		
878	437	M+1	0.02	0.1		

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879	437	M+1	0.6	>2		
880	445	M+1	0.02	0.1		
881	445	M+1	3.5	>2		
882	427	M+1	0.1	0.7		
883	427	M+1	4.9	2.0		
884	401	M+1	0.1	0.2		
885	401	M+1	7.6	>2		
886	415	M+1	8.9	>2		
887	401	M+1	0.1	0.3		
888	413	M+1	0.04	0.2		
889	413	M+1	2.5	>2		
890	428	M+1	0.1	>2		
891	444	M+1	0.9	>2		
892	444	M+1	> 10	>2		
893	387	M+1	0.1	0.9		
894	427	M+1	0.03	1.4		
895	429	M+1	0.05	1.5		
896	427	M+1	0.1	1.8		
897	399	M+1	0.01	0.1		
898	399	M+1	4.3	>2		
899	451	M+1	0.01	0.04	>200	>200
900	451	M+1	0.8	>2		
901	451	M+1	1.9	>2		
902	352	M+1	4.2	>2		
903	352	M+1	0.04	0.3		
904	352	M+1	8.1	>2		
905	352	M+1	2.9	>2		
906	415	M+1	0.01	0.01	>200	>200
907	415	M+1	0.9	1.7		
908	458	M+1	0.004	0.6		
909	458	M+1	4.7	>2		
910	427	M+1	0.03	0.1		
911	427	M+1	1.0	>2		
912	352	M+1	3.2	>2		
913	352	M+1	1.0	>2		
914	352	M+1	0.01	0.3		
915	352	M+1	2.4	>2		
916	387	M+1	1.0	1.3		
917	387	M+1	> 10	>2		
918	443	M+1	0.02	0.1		
919	443	M+1	0.9	>2		
920	413	M+1	0.02	0.1		
921	413	M+1	0.4	1.0		
922	413	M+1	0.01	0.01		
923	413	M+1	0.3	0.7		
924	429	M+1	0.1	0.6		
925	429	M+1	8.8	>2		

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926	427	M+1	0.02	0.1		
927	427	M+1	1.7	>2		
928	427	M+1	0.03	0.9		
929	427	M+1	1.7	>2		
930	415	M+1	0.004	0.01		
931	415	M+1	1.1	>2		
932	387	M+1	0.03	0.2		
933	387	M+1	0.7	>2		
934	431	M+1	0.01	0.1		
935	431	M+1	1.9	>2		
936	413	M+1	0.1	0.5		
937	413	M+1	6.8	>2		
938	427	M+1	0.03	0.5		
939	427	M+1	0.5	>2		
940	428	M+1	0.02	>2		
941	428	M+1	1.3	>2		
942	451	M+1	0.005	0.02		
943	451	M+1	0.01	0.1		
944	401	M+1	0.03	0.1		
945	401	M+1	0.1	>2		
946	457	M+1	0.02	0.1		
947	457	M+1	5.5	>2		
948	430	M+1	0.01	0.1		
949	452	M+23	0.7	>2		
950	413	M+1	0.4	>2		
951	413	M+1	7.0	>2		
952	427	M+1	0.04	0.4		
953	427	M+1	3.0	>2		
954	400	M+1	10.0	>2		
955	400	M+1	0.2	0.8		
956	359	M+1	0.1	0.7		
957	359	M+1	1.5	>2		
958	429	M+1	0.04	0.2		
959	429	M+1	2.3	>2		
960	401	M+1	0.02	>2		
961	427	M+1	0.03	0.4		
962	427	M+1	0.8	>2		
963	429	M+1	0.02	0.6		
964	429	M+1	0.5	>2		
965	509	M+1	0.02	0.2		
966	509	M+1	0.6	>2		
967	415	M+1	0.02	0.1		
968	415	M+1	1.9	>2		
969	443	M+1	0.004	0.1		
970	443	M+1	5.0	>2		
971	441	M+1	0.01	0.1		
972	441	M+1	4.9	>2		

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973	443	M+1	0.04	0.2		
974	443	M+1	2.6	>2		
975	357	M+1	0.1	0.4		
976	357	M+1	6.6	>2		
977	413	M+1	0.02	0.2		
978	413	M+1	2.3	>2		
979	415	M+1	0.06	0.5		
980	415	M+1	0.9	>2		
981	451	M+1	0.03	0.6		
982	451	M+1	1.0	>2		
983	431	M+1	0.02	0.1		
984	431	M+1	5.3	>2		
985	403	M+1	6.6	>2		
986	403	M+1	0.06	0.2		
987	403	M+1	>10	>2		
988	403	M+1	4.1	>2		
989	465	M+1	0.1	0.8		
990	465	M+1	3.2	>2		
991	396	M+1	0.06	0.3		
992	396	M+1	1.9	>2		
993	464	M+1	0.04	0.2		
994	464	M+1	1.8	>2		
995	431	M+1	0.008	0.03		
996	431	M+1	0.8	>2		
997	445	M+1	0.01	0.08		
998	445	M+1	1.5	>2		
999	487	M+1	0.01	0.06		
1000	487	M+1	1.5	>2		
1002	401	M+1	1.2	1.8		
1003	353	M+1	0.03	0.2		
1006	416	M+1	1.0	1.8		
1007	400	M+1	0.006	0.02		
1011	357	M+1	0.3	0.9		
1012	372	M+1	0.2	1.8		
1013	369	M+1	0.7056	>2		
1014	400	M+1	0.2	0.7		
1018	469	M+1	0.03	0.07		
1021	415	M+1	0.05	0.09		
1022	431	M+1	2.6	>2		
1024			0.05	0.06		
1025	427	M+1	0.02	0.03		
1031	465	M+1	0.2	1.4		
1032	415	M+1	0.2	0.4		
1037	486	M+1	0.03	0.3		
1042	445	M+1	0.02	0.2		
1043	445	M+1	0.008	0.04		
1044	449	M+23	0.02	0.02		

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1045	451	M+23	0.008	0.03		
1046	456	M+1	2.8	>2		
1048			0.02	0.07		
1049	424	M+1	0.05	0.1		
1050	414	M+1	1.0	>2		
1051	428	M+1	0.01	0.03		
1052			0.02	0.05		
1053	445	M+1	0.03	0.4		
1054	465	M+1	0.01	0.09		
1055	451	M+23	0.009	0.005		
1056			0.09	0.3		
1057	426	M+1	0.04	0.1		
1058	413	M+1	0.04	0.6		
1059	412	M+1	0.02	0.6		
1061	481	M+1	0.02	0.3		
1062	429	M+1	0.01	0.01		
1063	445	M+1	2.9	>2		
1064	375	M+23	2.3	>2		
1065	357	M+1	9.1	>2		
1066	465	M+1	5.5	>2		
1067	451	M+23	0.9	1.2		
1068	369	M+1	0.1	0.7		
1070	469	M+1	0.01	0.01		
1071	469	M+1	5.2	>2		
1072	469	M+1	2.3	>2		
1074	415	M+1	4.5	>2		
1076	431	M+1	1.4	1.7		
1077	415	M+1	>10	>2		
1078	427	M+1	0.01	0.03		
1079	427	M+1	0.3	1.3		
1080	427	M+1	0.5	1.7		
1082	414	M+1	0.6	>2		
1083	414	M+1	0.02	0.05		
1084	414	M+1	0.1	0.5		
1085	429	M+1	0.03	0.1		
1086	429	M+1	0.8	>2		
1087	373	M+1	0.01	0.5		
1088	373	M+1	2.2	>2		
1090	401	M+1	0.5	1.1		
1091	415	M+1	5.8	>2		
1092	415	M+1	0.8	0.8		
1095	451	M+23	0.6	>2		
1096	451	M+23	2.4	>2		
1097	451	M+23	0.01	0.03		
1098	431	M+1	0.03	0.3		
1099	431	M+1	0.01	0.1		
1100	427	M+1	0.9	>2		

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1102	456	M+1	3.9	>2		
1103	456	M+1	0.1	0.1		
1104	456	M+1	0.04	0.2		
1106	413	M+1	3.0	2.0		
1107	416	M+1	5.3	>2		
1108	416	M+1	>10	>2		
1109	416	M+1	>10	>2		
1110	410	M+1	>10	>0.7		
1111			0.02	0.07		
1112	497	M+1	0.02	0.02		
1113	483	M+1	0.01	0.01		
1114	440	M+1	0.04	1.6		
1115	459	M+1	0.03	0.2		
1116			0.02	0.05		
1117	485	M+1	0.03	0.01		
1120	445	M+1	5.9	>2		
1122	465	M+1	1.9	>2		
1123	429	M+1	0.5	1.4		
1124	400	M+1	0.2	0.8		
1126	428	M+1	0.02	0.08		
1127	428	M+1	0.4	1.3		
1128	428	M+1	0.3	1.6		
1129	445	M+1	0.01	0.1		
1130	445	M+1	4.0	>2		
1131			0.006	0.04		
1132			2.3	>2		
1134			1.0	>2		
1135			0.02	0.07		
1136			0.7	>2		
1137			2.0	>2		
1138			0.01	0.02		
1139			0.5	1.7		
1140			0.05	0.1		
1141			0.4	1.3		
1142			4.8	>2		
1143			1.9	>2		
1145			1.8	>2		
1146			0.04	0.2		
1147			1.2	>2		
1148			0.9	>2		
1150	481	M+1	4.2	>2		
1151	481	M+1	5.8	>2		
1152	440	M+1	1.1	>2		
1153	299	M+1	>200			
1154	313	M+1	6.0	>25		
1155	346	M+1	17.2			
1156	313	M+1	2.1	19.7		

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1157	371	M+1				
1158	497	M+1	0.006	0.9		
1159	370	M+1		>25		
1160	445	M+1	4.3	>2		
1161	481	M+1	0.02	0.4		
1162	429	M+1	0.07	0.2		
1163	429	M+1	1.6	>2		
1164	483	M+1	2.1	>2		
1165	424	M+1	3.5	>2		
1166	412	M+1	1.	>2		
1167	483	M+1	0.02	0.06		
1168	483	M+1	1.3	>2		
1169	459	M+1	0.9	>2		
1170	486	M+1	1.8	>2		
1171	497	M+1	0.03	0.06		
1172	497	M+1	3.1	>2		
1173	485	M+1	0.04	0.03		
1174	485	M+1	4.8	>2		
1175	497	M+1	8.4	>2		
1176	485	M+1	2.9	>2		
1177	427	M+1	0.03	0.3		
1178	427	M+1	3.9	>2		
1179	426	M+1	0.5	0.8		
1180	427	M+1	0.01	0.01		
1181	427	M+1	3.4	>2		
1182	427	M+1	0.02	0.05		
1183	427	M+1	3.2	>2		
1184	427	M+1	0.01	0.005		
1185	427	M+1	0.03	0.07		
1186	427	M+1	3.7	>2		
1187	427	M+1	9.9	>2		
1188	372	M+1	0.2	1.8		
1192			0.01	0.01		
1193			0.6	>2		

[0363] The present disclosure encompasses the preparation and use of salts of the Compounds of the Disclosure, including non-toxic pharmaceutically acceptable salts. Examples of pharmaceutically acceptable addition salts include inorganic and organic acid addition salts and basic salts. The pharmaceutically acceptable salts include, but are not limited to, metal salts such as sodium salt, potassium salt, cesium salt and the like; alkaline earth metals such as calcium salt, magnesium salt and the like; organic amine salts such as triethylamine salt, pyridine salt, picoline salt, ethanolamine salt, triethanolamine salt, dicyclohexylamine salt, N,N'-dibenzylethylenediamine salt and the like; inorganic acid

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salts such as hydrochloride, hydrobromide, phosphate, sulphate and the like; organic acid salts such as citrate, lactate, tartrate, maleate, fumarate, mandelate, acetate, dichloroacetate, trifluoroacetate, oxalate, formate and the like; sulfonates such as methanesulfonate, benzenesulfonate, p-toluenesulfonate and the like; and amino acid salts such as arginate, asparagine, glutamate and the like. The term "pharmaceutically acceptable salt" as used herein, refers to any salt, *e.g.*, obtained by reaction with an acid or a base, of a Compound of the Disclosure that is physiologically tolerated in the target subject (*e.g.*, a mammal, *e.g.*, a human).

[0364] Acid addition salts can be formed by mixing a solution of the particular Compound of the Disclosure with a solution of a pharmaceutically acceptable non-toxic acid such as hydrochloric acid, fumaric acid, maleic acid, succinic acid, acetic acid, citric acid, tartaric acid, carbonic acid, phosphoric acid, oxalic acid, dichloroacetic acid, or the like. Basic salts can be formed by mixing a solution of the compound of the present disclosure with a solution of a pharmaceutically acceptable non-toxic base such as sodium hydroxide, potassium hydroxide, choline hydroxide, sodium carbonate and the like.

[0365] The present disclosure encompasses the preparation and use of solvates of Compounds of the Disclosure. Solvates typically do not significantly alter the physiological activity or toxicity of the compounds, and as such may function as pharmacological equivalents. The term "solvate" as used herein is a combination, physical association and/or solvation of a compound of the present disclosure with a solvent molecule such as, *e.g.* a disolvate, monosolvate or hemisolvate, where the ratio of solvent molecule to compound of the present disclosure is about 2:1, about 1:1 or about 1:2, respectively. This physical association involves varying degrees of ionic and covalent bonding, including hydrogen bonding. In certain instances, the solvate can be isolated, such as when one or more solvent molecules are incorporated into the crystal lattice of a crystalline solid. Thus, "solvate" encompasses both solution-phase and isolatable solvates. Compounds of the Disclosure can be present as solvated forms with a pharmaceutically acceptable solvent, such as water, methanol, ethanol, and the like, and it is intended that the disclosure includes both solvated and unsolvated forms of Compounds of the Disclosure. One type of solvate is a hydrate. A "hydrate" relates to a particular subgroup of solvates where the solvent molecule is water. Solvates typically can function as pharmacological equivalents. Preparation of solvates is known in the art. See, for example, M. Caira *et*

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al, *J. Pharmaceut. Sci.*, 93(3):601-611 (2004), which describes the preparation of solvates of fluconazole with ethyl acetate and with water. Similar preparation of solvates, hemisolvates, hydrates, and the like are described by E.C. van Tonder *et al.*, *AAPS Pharm. Sci. Tech.*, 5(1):Article 12 (2004), and A.L. Bingham *et al.*, *Chem. Commun.* 603-604 (2001). A typical, non-limiting, process of preparing a solvate would involve dissolving a Compound of the Disclosure in a desired solvent (organic, water, or a mixture thereof) at temperatures above 20°C to about 25°C, then cooling the solution at a rate sufficient to form crystals, and isolating the crystals by known methods, *e.g.*, filtration. Analytical techniques such as infrared spectroscopy can be used to confirm the presence of the solvent in a crystal of the solvate.

II. Therapeutic Methods

- [0366] The present disclosure is directed generally to a method for treating a disease, condition, or disorder in a subject suffering from, or at risk of suffering from, the disease, condition, or disorder, the method comprising administering to the subject an effective amount of a Compound of the Disclosure. In one embodiment, the disease, condition, or disorder is responsive to or mediated by the inhibition of SETD2 protein.
- [0367] The present disclosure is also directed to a method of inhibiting SETD2 protein in subject in need thereof, the method comprising administering to the subject a therapeutically effective amount of a Compound of the Disclosure.
- [0368] In one aspect, the present disclosure provides a method of treating a disease, disorder, or condition in a subject comprising administering a therapeutically effective amount of a Compound of the Disclosure.
- [0369] In another aspect, the present disclosure provides a method of treating cancer in a subject comprising administering a therapeutically effective amount of a Compound of the Disclosure. While not being limited to a specific mechanism, in some embodiments, Compounds of the Disclosure treat cancer by inhibiting SETD2 protein. Examples of treatable cancers include, but are not limited to, the cancers listed in Table 2.

Table 2

adrenal cancer	lymphoepithelioma
acinic cell carcinoma	lymphoma
acoustic neuroma	acute lymphocytic leukemia
acral lentiginous melanoma	acute myelogenous leukemia
acrospiroma	chronic lymphocytic leukemia
acute eosinophilic leukemia	liver cancer

acute erythroid leukemia	small cell lung cancer
acute lymphoblastic leukemia	non-small cell lung cancer
acute megakaryoblastic leukemia	MALT lymphoma
acute monocytic leukemia	malignant fibrous histiocyoma
acute promyelocytic leukemia	malignant peripheral nerve sheath tumor
adenocarcinoma	malignant triton tumor
adenoid cystic carcinoma	mantle cell lymphoma
adenoma	marginal zone B-cell lymphoma
adenomatoid odontogenic tumor	mast cell leukemia
adenosquamous carcinoma	mediastinal germ cell tumor
adipose tissue neoplasm	medullary carcinoma of the breast
adrenocortical carcinoma	medullary thyroid cancer
adult T-cell leukemia/lymphoma	medulloblastoma
aggressive NK-cell leukemia	melanoma
AIDS-related lymphoma	meningioma
alveolar rhabdomyosarcoma	merkel cell cancer
alveolar soft part sarcoma	mesothelioma
ameloblastic fibroma	metastatic urothelial carcinoma
anaplastic large cell lymphoma	mixed Mullerian tumor
anaplastic thyroid cancer	mucinous tumor
angioimmunoblastic T-cell lymphoma	multiple myeloma
angiomyolipoma	muscle tissue neoplasm
angiosarcoma	mycosis fungoides
astrocytoma	myxoid liposarcoma
atypical teratoid rhabdoid tumor	myxoma
B-cell chronic lymphocytic leukemia	myxosarcoma
B-cell prolymphocytic leukemia	nasopharyngeal carcinoma
B-cell lymphoma	neurinoma
basal cell carcinoma	neuroblastoma
biliary tract cancer	neurofibroma
bladder cancer	neuroma
blastoma	nodular melanoma
bone cancer	ocular cancer
Brenner tumor	oligoastrocytoma
Brown tumor	oligodendroglioma
Burkitt's lymphoma	oncocyoma
breast cancer	optic nerve sheath meningioma
brain cancer	optic nerve tumor
carcinoma	oral cancer
carcinoma in situ	osteosarcoma
carcinosarcoma	ovarian cancer
cartilage tumor	Pancoast tumor
cementoma	papillary thyroid cancer
myeloid sarcoma	paraganglioma
chondroma	pinealoblastoma
chordoma	pineocyoma

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choriocarcinoma	pituicytoma
choroid plexus papilloma	pituitary adenoma
clear-cell sarcoma of the kidney	pituitary tumor
craniopharyngioma	plasmacytoma
cutaneous T-cell lymphoma	polyembryoma
cervical cancer	precursor T-lymphoblastic lymphoma
colorectal cancer	primary central nervous system lymphoma
Degos disease	primary effusion lymphoma
desmoplastic small round cell tumor	preprimary peritoneal cancer
diffuse large B-cell lymphoma	prostate cancer
dysembryoplastic neuroepithelial tumor	pancreatic cancer
dysgerminoma	pharyngeal cancer
embryonal carcinoma	pseudomyxoma peritonei
endocrine gland neoplasm	renal cell carcinoma
endodermal sinus tumor	renal medullary carcinoma
enteropathy-associated T-cell lymphoma	retinoblastoma
esophageal cancer	rhabdomyoma
fetus in fetu	rhabdomyosarcoma
fibroma	Richter's transformation
fibrosarcoma	rectal cancer
follicular lymphoma	sarcoma
follicular thyroid cancer	Schwannomatosis
ganglioneuroma	seminoma
gastrointestinal cancer	Sertoli cell tumor
germ cell tumor	sex cord-gonadal stromal tumor
gestational choriocarcinoma	signet ring cell carcinoma
giant cell fibroblastoma	skin cancer
giant cell tumor of the bone	small blue round cell tumors
glial tumor	small cell carcinoma
glioblastoma multiforme	soft tissue sarcoma
glioma	somatostatinoma
gliomatosis cerebri	soot wart
glucagonoma	spinal tumor
gonadoblastoma	splenic marginal zone lymphoma
granulosa cell tumor	squamous cell carcinoma
gynandroblastoma	synovial sarcoma
gallbladder cancer	Sezary's disease
gastric cancer	small intestine cancer
hairy cell leukemia	squamous carcinoma
hemangioblastoma	stomach cancer
head and neck cancer	T-cell lymphoma
hemangiopericytoma	testicular cancer
hematological malignancy	thecoma
hepatoblastoma	thyroid cancer
hepatosplenic T-cell lymphoma	transitional cell carcinoma

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Hodgkin's lymphoma	throat cancer
non-Hodgkin's lymphoma	urachal cancer
invasive lobular carcinoma	urogenital cancer
intestinal cancer	urothelial carcinoma
kidney cancer	uveal melanoma
laryngeal cancer	uterine cancer
lentigo maligna	verrucous carcinoma
lethal midline carcinoma	visual pathway glioma
leukemia	vulvar cancer
leydig cell tumor	vaginal cancer
liposarcoma	Waldenstrom's macroglobulinemia
lung cancer	Warthin's tumor
lymphangioma	Wilms' tumor.
lymphangiosarcoma	

[0370] In another embodiment, the cancer is pancreatic cancer or esophageal cancer.

[0371] In another embodiment, the cancer is selected from the group consisting of esophageal cancer, kidney cancer, stomach cancer, hepatocellular carcinoma, glioblastoma, central nervous system (CNS) cancer, soft tissue cancer, lung cancer, breast cancer, bladder/urinary tract cancer, head and neck cancer, prostate cancer, hematological cancer, pancreatic cancer, skin cancer, endometrial cancer, ovarian cancer, and colorectal cancer.

[0372] In another embodiment, the cancer or cancer cell is a hematological cancer. Exemplary hematological cancers include, but are not limited to, the cancers listed in Table 3.

Table 3

acute lymphocytic leukemia (ALL)	acute eosinophilic leukemia
acute myeloid leukemia (AML)	acute erythroid leukemia
chronic lymphocytic leukemia (CLL)	acute lymphoblastic leukemia
small lymphocytic lymphoma (SLL)	acute megakaryoblastic leukemia
multiple myeloma (MM)	acute monocytic leukemia
Hodgkins lymphoma (HL)	acute promyelocytic leukemia
non-Hodgkin's lymphoma (NHL)	acute myelogenous leukemia
mantle cell lymphoma (MCL)	B-cell prolymphocytic leukemia
marginal zone B-cell lymphoma	B-cell lymphoma
splenic marginal zone lymphoma	MALT lymphoma
follicular lymphoma (FL)	precursor T-lymphoblastic lymphoma
Waldenstrom's macroglobulinemia (WM)	T-cell lymphoma
diffuse large B-cell lymphoma (DLBCL)	mast cell leukemia
marginal zone lymphoma (MZL)	adult T cell leukemia/lymphoma
hairy cell leukemia (HCL)	aggressive NK-cell leukemia
Burkitt's lymphoma (BL)	angioimmunoblastic T-cell lymphoma
Richter's transformation	

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- [0373] In another embodiment, the cancer is multiple myeloma.
- [0374] In another embodiment, the multiple myeloma is characterized as having chromosomal translocations involving the immunoglobulin heavy chain locus at 14q32. In another embodiment, the chromosomal translocation is a t(4;14) translocation, i.e., the multiple myeloma is t(4;14) multiple myeloma.
- [0375] In another embodiment, the present disclosure provides a therapeutic method of modulating protein methylation, gene expression, cell proliferation, cell differentiation and/or apoptosis *in vivo* in the cancers mentioned above by administering a therapeutically effective amount of a Compound of the Disclosure to a subject in need of such therapy.
- [0376] The present disclosure provides the following particular embodiments.
- [0377] Embodiment I. A method of treating a subject in need thereof, the method comprising administering to the subject a therapeutically effective amount of a Compound of the Disclosure, wherein the subject has cancer.
- [0378] Embodiment II. The method of Embodiment I, wherein the cancer is any one or more of the cancers of Table 2.
- [0379] Embodiment III. The method of Embodiment I, wherein the cancer is a hematological cancer.
- [0380] Embodiment IV. The method of Embodiment III, wherein the hematological cancer is any one or more of the cancers of Table 3, e.g., multiple myeloma.
- [0381] Embodiment V. The method of Embodiment IV, wherein the hematological cancer is t(4;14) multiple myeloma.
- [0382] Embodiment VI. The method of any one of Embodiments I-V further comprising administering a therapeutically effective amount of a second therapeutic agent useful in the treatment of cancer.
- [0383] Embodiment VII. A pharmaceutical composition comprising a Compound of the Disclosure and a pharmaceutically acceptable carrier for use in treating cancer.
- [0384] Embodiment VIII. The pharmaceutical composition of Embodiment VII, wherein the cancer is any one or more of the cancers of Table 2.
- [0385] Embodiment IX. The pharmaceutical composition of Embodiment VII, wherein the cancer is a hematological cancer.

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- [0386] Embodiment X. The pharmaceutical composition of Embodiment IX, wherein the hematological cancer is any one or more of the cancers of Table 3, e.g., multiple myeloma.
- [0387] Embodiment XI. The pharmaceutical composition of Embodiment X, wherein the hematological cancer is t(4;14) multiple myeloma.
- [0388] Embodiment XII. A Compound of the Disclosure for use in treatment of cancer.
- [0389] Embodiment XIII. The compound for use of Embodiment XII, wherein the cancer is any one or more of the cancers of Table 2.
- [0390] Embodiment XIV. The compound for use of Embodiment XII, wherein the cancer is a hematological cancer.
- [0391] Embodiment XV. The compound for use of Embodiment XIV, wherein the hematological cancer is any one or more of the cancers of Table 3, e.g., multiple myeloma.
- [0392] Embodiment XVI. The compound for use of Embodiment XV, wherein the hematological cancer is t(4;14) multiple myeloma.
- [0393] Embodiment XVII. Use of a Compound of the Disclosure for the manufacture of a medicament for treatment of cancer.
- [0394] Embodiment XVIII. The use of Embodiment XVII, wherein the cancer is any one or more of the cancers of Table 2.
- [0395] Embodiment XVIII. The use of Embodiment XVII, wherein the cancer is a hematological cancer.
- [0396] Embodiment XIX. The use of Embodiment XVII, wherein the hematological cancer is any one or more of the cancers of Table 3, e.g., multiple myeloma.
- [0397] Embodiment XX. The use of Embodiment XIX, wherein the hematological cancer is t(4;14) multiple myeloma.
- [0398] Embodiment XXI. The use of any one of Embodiments XVII-XX for comprising one or more additional therapeutic agents.
- [0399] Embodiment XXII. A kit comprising a Compound of the Disclosure and instructions for administering the Compound of the Disclosure to a subject having cancer.

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- [0400] Embodiment XXIII. The kit of Embodiment XXII, wherein the cancer is any one or more of the cancers of Table 2.
- [0401] Embodiment XXIV. The kit of Embodiment XXII, wherein the cancer is a hematological cancer.
- [0402] Embodiment XXV. The kit of Embodiment XXIV, wherein the hematological cancer is any one or more of the cancers of Table 3, e.g., multiple myeloma.
- [0403] Embodiment XXVI. The kit of Embodiment XXV, wherein the hematological cancer is t(4;14) multiple myeloma.
- [0404] Embodiment XXVII. The kit of any one of Embodiments XXII-XXVI further comprising one or more additional therapeutic agents.
- [0405] Compounds of the Disclosure can be administered to a subject in the form of a raw chemical without any other components present. Compounds of the Disclosure can also be administered to a mammal as part of a pharmaceutical composition containing the compound combined with a suitable pharmaceutically acceptable carrier. Such a carrier can be selected from pharmaceutically acceptable excipients and auxiliaries. The term "pharmaceutically acceptable carrier" or "pharmaceutically acceptable vehicle" encompasses any of the standard pharmaceutical carriers, solvents, surfactants, or vehicles. Suitable pharmaceutically acceptable vehicles include aqueous vehicles and nonaqueous vehicles. Standard pharmaceutical carriers and their formulations are described in Remington's Pharmaceutical Sciences, Mack Publishing Co., Easton, PA, 19th ed. 1995.
- [0406] Pharmaceutical compositions within the scope of the present disclosure include all compositions where a Compound of the Disclosure is combined with one or more pharmaceutically acceptable carriers. In one embodiment, the Compound of the Disclosure is present in the composition in an amount that is effective to achieve its intended therapeutic purpose. While individual needs may vary, a determination of optimal ranges of effective amounts of each compound is within the skill of the art. Typically, a Compound of the Disclosure can be administered to a mammal, e.g., a human, orally at a dose of from about 0.0025 to about 1500 mg per kg body weight of the mammal, or an equivalent amount of a pharmaceutically acceptable salt or solvate thereof, per day to treat the particular disorder. A useful oral dose of a Compound of the Disclosure administered to a mammal is from about 0.0025 to about 50 mg per kg body

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weight of the mammal, or an equivalent amount of the pharmaceutically acceptable salt or solvate thereof. For intramuscular injection, the dose is typically about one-half of the oral dose.

- [0407] A unit oral dose may comprise from about 0.01 mg to about 1 g of the Compound of the Disclosure, e.g., about 0.01 mg to about 500 mg, about 0.01 mg to about 250 mg, about 0.01 mg to about 100 mg, 0.01 mg to about 50 mg, e.g., about 0.1 mg to about 10 mg, of the compound. The unit dose can be administered one or more times daily, e.g., as one or more tablets or capsules, each containing from about 0.01 mg to about 1 g of the compound, or an equivalent amount of a pharmaceutically acceptable salt or solvate thereof.
- [0408] A Compound of Disclosure or pharmaceutical composition comprising a Compound of the Disclosure can be administered to any subject, e.g., a cancer patient in need thereof, that may experience the beneficial effects of a Compound of the Disclosure. Foremost among such subject are mammals, e.g., humans and companion animals, although the disclosure is not intended to be so limited. In one embodiment, the subject is a human.
- [0409] A pharmaceutical composition of the present disclosure can be administered by any means that achieves its intended purpose. For example, administration can be by the oral, parenteral, subcutaneous, intravenous, intramuscular, intraperitoneal, transdermal, intranasal, transmucosal, rectal, intravaginal or buccal route, or by inhalation. The dosage administered and route of administration will vary, depending upon the circumstances of the particular subject, and taking into account such factors as age, gender, health, and weight of the recipient, condition or disorder to be treated, kind of concurrent treatment, if any, frequency of treatment, and the nature of the effect desired.
- [0410] In one embodiment, a pharmaceutical composition of the present disclosure can be administered orally. In another embodiment, a pharmaceutical composition of the present disclosure can be administered orally and is formulated into tablets, dragees, capsules, or an oral liquid preparation. In one embodiment, the oral formulation comprises extruded multiparticulates comprising the Compound of the Disclosure.
- [0411] Alternatively, a pharmaceutical composition of the present disclosure can be administered rectally, and is formulated in suppositories.
- [0412] Alternatively, a pharmaceutical composition of the present disclosure can be administered by injection.

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- [0413] Alternatively, a pharmaceutical composition of the present disclosure can be administered transdermally.
- [0414] Alternatively, a pharmaceutical composition of the present disclosure can be administered by inhalation or by intranasal or transmucosal administration.
- [0415] Alternatively, a pharmaceutical composition of the present disclosure can be administered by the intravaginal route.
- [0416] A pharmaceutical composition of the present disclosure can contain from about 0.01 to 99 percent by weight, e.g., from about 0.25 to 75 percent by weight, of a Compound of the Disclosure, e.g., about 1%, about 5%, about 10%, about 15%, about 20%, about 25%, about 30%, about 35%, about 40%, about 45%, about 50%, about 55%, about 60%, about 65%, about 70%, or about 75% by weight of a Compound of the Disclosure.
- [0417] A pharmaceutical composition of the present disclosure is manufactured in a manner which itself will be known in view of the instant disclosure, for example, by means of conventional mixing, granulating, dragee-making, dissolving, extrusion, or lyophilizing processes. Thus, pharmaceutical compositions for oral use can be obtained by combining the active compound with solid excipients, optionally grinding the resulting mixture and processing the mixture of granules, after adding suitable auxiliaries, if desired or necessary, to obtain tablets or dragee cores.
- [0418] Suitable excipients include fillers such as saccharides (for example, lactose, sucrose, mannitol or sorbitol), cellulose preparations, calcium phosphates (for example, tricalcium phosphate or calcium hydrogen phosphate), as well as binders such as starch paste (using, for example, maize starch, wheat starch, rice starch, or potato starch), gelatin, tragacanth, methyl cellulose, hydroxypropylmethylcellulose, sodium carboxymethylcellulose, and/or polyvinyl pyrrolidone. If desired, one or more disintegrating agents can be added, such as the above-mentioned starches and also carboxymethyl-starch, cross-linked polyvinyl pyrrolidone, agar, or alginic acid or a salt thereof, such as sodium alginate.
- [0419] Auxiliaries are typically flow-regulating agents and lubricants such as, for example, silica, talc, stearic acid or salts thereof (e.g., magnesium stearate or calcium stearate), and polyethylene glycol. Dragee cores are provided with suitable coatings that are resistant to gastric juices. For this purpose, concentrated saccharide solutions can be used, which may optionally contain gum arabic, talc, polyvinyl pyrrolidone, polyethylene glycol and/or titanium dioxide, lacquer solutions and suitable organic solvents or solvent

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mixtures. In order to produce coatings resistant to gastric juices, solutions of suitable cellulose preparations such as acetylcellulose phthalate or hydroxypropylmethylcellulose phthalate can be used. Dye stuffs or pigments can be added to the tablets or dragee coatings, for example, for identification or in order to characterize combinations of active compound doses.

- [0420]** Examples of other pharmaceutical preparations that can be used orally include push-fit capsules made of gelatin, or soft, sealed capsules made of gelatin and a plasticizer such as glycerol or sorbitol. The push-fit capsules can contain a compound in the form of granules, which can be mixed with fillers such as lactose, binders such as starches, and/or lubricants such as talc or magnesium stearate and, optionally, stabilizers, or in the form of extruded multiparticulates. In soft capsules, the active compounds are preferably dissolved or suspended in suitable liquids, such as fatty oils or liquid paraffin. In addition, stabilizers can be added.
- [0421]** Possible pharmaceutical preparations for rectal administration include, for example, suppositories, which consist of a combination of one or more active compounds with a suppository base. Suitable suppository bases include natural and synthetic triglycerides, and paraffin hydrocarbons, among others. It is also possible to use gelatin rectal capsules consisting of a combination of active compound with a base material such as, for example, a liquid triglyceride, polyethylene glycol, or paraffin hydrocarbon.
- [0422]** Suitable formulations for parenteral administration include aqueous solutions of the active compound in a water-soluble form such as, for example, a water-soluble salt, alkaline solution, or acidic solution. Alternatively, a suspension of the active compound can be prepared as an oily suspension. Suitable lipophilic solvents or vehicles for such as suspension may include fatty oils (for example, sesame oil), synthetic fatty acid esters (for example, ethyl oleate), triglycerides, or a polyethylene glycol such as polyethylene glycol-400 (PEG-400). An aqueous suspension may contain one or more substances to increase the viscosity of the suspension, including, for example, sodium carboxymethyl cellulose, sorbitol, and/or dextran. The suspension may optionally contain stabilizers.
- [0423]** In another embodiment, the present disclosure provides kits which comprise a Compound of the Disclosure (or a composition comprising a Compound of the Disclosure) packaged in a manner that facilitates their use to practice methods of the present disclosure. In one embodiment, the kit includes a Compound of the Disclosure (or a composition

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comprising a Compound of the Disclosure) packaged in a container, such as a sealed bottle or vessel, with a label affixed to the container or included in the kit that describes use of the compound or composition to practice the method of the disclosure. In one embodiment, the compound or composition is packaged in a unit dosage form. The kit further can include a device suitable for administering the composition according to the intended route of administration.

III. Biomarkers

- [0424] In another embodiment, present disclosure provides methods of treating a subject having cancer, e.g., multiple myeloma, comprising (a) determining whether a biomarker is present or absent in a biological sample taken from the subject; and (b) administering a therapeutically effective amount of a Compound of the Disclosure to the subject if the biomarker is present in the biological sample. *See, e.g., Goossens et al., Transl Cancer Res. 4:256-269 (2015); Kamel and Al-Amodi, Genomics Proteomics Bioinformatics 15:220-235 (2017); and Konikova and Kusenda, Neoplasma 50:31-40 (2003).*
- [0425] The term "biomarker" as used herein refers to any biological compound, such as a gene, a protein, a fragment of a protein, a peptide, a polypeptide, a nucleic acid, etc., or chromosome abnormality, such as a chromosome translocation, that can be detected and/or quantified in a cancer patient *in vivo* or in a biological sample obtained from a cancer patient, e.g., in a cancer cell. A biomarker can be the entire intact molecule, or it can be a portion or fragment thereof. In one embodiment, the expression level of the biomarker is measured. The expression level of the biomarker can be measured, for example, by detecting the protein or RNA, e.g., mRNA, level of the biomarker. In some embodiments, portions or fragments of biomarkers can be detected or measured, for example, by an antibody or other specific binding agent. In some embodiments, a measurable aspect of the biomarker is associated with a given state of the patient, such as a particular stage of cancer. For biomarkers that are detected at the protein or RNA level, such measurable aspects may include, for example, the presence, absence, or concentration, i.e., expression level, of the biomarker in a cancer patient, or biological sample obtained from the cancer patient. For biomarkers that are detected at the nucleic acid level, such measurable aspects may include, for example, allelic versions of the biomarker or type, rate, and/or degree of mutation of the biomarker, also referred to herein as mutation status.

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- [0426] For biomarkers that are detected based on expression level of protein or RNA, expression level measured between different phenotypic statuses can be considered different, for example, if the mean or median expression level of the biomarker in the different groups is calculated to be statistically significant. Common tests for statistical significance include, among others, t-test, ANOVA, Kruskal-Wallis, Wilcoxon, Mann-Whitney, Significance Analysis of Microarrays, odds ratio, etc. Biomarkers, alone or in combination, provide measures of relative likelihood that a subject belongs to one phenotypic status or another. Therefore, they are useful, inter alia, as markers for disease and as indicators that particular therapeutic treatment regimens will likely result in beneficial patient outcomes.
- [0427] Biomarkers include, but are not limited to, chromosomal translocations in a cancer, e.g., multiple myeloma, cell and WHSC1/NSD2/MMSET expression. In one embodiment, the measurable aspect of the biomarker is its expression status. In one embodiment, the measurable aspect of the biomarker is its mutation status.
- [0428] In one embodiment, the biomarker is WHSC1/NSD2/MMSET expression which is differentially present in a subject of one phenotypic status, e.g., a subject having a hematological cancer, as compared with another phenotypic status, e.g., a normal undiseased subject or a patient having cancer without overexpression WHSC1/NSD2/MMSET. In one embodiment, the biomarker is overexpression of WHSC1/NSD2/MMSET.
- [0429] Biomarker standards can be predetermined, determined concurrently, or determined after a biological sample is obtained from the subject. Biomarker standards for use with the methods described herein can, for example, include data from samples from subjects without cancer; data from samples from subjects with cancer, e.g., breast cancer, that is not metastatic; and data from samples from subjects with cancer, e.g., breast cancer, that metastatic. Comparisons can be made to establish predetermined threshold biomarker standards for different classes of subjects, e.g., diseased vs. non-diseased subjects. The standards can be run in the same assay or can be known standards from a previous assay.
- [0430] A biomarker is differentially present between different phenotypic status groups if the mean or median expression or mutation levels of the biomarker is calculated to be different, i.e., higher or lower, between the groups. Thus, biomarkers provide an

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indication that a subject, e.g., a cancer patient, belongs to one phenotypic status or another.

- [0431] In addition to individual biological compounds, e.g., WHSC1/NSD2/MMSET, the term "biomarker" as used herein is meant to include groups, sets, or arrays of multiple biological compounds. For example, the combination of WHSC1/NSD2/MMSET expression status and one or more chromosomal translocations may comprise a biomarker. The term "biomarker" may comprise one, two, three, four, five, six, seven, eight, nine, ten, fifteen, twenty, twenty five, thirty, or more, biological compounds.
- [0432] The determination of the expression level or mutation status of a biomarker in a patient can be performed using any of the many methods known in the art. Any method known in the art for quantitating specific proteins and/or detecting WHSC1/NSD2/MMSET expression and/or chromosomal translocations, or the expression or mutation levels of any other biomarker in a patient or a biological sample may be used in the methods of the disclosure. Examples include, but are not limited to, PCR (polymerase chain reaction), or RT-PCR, flow cytometry, Northern blot, Western blot, ELISA (enzyme linked immunosorbent assay), RIA (radioimmunoassay), gene chip analysis of RNA expression, immunohistochemistry or immunofluorescence. *See, e.g.,* Slagle et al. *Cancer* 83:1401 (1998); Hudlebusch et al., *Clin Cancer Res* 17:2919-2933 (2011). Certain embodiments of the disclosure include methods wherein biomarker RNA expression (transcription) is determined. Other embodiments of the disclosure include methods wherein protein expression in the biological sample is determined. *See, e.g.,* Harlow *et al.*, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, (1988); Ausubel *et al.*, *Current Protocols in Molecular Biology*, John Wiley & Sons, New York 3rd Edition, (1995); Kamel and Al-Amodi, *Genomics Proteomics Bioinformatics* 15:220–235 (2017). For northern blot or RT-PCR analysis, RNA is isolated from the tumor tissue sample using RNase free techniques. Such techniques are commonly known in the art.
- [0433] In one embodiment of the disclosure, a biological sample is obtained from the patient and the biological sample is assayed for determination of a biomarker expression or mutation status.
- [0434] In another embodiment of the disclosure, Northern blot analysis of biomarker transcription in a tumor cell sample is performed. Northern analysis is a standard method

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for detection and/or quantitation of mRNA levels in a sample. Initially, RNA is isolated from a sample to be assayed using Northern blot analysis. In the analysis, the RNA samples are first separated by size via electrophoresis in an agarose gel under denaturing conditions. The RNA is then transferred to a membrane, crosslinked and hybridized with a labeled probe. Typically, Northern hybridization involves polymerizing radiolabeled or nonisotopically labeled DNA, in vitro, or generation of oligonucleotides as hybridization probes. Typically, the membrane holding the RNA sample is prehybridized or blocked prior to probe hybridization to prevent the probe from coating the membrane and, thus, to reduce non-specific background signal. After hybridization, typically, unhybridized probe is removed by washing in several changes of buffer. Stringency of the wash and hybridization conditions can be designed, selected and implemented by any practitioner of ordinary skill in the art. Detection is accomplished using detectably labeled probes and a suitable detection method. Radiolabeled and non-radiolabeled probes and their use are well known in the art. The presence and or relative levels of expression of the biomarker being assayed can be quantified using, for example, densitometry.

[0435] In another embodiment, biomarker expression and/or mutation status is determined using RT-PCR. RT-PCR allows detection of the progress of a PCR amplification of a target gene in real time. Design of the primers and probes required to detect expression and/or mutation status of a biomarker of the disclosure is within the skill of a practitioner of ordinary skill in the art. RT-PCR can be used to determine the level of RNA encoding a biomarker of the disclosure in a tumor tissue sample. In an embodiment of the disclosure, RNA from the biological sample is isolated, under RNase free conditions, than converted to DNA by treatment with reverse transcriptase. Methods for reverse transcriptase conversion of RNA to DNA are well known in the art. A description of PCR is provided in the following references: Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.* 51:263 (1986); EP 50,424; EP 84,796; EP 258,017; EP 237,362; EP 201,184; U.S. Patent Nos. 4,683,202; 4,582,788; 4,683,194.

[0436] RT-PCR probes depend on the 5'-3' nuclease activity of the DNA polymerase used for PCR to hydrolyze an oligonucleotide that is hybridized to the target amplicon (biomarker gene). RT-PCR probes are oligonucleotides that have a fluorescent reporter dye attached to the 5' end and a quencher moiety coupled to the 3' end (or vice versa). These probes are designed to hybridize to an internal region of a PCR product. In the unhybridized

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state, the proximity of the fluor and the quench molecules prevents the detection of fluorescent signal from the probe. During PCR amplification, when the polymerase replicates a template on which an RT-PCR probe is bound, the 5'-3' nuclease activity of the polymerase cleaves the probe. This decouples the fluorescent and quenching dyes and FRET no longer occurs. Thus, fluorescence increases in each cycle, in a manner proportional to the amount of probe cleavage. Fluorescence signal emitted from the reaction can be measured or followed over time using equipment which is commercially available using routine and conventional techniques.

[0437] In another embodiment of the disclosure, expression of proteins encoded by biomarkers are detected by western blot analysis. A western blot (also known as an immunoblot) is a method for protein detection in a given sample of tissue homogenate or extract. It uses gel electrophoresis to separate denatured proteins by mass. The proteins are then transferred out of the gel and onto a membrane (*e.g.*, nitrocellulose or polyvinylidene fluoride (PVDF)), where they are detected using a primary antibody that specifically bind to the protein. The bound antibody can then be detected by a secondary antibody that is conjugated with a detectable label (*e.g.*, biotin, horseradish peroxidase or alkaline phosphatase). Detection of the secondary label signal indicates the presence of the protein.

[0438] In another embodiment of the disclosure, the expression of a protein encoded by a biomarker is detected by enzyme-linked immunosorbent assay (ELISA). In one embodiment of the disclosure, "sandwich ELISA" comprises coating a plate with a capture antibody; adding sample wherein any antigen present binds to the capture antibody; adding a detecting antibody which also binds the antigen; adding an enzyme-linked secondary antibody which binds to detecting antibody; and adding substrate which is converted by an enzyme on the secondary antibody to a detectable form. Detection of the signal from the secondary antibody indicates presence of the biomarker antigen protein.

[0439] Multiple myeloma is a heterogeneous plasma cell disorder characterized by genetic abnormalities, including chromosomal translocations, deletions, duplications, and genetic mutations. Translocations involving the immunoglobulin heavy chain region at chromosome 14q32 are observed in approximately 40% of patients with multiple myeloma. Translocation of oncogenes into this region may lead to their increased

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expression, contributing to disease initiation, disease progression, and therapeutic resistance. For example, the t(4;14) translocation is associated with upregulation of the fibroblast growth factor receptor 3 (FGFR3) and the myeloma SET domain protein. Subjects with t(4;14) demonstrate an overall poor prognosis that is only partially mitigated using existing chemotherapeutic agents. An unmet medical need remains for subjects with this aberration. IgH translocations in patients with multiple myeloma are presented in Table 4. *See, e.g., Kalff and Spencer, Blood Cancer Journal 2:e89 (2012).*

Table 4

Translocation	Prevalence, %	Upregulated oncogenes	Prognosis
t(4;14)	15	MMSET, FGFR3	Unfavorable
t(14;16)	5	MAF	Unfavorable
t(14;20)	1–2	MAF	Unfavorable
t(8;14)	2	MAF	Unfavorable
t(11;14)	15–17	Cyclin D1	Favorable/neutral
t(6;14)	4	Cyclin D3	Favorable/neutral

Abbreviations: FGFR, fibroblast growth factor receptor; IgH, immunoglobulin heavy chain; MM, multiple myeloma; MMSET, myeloma SET domain protein

[0440] WHSC1/NSD2/MMSET is a histone methyl transferase located at the Chromosome 4p16 locus. In a subset of multiple myeloma, a chromosomal translocation takes place where this region is fused to chromosome 14q32. This translocation is commonly known as t(4;14). The result of t(4;14) in multiple myeloma is that the WHSC1/NSD2/MMSET gene is placed under the transcriptional control of the IgH promoter. This leads to a massive up-regulation of WHSC1/NSD2/MMSET (Chesi *et al.*, *Blood* 92:3025-3034 (1998)). The increase in WHSC1/NSD2/MMSET leads to an increase in the dimethylation of histone H3 at lysine 36 (H3K36). (Kuo *et al.*, *Mol. Cell* 44:609-620 (2011)). Like WHSC1/NSD2/MMSET, SETD2 also methylates H3K36 but adds three methyl groups instead of two. Based on the sensitivity of t(4;14) multiple myeloma cell lines to SETD2 inhibition, the oncogenic function resulting from increased H3K36me2 caused by WHSC1 over-expression likely also requires the ability of SETD2 to add an additional methyl group.

[0441] In one embodiment, the present disclosure provides a method of treating a subject having multiple myeloma, the method comprising: (a) determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject; and (b)

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administering a therapeutically effective amount of a Compound of the Disclosure to the subject if a chromosomal translocation is present in the biological sample.

- [0442] In another embodiment, the present disclosure provides a method of treating a subject having multiple myeloma, the method comprising administering a therapeutically effective amount of a Compound of the Disclosure to the subject having a chromosomal translocation.
- [0443] In another embodiment, the present disclosure provides a method of identifying whether a subject having multiple myeloma as a candidate for treatment with a Compound of the Disclosure, the method comprising: (a) determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject; and (b) identifying the subject as being a candidate for treatment if a chromosomal translocation is present; or (c) identifying the subject as not being a candidate for treatment if a chromosomal translocation is absent.
- [0444] In another embodiment, the present disclosure provides a method of predicting treatment outcome in a subject having multiple myeloma, the method comprising determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject, wherein (a) the presence of a chromosomal translocation in the biological sample indicates that administering a Compound of the Disclosure to the subject will likely cause a favorable therapeutic response; and (b) the absence of a chromosomal translocation in the biological sample indicates that administering a Compound of the Disclosure to the subject will likely cause an unfavorable therapeutic response.
- [0445] In another embodiment, the present disclosure provides a method, comprising administering a therapeutically effective amount of a Compound of the Disclosure to a subject in need thereof, wherein: (a) the subject has multiple myeloma; and (b) the multiple myeloma is characterized as having a chromosomal translocation.
- [0446] In any of the above embodiments, the chromosomal translocation is a t(4;14) translocation.
- [0447] In one embodiment, the present disclosure provides a method of treating a subject having multiple myeloma, the method comprising: (a) determining whether an overexpression of WHSC1/NSD2/MMSET is present or absent in a biological sample taken from the subject; and (b) administering a therapeutically effective amount of a Compound of the

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Disclosure to the subject if an overexpression of WHSC1/NSD2/MMSET is present in the biological sample.

- [0448] In one embodiment, the present disclosure provides a method of treating a subject having multiple myeloma, the method comprising administering a therapeutically effective amount of a Compound of the Disclosure to the subject if an overexpression of WHSC1/NSD2/MMSET is present in subject.
- [0449] In another embodiment, the present disclosure provides a method of identifying whether a subject having multiple myeloma as a candidate for treatment with a Compound of the Disclosure, the method comprising: (a) determining whether an overexpression of WHSC1/NSD2/MMSET is present or absent in a biological sample taken from the subject; and (b) identifying the subject as being a candidate for treatment if an overexpression of WHSC1/NSD2/MMSET is present; or (c) identifying the subject as not being a candidate for treatment an overexpression of WHSC1/NSD2/MMSET is absent.
- [0450] In another embodiment, the present disclosure provides a method of predicting treatment outcome in a subject having multiple myeloma, the method comprising determining whether an overexpression of WHSC1/NSD2/MMSET is present or absent in a biological sample taken from the subject, wherein: (a) the presence of an overexpression of WHSC1/NSD2/MMSET in the biological sample indicates that administering a Compound of the Disclosure to the subject will likely cause a favorable therapeutic response; and (b) the absence of an overexpression of WHSC1/NSD2/MMSET in the biological sample indicates that administering a Compound of the Disclosure to the subject will likely cause an unfavorable therapeutic response.
- [0451] In another embodiment, the present disclosure provides a method, comprising administering a therapeutically effective amount of a Compound of the Disclosure to a subject in need thereof, wherein: (a) the subject has multiple myeloma; and (b) the multiple myeloma is characterized as having an overexpression of WHSC1/NSD2/MMSET.

IV. Definitions

- [0452] The term "halo" as used herein by itself or as part of another group refers to -Cl, -F, -Br, or -I.
- [0453] The term "nitro" as used herein by itself or as part of another group refers to -NO₂.

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[0454] The term "cyano" as used herein by itself or as part of another group refers to -CN.

[0455] The term "hydroxy" as herein used by itself or as part of another group refers to -OH.

[0456] The term "alkyl" as used herein by itself or as part of another group refers to a straight- or branched-chain aliphatic hydrocarbon containing one to twelve carbon atoms, i.e., a C₁-C₁₂ alkyl, or the number of carbon atoms designated, e.g., a C₁ alkyl such as methyl, a C₂ alkyl such as ethyl, etc. In one embodiment, the alkyl is a C₁-C₁₀ alkyl. In another embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁-C₃ alkyl, i.e., methyl, ethyl, propyl, or isopropyl. Non-limiting exemplary C₁-C₁₂ alkyl groups include methyl, ethyl, propyl, isopropyl, butyl, *sec*-butyl, *tert*-butyl, *iso*-butyl, 3-pentyl, hexyl, heptyl, octyl, nonyl, and decyl.

[0457] The term "optionally substituted alkyl" as used herein by itself or as part of another group refers to an alkyl group that is either unsubstituted or substituted with one, two, or three substituents, wherein each substituent is independently nitro, haloalkoxy, aryloxy, aralkyloxy, alkylthio, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carbamate, carboxy, alkoxycarbonyl, carboxyalkyl, -N(R^{56a})C(=O)R^{56b}, -N(R^{56c})S(=O)₂R^{56d}, -C(=O)R⁵⁷, -S(=O)R^{56e}, -S(=O)₂R⁵⁸, -N(R^{56a})C(=N-R⁶⁰)R⁶¹, -N(R^{56a})C(=C-NO₂)R⁶⁴, -C(=N-R⁶⁰)R⁶¹, or -C(=C-NO₂)R⁶⁴; wherein:

[0458] R^{56a} is hydrogen or alkyl;

[0459] R^{56b} is alkyl, haloalkyl, optionally substituted cycloalkyl, alkoxy, (alkoxy)alkyl, (aryl)alkyl, (heteroaryl)alkyl, (amino)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycle, optionally substituted C₆-C₁₀ aryl, or optionally substituted heteroaryl;

[0460] R^{56c} is hydrogen or alkyl;

[0461] R^{56d} is alkyl, haloalkyl, optionally substituted cycloalkyl, alkoxy, (alkoxy)alkyl, (aryl)alkyl, (heteroaryl)alkyl, (amino)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycle, optionally substituted C₆-C₁₀ aryl, or optionally substituted heteroaryl;

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- [0462] R^{56e} is alkyl, haloalkyl, optionally substituted cycloalkyl, alkoxy, (alkoxy)alkyl, (aryl)alkyl, (heteroaryl)alkyl, (amino)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycle, optionally substituted C_6 - C_{10} aryl, or optionally substituted heteroaryl;
- [0463] R^{57} is haloalkyl, amino, optionally substituted cycloalkyl, alkoxy, (alkoxy)alkyl, (aryl)alkyl, (heteroaryl)alkyl, (amino)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycle, optionally substituted heteroaryl, (C_3 - C_6 cycloalkyl)oxy, or (4- to 8-membered heterocyclo)oxy;
- [0464] R^{58} is haloalkyl, optionally substituted cycloalkyl, alkoxy, (alkoxy)alkyl, (aryl)alkyl, (heteroaryl)alkyl, (amino)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted alkenyl, optionally substituted alkynyl, optionally substituted cycloalkyl, optionally substituted heterocycle, or optionally substituted heteroaryl;
- [0465] R^{60} is selected from the group consisting of cyano, nitro, hydroxy, C_1 - C_6 alkoxy, $-C(=O)R^{62}$, and $-S(=O)_2R^{62}$;
- [0466] R^{61} is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_6 cycloalkyl, and $-NR^{63a}R^{63b}$;
- [0467] R^{62} is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_6 cycloalkyl, and $-NR^{63a}R^{63b}$;
- [0468] R^{63a} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl;
- [0469] R^{63b} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl; or
- [0470] R^{63a} and R^{63b} taken together with the nitrogen atom to which they are attached form a 4- to 6-membered optionally substituted heterocycle;
- R^{64} is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_6 cycloalkyl, and $-NR^{63c}R^{63d}$; and
- [0471] R^{63c} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl;
- R^{63d} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl; or

- [0472] R^{63c} and R^{63d} taken together with the nitrogen atom to which they are attached form a 4- to 6-membered optionally substituted heterocycle.
- [0473] In one embodiment, the optionally substituted alkyl is either unsubstituted or substituted with one, two, or three substituents, wherein each substituent is independently nitro, haloalkoxy, aryloxy, aralkyloxy, alkylthio, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carbamate, carboxy, alkoxycarbonyl, carboxyalkyl, $-N(R^{56a})C(=O)R^{56b}$, $-N(R^{56c})S(=O)_2R^{56d}$, $-C(=O)R^{57}$, $-S(=O)R^{56e}$, or $-S(=O)_2R^{58}$.
- [0474] In another embodiment, the optionally substituted alkyl is substituted with two substituents. In another embodiment, the optionally substituted alkyl is substituted with one substituent. In another embodiment, the optionally substituted alkyl is an optionally substituted C_1 - C_6 alkyl. In another embodiment, the optionally substituted alkyl is an optionally substituted C_1 - C_4 alkyl. In one embodiment, the optionally substituted alkyl is an optionally substituted C_1 or C_2 alkyl. Non-limiting exemplary optionally substituted alkyl groups include $-CH(CO_2Me)CH_2CO_2Me$ and $-CH(CH_3)CH_2N(H)C(=O)O(CH_3)_3$.
- [0475] The term "alkenyl" as used herein by itself or as part of another group refers to an alkyl group containing one, two, or three carbon-to-carbon double bonds. In one embodiment, the alkenyl group is a C_2 - C_6 alkenyl group. In another embodiment, the alkenyl group is a C_2 - C_4 alkenyl group. In another embodiment, the alkenyl group has one carbon-to-carbon double bond. Non-limiting exemplary alkenyl groups include ethenyl, propenyl, isopropenyl, butenyl, *sec*-butenyl, pentenyl, and hexenyl.
- [0476] The term "optionally substituted alkenyl" as used herein by itself or as part of another refers to an alkenyl group that is either unsubstituted or substituted with one, two or three substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino (e.g., alkylamino, dialkylamino), haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, or optionally substituted heterocycle. Non-limiting exemplary optionally substituted alkenyl groups include $-CH=CHPh$.

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- [0477] The term "alkynyl" as used herein by itself or as part of another group refers to an alkyl group containing one, two, or three carbon-to-carbon triple bonds. In one embodiment, the alkynyl has one carbon-to-carbon triple bond. In another embodiment, the alkynyl is a C₁-C₆ alkynyl. In another embodiment, the alkynyl is a C₂-C₄ alkynyl. In another embodiment, the alkynyl has one carbon-to-carbon triple bond. Non-limiting exemplary alkynyl groups include ethynyl, propynyl, butynyl, 2-butynyl, pentynyl, and hexynyl groups.
- [0478] The term "optionally substituted alkynyl" as used herein by itself or as part of another group refers to an alkynyl group that is either unsubstituted or substituted with one, two or three substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino (e.g., alkylamino, dialkylamino), haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, or optionally substituted heterocyclo. Non-limiting exemplary optionally substituted alkynyl groups include -CH≡CHPh.
- [0479] The term "haloalkyl" as used herein by itself or as part of another group refers to an alkyl group substituted by one or more fluorine, chlorine, bromine, and/or iodine atoms. In one embodiment, the alkyl is substituted by one, two, or three fluorine and/or chlorine atoms. In another embodiment, the alkyl is substituted by one, two, or three fluorine atoms. In another embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl group is a C₁ or C₂ alkyl. Non-limiting exemplary haloalkyl groups include fluoromethyl, difluoromethyl, trifluoromethyl, pentafluoroethyl, 1,1-difluoroethyl, 2,2-difluoroethyl, 2,2,2-trifluoroethyl, 3,3,3-trifluoropropyl, 4,4,4-trifluorobutyl, and trichloromethyl groups.
- [0480] The terms "hydroxyalkyl" or "(hydroxy)alkyl" as used herein by themselves or as part of another group refer to an alkyl group substituted with one, two, or three hydroxy groups. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. In another embodiment, the hydroxyalkyl is a monohydroxyalkyl group, i.e., substituted with one hydroxy group. In another embodiment, the hydroxyalkyl group is a dihydroxyalkyl

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group, i.e., substituted with two hydroxy groups. Non-limiting exemplary (hydroxy)alkyl groups include hydroxymethyl, hydroxyethyl, hydroxypropyl and hydroxybutyl groups, such as 1-hydroxyethyl, 2-hydroxyethyl, 1,2-dihydroxyethyl, 2-hydroxypropyl, 3-hydroxypropyl, 3-hydroxybutyl, 4-hydroxybutyl, 2-hydroxy-1-methylpropyl, and 1,3-dihydroxyprop-2-yl.

[0481] The term "alkoxy" as used herein by itself or as part of another group refers to an alkyl group attached to a terminal oxygen atom. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl group. Non-limiting exemplary alkoxy groups include methoxy, ethoxy, and *tert*-butoxy.

[0482] The term "haloalkoxy" as used herein by itself or as part of another group refers to a haloalkyl group attached to a terminal oxygen atom. In one embodiment, the haloalkyl is a C₁-C₆ alkyl. In another embodiment, the haloalkyl group is a C₁-C₄ haloalkyl group. Non-limiting exemplary haloalkoxy groups include fluoromethoxy, difluoromethoxy, trifluoromethoxy, and 2,2,2-trifluoroethoxy.

[0483] The term "alkylthio" as used herein by itself or as part of another group refers to an alkyl group attached to a terminal sulfur atom. In one embodiment, the alkyl group is a C₁-C₄ alkyl group. Non-limiting exemplary alkylthio groups include -SCH₃, and -SCH₂CH₃.

[0484] The terms "alkoxyalkyl" or "(alkoxy)alkyl" as used herein by themselves or as part of another group refers to an alkyl group substituted with one alkoxy group. In one embodiment, the alkoxy is a C₁-C₆ alkoxy. In another embodiment, the alkoxy is a C₁-C₄ alkoxy. In another embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. Non-limiting exemplary alkoxyalkyl groups include methoxymethyl, methoxyethyl, methoxypropyl, methoxybutyl, ethoxymethyl, ethoxyethyl, ethoxypropyl, ethoxybutyl, propoxymethyl, iso-propoxymethyl, propoxyethyl, propoxypropyl, butoxymethyl, *tert*-butoxymethyl, isobutoxymethyl, sec-butoxymethyl, and pentyloxymethyl.

[0485] The term "heteroalkyl" as used herein by itself or part of another group refers to a stable straight or branched chain hydrocarbon radical containing 1 to 10 carbon atoms and at least two heteroatoms, which can be the same or different, selected from O, N, or S, wherein the sulfur atom(s) can optionally be oxidized. The heteroatoms can be placed at any interior position of the heteroalkyl group or at a position at which the heteroalkyl group is attached to the remainder of the molecule. In one embodiment, the heteroalkyl

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contains two oxygen atoms. In another embodiment, the heteroalkyl contains one oxygen and one nitrogen atom. In another embodiment, the heteroalkyl contains two nitrogen atoms. Non-limiting exemplary heteroalkyl groups include -OCH₂CH₂NH₂, -NHCH₂CH₂OCH₃, and -OCH₂CH₂OCH₃.

[0486] The term "cycloalkyl" as used herein by itself or as part of another group refers to saturated and partially unsaturated, e.g., containing one or two double bonds, monocyclic, bicyclic, or tricyclic aliphatic hydrocarbons containing three to twelve carbon atoms, i.e., a C₃₋₁₂ cycloalkyl, or the number of carbons designated, e.g., a C₃ cycloalkyl such as cyclopropyl, a C₄ cycloalkyl such as cyclobutyl, etc. In one embodiment, the cycloalkyl is bicyclic, i.e., it has two rings. In another embodiment, the cycloalkyl is monocyclic, i.e., it has one ring. In another embodiment, the cycloalkyl is a C₃₋₈ cycloalkyl. In another embodiment, the cycloalkyl is a C₃₋₆ cycloalkyl, i.e., cyclopropyl, cyclobutyl, cyclopentyl, or cyclohexyl. In another embodiment, the cycloalkyl is a C₅ cycloalkyl, i.e., cyclopentyl. In another embodiment, the cycloalkyl is a C₆ cycloalkyl, i.e., cyclohexyl. Non-limiting exemplary C₃₋₁₂ cycloalkyl groups include cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, norbornyl, decalin, adamantyl, cyclohexenyl, and spiro[3.3]heptane.

[0487] The term "optionally substituted cycloalkyl" as used herein by itself or as part of another group refers to a cycloalkyl group is either unsubstituted or substituted with one, two, or three substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino (e.g., -NH₂, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, -N(R^{56a})C(=O)R^{56b}, -N(R^{56c})S(=O)₂R^{56d}, -C(=O)R⁵⁷, -S(=O)R^{56e}, -S(=O)₂R⁵⁸, -OR⁵⁹, -N(R^{56a})C(=N-R⁶⁰)R⁶¹, -N(R^{56a})C(=C-NO₂)R⁶⁴, -C(=N-R⁶⁰)R⁶¹, or -C(=C-NO₂)R⁶⁴; wherein R^{56a}, R^{56b}, R^{56c}, R^{56d}, R^{56e}, R⁵⁷, R⁵⁸, R⁶⁰, R⁶¹, and R⁶⁴ are as defined in connection with the term "optionally substituted alkyl" and R⁵⁹ is (hydroxy)alkyl or (amino)alkyl. Non-limiting exemplary optionally

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substituted cycloalkyl groups include 3-(4-acetylpiperazin-1-yl)cyclohexyl, 3-(3-(N-methylacetamido)pyrrolidin-1-yl)cyclohexyl, 3-morpholinocyclohexyl, and 3-(pyrimidin-5-yl)cyclohexyl. In one embodiment, the optionally substituted cycloalkyl is either unsubstituted or substituted with one, two, or three substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino (e.g., -NH_2 , alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, $\text{-N(R}^{56a})\text{C(=O)R}^{56b}$, $\text{-N(R}^{56c})\text{S(=O)}_2\text{R}^{56d}$, -C(=O)R^{57} , -S(=O)R^{56e} , $\text{-S(=O)}_2\text{R}^{58}$, and -OR^{59} .

[0488] The term "heterocyclo" as used herein by itself or as part of another group refers to saturated and partially unsaturated, e.g., containing one or two double bonds, monocyclic, bicyclic, or tricyclic groups containing three to fourteen ring members, i.e., a 3- to 14-membered heterocyclo, comprising one, two, three, or four heteroatoms. Each heteroatom is independently oxygen, sulfur, or nitrogen. Each sulfur atom is independently oxidized to give a sulfoxide, i.e., S(=O) , or sulfone, i.e., S(=O)_2 .

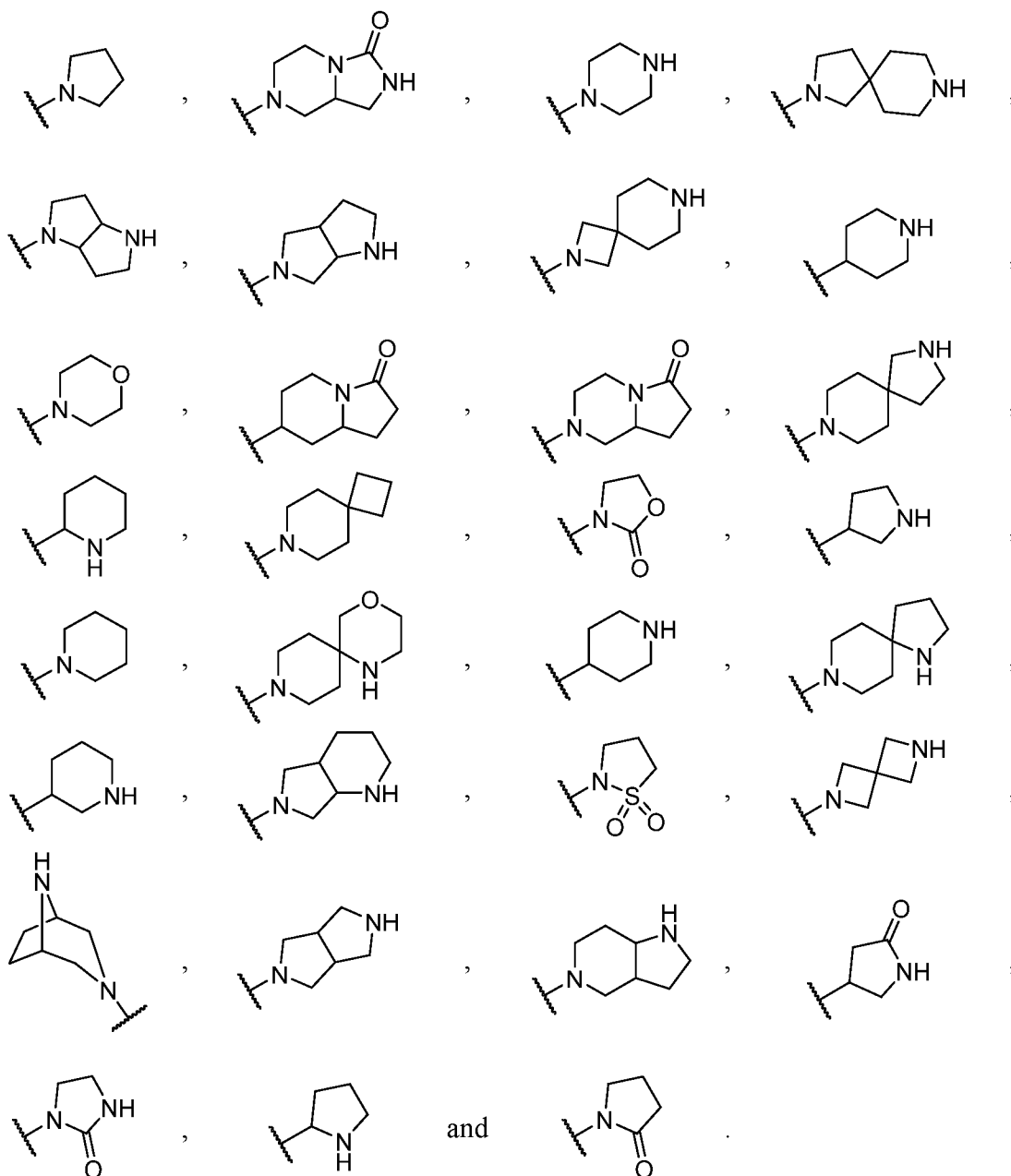
[0489] The term heterocyclo includes groups wherein one or more $\text{-CH}_2\text{-}$ groups is replaced with one or more -C(=O)- groups, including cyclic ureido groups such as imidazolidinyl-2-one, cyclic amide groups such as pyrrolidin-2-one or piperidin-2-one, and cyclic carbamate groups such as oxazolidinyl-2-one.

[0490] The term heterocyclo also includes groups having fused optionally substituted aryl or optionally substituted heteroaryl groups such as indoline, indolin-2-one, 2,3-dihydro-1H-pyrrolo[2,3-c]pyridine, 2,3,4,5-tetrahydro-1H-benzo[d]azepine, or 1,3,4,5-tetrahydro-2H-benzo[d]azepin-2-one.

[0491] In one embodiment, the heterocyclo group is a 4- to 8-membered cyclic group containing one ring and one or two oxygen atoms, e.g., tetrahydrofuran or tetrahydropyran, or one or two nitrogen atoms, e.g., pyrrolidine, piperidine, or piperazine, or one oxygen and one nitrogen atom, e.g., morpholine, and, optionally, one $\text{-CH}_2\text{-}$ group is replaced with one -C(=O)- group, e.g., pyrrolidin-2-one or piperazin-2-one. In another embodiment, the

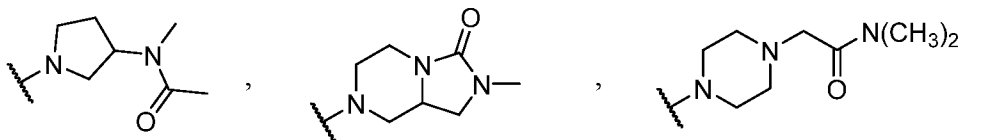
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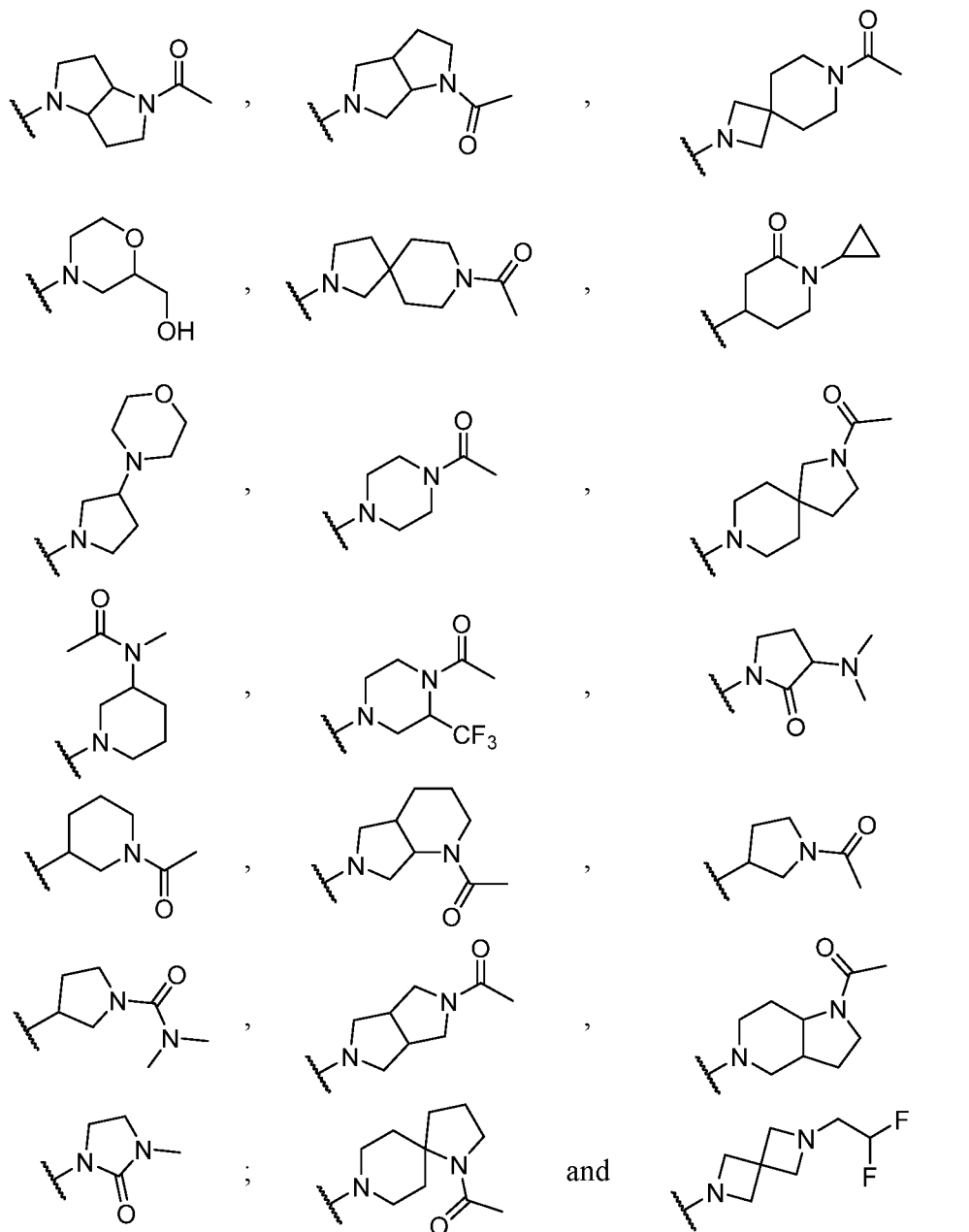
heterocyclo group is a 5- to 8-membered cyclic group containing one ring and one or two nitrogen atoms and, optionally, one $-CH_2-$ group is replaced with one $-C(=O)-$ group. In another embodiment, the heterocyclo group is a 5- or 6-membered cyclic group containing one ring and one or two nitrogen atoms and, optionally, one $-CH_2-$ group is replaced with one $-C(=O)-$ group. In another embodiment, the heterocyclo group is a 8- to 12-membered cyclic group containing two rings and one or two nitrogen atoms. The heterocyclo can be linked to the rest of the molecule through any available carbon or nitrogen atom. Non-limiting exemplary heterocyclo groups include:



[0492] The term "optionally substituted heterocyclo" as used herein by itself or part of another group refers to a heterocyclo group that is either unsubstituted or substituted with one to four substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino, (e.g., $-\text{NH}_2$, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, $-\text{N}(\text{R}^{56a})\text{C}(=\text{O})\text{R}^{56b}$, $-\text{N}(\text{R}^{56c})\text{S}(=\text{O})_2\text{R}^{56d}$, $-\text{C}(=\text{O})\text{R}^{57}$, $-\text{S}(=\text{O})\text{R}^{56e}$, $-\text{S}(=\text{O})_2\text{R}^{58}$, $-\text{OR}^{59}$, $-\text{N}(\text{R}^{56a})\text{C}(=\text{N}-\text{R}^{60})\text{R}^{61}$, $-\text{N}(\text{R}^{56a})\text{C}(=\text{C}-\text{NO}_2)\text{R}^{64}$, $-\text{C}(=\text{N}-\text{R}^{60})\text{R}^{61}$, or $-\text{C}(=\text{C}-\text{NO}_2)\text{R}^{64}$, wherein R^{56a} , R^{56b} , R^{56c} , R^{56d} , R^{56e} , R^{57} , R^{58} , R^{59} , R^{60} , R^{61} , and R^{64} are as defined in connection with the term "optionally substituted cycloalkyl." Substitution may occur on any available carbon or nitrogen atom of the heterocyclo group. In one embodiment, the optionally substituted heterocyclo is either unsubstituted or substituted with one to four substituents, wherein each substituent is independently halo, nitro, cyano, hydroxy, amino, (e.g., $-\text{NH}_2$, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, $-\text{N}(\text{R}^{56a})\text{C}(=\text{O})\text{R}^{56b}$, $-\text{N}(\text{R}^{56c})\text{S}(=\text{O})_2\text{R}^{56d}$, $-\text{C}(=\text{O})\text{R}^{57}$, $-\text{S}(=\text{O})\text{R}^{56e}$, $-\text{S}(=\text{O})_2\text{R}^{58}$, or $-\text{OR}^{59}$.

[0493] Non-limiting exemplary optionally substituted heterocyclo groups include:





[0494] The term "aryl" as used herein by itself or as part of another group refers to an aromatic ring system having six to fourteen carbon atoms, i.e., C₆-C₁₄ aryl. Non-limiting exemplary aryl groups include phenyl (abbreviated as "Ph"), naphthyl, phenanthryl, anthracyl, indenyl, azulenyl, biphenyl, biphenylenyl, and fluorenyl groups. In one embodiment, the aryl group is phenyl or naphthyl. In another embodiment, the aryl group is phenyl.

[0495] The term "optionally substituted aryl" as used herein by itself or as part of another group refers to aryl that is either unsubstituted or substituted with one to five substituents,

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wherein the substituents are each independently halo, nitro, cyano, hydroxy, amino, (e.g., -NH₂, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, -N(R^{56a})C(=O)R^{56b}, -N(R^{56c})S(=O)₂R^{56d}, -C(=O)R⁵⁷, -S(=O)R^{56e}, -S(=O)₂R⁵⁸, -OR⁵⁹, -N(R^{56a})C(=N-R⁶⁰)R⁶¹, -N(R^{56a})C(=C-NO₂)R⁶⁴, -C(=N-R⁶⁰)R⁶¹, or -C(=C-NO₂)R⁶⁴, wherein R^{56a}, R^{56b}, R^{56c}, R^{56d}, R^{56e}, R⁵⁷, R⁵⁸, R⁵⁹, R⁶⁰, R⁶¹, and R⁶⁴ are as defined in connection with the term "optionally substituted cycloalkyl." In one embodiment, the optionally substituted aryl is either unsubstituted or substituted with one to five substituents, wherein the substituents are each independently halo, nitro, cyano, hydroxy, amino, (e.g., -NH₂, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, -N(R^{56a})C(=O)R^{56b}, -N(R^{56c})S(=O)₂R^{56d}, -C(=O)R⁵⁷, -S(=O)R^{56e}, -S(=O)₂R⁵⁸, or -OR⁵⁹.

[0496] In one embodiment, the optionally substituted aryl is an optionally substituted phenyl. In another embodiment, the optionally substituted phenyl has four substituents. In another embodiment, the optionally substituted phenyl has three substituents. In another embodiment, the optionally substituted phenyl has two substituents. In another embodiment, the optionally substituted phenyl has one substituent. Non-limiting exemplary optionally substituted aryl groups include 2-methylphenyl, 2-methoxyphenyl, 2-fluorophenyl, 2-chlorophenyl, 2-bromophenyl, 3-methylphenyl, 3-methoxyphenyl, 3-fluorophenyl, 3-chlorophenyl, 4-methylphenyl, 4-ethylphenyl, 4-methoxyphenyl,

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4-fluorophenyl, 4-chlorophenyl, 2,6-di-fluorophenyl, 2,6-di-chlorophenyl, 2-methyl, 3-methoxyphenyl, 2-ethyl, 3-methoxyphenyl, 3,4-di-methoxyphenyl, 3,5-di-fluorophenyl, 3,5-di-methylphenyl, 3,5-dimethoxy, 4-methylphenyl, 2-fluoro-3-chlorophenyl, 3-chloro-4-fluorophenyl, and 2-phenylpropan-2-amine. The term optionally substituted aryl includes aryl groups having fused optionally substituted cycloalkyl groups and fused optionally substituted heterocyclo groups. Non-limiting examples include: 2,3-dihydro-1H-inden-1-yl, 1,2,3,4-tetrahydronaphthalen-1-yl, 1,3,4,5-tetrahydro-2H-benzo[c]azepin-2-yl, 1,2,3,4-tetrahydroisoquinolin-1-yl, and 2-oxo-2,3,4,5-tetrahydro-1H-benzo[d]azepin-1-yl.

[0497] The term "heteroaryl" as used herein by itself or as part of another group refers to monocyclic and bicyclic aromatic ring systems having five to 14 fourteen ring members, i.e., a 5- to 14-membered heteroaryl, comprising one, two, three, or four heteroatoms. Each heteroatom is independently oxygen, sulfur, or nitrogen. In one embodiment, the heteroaryl has three heteroatoms. In another embodiment, the heteroaryl has two heteroatoms. In another embodiment, the heteroaryl has one heteroatom. In another embodiment, the heteroaryl is a 5- to 10-membered heteroaryl. In another embodiment, the heteroaryl has 5 ring atoms, e.g., thienyl, a 5-membered heteroaryl having four carbon atoms and one sulfur atom. In another embodiment, the heteroaryl has 6 ring atoms, e.g., pyridyl, a 6-membered heteroaryl having five carbon atoms and one nitrogen atom. Non-limiting exemplary heteroaryl groups include thienyl, benzo[b]thienyl, naphtho[2,3-b]thienyl, thianthrenyl, furyl, benzofuryl, pyranyl, isobenzofuranyl, benzooxazonyl, chromenyl, xanthenyl, 2*H*-pyrrolyl, pyrrolyl, imidazolyl, pyrazolyl, pyridyl, pyrazinyl, pyrimidinyl, pyridazinyl, isoindolyl, 3*H*-indolyl, indolyl, indazolyl, purinyl, isoquinolyl, quinolyl, phthalazinyl, naphthyridinyl, cinnolyl, quinazolinyl, pteridinyl, 4*aH*-carbazolyl, carbazolyl, β -carbolinyl, phenanthridinyl, acridinyl, pyrimidinyl, phenanthrolinyl, phenazinyl, thiazolyl, isothiazolyl, phenothiazolyl, isoxazolyl, furazanyl, and phenoxazinyl. In one embodiment, the heteroaryl is chosen from thienyl (e.g., thien-2-yl and thien-3-yl), furyl (e.g., 2-furyl and 3-furyl), pyrrolyl (e.g., 1*H*-pyrrol-2-yl and 1*H*-pyrrol-3-yl), imidazolyl (e.g., 2*H*-imidazol-2-yl and 2*H*-imidazol-4-yl), pyrazolyl (e.g., 1*H*-pyrazol-3-yl, 1*H*-pyrazol-4-yl, and 1*H*-pyrazol-5-yl), pyridyl (e.g., pyridin-2-yl, pyridin-3-yl, and pyridin-4-yl), pyrimidinyl (e.g., pyrimidin-2-yl, pyrimidin-4-yl, and pyrimidin-5-yl), thiazolyl (e.g., thiazol-2-yl, thiazol-4-yl, and

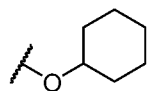
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thiazol-5-yl), isothiazolyl (e.g., isothiazol-3-yl, isothiazol-4-yl, and isothiazol-5-yl), oxazolyl (e.g., oxazol-2-yl, oxazol-4-yl, and oxazol-5-yl) and isoxazolyl (e.g., isoxazol-3-yl, isoxazol-4-yl, and isoxazol-5-yl). The term heteroaryl also includes N-oxides. A non-limiting exemplary N-oxide is pyridyl N-oxide.

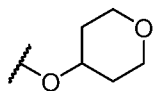
[0498] The term "optionally substituted heteroaryl" as used herein by itself or as part of another group refers to a heteroaryl that is either unsubstituted or substituted with one to four substituents, wherein the substituents are independently halo, nitro, cyano, hydroxy, amino, (e.g., $-\text{NH}_2$, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, $-\text{N}(\text{R}^{56a})\text{C}(=\text{O})\text{R}^{56b}$, $-\text{N}(\text{R}^{56c})\text{S}(=\text{O})_2\text{R}^{56d}$, $-\text{C}(=\text{O})\text{R}^{57}$, $-\text{S}(=\text{O})\text{R}^{56e}$, $-\text{S}(=\text{O})_2\text{R}^{58}$, OR^{59} , $-\text{N}(\text{R}^{56a})\text{C}(=\text{N}-\text{R}^{60})\text{R}^{61}$, $-\text{N}(\text{R}^{56a})\text{C}(=\text{C}-\text{NO}_2)\text{R}^{64}$, $-\text{C}(=\text{N}-\text{R}^{60})\text{R}^{61}$, or $-\text{C}(=\text{C}-\text{NO}_2)\text{R}^{64}$, wherein R^{56a} , R^{56b} , R^{56c} , R^{56d} , R^{56e} , R^{57} , R^{58} , R^{59} , R^{60} , R^{61} , and R^{64} are as defined in connection with the term "optionally substituted cycloalkyl." In one embodiment, optionally substituted heteroaryl is either unsubstituted or substituted with one to four substituents, wherein the substituents are independently halo, nitro, cyano, hydroxy, amino, (e.g., $-\text{NH}_2$, alkylamino, dialkylamino, aralkylamino, hydroxyalkylamino, or (heterocyclo)alkylamino), heteroalkyl, haloalkyl, hydroxyalkyl, alkoxy, haloalkoxy, aryloxy, aralkyl, aralkyloxy, alkylthio, carboxamido, sulfonamido, alkylcarbonyl, arylcarbonyl, alkylsulfonyl, arylsulfonyl, ureido, guanidino, carboxy, carboxyalkyl, optionally substituted alkyl, optionally substituted cycloalkyl, alkenyl, alkynyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted heterocyclo, alkoxyalkyl, (amino)alkyl, (cyano)alkyl, (carboxamido)alkyl, mercaptoalkyl, (heterocyclo)alkyl, (heteroaryl)alkyl, $-\text{N}(\text{R}^{56a})\text{C}(=\text{O})\text{R}^{56b}$, $-\text{N}(\text{R}^{56c})\text{S}(=\text{O})_2\text{R}^{56d}$, $-\text{C}(=\text{O})\text{R}^{57}$, $-\text{S}(=\text{O})\text{R}^{56e}$, $-\text{S}(=\text{O})_2\text{R}^{58}$, or $-\text{OR}^{59}$.

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- [0499] In one embodiment, the optionally substituted heteroaryl has two substituents. In another embodiment, the optionally substituted heteroaryl has one substituent. Any available carbon or nitrogen atom can be substituted.
- [0500] The term "aryloxy" as used herein by itself or as part of another group refers to an optionally substituted aryl attached to a terminal oxygen atom. A non-limiting exemplary aryloxy group is PhO-.
- [0501] The term "heteroaryloxy" as used herein by itself or as part of another group refers to an optionally substituted heteroaryl attached to a terminal oxygen atom. A non-limiting exemplary aryloxy group is pyridyl-O-.
- [0502] The term "aralkyloxy" as used herein by itself or as part of another group refers to an aralkyl attached to a terminal oxygen atom. A non-limiting exemplary aralkyloxy group is PhCH₂O-.
- [0503] The term "(cycloalkyl)oxy" as used herein by itself or as part of another group refers to a cycloalkyl group attached to a terminal oxygen atom. A non-limiting exemplary cycloalkyloxy group is:



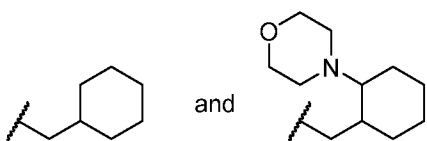
- [0504] The term "(heterocyclo)oxy" as used herein by itself or as part of another group refers to a heterocyclo group attached to a terminal oxygen atom. A non-limiting exemplary (heterocyclo)oxy group is:



- [0505] The term "(cyano)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one, two, or three cyano groups. In one embodiment, the alkyl is substituted with one cyano group. In another embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. Non-limiting exemplary (cyano)alkyl groups include -CH₂CH₂CN and -CH₂CH₂CH₂CN.
- [0506] The term "(cycloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one optionally substituted cycloalkyl group. In one embodiment, the cycloalkyl group is an optionally substituted C₃-C₆ cycloalkyl. In another embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a

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C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (cycloalkyl)alkyl groups include:



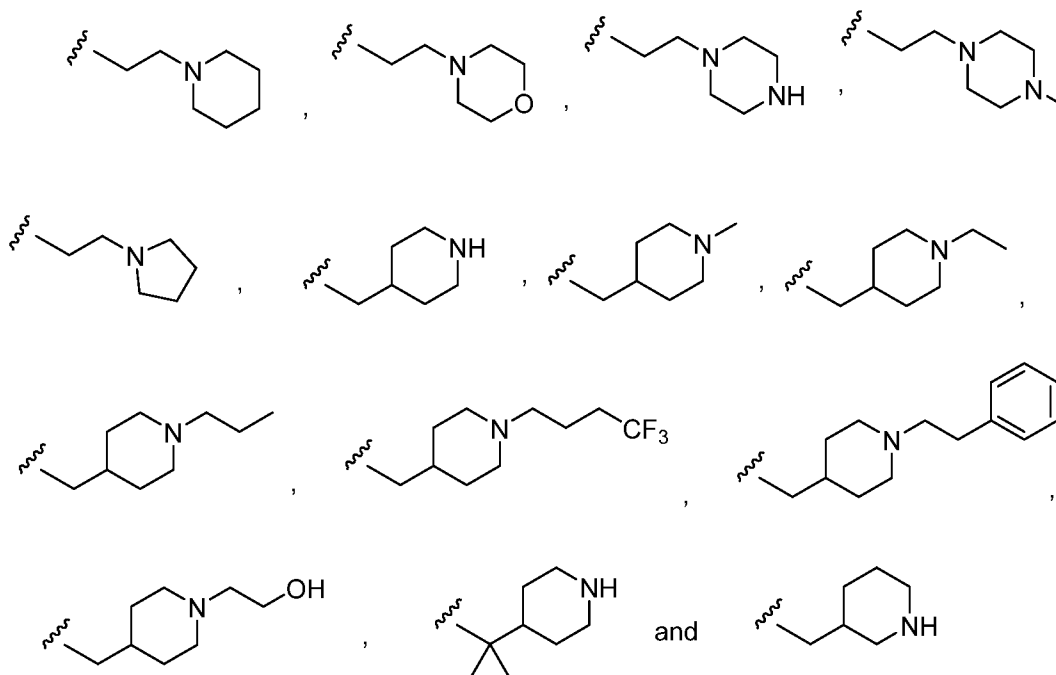
- [0507] The term "sulfonamido" as used herein by itself or as part of another group refers to a radical of the formula $-\text{SO}_2\text{NR}^{50a}\text{R}^{50b}$, wherein R^{50a} and R^{50b} are each independently hydrogen, alkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, or optionally substituted heteroaryl; or R^{50a} and R^{50b} taken together with the nitrogen to which they are attached form a 3- to 8-membered optionally substituted heterocyclo group. Non-limiting exemplary sulfonamido groups include $-\text{SO}_2\text{NH}_2$, $-\text{SO}_2\text{N(H)CH}_3$, and $-\text{SO}_2\text{N(H)Ph}$.
- [0508] The term "alkylcarbonyl" as used herein by itself or as part of another group refers to a carbonyl group, i.e., $-\text{C(=O)}-$, substituted by an alkyl group. In one embodiment, the alkyl is a C₁-C₄ alkyl. A non-limiting exemplary alkylcarbonyl group is $-\text{COCH}_3$.
- [0509] The term "arylcabonyl" as used herein by itself or as part of another group refers to a carbonyl group, i.e., $-\text{C(=O)}-$, substituted by an optionally substituted aryl group. A non-limiting exemplary arylcarbonyl group is $-\text{COPh}$.
- [0510] The term "alkylsulfonyl" as used herein by itself or as part of another group refers to a sulfonyl group, i.e., $-\text{SO}_2-$, substituted by an alkyl group. A non-limiting exemplary alkylsulfonyl group is $-\text{SO}_2\text{CH}_3$.
- [0511] The term "arylsulfonyl" as used herein by itself or as part of another group refers to a sulfonyl group, i.e., $-\text{SO}_2-$, substituted by an optionally substituted aryl group. A non-limiting exemplary arylsulfonyl group is $-\text{SO}_2\text{Ph}$.
- [0512] The term "mercaptoalkyl" as used herein by itself or as part of another group refers to an alkyl substituted by a $-\text{SH}$ group.
- [0513] The term "carboxy" as used by itself or as part of another group refers to a radical of the formula $-\text{C(=O)OH}$.
- [0514] The term "ureido" as used herein by itself or as part of another group refers to a radical of the formula $-\text{NR}^{51a}-\text{C(=O)}-\text{NR}^{51b}\text{R}^{51c}$, wherein R^{51a} is hydrogen or alkyl; and R^{51b} and R^{51c} are each independently hydrogen, alkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, or optionally substituted heteroaryl, or R^{51b} and R^{51c} taken together with the nitrogen to which they are attached form a 4- to

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8-membered optionally substituted heterocyclo group. Non-limiting exemplary ureido groups include -NH-C(=O)-NH_2 and -NH-C(=O)-NHCH_3 .

[0515] The term "guanidino" as used herein by itself or as part of another group refers to a radical of the formula $\text{-NR}^{52a}\text{-C(=NR}^{53}\text{)-NR}^{52b}\text{R}^{52c}$, wherein R^{52a} is hydrogen or alkyl; R^{52b} and R^{52c} are each independently hydrogen, alkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, or optionally substituted heteroaryl; or R^{52b} and R^{52c} taken together with the nitrogen to which they are attached form a 4- to 8-membered optionally substituted heterocyclo group; and R^{53} is hydrogen, alkyl, cyano, alkylsulfonyl, alkylcarbonyl, carboxamido, or sulfonamido. Non-limiting exemplary guanidino groups include -NH-C(=NH)-NH_2 , -NH-C(=NCN)-NH_2 , and -NH-C(=NH)-NHCH_3 .

[0516] The term "(heterocyclo)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one, two, or three optionally substituted heterocyclo groups. In one embodiment, the alkyl is substituted with one optionally substituted 5- to 8-membered heterocyclo group. In another embodiment, alkyl is a $\text{C}_1\text{-C}_6$ alkyl. In another embodiment, alkyl is a $\text{C}_1\text{-C}_4$ alkyl. The heterocyclo group can be linked to the alkyl group through a carbon or nitrogen atom. Non-limiting exemplary (heterocyclo)alkyl groups include:

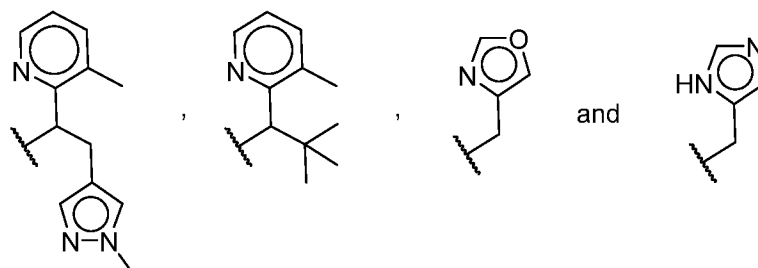


[0517] The term "carbamate" as used herein by itself or as part of another group refers to a radical of the formula $\text{-NR}^{54a}\text{-C(=O)-OR}^{54b}$, wherein R^{54a} is hydrogen or alkyl, and R^{54b} is

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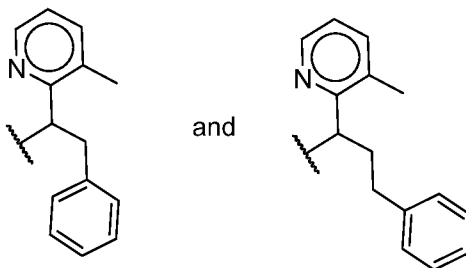
hydrogen, alkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, or optionally substituted heteroaryl. A non-limiting exemplary carbamate group is -NH-(C=O)-OtBu.

[0518] The term "(heteroaryl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one or two optionally substituted heteroaryl groups. In one embodiment, the alkyl group is substituted with one optionally substituted 5- to 14-membered heteroaryl group. In another embodiment, the alkyl group is substituted with two optionally substituted 5- to 14-membered heteroaryl groups. In another embodiment, the alkyl group is substituted with one optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the alkyl group is substituted with two optionally substituted 5- to 9-membered heteroaryl groups. In another embodiment, the alkyl group is substituted with one optionally substituted 5- or 6-membered heteroaryl group. In another embodiment, the alkyl group is substituted with two optionally substituted 5- or 6-membered heteroaryl groups. In one embodiment, the alkyl group is a C₁-C₆ alkyl. In another embodiment, the alkyl group is a C₁-C₄ alkyl. In another embodiment, the alkyl group is a C₁ or C₂ alkyl. Non-limiting exemplary (heteroaryl)alkyl groups include:

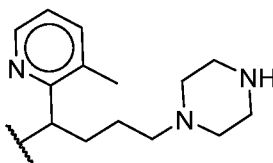


[0519] The term "(heteroaryl)(aryl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one optionally substituted aryl group. In one embodiment, the heteroaryl is an optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the aryl is an optionally substituted phenyl group or optionally substituted naphthyl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (heteroaryl)(aryl)alkyl groups include:

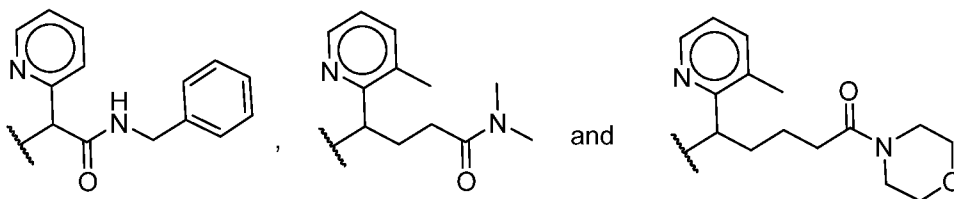
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[0520] The term "(heteroaryl)(heterocyclo)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one optionally substituted heterocyclo group. In one embodiment, the heteroaryl is an optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the heterocyclo is an optionally substituted 5- to 8-membered heterocyclo. In another embodiment, the heterocyclo is an optionally substituted 5- or 6-membered heterocyclo. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (heteroaryl)(heterocyclo)alkyl group is:



[0521] The term "(heteroaryl)(carboxamido)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one carboxamido group. In one embodiment, the heteroaryl is an optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁-C₃ alkyl. Non-limiting exemplary (heteroaryl)(carboxamido)alkyl groups include:

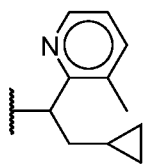


[0522] The term "carboxamido" as used herein by itself or as part of another group refers to a radical of formula $-C(=O)NR^{55a}R^{55b}$, wherein R^{55a} and R^{55b} are each independently

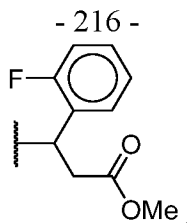
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hydrogen, optionally substituted alkyl, optionally substituted alkenyl, optionally substituted alkynyl, haloalkyl, (alkoxy)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, optionally substituted heteroaryl, (aryl)alkyl, (cycloalkyl)alkyl, (heterocyclo)alkyl, or (heteroaryl)alkyl; or R^{55a} and R^{55b} taken together with the nitrogen to which they are attached from a 4- to 8-membered optionally substituted heterocyclo group. Non-limiting exemplary carboxamido groups include: morpholine-4-carbonyl, N,N-dimethylaminocarbonyl, N-(1-methylpiperidin-4-yl)aminocarbonyl, 4-methylpiperazine-1-carbonyl, N-(3-aminocyclopentyl)aminocarbonyl, N-(pyridin-3-yl)aminocarbonyl, and N-(tetrahydrofuran-3-yl)aminocarbonyl.

[0523] The term "(heteroaryl)(cycloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one optionally substituted cycloalkyl group. In one embodiment, the heteroaryl is an optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the cycloalkyl is an optionally substituted C₃-C₆ cycloalkyl. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁-C₃ alkyl. A non-limiting exemplary (heteroaryl)(C₃-C₆ cycloalkyl) alkyl group is:

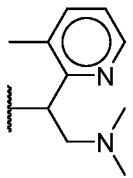


[0524] The term "(aryl)(alkoxycarbonyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted aryl group and one alkoxycarbonyl group. In one embodiment, the aryl is an optionally substituted phenyl group or optionally substituted naphthyl group. In another embodiment, the aryl is an optionally substituted phenyl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (aryl)(alkoxycarbonyl)alkyl group is:

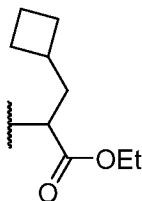


[0525] The term "alkoxycarbonyl" as used herein by itself or as part of another group refers to a carbonyl group, i.e., $-C(=O)-$, substituted by a C_1 - C_6 alkoxy group. In one embodiment, the alkoxy group is a C_1 - C_4 alkoxy. In another embodiment, the alkoxy group is a C_1 - C_3 alkoxy. Non-limiting exemplary alkoxycarbonyl groups include $-CO_2Me$ and $-CO_2Et$.

[0526] The term "(heteroaryl)(amino)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one amino group. In one embodiment, the heteroaryl is an optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the alkyl is a C_1 - C_6 alkyl. In another embodiment, the alkyl is a C_1 - C_4 alkyl. In another embodiment, the alkyl is a C_1 or C_2 alkyl. A non-limiting exemplary (heteroaryl)(amino)alkyl group is:



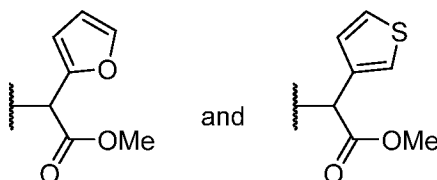
[0527] The term "(cycloalkyl)(alkoxycarbonyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted cycloalkyl group and one alkoxycarbonyl group. In one embodiment, the cycloalkyl is an optionally substituted C_3 - C_6 cycloalkyl. In one embodiment, the alkyl is a C_1 - C_6 alkyl. In another embodiment, the alkyl is a C_1 - C_4 alkyl. In another embodiment, the alkyl is a C_1 or C_2 alkyl. A non-limiting exemplary (cycloalkyl)(alkoxycarbonyl)alkyl group is:



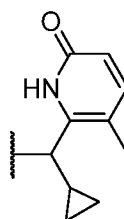
[0528] The term "(heteroaryl)(alkoxycarbonyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heteroaryl group and one alkoxycarbonyl group. In one embodiment, the heteroaryl is an

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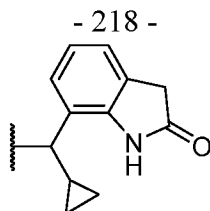
optionally substituted 5- to 9-membered heteroaryl group. In another embodiment, the heteroaryl is an optionally substituted 5- or 6-membered heteroaryl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (heteroaryl)(alkoxycarbonyl)alkyl groups include:



[0529] The term "(heterocyclo)(cycloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted heterocyclo group and one optionally substituted cycloalkyl group. In one embodiment, the heterocyclo is an optionally substituted 5- to 8-membered heterocyclo. In another embodiment, the heterocyclo is an optionally substituted 5- or 6-membered heterocyclo. In one embodiment, the cycloalkyl is an optionally substituted C₃-C₆ cycloalkyl. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (heterocyclo)(cycloalkyl)alkyl group is:

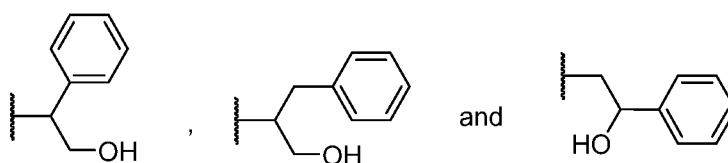


[0530] The term "(aryl)(cycloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted aryl group and one optionally substituted cycloalkyl group. In one embodiment, the aryl is an optionally substituted phenyl group or optionally substituted naphthyl group. In another embodiment, the aryl is an optionally substituted phenyl group. In one embodiment, the cycloalkyl is an optionally substituted C₃-C₆ cycloalkyl. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (aryl)(cycloalkyl)alkyl group is:

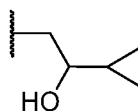


[0531] The terms "aralkyl" or "(aryl)alkyl" as used herein by themselves or as part of another group refers to an alkyl substituted with one, two, or three optionally substituted aryl groups. In one embodiment, the alkyl is substituted with one optionally substituted aryl group. In another embodiment, the alkyl is substituted with two optionally substituted aryl groups. In one embodiment, the aryl is an optionally substituted phenyl or optionally substituted naphthyl. In another embodiment, the aryl is an optionally substituted phenyl. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (aryl)alkyl groups include benzyl, phenethyl, -CHPh₂, and -CH(4-F-Ph)₂.

[0532] The term "(aryl)(hydroxy)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one optionally substituted aryl group and one hydroxyl group. In one embodiment, the aryl is an optionally substituted phenyl group or optionally substituted naphthyl group. In another embodiment, the aryl is an optionally substituted phenyl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (aryl)(hydroxy)alkyl groups include:

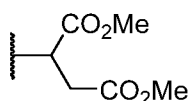


[0533] The term "(cycloalkyl)(hydroxy)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one optionally substituted cycloalkyl group and one hydroxyl group. In one embodiment, the cycloalkyl group is an optionally substituted C₃-C₆ cycloalkyl group. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (cycloalkyl)(hydroxy)alkyl group is:

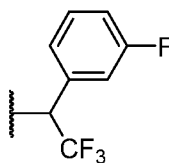


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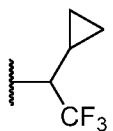
[0534] The term "(alkoxycarbonyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one or two alkoxycarbonyl groups. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (alkoxycarbonyl)alkyl groups is:



[0535] The term "(aryl)(haloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one optionally substituted aryl group and one haloalkyl group. In one embodiment, the aryl is an optionally substituted group or optionally substituted naphthyl. In another embodiment, the aryl is an optionally substituted phenyl. In one embodiment, the haloalkyl is a C₁-C₄ haloalkyl. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (aryl)(haloalkyl)alkyl groups is:

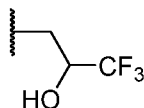


[0536] The term "(cycloalkyl)(haloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one optionally substituted cycloalkyl group and one haloalkyl group. In one embodiment, the cycloalkyl is an optionally substituted C₃-C₆ cycloalkyl. In one embodiment, the haloalkyl is a C₁-C₄ haloalkyl. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (cycloalkyl)(haloalkyl)alkyl groups is:

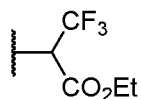


[0537] The term "(hydroxy)(haloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one hydroxy group and one haloalkyl group. In one embodiment, the haloalkyl is a C₁-C₄ haloalkyl. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (hydroxy)(haloalkyl)alkyl groups is:

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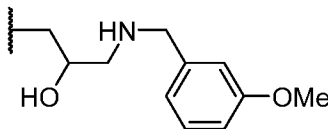
[0538] The term "(alkoxycarbonyl)(haloalkyl)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one alkoxycarbonyl group and one haloalkyl group. In one embodiment, the haloalkyl is a C₁-C₄ haloalkyl. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (alkoxycarbonyl)(haloalkyl)alkyl groups is:



[0539] The term "(carboxamido)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with a carboxamido group. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. Non-limiting exemplary (carboxamido)alkyl groups include -CH₂C(=O)NH₂, -C(H)(CH₃)C(=O)NH₂, -CH₂C(=O)N(H)CH₃, and -CH₂C(=O)N(CH₃)₂.

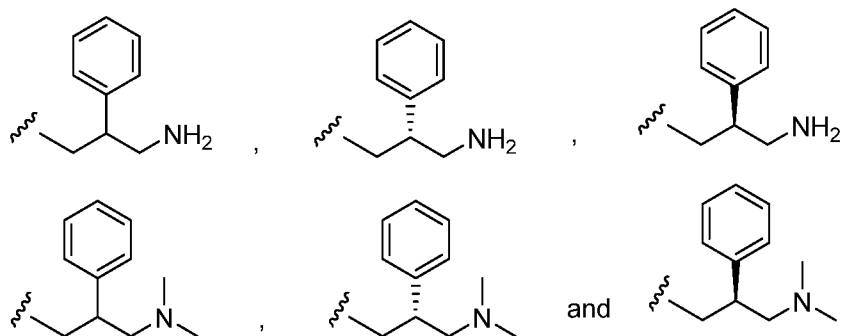
[0540] The term "(carboxy)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with -C(=O)OH. In one embodiment, the alkyl is a C₁-C₄ alkyl. In another embodiment, the alkyl is a C₁ or C₂ alkyl. A non-limiting exemplary (carboxy)alkyl group is -CH₂CO₂H.

[0541] The term "(amino)(hydroxy)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one hydroxy group and one amino group. In one embodiment, the alkyl is a C₁-C₄ alkyl. A non-limiting exemplary "(amino)(hydroxy)alkyl group is:



[0542] The term "(amino)(aryl)alkyl" as used herein by itself or as part of another group refers to an alkyl group substituted with one amino group and one optionally substituted aryl group. In one embodiment, the amino group is -NH₂, alkylamino, or dialkylamino. In one embodiment, the aryl group is an optionally substituted phenyl. In one embodiment, the alkyl is a C₁-C₆ alkyl. In another embodiment, the alkyl is a C₁-C₄ alkyl. Non-limiting exemplary (amino)(aryl)alkyl groups include:

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[0543] The term "amino" as used by itself or as part of another group refers to a radical of the formula $-NR^{55a}R^{55b}$, wherein R^{55a} and R^{55b} are independently hydrogen, optionally substituted alkyl, haloalkyl, (hydroxy)alkyl, (alkoxy)alkyl, (amino)alkyl, heteroalkyl, optionally substituted cycloalkyl, optionally substituted heterocyclo, optionally substituted aryl, optionally substituted heteroaryl, (aryl)alkyl, (cycloalkyl)alkyl, (heterocyclo)alkyl, or (heteroaryl)alkyl.

[0544] In one embodiment, the amino is $-NH_2$.

[0545] In another embodiment, the amino is an "alkylamino," i.e., an amino group wherein R^{55a} is C_{1-6} alkyl and R^{55b} is hydrogen. In one embodiment, R^{55a} is C_1 - C_4 alkyl. Non-limiting exemplary alkylamino groups include $-N(H)CH_3$ and $-N(H)CH_2CH_3$.

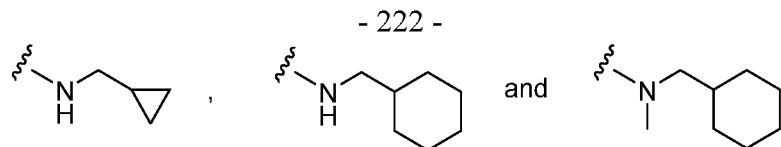
[0546] In another embodiment, the amino is a "dialkylamino," i.e., an amino group wherein R^{55a} and R^{55b} are each independently C_{1-6} alkyl. In one embodiment, R^{55a} and R^{55b} are each independently C_1 - C_4 alkyl. Non-limiting exemplary dialkylamino groups include $-N(CH_3)_2$ and $-N(CH_3)CH_2CH(CH_3)_2$.

[0547] In another embodiment, the amino is a "hydroxyalkylamino," i.e., an amino group wherein R^{55a} is (hydroxy)alkyl and R^{55b} is hydrogen or C_1 - C_4 alkyl.

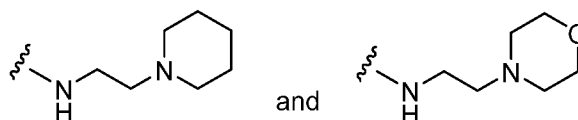
[0548] In another embodiment, the amino is a "cycloalkylamino," i.e., an amino group wherein R^{55a} is optionally substituted cycloalkyl and R^{55b} is hydrogen or C_1 - C_4 alkyl.

[0549] In another embodiment, the amino is a "aralkylamino," i.e., an amino group wherein R^{55a} is aralkyl and R^{55b} is hydrogen or C_1 - C_4 alkyl. Non-limiting exemplary aralkylamino groups include $-N(H)CH_2Ph$, $-N(H)CHPh_2$, and $-N(CH_3)CH_2Ph$.

[0550] In another embodiment, the amino is a "(cycloalkyl)alkylamino," i.e., an amino group wherein R^{55a} is (cycloalkyl)alkyl and R^{55b} is hydrogen or C_1 - C_4 alkyl. Non-limiting exemplary (cycloalkyl)alkylamino groups include:



[0551] In another embodiment, the amino is a "(heterocyclo)alkylamino," i.e., an amino group wherein R^{55a} is (heterocyclo)alkyl and R^{55b} is hydrogen or C_1 - C_4 alkyl. Non-limiting exemplary (heterocyclo)alkylamino groups include:



[0552] The term "(amino)alkyl" as used herein by itself or as part of another group refers to an alkyl substituted with one amino group. In one embodiment, the amino group is $-NH_2$. In one embodiment, the amino group is an alkylamino. In another embodiment, the amino group is a dialkylamino. In another embodiment, the alkyl is a C_1 - C_6 alkyl. In another embodiment, the alkyl is a C_1 - C_4 alkyl. Non-limiting exemplary (amino)alkyl groups include $-CH_2NH_2$, $CH_2CH_2N(H)CH_3$, $-CH_2CH_2N(CH_3)_2$, $CH_2N(H)$ cyclopropyl, $-CH_2N(H)$ cyclobutyl, and $-CH_2N(H)$ cyclohexyl, and $-CH_2CH_2CH_2N(H)CH_2Ph$ and $-CH_2CH_2CH_2N(H)CH_2(4-CF_3-Ph)$.

[0553] The present disclosure encompasses any of the Compounds of the Disclosure being isotopically-labelled (i.e., radiolabeled) by having one or more atoms replaced by an atom having a different atomic mass or mass number. Examples of isotopes that can be incorporated into the disclosed compounds include isotopes of hydrogen, carbon, nitrogen, oxygen, phosphorous, fluorine and chlorine, such as ^2H (or deuterium (D)), ^3H , ^{11}C , ^{13}C , ^{14}C , ^{15}N , ^{18}O , ^{17}O , ^{31}P , ^{32}P , ^{35}S , ^{18}F , and ^{36}Cl , respectively, e.g., ^3H , ^{11}C , and ^{14}C . In one embodiment, provided is a composition wherein substantially all of the atoms at a position within the Compound of the Disclosure are replaced by an atom having a different atomic mass or mass number. In another embodiment, provided is a composition wherein a portion of the atoms at a position within the Compound of the disclosure are replaced, i.e., the Compound of the Disclosure is enriched at a position with an atom having a different atomic mass or mass number." Isotopically-labelled Compounds of the Disclosure can be prepared by methods known in the art.

[0554] Compounds of the Disclosure may contain one or more asymmetric centers and may thus give rise to enantiomers, diastereomers, and other stereoisomeric forms. The present disclosure encompasses the use of all such possible forms, as well as their racemic and

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resolved forms and mixtures thereof. The individual enantiomers can be separated according to methods known in the art in view of the present disclosure. When the compounds described herein contain olefinic double bonds or other centers of geometric asymmetry, and unless specified otherwise, it is intended that they include both E and Z geometric isomers. All tautomers are also encompassed by the present disclosure.

[0555] As used herein, the term "stereoisomers" is a general term for all isomers of individual molecules that differ only in the orientation of their atoms in space. It includes enantiomers and isomers of compounds with more than one chiral center that are not mirror images of one another (diastereomers).

[0556] The term "chiral center" or "asymmetric carbon atom" refers to a carbon atom to which four different groups are attached.

[0557] The terms "enantiomer" and "enantiomeric" refer to a molecule that cannot be superimposed on its mirror image and hence is optically active wherein the enantiomer rotates the plane of polarized light in one direction and its mirror image compound rotates the plane of polarized light in the opposite direction.

[0558] The term "racemic" refers to a mixture of equal parts of enantiomers and which mixture is optically inactive. In one embodiment, Compounds of the Disclosure are racemic.

[0559] The term "absolute configuration" refers to the spatial arrangement of the atoms of a chiral molecular entity (or group) and its stereochemical description, e.g., R or S.

[0560] The stereochemical terms and conventions used in the specification are meant to be consistent with those described in *Pure & Appl. Chem* 68:2193 (1996), unless otherwise indicated.

[0561] The term "enantiomeric excess" or "ee" refers to a measure for how much of one enantiomer is present compared to the other. For a mixture of *R* and *S* enantiomers, the percent enantiomeric excess is defined as $|R - S| * 100$, where *R* and *S* are the respective mole or weight fractions of enantiomers in a mixture such that $R + S = 1$. With knowledge of the optical rotation of a chiral substance, the percent enantiomeric excess is defined as $([\alpha]_{\text{obs}}/[\alpha]_{\text{max}})*100$, where $[\alpha]_{\text{obs}}$ is the optical rotation of the mixture of enantiomers and $[\alpha]_{\text{max}}$ is the optical rotation of the pure enantiomer. Determination of enantiomeric excess is possible using a variety of analytical techniques, including NMR spectroscopy, chiral column chromatography or optical polarimetry.

- [0562] In one embodiment, Compounds of the Disclosure having one or more chiral centers are enantiomerically enriched, e.g., the ee is about 5% or more. In another embodiment, the ee is about 10%. In another embodiment, the ee is about 20%. In another embodiment, the ee is about 30%. In another embodiment, the ee is about 40%. In another embodiment, the ee is about 50%. In another embodiment, the ee is about 60%. In another embodiment, the ee is about 70%. In another embodiment, the ee is about 80%. In another embodiment, the ee is about 85%. In another embodiment, the ee is about 90%. In another embodiment, the ee is about 91%. In another embodiment, the ee is about 92%. In another embodiment, the ee is about 93%. In another embodiment, the ee is about 94%. In another embodiment, the ee is about 95%. In another embodiment, the ee is about 96%. In another embodiment, the ee is about 97%. In another embodiment, the ee is about 98%. In another embodiment, the ee is about 99%.
- [0563] The terms "a" and "an" refer to one or more.
- [0564] The term "about," as used herein, includes the recited number $\pm 10\%$. Thus, "about 10" means 9 to 11.
- [0565] The terms "treat," "treating," "treatment," and the like as used herein refer to eliminating, reducing, or ameliorating a disease or condition, and/or symptoms associated therewith. Although not precluded, treating a disease or condition does not require that the disease, condition, or symptoms associated therewith be completely eliminated. As used herein, the terms "treat," "treating," "treatment," and the like may include "prophylactic treatment," which refers to reducing the probability of redeveloping a disease or condition, or of a recurrence of a previously-controlled disease or condition, in a subject who does not have, but is at risk of or is susceptible to, redeveloping a disease or condition or a recurrence of the disease or condition. The term "treat" and synonyms contemplate administering a therapeutically effective amount of a Compound of the Disclosure to an individual in need of such treatment.
- [0566] Within the meaning of the disclosure, "treatment" also includes relapse prophylaxis or phase prophylaxis, as well as the treatment of acute or chronic signs, symptoms and/or malfunctions. The treatment can be orientated symptomatically, for example, to suppress symptoms. It can be effected over a short period, be oriented over a medium term, or can be a long-term treatment, for example within the context of a maintenance therapy.

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- [0567] The term "therapeutically effective amount" or "effective dose" as used herein refers to an amount of the active ingredient(s) that is(are) sufficient, when administered by a method of the disclosure, to efficaciously deliver the active ingredient(s) for the treatment of condition or disease of interest to an individual in need thereof. In the case of a cancer or other proliferation disorder, the therapeutically effective amount of the agent may reduce (*i.e.*, retard to some extent and preferably stop) unwanted cellular proliferation; reduce the number of cancer cells; reduce the tumor size; inhibit (*i.e.*, retard to some extent and preferably stop) cancer cell infiltration into peripheral organs; inhibit (*i.e.*, retard to some extent and preferably stop) tumor metastasis; inhibit, to some extent, tumor growth; modulate protein methylation in the target cells; and/or relieve, to some extent, one or more of the symptoms associated with the cancer. To the extent the administered compound or composition prevents growth and/or kills existing cancer cells, it may be cytostatic and/or cytotoxic.
- [0568] The term "container" means any receptacle and closure therefore suitable for storing, shipping, dispensing, and/or handling a pharmaceutical product.
- [0569] The term "insert" means information accompanying a pharmaceutical product that provides a description of how to administer the product, along with the safety and efficacy data required to allow the physician, pharmacist, and patient to make an informed decision regarding use of the product. The package insert generally is regarded as the "label" for a pharmaceutical product.
- [0570] The term "disease" or "condition" or "disorder" denotes disturbances and/or anomalies that as a rule are regarded as being pathological conditions or functions, and that can manifest themselves in the form of particular signs, symptoms, and/or malfunctions. Compounds of the Disclosure inhibit SETD2 protein and can be used in treating diseases and conditions such as proliferative diseases, wherein inhibition of SETD2 protein provides a benefit. *See, e.g.*, U.S. Provisional Appl. No. 62/545,353.
- [0571] In some embodiments, the Compounds of the Disclosure can be used to treat a "SETD2 protein mediated disorder" A SETD2 protein mediated disorder is any pathological condition in which a SETD2 protein is known to play a role. In some embodiments, a SETD2 mediated disorder is a proliferative disease.
- [0572] In some embodiments inhibiting SETD2 protein is the inhibition of the activity of one or more activities of SETD2 protein. In some embodiments, the activity of the SETD2

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protein is the ability of the SETD2 protein to transfer a methyl group to a target protein, e.g., histone. It should be appreciated that the activity of SETD2 may be inhibited *in vitro* or *in vivo*. Exemplary levels of inhibition of the activity of SETD2 include at least 5% inhibition, at least 10% inhibition, at least 20% inhibition, at least 30% inhibition, at least 40% inhibition, at least 50% inhibition, at least 60% inhibition, at least 70% inhibition, at least 80% inhibition, at least 90% inhibition, and up to about 100% inhibition.

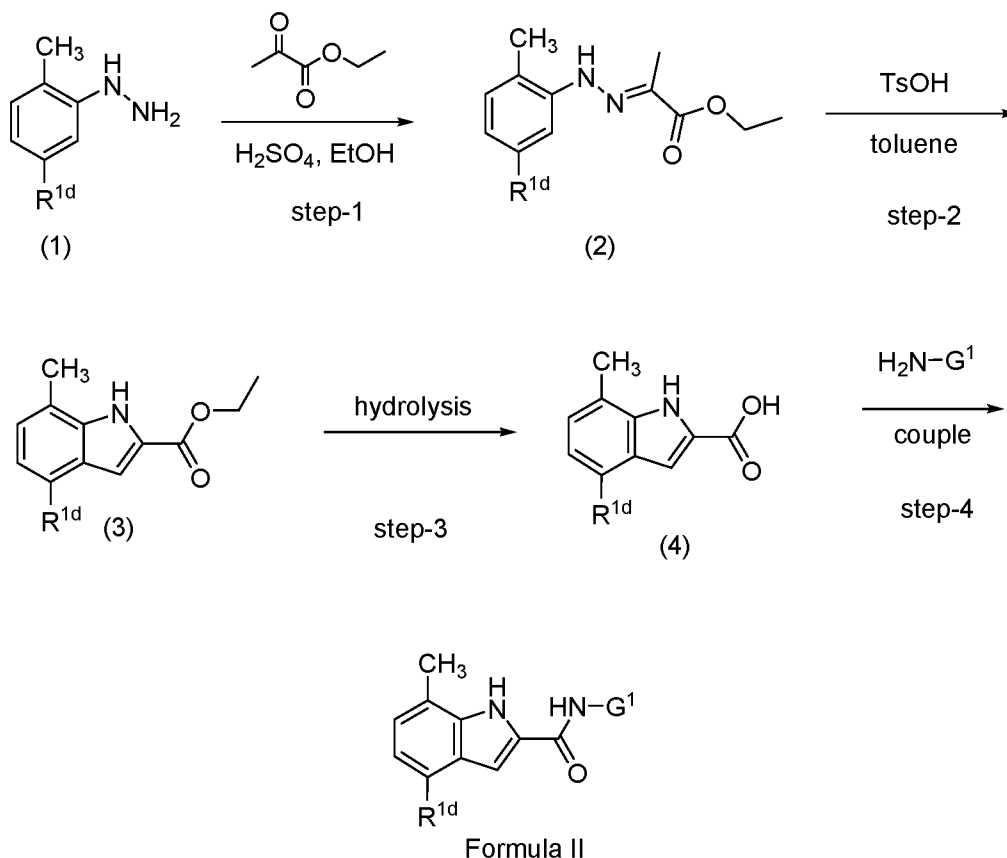
[0573] The term "biological sample" as used herein refers any tissue or fluid from a subject that is suitable for detecting chromosomal translocations. Examples of useful biological samples include, but are not limited to, biopsied tissues and/or cells, e.g., solid tumor, lymph gland, inflamed tissue, tissue and/or cells involved in a condition or disease, blood, plasma, serous fluid, cerebrospinal fluid, saliva, urine, lymph, cerebral spinal fluid, and the like. Other suitable biological samples will be familiar to those of ordinary skill in the relevant arts. A biological sample can be analyzed for chromosomal translocations using any technique known in the art. Such techniques include, but are not limited to, polymerase chain reaction (PCR) methodology, reverse transcription-polymerase chain reaction (RT-PCR) methodology, or cytoplasmic light chain immunofluorescence combined with fluorescence in situ hybridization (cIg-FISH). A biological sample can be obtained using techniques that are well within the scope of ordinary knowledge of a clinical practitioner. In one embodiment of the disclosure, the biological sample comprises blood cells.

General Synthesis of Compounds

- [0574] Compounds of the Disclosure are prepared using methods known to those skilled in the art in view of this disclosure, or by the illustrative methods shown in the General Schemes below. In the General Schemes, R^{1d} , R^{2b} , R^{2d} , R^{2e} , A^1 , A^2 , R^{11a} , R^{14a} , R^{14b} , R^{19} , R^{20} , G , Z^4 , and q are as defined in connection with Formulae **II**, **III**, **IV**, **V**, or **VI**, unless otherwise indicated. In any of the General Schemes, suitable protecting groups can be employed in the synthesis, for example, when Z is (amino)alkyl or any other group that may require protection, or when R^8 is amino, (amino)alkyl, or any other group that may require protection. (See, Wuts, P. G. M.; Greene, T. W., "Greene's Protective Groups in Organic Synthesis", 4th Ed., J. Wiley & Sons, NY, 2007) unless otherwise indicated.
- [0575] In General Scheme 1, the aryl hydrazine of Formula (1) is reacted with ethyl 2-oxopropanoate to give a compound of Formula (2). In step 2, the compound of Formula (2) is converted to the indole of Formula (3) under acidic conditions. In step 3, the compound of Formula (3) is hydrolyzed to give the indole-2-carboxylic acid of Formula (4). In step 4, a compound of Formula (4) is reacted with G^1NH_2 under standard coupling conditions to give a compound of Formula **II**.

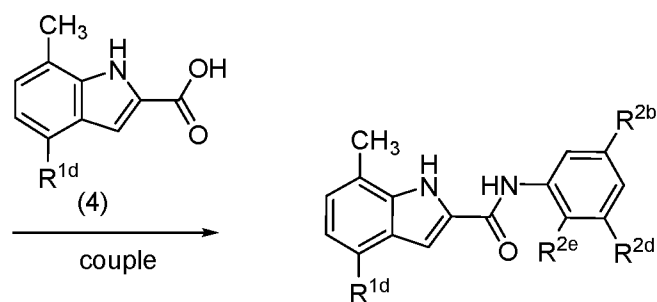
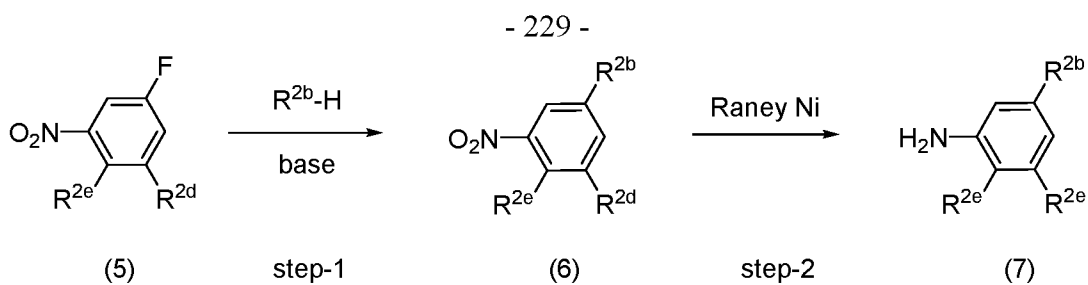
General Scheme 1

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[0576] In General Scheme 2, a compound of Formula (5) is reacted with $\text{R}^{2b}\text{-H}$ wherein R^{2b} is a heterocyclo, e.g., $\text{R}^{2b}\text{-H}$ is piperidine, or an amine, e.g., $\text{R}^{2b}\text{-H}$ is dimethyl amine, to give a compound of Formula (6). The nitro group of the compound of Formula (6) is reduced to give a compound of Formula (7). In step 3, the compound of Formula (7) is reacted with a compound of Formula (4), *see* General Scheme 1, under standard coupling conditions to give a compound of Formula III, wherein A^1 and A^2 are CH and R^{2b} is an optionally substituted heterocyclo or an amino group.

General Scheme 2



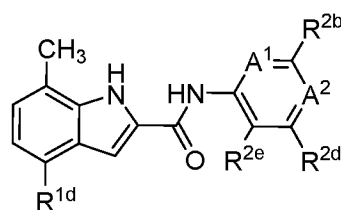
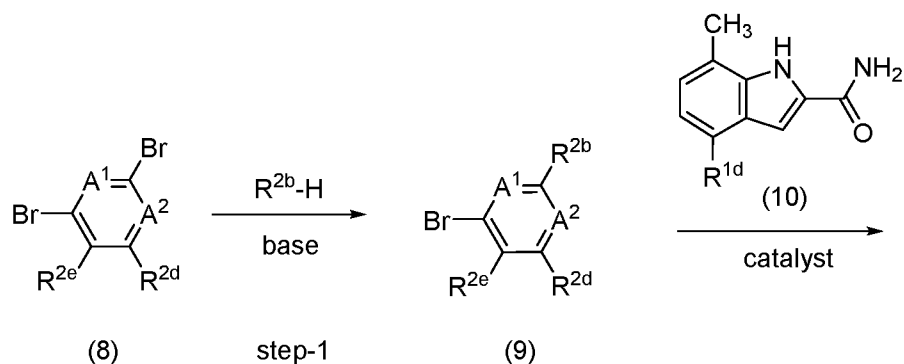
step-3

Formula III

(wherein A¹ and A² are CH; andR^{2b} is optionally substituted heterocyclo or amino)

[0577] In General Scheme 3, a compound of Formula (8) is reacted with R^{2b}-H wherein R^{2b} is a heterocyclo, e.g., R^{2b}-H is piperidine, or an amine, e.g., R^{2b}-H is dimethyl amine, to give a compound of Formula (9). In step 2, the compound of Formula (9) is reacted with a compound of Formula (10) to give a compound of Formula **III**, wherein A¹ and/or A² are N and R^{2b} is an optionally substituted heterocyclo or an amino group.

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General Scheme 3



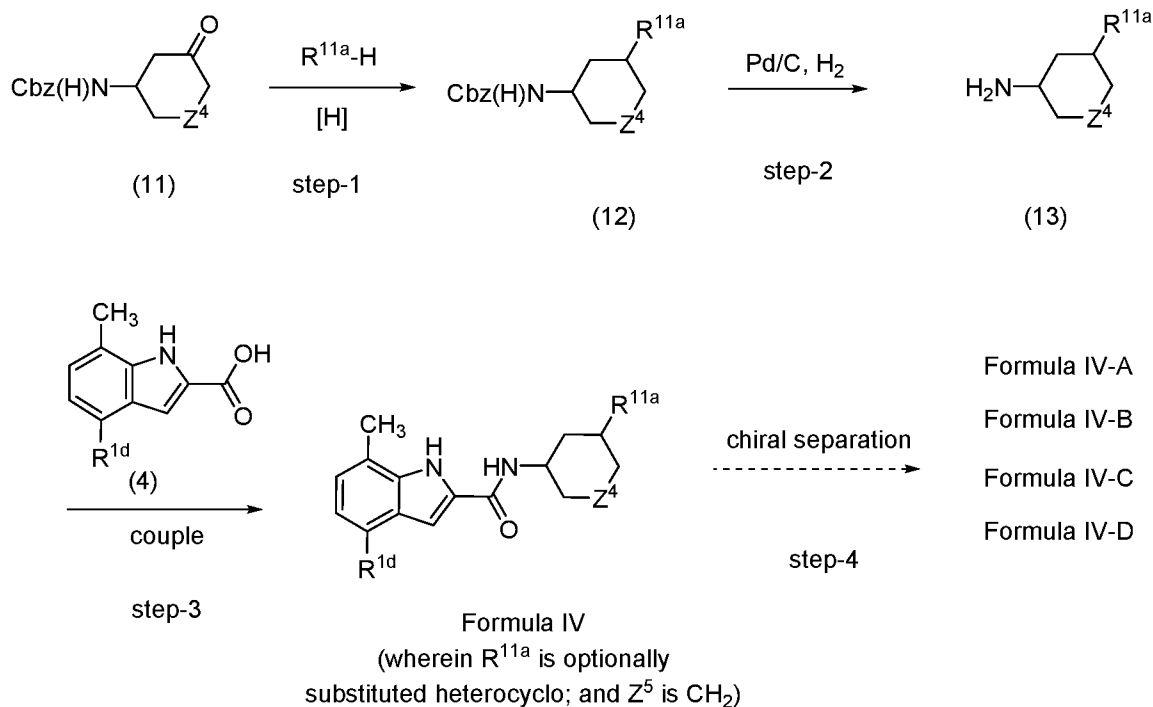
Formula III

(wherein A¹ and/or A² are N; andR^{2b} is optionally substituted heterocyclo or amino)

[0578] In General Scheme 4, a compound of Formula (11) is reacted with R^{11a}-H, wherein R^{11a} is a heterocyclo, e.g., R^{11a}-H is piperidine, to give a compound of Formula (12). In step 2, the Cbz group is removed to give a compound of Formula (13). The compound of Formula (13) is coupled with a compound of Formula (4) to give a compound of Formula IV, wherein R^{11a} is optionally substituted heterocyclo and Z⁵ is -CH₂-.

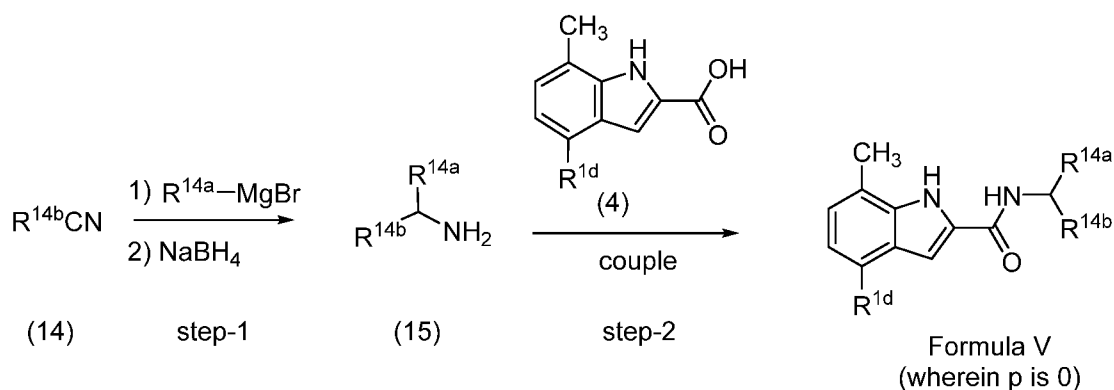
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General Scheme 4



[0579] In step 1 of General Scheme 5, a nitrile of Formula (14) is reacted with a Grignard reagent ($\text{R}^{14\text{a}}\text{-MgBr}$) and the resulting product is reduced to give a compound of Formula (15). The compound of Formula (15) is coupled with a compound of Formula (4) to give a compound of Formula V, wherein p is 0.

General Scheme 5

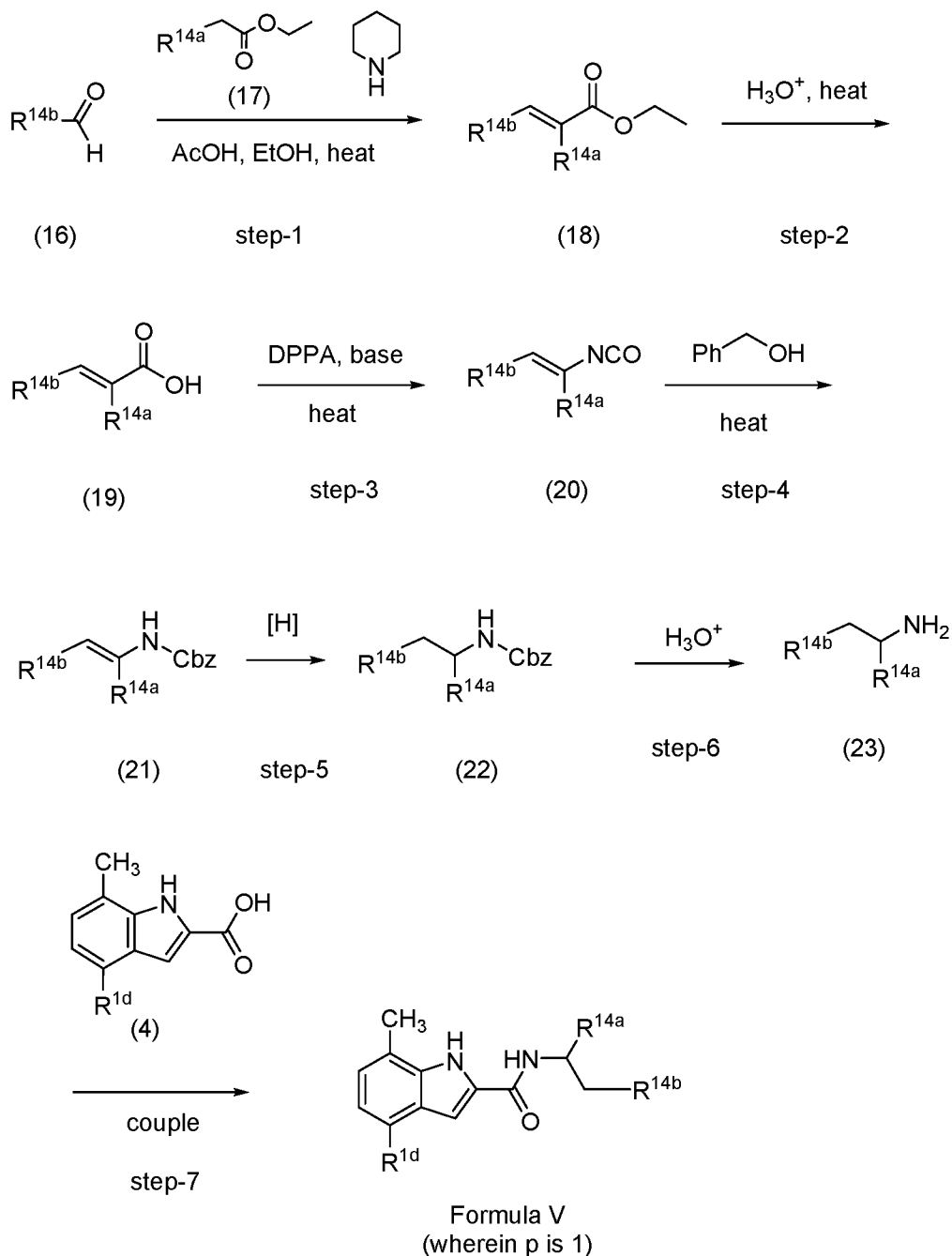


[0580] In General Scheme 6, an aldehyde of Formula (16) is reacted with an ester of Formula (17) to give a compound of Formula (18). In step 2, the compound of Formula (18) is hydrolyzed to give a compound of Formula (19). In step 3, the compound of Formula (19) is converted to the isocyanate of Formula (20). The compound of Formula (20) is reacted with benzyl alcohol to give a compound of Formula (21). Hydrogenation of a

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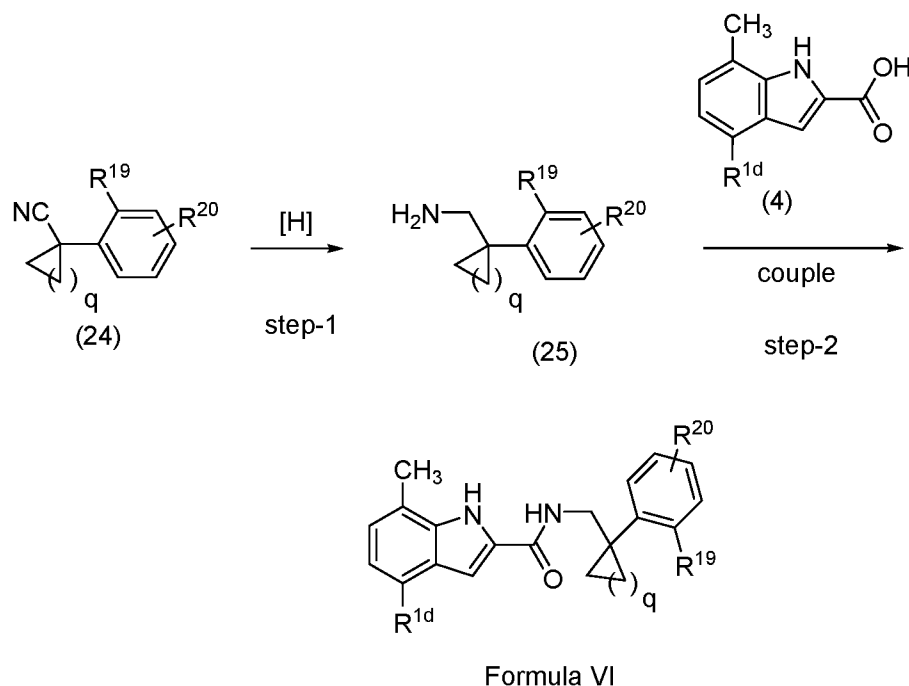
compound of Formula (21) and removal of the Cbz groups gives an amine of Formula (23). Coupling a compound of Formula (23) with a compound of Formula (4) gives a compound of Formula V, wherein p is 1.

General Scheme 6



[0581] In General Scheme 7, the nitrile of Formula (24) is reduced to give an amine of Formula (25). The compound of Formula (25) is coupled with a compound of Formula (4) to give a compound of Formula VI.

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General Scheme 7



EXAMPLES

General Synthetic Methods

- [0582]** General methods and experimental procedures for preparing and characterizing Compounds of the Disclosure are set forth in the General Schemes above and the EXAMPLES below. Wherever needed, reactions were heated using conventional hotplate apparatus or heating mantle or microwave irradiation equipment. Reactions were conducted with or without stirring, under atmospheric or elevated pressure in either open or closed vessels. Reaction progress was monitored using conventional techniques such as TLC, HPLC, UPLC, or LCMS using instrumentation and methods described below. Reactions were quenched and crude compounds isolated using conventional methods as described in the specific examples provided. Solvent removal was carried out with or without heating, under atmospheric or reduced pressure, using either a rotary or centrifugal evaporator.
- [0583]** Compound purification was carried out as needed using a variety of traditional methods including, but not limited to, preparative chromatography under acidic, neutral, or basic conditions using either normal phase or reverse phase HPLC or flash columns or Prep-TLC plates. Compound purity and mass confirmations were conducted using standard

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HPLC and / or UPLC and / or MS spectrometers and / or LCMS and / or GC equipment (possibly including, but not limited to, the following instrumentation: Waters Alliance 2695 with 2996 PDA detector connected with ZQ detector and ESI source; Shimadzu LDMS-2020; Waters Acquity H Class with PDA detector connected with SQ detector and ESI source; Agilent 1100 Series with PDA detector; Waters Alliance 2695 with 2998 PDA detector; AB SCIEX API 2000 with ESI source; Agilent 7890 GC). Exemplified compounds were dissolved in either MeOH or MeCN to a concentration of approximately 1 mg/mL and analyzed by injection of 0.5-10 μ L into an appropriate LCMS system using appropriate methods. MS data are presented in Table 1B. In all cases the mass detection method was ESI.

[0584] Compound structure confirmations were carried out using standard 300 or 400 MHz NMR spectrometers. Unless otherwise indicated, the LCMS methods used in EXAMPLES are as follows:

[0585] Method A

[0586] Instrument: SHIMADZU LCMS-2010EV

[0587] Analysis Conditions:

[0588] LC Parameters:

[0589] Column: Shim-pack XR-ODS 2.2 μ m 3.0*50 mm; Mobile Phase A: Water/0.05% TFA; Mobile Phase B: Acetonitrile/0.05% TFA; Gradient: 5% to 100% B in 2.0 minutes, 100% B for 0.7 minutes, 100% to 5% B in 0.05 minutes, then stop; Flow Rate: 1.2 mL/min; Column Temperature: 40°C; Detector: PDA and ELSD; Sample Preparation: 1 mg/mL in methanol; Injection Volume: 1 μ L; Report: Area Normalized Purity.

[0590] MS Parameters:

[0591] Interface: ESI (Positive); Interface Voltage: 4.5 kv;

[0592] Heat Block: 250°C; Nebulizing Gas: 1.50 L/min; Scan Range: 90-900 (m/z); Detector voltage: 1.6 kv.

[0593] Method B

[0594] Instrument: SHIMADZU LCMS-2020

[0595] Analysis Conditions:

[0596] LC Parameters:

[0597] Column: Kinetex EVO C18 2.6 μ m 2.1*50 mm; Mobile Phase A: 6.5 mM Ammonium Bicarbonate in water adjusted to pH 10 with Ammonia solution; Mobile Phase B:

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Acetonitrile; Gradient: 5% to 100% B in 2.0 minutes, 100% B for 0.7 minutes, 100% to 5% B in 0.1 minutes, then stop; Flow Rate: 1.0 mL/min; Column Temperature: 35°C; Detector: PDA and ELSD; Sample Preparation: 1 mg/mL in Methanol; Injection Volume: 1 µL; Report: Area Normalized Purity.

[0598] MS Parameters:

[0599] Interface: ESI (Positive & Negative); Interface Voltage: Tuning File; Heat Block: 200°C; Nebulizing Gas: 1.50 L/min; Scan Range: 90-900 (m/z); Detector voltage: 0.9 kv.

[0600] Method C

[0601] Instrument: SHIMADZU LCMS-2020

[0602] Analysis Conditions:

[0603] LC Parameters:

[0604] Column: CORTECS C18+ 2.7µm 2.1*50 mm; Mobile Phase A: Water /0.1% FA; Mobile Phase B: Acetonitrile /0.05% FA; Gradient: 5% to 100% B in 2.0 minutes, 100% B for 0.7 minutes, 100% to 5% B in 0.1 minutes, then stop; Flow Rate: 1.0 mL/min; Column Temperature: 40°C; Detector: PDA and ELSD; Sample Preparation: 1 mg/mL in Acetonitrile; Injection Volume: 1 µL; Report: Area Normalized Purity.

[0605] MS Parameters:

[0606] Interface: ESI (Positive & Negative); Interface Voltage: Tuning File; Heat Block: 200°C; Nebulizing Gas: 1.50 L/min; Scan Range: 90-900 (m/z); Detector voltage: 1.2 kv.

[0607] Method D

[0608] Instrument: SHIMADZU LCMS-2020

[0609] Analysis Conditions:

[0610] LC Parameters:

[0611] Column: Shim-pack XR-ODS 2.2µm 3.0*50 mm; Mobile Phase A: Water/0.05% TFA; Mobile Phase B: Acetonitrile/0.05% TFA; Gradient: 5% to 100% B in 2.0 minutes, 100% B for 0.7 minutes, 100% to 5% B in 0.05 minutes, then stop; Flow Rate: 1.2 mL/min; Column Temperature: 40°C; Detector: PDA and ELSD; Sample Preparation: 1 mg/mL in Acetonitrile; Injection Volume: 1 µL; Report: Area Normalized Purity.

[0612] MS Parameters:

[0613] Interface: ESI (Positive); Interface Voltage: Tuning File; Heat Block: 250°C;

[0614] Nebulizing Gas: 1.50 L/min; Scan Range: 90-900 (m/z); Detector voltage: 1.0 kv.

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[0615] Method E**[0616]** Instrument: SHIMADZU LCMS-2020**[0617]** Analysis Conditions:**[0618]** LC Parameters:

[0619] Column: Shim-pack XR-ODS 2.2um 3.0*50 mm; Mobile Phase A: Water/0.05% TFA; Mobile Phase B: Acetonitrile/0.05% TFA; Gradient: 5% to 100% B in 2.0 minutes, 100% B for 0.7 minutes, 100% to 5% B in 0.05 minutes, then stop; Flow Rate: 1.2 mL/min; Column Temperature: 40°C; Detector: PDA and ELSD; Sample Preparation: 1 mg/mL in Acetonitrile; Injection Volume: 1 µL; Report: Area Normalized Purity.

[0620] MS Parameters:

[0621] Interface: ESI (Positive); Interface Voltage: Tuning File; Heat Block: 300°C; Nebulizing Gas: 1.50 L/min; Scan Range: 90-900 (m/z); Detector voltage: 1.1 kv.

[0622] The following abbreviations may be used herein:

Abbreviation	Meaning
ACN	acetonitrile
atm.	atmosphere
DCM	dichloromethane
DHP	dihydropyran
DIBAL	diisobutyl aluminum hydride
DIEA	diisopropyl ethylamine
DMF	dimethyl formamide
DMF-DMA	dimethyl formamide dimethyl acetal
DMSO	dimethyl sulfoxide
Dppf	1,1'-bis(diphenylphosphino)ferrocene
EA	ethyl acetate
ESI	electrospray ionization
EtOH	Ethanol
FA	formic acid
GC	gas chromatography
H	hour
Hex	hexanes
HMDS	hexamethyl disilazide
HPLC	high performance liquid chromatography
IPA	Isopropanol
LCMS	liquid chromatography / mass spectrometry

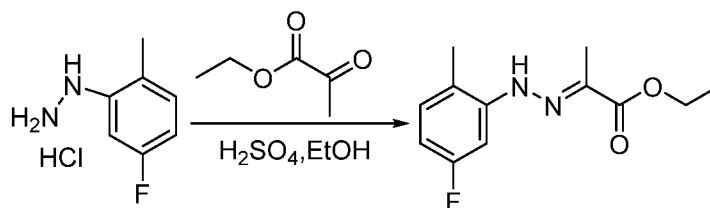
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MeOH	Methanol
Min	Minutes
NBS	<i>N</i> -bromo succinimide
NCS	<i>N</i> -chloro succinimide
NIS	<i>N</i> -iodo succinimide
NMR	nuclear magnetic resonance
nOe	nuclear Overhauser effect
Prep.	Preparative
PTSA	<i>para</i> -toluene sulfonic acid
Rf	retardation factor
rt	room temperature
RT	retention time
sat.	Saturated
SGC	silica gel chromatography
TBAF	tetrabutyl ammonium fluoride
TEA	Triethylamine
TFA	trifluoroacetic acid
THF	Tetrahydrofuran
TLC	thin layer chromatography
UPLC	ultra performance liquid chromatography

EXAMPLE 1

Synthesis of N-((1R,3S)-3-(4-acetylpiperazin-1-yl)cyclohexyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide (Cpd. No. 15)

[0623] Step 1. Synthesis of ethyl (2E)-2-[2-(5-fluoro-2-methylphenyl)hydrazin-1-ylidene]propanoate



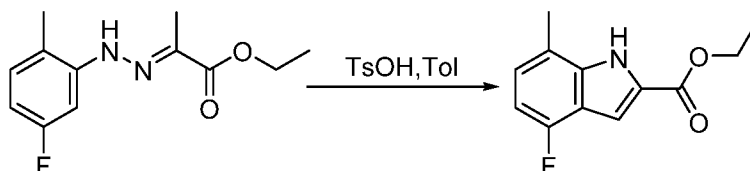
[0624] Into a 1000-mL round-bottom flask, was placed a solution of (5-fluoro-2-methylphenyl)hydrazine hydrochloride (100 g, 572.73 mmol, 1.00 equiv) in ethanol (400 mL), ethyl 2-oxopropanoate (66 g, 1.20 equiv), sulfuric acid (10 mL). The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. The solids were collected by filtration. This resulted in 120 g (yield = 88%) of ethyl (2E)-2-[2-(5-fluoro-2-methylphenyl)hydrazin-1-ylidene]propanoate as a yellow solid. LCMS (Method A: ESI): RT = 1.399

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min, $m/z = 239.0$ $[M+H]^+$. ^1H NMR (400 MHz, $\text{DMSO}-d_6$) δ 11.96 (d, $J = 2.0$ Hz, 1H), 7.15 (m, 2H), 6.62 (m, 1H), 4.25 (q, $J = 7.1$ Hz, 2H), 2.12 (d, $J = 9.3$ Hz, 6H), 1.29 (t, $J = 7.1$ Hz, 3H) ppm.

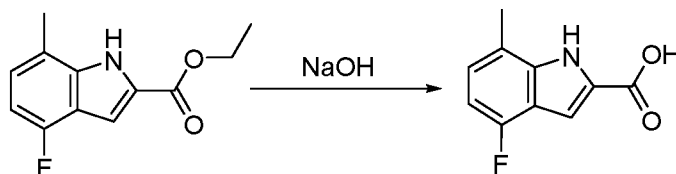
[0625] Step 2.

Synthesis of ethyl 4-fluoro-7-methyl-1H-indole-2-carboxylate



[0626] Into a 1000-mL round-bottom flask, was placed a solution of ethyl (2E)-2-[2-(5-fluoro-2-methylphenyl)hydrazin-1-ylidene]propanoate (40 g, 167.89 mmol, 1.00 equiv) in Toluene (400 mL), 4-methylbenzenesulfonic acid (50 g, 290.36 mmol, 1.70 equiv). The resulting solution was stirred for 18 h at 100 °C. The reaction progress was monitored by LCMS. The resulting solution was concentrated under vacuum, and the residue was dissolved by 100 ml of ethyl acetate. The resulting mixture was washed with 3x200 mL of saturated aqueous NaHCO_3 . The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:5). The resulting mixture was concentrated under vacuum. The solid was purified by recrystallization from ethanol. This resulted in 9.0 g (yield = 24%) of ethyl 4-fluoro-7-methyl-1H-indole-2-carboxylate as a yellow solid. LCMS (Method A, ESI): RT = 1.354 min, $m/z = 222.0$ $[M+H]^+$. ^1H NMR (400 MHz, $\text{DMSO}-d_6$) δ 12.07 (s, 1H), 7.17 (d, $J = 2.1$ Hz, 1H), 7.00 (m, 1H), 6.77 (m, 7.8 Hz, 1H), 4.36 (q, $J = 7.1$ Hz, 2H), 2.49 (d, $J = 1.0$ Hz, 3H), 1.35 (t, $J = 7.1$ Hz, 3H) ppm.

[0627] Step 3. Synthesis of 4-fluoro-7-methyl-1H-indole-2-carboxylic acid

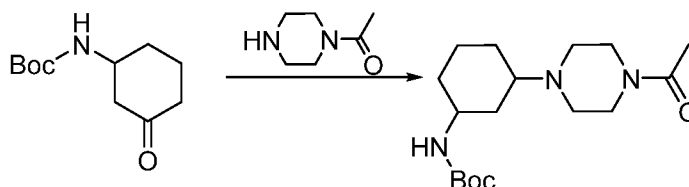


[0628] Into a 500-mL round-bottom flask, was placed a solution of ethyl 4-fluoro-7-methyl-1H-indole-2-carboxylate (9.1 g, 41.13 mmol, 1.00 equiv) in tetrahydrofuran (150 mL), sodium hydroxide (8 g, 200.00 mmol, 5.00 equiv), water (50 mL), methanol (2 mL). The resulting solution was stirred for 6 h at 25 °C. The resulting mixture was concentrated under vacuum. The residue was diluted with water 50 ml, then adjusted to pH 5 with hydrogen chloride (3.0 mol/L). The resulting solution was extracted with 3x50 mL of

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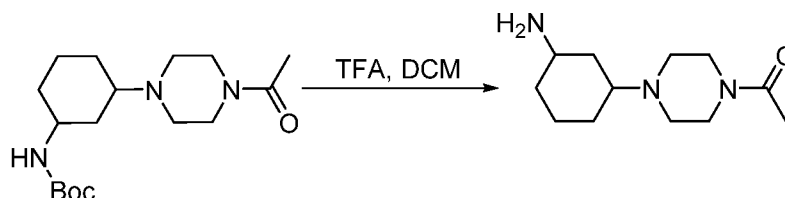
ethyl acetate. The solid was collected by filtration. This resulted in 8.0 (yield = 81%) g of 4-fluoro-7-methyl-1H-indole-2-carboxylic acid as a brown solid. LCMS (Method C, ESI): RT = 0.989 min, m/z = 192.0 $[M-H]^+$. ^1H NMR (300 MHz, DMSO- d_6) δ 13.10 (s, 1H), 11.94 (s, 1H), 7.09 (d, J = 2.1 Hz, 1H), 6.96 (m, 1H), 6.73 (m, 1H), 2.46 (d, J = 1.1 Hz, 3H) ppm.

[0629] Step 4. Synthesis of tert-butyl N-[3-(4-acetylpiperazin-1-yl)cyclohexyl]carbamate



[0630] Into a 100-mL round-bottom flask, was placed tert-butyl N-(3-oxocyclohexyl)carbamate (800 mg, 3.75 mmol, 1.00 equiv), 1-(piperazin-1-yl)ethan-1-one (800 mg, 6.24 mmol, 1.66 equiv), methanol (10 mL), Pd/C (0.2 g), and to the above mixture, hydrogen was introduced. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The solids were filtered out. The resulting mixture was concentrated under vacuum. The crude product (900 mg) was purified by Flash-Prep-HPLC with the following conditions: Column, C18 silica gel; mobile phase ; Detector, UV 254/220 nm. This resulted in 700 mg (yield = 57%) of tert butyl N-[3-(4-acetylpiperazin-1-yl)cyclohexyl]carbamate as colorless oil. LCMS (Method A, ESI): RT = 1.361 min, m/z = 325.9 $[M+H]^+$.

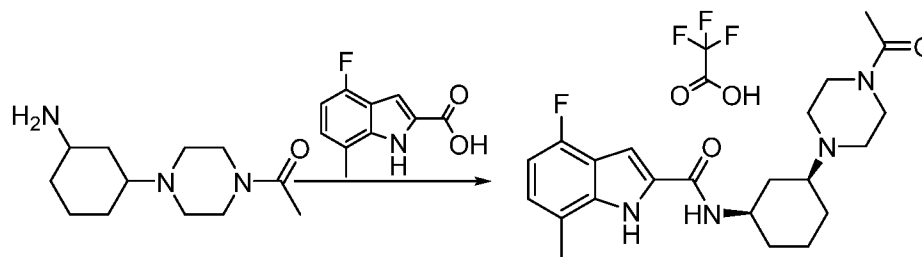
[0631] Step 5. Synthesis of 1-[4-(3-aminocyclohexyl)piperazin-1-yl]ethan-1-one



[0632] Into a 100-mL round-bottom flask, was placed tert-butyl N-[3-(4-acetylpiperazin-1-yl)cyclohexyl]carbamate (700 mg, 2.15 mmol, 1.00 equiv), dichloromethane (3 mL), trifluoroacetic acid (2 mL) was added by dropwise. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. This resulted in 700 mg of 1-[4-(3-aminocyclohexyl)piperazin-1-yl]ethan-1-one as a brown oil. LCMS (Method A, ES): RT = 0.647 min, m/z = 225.95 $[M+H]^+$.

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[0633] Step 6. Synthesis of N-[(1R,3S)-3-(4-acetylpiperazin-1-yl)cyclohexyl]-4-fluoro-7-methyl-1H-indole-2-carboxamide (as the TFA salt)



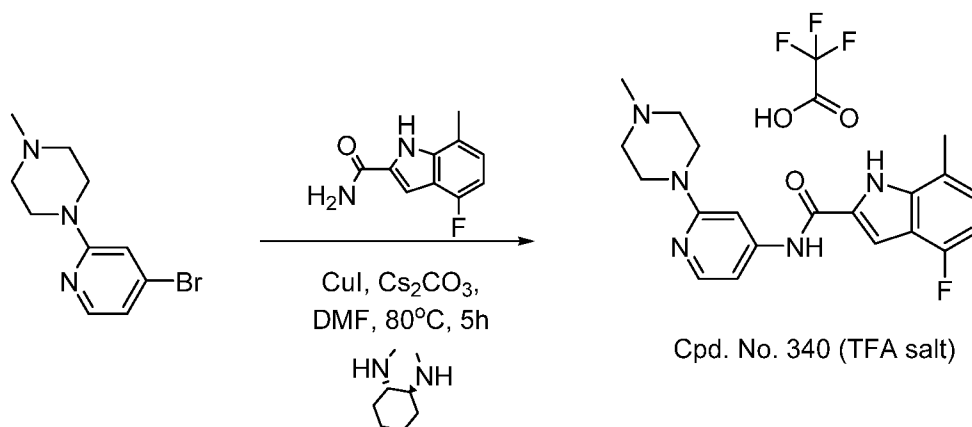
Cpd. No. 15

[0634] Into a 100-mL round-bottom flask, was placed 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (100 mg, 0.52 mmol, 1.00 equiv), 1-[4-(3-aminocyclohexyl)piperazin-1-yl]ethan-1-one (110 mg, 0.49 mmol, 0.94 equiv), N,N-dimethylformamide (4 mL), DIEA (200 mg, 1.55 mmol, 2.99 equiv), HATU (260 mg, 0.68 mmol, 1.32 equiv) was added batchwise. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS, and the reaction solution was quenched by 10 ml of water. The resulting solution was extracted with 3x15 ml of ethyl acetate and the organic layers combined and concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:1). The crude product was purified by Chiral-Prep-HPLC with the following conditions: Column, (R,R)-WHELK-014.6*50 mm, 3.5 μ m:1-78220-30056749; mobile phase, Hexane(0.1%DEA):EtOH = 85:15; Detector, UV 254 nm/220 nm. The product thus obtained was further purified by Prep-HPLC with the following conditions: Column, XBridge Prep Phenyl OBD Column, 5 μ m, 19*150 mm; mobile phase, Water with 10 mmol TFA and MeCN (20.0% MeCN up to 30.0% in 10 min, up to 95.0% in 1 min, hold 95.0% in 1 min, down to 20.0% in 2 min); Detector, UV 254/220 nm. This resulted in 30.5mg (yield = 11%) of N-[(1R,3S)-3-(4-acetylpiperazin-1-yl)cyclohexyl]-4-fluoro-7-methyl-1H-indole-2-carboxamide trifluoroacetic acid salt as a white solid. LCMS (Method B, ES): RT = 1.138 min, m/z = 401.0 [M-TFA]⁺. ¹H NMR (300 MHz, Methanol-d₄) δ 7.18 (s, 1H), 6.94 – 6.92 (m, 1H), 6.64 – 6.62 (m, 1H), 4.03 – 3.88 (m, 1H), 3.57 – 3.55 (m, 4H), 2.65 (t, J = 16.4 Hz, 5H), 2.48 (t, J = 1.0 Hz, 3H), 2.23 (d, J = 12.0 Hz, 1H), 2.09 (s, 3H), 1.93 (d, J = 12.2 Hz, 3H), 1.53 – 1.18 (m, 4H) ppm.

EXAMPLE 2

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Synthesis of 4-fluoro-7-methyl-N-(2-(4-methylpiperazin-1-yl)pyridin-4-yl)-1H-indole-2-carboxamide (Cpd. No. 340)



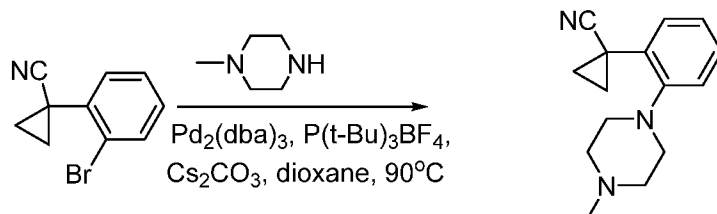
[0635] Into a 100-mL round-bottom flask purged and maintained with an inert atmosphere of nitrogen, was placed a solution of 4-fluoro-7-methyl-1H-indole-2-carboxamide (632 mg, 3.29 mmol, 1.20 equiv) in N,N-dimethylformamide (15 ml), 1-(4-bromopyridin-2-yl)-4-methylpiperazine (700 mg, 2.73 mmol, 1.00 equiv), (1R,2S)-1,2,2-N-dimethylcyclohexane-1,2-diamine (785 mg, 5.52 mmol, 2.00 equiv), CuI (522 mg, 2.74 mmol, 1.00 equiv), Cs₂CO₃ (2.7 g, 8.29 mmol, 3.00 equiv). The resulting solution was stirred for 15 h at 80 °C. The reaction progress was monitored by LCMS. The crude product (100 mg) was purified by Prep-HPLC with the following conditions: Column, XSelect CSH Prep C18 OBD Column, 5 μm, 19*150 mm; mobile phase, Water (0.05% TFA) and ACN (15.0% ACN up to 40.0% in 9 min); Detector, UV 254/220 nm. This resulted in 58.8 mg (4%) of 4-fluoro-7-methyl-N-[2-(4-methylpiperazin-1-yl)pyridin-4-yl]-1H-indole-2-carboxamide as the trifluoroacetic acid salt as a white solid. LCMS (Method B, ESI): RT = 2.543 min, m/z = 368.0 [M+H]⁺. ¹H NMR (400 MHz, Methanol-d₄) δ 8.14 (dd, J = 2.4 Hz, 4.5 Hz, 1H), 7.88 (s, 1H), 7.51 (d, J = 1.5 Hz, 1H), 7.38 (d, J = 5.1 Hz, 1H), 7.08 (dd, J = 3.9 Hz, 5.7 Hz, 1H), 6.72 (dd, J = 6.0 Hz, 7.8 Hz, 1H), 3.93 (br, 4H), 3.51 (s, 4H), 3.02 (s, 3H), 2.54 (s, 3H) ppm.

EXAMPLE 3

Synthesis of 4-fluoro-7-methyl-N-((1-(2-(4-methylpiperazin-1-yl)phenyl)cyclopropyl)methyl)-1H-indole-2-carboxamide (Cpd. No. 392)

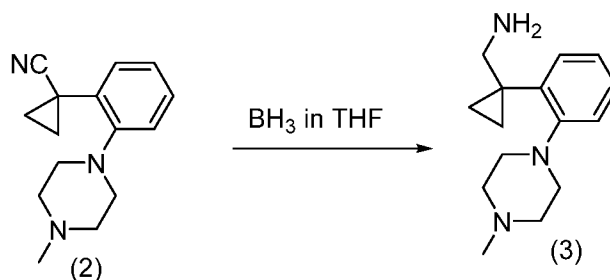
[0636] Step 1. Synthesis of 1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropane-1-carbonitrile

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[0637] Into a 30-mL microwave tube purged and maintained with an inert atmosphere of nitrogen, was placed 1-(2-bromophenyl)cyclopropane-1-carbonitrile (2.0 g, 9.01 mmol, 1.00 equiv), 1-methylpiperazine (4.5 g, 44.93 mmol, 4.99 equiv), $\text{Pd}_2(\text{dba})_3$ (800 mg, 0.87 mmol, 0.10 equiv), $\text{P}(\text{t-Bu})_3\text{BF}_4$ (0.52 g 1.79 mmol, 2.00 equiv), Cs_2CO_3 (8.8 g, 27.01 mmol, 3.00 equiv), dioxane (8 mL). The resulting solution was stirred for 3 h at 90°C in an oil bath. The reaction progress was monitored by LCMS. The resulting solution was extracted with (30 mLx3) of dichloromethane and the organic layers combined and dried over anhydrous sodium sulfate and concentrated under vacuum. The residue was applied onto a silica gel column with dichloromethane/methanol (10:1). The collected fractions were combined and concentrated under vacuum. This resulted in 0.2 g (yield = 9%) of 1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropane-1-carbonitrile as brown oil. LCMS (Method A, ESI): RT = 1.05 min, $m/z = 323.0$ $[\text{M}+1]^+$.

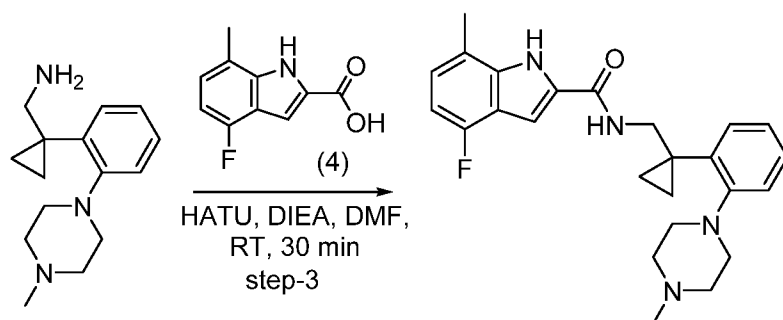
[0638] Step 2. Synthesis of (1-(2-(4-methylpiperazin-1-yl)phenyl)cyclopropyl) methanamine



[0639] Into a 25-mL round-bottom flask, was placed 1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropane-1-carbonitrile (200 mg, 0.83 mmol, 1.00 equiv), tetrahydrofuran (4.1 mL), BH_3/THF (4.1 mL). The resulting solution was stirred for 3 h at 25°C in nitrogen atmosphere. The reaction progress was monitored by LCMS. The pH value of the solution was adjusted to 8 with sodium bicarbonate (20% aq). The resulting solution was extracted with (3 x 15 mL) of dichloromethane and the organic layers combined, concentrated under vacuum and 120 mg (yield = 60%) of (1-(2-(4-methylpiperazin-1-yl)phenyl)cyclopropyl) methanamine was obtained. LCMS (Method A, ESI): RT = 0.92 min, $m/z = 246.0$ $[\text{M}+1]^+$.

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[0640] Step 3. Synthesis of 4-fluoro-7-methyl-N-([1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropyl]methyl)-1H-indole-2-carboxamide



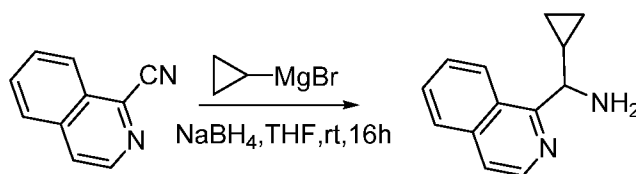
Cpd. No. 392

[0641] Into a 25-mL round-bottom flask, was placed 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (50 mg, 0.26 mmol, 1.00 equiv), 1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropylmethanamine (82.5 mg, 0.34 mmol, 1.30 equiv), N,N-dimethylformamide (1 mL), DIEA (166 mg, 1.28 mmol, 4.96 equiv), HATU (98 mg, 0.26 mmol, 1.00 equiv) was added batchwise. The resulting solution was stirred for 30 min at 25 °C. The crude product (80 mg) was purified by Prep-HPLC with the following conditions: Column, Kinetex EVO C18 Column, 21.2*150, 5 µm; mobile phase, Water (10 mmol/L NH₄HCO₃) and ACN (50.0% ACN up to 70.0% in 7 min); Detector, UV 254/220 nm. This resulted in 23 mg (yield = 21%) of 4-fluoro-7-methyl-N-([1-[2-(4-methylpiperazin-1-yl)phenyl]cyclopropyl]methyl)-1H-indole-2-carboxamide as an off-white solid. LCMS (Method B,ESI): RT = 1.95 min, *m/z* = 421.1 [M+1]⁺. ¹H NMR (400 MHz, Methanol-d₄) δ 7.33 (dd, *J* = 7.6, 1.5 Hz, 1H), 7.29 – 7.19 (m, 2H), 7.10 – 7.02 (m, 2H), 6.98 – 6.91 (m, 1H), 6.65 (dd, *J* = 10.4, 7.8 Hz, 1H), 3.82 (s, 2H), 3.09 (s, 4H), 2.72 (s, 4H), 2.46 (d, *J* = 1.0 Hz, 3H), 2.41 (s, 3H), 1.08 – 0.97 (m, 2H), 0.95 – 0.80 (m, 2H) ppm.

EXAMPLE 4

Synthesis of N-(cyclopropyl(isoquinolin-1-yl)methyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide (Cpd. No. 507)

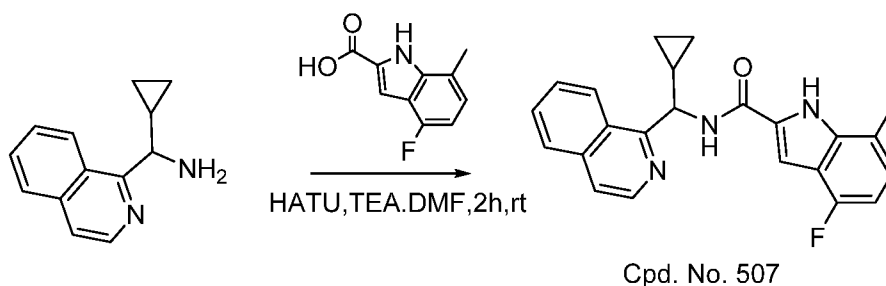
[0642] Step 1. Synthesis of cyclopropyl(isoquinolin-1-yl)methanamine



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[0643] Into a 250-mL 3-necked round-bottom flask, was placed isoquinoline-1-carbonitrile (500 mg, 3.24 mmol, 1.00 equiv) in tetrahydrofuran (10 mL), and the solution was cooled to 0 °C bromo(cyclopropyl)magnesium(1 mol/L) (33 ml ,1.00 equiv) was added by dropwise, after stirring for 30 min at this temperature, methanol (10 ml) was added and NaBH₄ (350 mg, 9.25 mmol, 2.85 equiv) was added by batchwise at 0°C. The resulting solution was stirred for 4 h at 25°C. The reaction progress was monitored by LCMS. The reaction solution was quenched by 10 ml of ice/water. The resulting solution was extracted with 3x30 mL of ethyl acetate and the organic layers combined and dried over anhydrous sodium sulfate and concentrated under vacuum. The residue was applied onto a silica gel column with dichloromethane/methanol (10/1), This resulted in 300 mg (yield = 60%) of cyclopropyl(isoquinolin-1-yl)methanamine as an off-white solid. LCMS (Method A, ESI):RT = 0.865 min, *m/z* = 199.00 [M+H]⁺.

[0644] Step 2. Synthesis of N-(cyclopropyl(isoquinolin-1-yl)methyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide



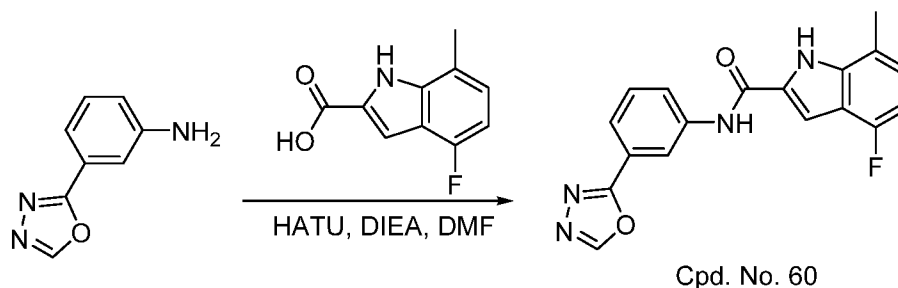
[0645] Into a 100-mL round-bottom flask, was placed cyclopropyl(isoquinolin-1-yl)methanamine (300 mg, 1.51 mmol, 1.00 equiv), TEA (450 mg, 4.45 mmol, 2.94 equiv), N,N-dimethylformamide (30 mL), 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (300 mg, 1.55 mmol, 1.03 equiv), HATU (550 mg, 1.45 mmol, 0.96 equiv). The resulting solution was stirred for 2 h at 25°C. The reaction progress was monitored by LCMS. The resulting solution was quenched with 10 mL of ice/water. The resulting solution was extracted with 3x50 mL of ethyl acetate and the organic layers combined and dried over anhydrous sodium sulfate and concentrated under vacuum. The crude product (100 mg) was purified by Prep-HPLC with the following conditions: Column, Kinetex EVO C18 Column, 21.2*150,5 μm; mobile phase, Water (10 mmol/L NH₄HCO₃) and ACN (50.0% ACN up to 75.0% in 7 min); Detector, UV 254/220 nm. This resulted in 60.2 mg (yield = 11%) of N-[cyclopropyl(1-isoquinolin-1-yl)methyl]-4-fluoro-7-methyl-1H-indole-2-carboxamide as a white solid. LCMS (Method D, ESI):RT

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= 1.55 min, m/z = 374.00 $[M+H]^+$. ^1H NMR (300 MHz, Methanol- d_4) δ 8.47 (t, J = 6.5 Hz, 2H), 8.00 – 7.90 (m, 1H), 7.83 – 7.65 (m, 3H), 7.24 (s, 1H), 7.00 – 6.89 (m, 1H), 6.67-6.61 (m, 1H), 5.65 (d, J = 8.6 Hz, 1H), 2.48 (s, 3H), 1.72 – 1.55 (m, 1H), 0.65 – 0.42 (m, 4H) ppm.

EXAMPLE 5

Synthesis of N-(3-(1,3,4-oxadiazol-2-yl)phenyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide (Cpd. No. 60)



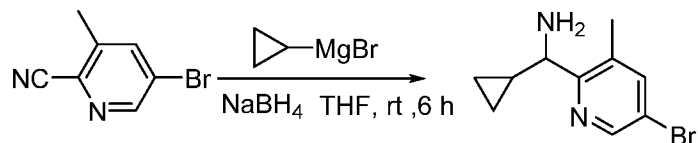
[0646] Into a 15-mL vial, was placed 3-(1,3,4-oxadiazol-2-yl)aniline (120 mg, 0.74 mmol, 1.00 equiv), 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (168 mg, 0.87 mmol, 1.17 equiv), N,N-dimethylformamide (3 mL), DIEA (288 mg, 2.23 mmol, 2.99 equiv), HATU (336 mg, 0.88 mmol, 1.19 equiv) was added batchwise. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The reaction was quenched by 10 ml of ice/water. The resulting solution was extracted with 3x12 mL of ethyl acetate and the organic layers combined. The organic phase was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:4). The crude product was purified by Prep-HPLC with the following conditions: Column, XBridge Prep Phenyl OBD Column, 5 μ m, 19*150 mm; mobile phase, Water with 10 mmol NH_4HCO_3 and MeCN (20.0% MeCN up to 30.0% in 10 min, up to 95.0% in 1 min, hold 95.0% in 1 min, down to 20.0% in 2 min); Detector, UV 254/220 nm. This resulted in 51.1 mg (yield = 20%) of 4-fluoro-7-methyl-N-[3-(1,3,4-oxadiazol-2-yl)phenyl]-1H-indole-2-carboxamide as an off-white solid. LCMS (Method E, ESI): RT = 0.924 min, m/z = 337.1 $[M+H]^+$. ^1H -NMR (300 MHz, DMSO- d_6): δ 11.98 (s, 1H); 10.55 (s, 1H); 9.38 (s, 1H); 8.59 (s, 1H); 8.14-8.11 (d, J = 12.0 Hz, 1H); 7.78-7.76 (m, 1H); 7.01-6.97 (m, 1H); 6.81-6.75 (m, 1H); 2.51 (s, 3H) ppm.

EXAMPLE 6

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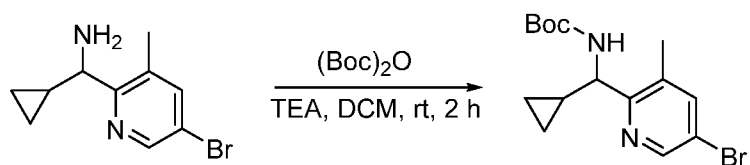
Synthesis of N-((5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl)methyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide (Cpd. No. 161)

[0647] Step 1. Synthesis of (5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methanamine



[0648] Into a 100-mL 3-necked round-bottom flask purged and maintained with an inert atmosphere of nitrogen, was placed a solution of 5-bromo-3-methylpyridine-2-carbonitrile (1g, 5.10 mmol, 1.00 equiv), in tetrahydrofuran (10 mL), bromo(cyclopropyl)magnesium (1 mol/L) (5.1 mL, 5.10 mmol, 1.00 equiv) was added by dropwise at 0 °C. The resulting solution was stirred for 30 min at this temperature, methanol (10 mL) was added and NaBH₄ (0.58 g, 15.30 mmol, 3.00 equiv) was added batchwise at 0 °C. The resulting solution was stirred for 12 h at 25 °C. The reaction progress was monitored by LCMS. The reaction solution was quenched by 10 mL of ice/water. The resulting solution was extracted with 3x30 mL of ethyl acetate and the organic layers combined and dried over anhydrous sodium sulfate and concentrated under vacuum. The residue was applied onto a silica gel column with dichloromethane/methanol (10/1). This resulted in 600 mg (yield = 60%) of (5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methanamine as orange oil. LCMS (Method A, ESI): RT = 1.109 min, m/z = 241.0 [M+H]⁺.

[0649] Step 2. Synthesis of tert-butyl N-[(5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methyl]carbamate

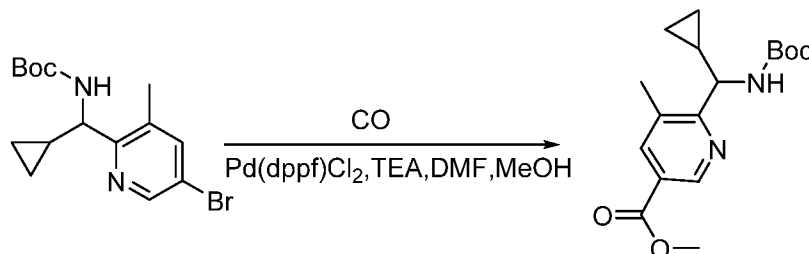


[0650] Into a 250-mL round-bottom flask, was placed (5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methanamine (5 g, 20.74 mmol, 1.00 equiv), TEA (10.37 g, 103.7 mmol, 5.00 equiv), in dichloromethane (150 mL), di-tert-butyl dicarbonate (8.8 g, 40.32 mmol, 2.00 equiv) was added dropwise in dichloromethane 10 mL at 0 °C. The resulting solution was stirred for 12 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was washed with 3x100 mL of water. The mixture was dried over anhydrous sodium sulfate and concentrated under vacuum. The residue was applied onto

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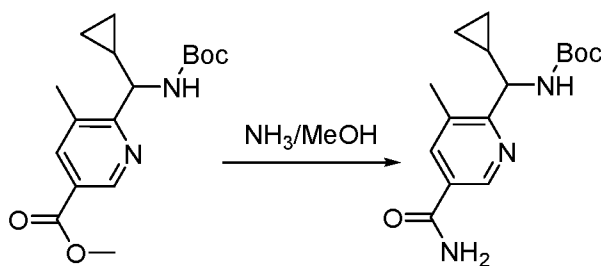
a silica gel column with ethyl acetate/petroleum ether (1:3). This resulted in 6.00 g (yield = 85%) of tert-butyl N-[(5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methyl] carbamate as a yellow solid. LCMS (Method C, ESI): RT = 1.356 min, m/z = 341.0 [M+H]⁺.

[0651] Step 3. Synthesis of 6-([[(tert-butoxy)carbonyl]amino](cyclopropyl)methyl)-5-methylpyridine-3-carboxylate



[0652] Into a 100-mL round-bottom flask purged and maintained with an inert atmosphere of nitrogen, was placed tert-butyl N-[(5-bromo-3-methylpyridin-2-yl)(cyclopropyl)methyl]carbamate (5.0 g, 14.65 mmol, 1.00 equiv), Pd(dppf)Cl₂ (1.8 g, 2.46 mmol, 0.17 equiv), TEA (5.0 g, 49.41 mmol, 3.37 equiv) in methanol 30 mL. Carbon monoxide was introduced to the above mixture. The resulting solution was stirred for 16 h at 80 °C in an oil bath. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:2). This resulted in 4.3g (yield = 80%) of methyl 6-([[(tert-butoxy)carbonyl]amino](cyclopropyl)methyl)-5-methylpyridine-3-carboxylate as yellow oil. LCMS (Method A, ESI): RT = 1.263 min, m/z = 321.0 [M+H]⁺. ¹H NMR (300 MHz, Methanol-*d*₄) δ 8.95 (s, 1H), 8.15 (s, 1H), 3.95 (s, 3H), 3.36-3.30(m, 1H), 2.50 (s, 3H), 2.46-2.38 (m, 1H), 1.52(s,9H) ,0.53-0.48(m, 4H)

[0653] Step 4. Synthesis of tert-butyl N-[(5-carbamoyl-3-methylpyridin-2-yl)(cyclopropyl)methyl]carbamate

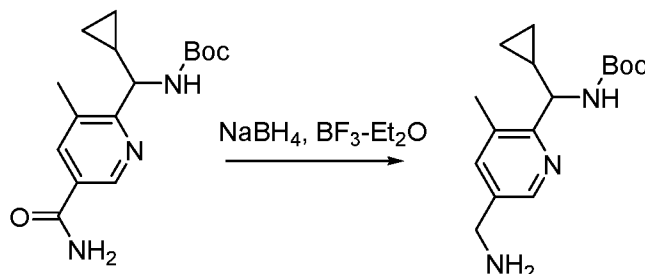


[0654] Into a 100-mL round-bottom flask, was placed methyl 6-([[(tert-butoxy)carbonyl]amino](cyclopropyl)methyl)-5-methylpyridine-3-carboxylate (600 mg, 1.87 mmol, 1.00 equiv), NH₃/MeOH (10 mL). The resulting solution was stirred for 16 h

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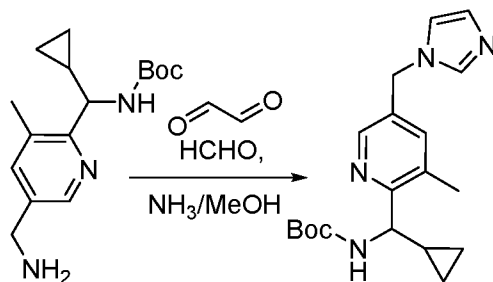
at 80 °C in an oil bath. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. This resulted in 450 mg (yield = 79%) of tert-butyl N-[(5-carbamoyl-3-methylpyridin-2-yl)(cyclopropyl)methyl]carbamate as yellow oil. LCMS (Method A, ESI): RT = 0.978 min, m/z = 306.0 [M+H]⁺.

[0655] Step 5. Synthesis of tert-butyl N-[[5-(aminomethyl)-3-methylpyridin-2-yl](cyclopropyl)methyl]carbamate



[0656] Into a 100-mL round-bottom flask purged and maintained with an inert atmosphere of nitrogen, was placed tert-butyl N-[(5-carbamoyl-3-methylpyridin-2-yl)(cyclopropyl)methyl]carbamate (400 mg, 1.31 mmol, 1.00 equiv), tetrahydrofuran (2 mL), NaBH₄ (250 mg, 6.61 mmol, 5.05 equiv) was added batchwise at 0 °C, the resulting solution was stirred for 1 h, BF₃·Et₂O (1.5 mL) was added dropwise at 0 °C. The resulting solution was stirred for 3 h at 25 °C. The reaction progress was monitored by LCMS. The reaction solution was quenched by 5 ml of methanol, the resulting mixture was concentrated and the residue was dissolved by 20 ml of dichloromethane, the solution was washed by water (3x10 ml), the organic phase was dried over anhydrous sodium sulfate, and concentrated. This resulted in 300 mg (yield = 79%) of tert-butyl N-[[5-(aminomethyl)-3-methylpyridin-2-yl](cyclopropyl)methyl]carbamate as yellow oil, used directly for the next step. LCMS (Method A, ESI): RT = 0.837 min, m/z = 292.0 [M+H]⁺.

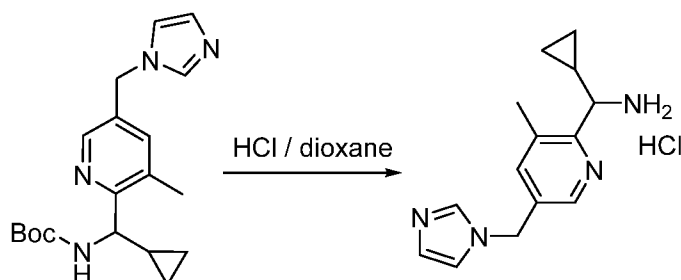
[0657] Step 6. Synthesis of tert-butyl N-[cyclopropyl[5-(1H-imidazol-1-ylmethyl)-3-methylpyridin-2-yl]methyl]carbamate



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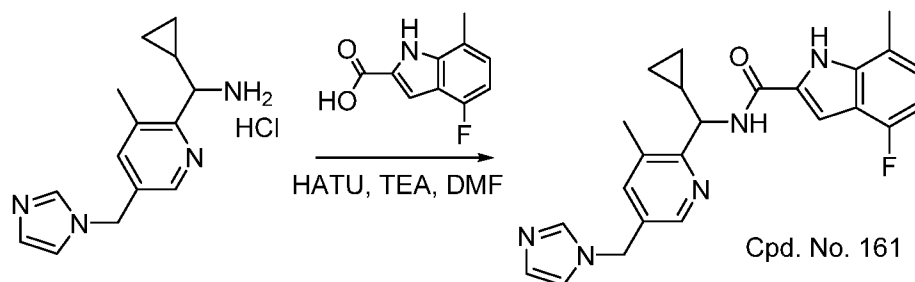
[0658] Into a 100-mL round-bottom flask, was placed tert-butyl N-[[5-(aminomethyl)-3-methylpyridin-2-yl](cyclopropyl)methyl]carbamate (300 mg, 1.03 mmol, 1.00 equiv), HCHO (40% in water) (2 mL), NH₃/MeOH (7 mol/L) (3 mL), oxaldehyde (2 mL). The resulting solution was stirred for 4 h at 60 °C in an oil bath. The reaction progress was monitored by LCMS, and the resulting solution was concentrated under vacuum. The residue was applied onto a silica gel column with dichloromethane/methanol (10:1). This resulted in 300 mg (yield = 85%) of tert-butyl N-[cyclopropyl[5-(1H-imidazol-1-yl)methyl]-3-methylpyridin-2-yl]methyl]carbamate as yellow oil. LCMS (Method A, ESI): RT = 1.291 min, m/z = 343.0 [M+H]⁺.

[0659] Step 7. Synthesis of (5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl)methanamine hydrochloride



[0660] Into a 25-mL round-bottom flask, was placed tert-butyl (5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl)methylcarbamate (300.00 mg, 0.87 mmol, 1.00 equiv), HCl(g)/dioxane (2 mol/L) (4.00 mL), and the resulting solution was stirred for 30 min at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. This resulted in 260.00 mg (crude) of (5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl)methanamine hydrochloride as an off-white solid. LCMS (Method A, ESI): RT = 0.861 min, m/z = 243.0 [M+H]⁺.

[0661] Step 8. Synthesis of N-((5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl)methyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide



[0662] Into a 100-mL round-bottom flask, was placed cyclopropyl[5-(1H-imidazol-1-yl)methyl]-3-methylpyridin-2-yl]methanamine (260 mg, 0.95 mmol, 1.00 equiv), TEA (375 mg,

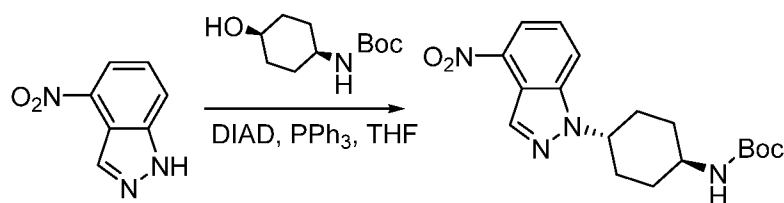
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3.71 mmol, 2.99 equiv), N,N-dimethylformamide (2 mL), 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (263 mg, 1.36 mmol, 1.10 equiv), HATU (565 mg, 1.49 mmol, 1.20 equiv) was added batchwise,. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS, and the reaction solution was quenched by 5 ml of water, and the solids were collected by filtration. The crude product was purified by Prep-HPLC with the following conditions: Column, X-bridge Shield RP 18, 5 µm, 19*150 mm; mobile phase, water with 10 mmol NH₄HCO₃ and CH₃CN (10.0% CH₃CN up to 28.0% in 2 min, up to 46.0% in 10 min, up to 100.0% in 1 min, down to 10.0% in 1 min); Detector, UV 254/220 nm. This resulted in 11.5 mg (yield = 2%) of N-((5-((1H-imidazol-1-yl)methyl)-3-methylpyridin-2-yl)(cyclopropyl) methyl)-4-fluoro-7-methyl-1H-indole-2-carboxamide as a white solid. LCMS (Method B, ESI): RT = 1.27 min, *m/z* = 418.0 [M+H]⁺. ¹H NMR (400 MHz, Methanol-*d*₄) δ 8.37 (s, 1H), 7.81 (s, 1H), 7.52 (s, 1H), 7.22 (s, 1H), 7.17 (s, 1H), 7.04 (s, 1H), 7.01 – 6.92 (m, 1H), 6.66 (t, *J* = 10.3 Hz, 1H), 5.27 (s, 2H), 4.93 (d, *J* = 8.9 Hz, 1H), 2.50 (s, 6H), 1.51 – 1.45 (m, 1H), 0.72 – 0.62 (m, 1H), 0.60 – 0.47 (m, 1H), 0.47 (t, *J* = 5.3 Hz, 2H) ppm.

EXAMPLE 7

Synthesis of N-(1-((1*r*,4*r*)-4-(dimethylamino)cyclohexyl)-1H-indazol-4-yl)-4-fluoro-7-methyl-1H-indole-2-carboxamide (Cpd. No. 213)

[0663] Step 1. Synthesis of tert-butyl N-[(1*r*,4*r*)-4-(4-nitro-1H-indazol-1-yl)cyclohexyl]carbamate

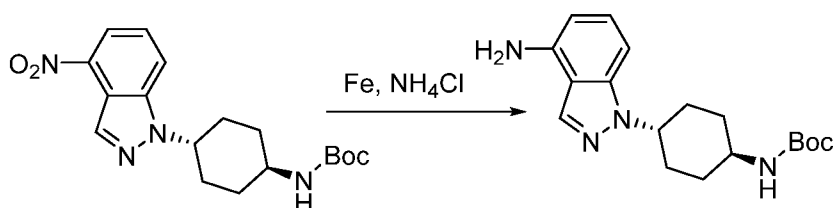


[0664] Into a 25-mL 2-necked round-bottom flask purged and maintained with an inert atmosphere of nitrogen, was placed a solution of 4-nitro-1H-indazole (500 mg, 3.06 mmol, 1.00 equiv) in tetrahydrofuran (12 mL), tert-butyl N-[(1*s*,4*s*)-4-hydroxycyclohexyl]carbamate (700 mg, 3.25 mmol, 1.20 equiv), PPh₃ (700 mg, 2.67 mmol, 1.20 equiv). This was followed by the addition of DIAD (700 mg, 3.46 mmol, 1.20 equiv) dropwise with stirring at 0 °C in 10 min. The resulting solution was stirred for 12 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture

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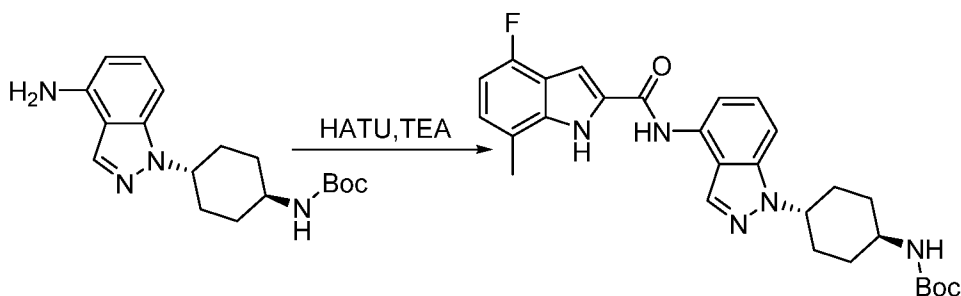
was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:6). This resulted in 260 mg (yield = 24%) of tert-butyl N-[(1*r*,4*r*)-4-(4-nitro-1*H*-indazol-1-yl)cyclohexyl]carbamate as a light yellow solid. LCMS (Method A, ESI): $m/z = 361.2$ $[M+H]^+$. ^1H NMR (400 MHz, DMSO- d_6) δ 8.91 (s, 1H), 8.21-8.19 (dd, $J = 8.1, 4.8$ Hz, 2H), 7.51-7.47 (t, $J = 8.1$ Hz, 1H), 6.88-6.86 (d, $J = 7.7$ Hz, 1H), 4.68-4.62 (m, 1H), 3.46-3.34 (m, 1H), 2.12 – 2.07 (m, 4H), 2.03-1.96 (m, 2H), 1.52-1.44 (m, 2H), 1.40 (s, 9H) ppm.

[0665] Step 2. Synthesis of tert-butyl N-[(1*r*,4*r*)-4-(4-amino-1*H*-indazol-1-yl)cyclohexyl]carbamate



[0666] Into a 40-mL vial, was placed a solution of tert-butyl N-[(1*r*,4*r*)-4-(4-nitro-1*H*-indazol-1-yl)cyclohexyl]carbamate (100 mg, 0.28 mmol, 1.00 equiv) in ethanol (20 mL), Fe powder (100 mg, 5.00 equiv) in water (3 mL), NH₄Cl (100 mg, 1.87 mmol, 5.00 equiv). The resulting solution was stirred for 2 h at 80 °C. The reaction progress was monitored by LCMS. The solids were removed by filtration. The filtrate was concentrated under vacuum. The residue was applied onto a silica gel column with dichloromethane/methanol (10/1). This resulted in 80 mg (yield = 87%) of tert-butyl N-[(1*r*,4*r*)-4-(4-amino-1*H*-indazol-1-yl)cyclohexyl]carbamate as a light yellow solid. LCMS (Method A, ESI): RT = 0.753 min, $m/z = 331.2$ $[M+H]^+$. ^1H NMR (400 MHz, DMSO- d_6) δ 8.05 (s, 1H), 7.01-6.97 (dd, $J = 8.3, 7.4$ Hz, 1H), 6.85-6.83 (d, $J = 7.8$ Hz, 1H), 6.73-6.71 (d, $J = 8.3$ Hz, 1H), 6.14-6.12 (d, $J = 7.4$ Hz, 1H), 5.71 (s, 2H), 4.36-4.33 (m, 1H), 3.38-3.35 (m, 1H), 1.99-1.89 (m, 6H), 1.48 – 1.41 (m, 2H), 1.40 (s, 9H) ppm.

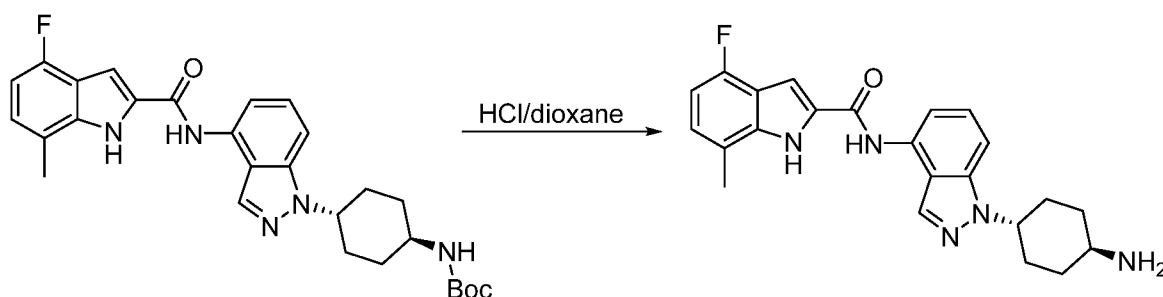
[0667] Step 3. Synthesis of tert-butyl N-[(1*r*,4*r*)-4-[4-(4-fluoro-7-methyl-1*H*-indole-2-amido)-1*H*-indazol-1-yl]cyclohexyl]carbamate



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[0668] Into a 40-mL round-bottom flask, was placed a solution of tert-butyl N-[(1*r*,4*r*)-4-(4-amino-1*H*-indazol-1-yl)cyclohexyl]carbamate (200 mg, 0.61 mmol, 1.00 equiv) in *N,N*-dimethylformamide (10 mL), 4-fluoro-7-methyl-1*H*-indole-2-carboxylic acid (160 mg, 0.83 mmol, 1.20 equiv), TEA (260 mg, 2.57 mmol, 3.00 equiv), HATU (423 mg, 1.11 mmol, 1.30 equiv) was added batchwise. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was quenched by 30 mL of water. The resulting solution was extracted with 3x10 mL of ethyl acetate and the organic layers combined. The filtrate was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:1). This resulted in 190 mg (yield = 62%) of tert-butyl N-[(1*r*,4*r*)-4-[4-(4-fluoro-7-methyl-1*H*-indole-2-amido)-1*H*-indazol-1-yl]cyclohexyl]carbamate as light yellow oil. LCMS (Method D, ESI): RT = 1.253 min, *m/z* = 506.2 [M+H]⁺. ¹H NMR (400 MHz, DMSO-*d*₆) δ 11.95 (s, 1H), 10.39 (s, 1H), 8.26 (s, 1H), 7.60-7.59 (d, *J* = 2.1 Hz, 1H), 7.56-7.50 (dd, *J* = 18.3, 7.9 Hz, 2H), 7.40-7.36 (dd, *J* = 8.4, 7.5 Hz, 1H), 7.01-6.97 (dd, *J* = 7.8, 5.2, 1.0 Hz, 1H), 6.89-6.87 (d, *J* = 7.7 Hz, 1H), 6.80-6.75 (dd, *J* = 10.4, 7.8 Hz, 1H), 4.60-4.57 (m, 1H), 3.17 (s, 1H), 2.52 (s, 3H), 2.05-1.93 (m, 6H), 1.56-1.46 (m, 5.9 Hz, 2H), 1.41 (s, 9H) ppm.

[0669] Step 4. Synthesis of 4-fluoro-7-methyl-N-[1-[(1*r*,4*r*)-4-aminocyclohexyl]-1*H*-indazol-4-yl]-1*H*-indole-2-carboxamide

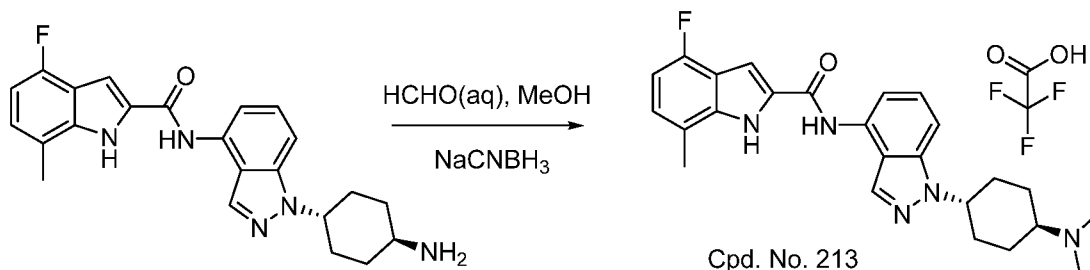


[0670] Into a 8-mL vial, was placed tert-butyl N-[(1*r*,4*r*)-4-[4-(4-fluoro-7-methyl-1*H*-indole-2-amido)-1*H*-indazol-1-yl]cyclohexyl]carbamate (200 mg, 0.40 mmol, 1.00 equiv), hydrogen chloride/1,4-dioxane (2 mol/L) (10 mL). The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. This resulted in 150 mg (yield = 94%) of 4-fluoro-7-methyl-N-[1-[(1*r*,4*r*)-4-aminocyclohexyl]-1*H*-indazol-4-yl]-1*H*-indole-2-carboxamide as light yellow oil. LCMS (Method A, ESI): RT = 1.423 min, *m/z* = 406.2 [M+H]⁺. ¹H NMR

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(400 MHz, DMSO- d_6) δ 12.22 (s, 1H), 10.64 (s, 1H), 8.33 (s, 1H), 7.59 – 7.53 (m, 3H), 7.41-7.36 (dd, J = 8.3, 7.6 Hz, 1H), 7.00-6.97 (dd, J = 7.7, 5.2 Hz, 1H), 6.79-6.75 (dd, J = 10.4, 7.8 Hz, 1H), 4.67-4.58 (d, J = 8.0 Hz, 1H), 3.63 – 3.60 (m, 1H), 2.54 (s, 3H), 2.17 – 2.10 (m, 6H), 2.08-1.99 (m, 2H), 1.72-1.59 (m, 2H) ppm.

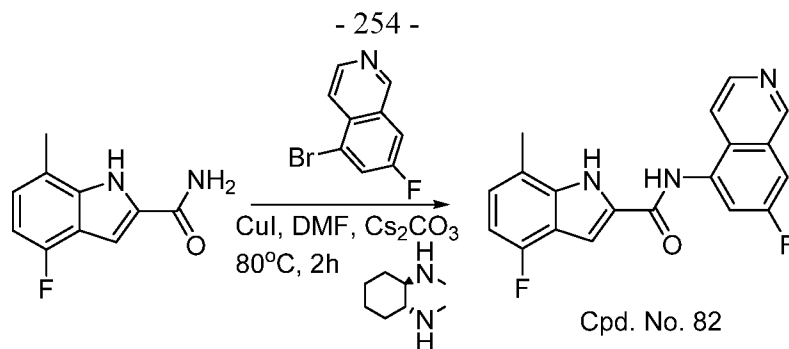
[0671] Step 5. Synthesis of N-(1-((1*r*,4*r*)-4-(dimethylamino)cyclohexyl)-1*H*-indazol-4-yl)-4-fluoro-7-methyl-1*H*-indole-2-carboxamide



[0672] Into a 40-mL round-bottom flask, was placed a solution of 4-fluoro-7-methyl-N-[1-[(1*r*,4*r*)-4-aminocyclohexyl]-1*H*-indazol-4-yl]-1*H*-indole-2-carboxamide (350 mg, 0.86 mmol, 1.00 equiv) in methanol (10 mL). This was followed by the addition of CH_2O (40% in water) (3 mL). To this was added NaBH_3CN (160 mg, 2.5 mmol 3.00 equiv) batchwise. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored by LCMS. The resulting mixture was quenched with 30 mL of water. The resulting solution was extracted with 3x10 mL of ethyl acetate and the organic layers combined. The resulting mixture was concentrated under vacuum. The crude product (180 mg) was purified by Prep-HPLC with the following conditions: Column, XSelect CSH Prep C18 OBD Column, 5 μm , 19x150 mm; mobile phase, Water (0.05% TFA) and ACN (22.0% ACN up to 45.0% in 7 min); Detector, UV 220/254 nm. This resulted in 36.2 mg (yield = 9.6%) of 4-fluoro-7-methyl-N-[1-[(1*r*,4*r*)-4-(dimethylamino)cyclohexyl]-1*H*-indazol-4-yl]-1*H*-indole-2-carboxamide trifluoroacetic acid salt as a white solid. LCMS (Method D, ESI): RT = 1.510 min, m/z = 434.2 $[\text{M}+\text{H}]^+$. ^1H NMR (300 MHz, Methanol- d_4) δ 8.22 (s, 1H), 7.47-7.43 (m, 4H), 7.02 – 6.97 (m, 1H), 6.74 – 6.64 (m, 1H), 4.72 – 4.62 (m, 1H), 3.43-3.41 (m, 1H), 2.93 (s, 6H), 2.53 (s, 3H), 2.32 – 2.15 (m, 6H), 1.98 – 1.80 (m, 2H) ppm.

EXAMPLE 8

Synthesis of 4-fluoro-N-(7-fluoroisoquinolin-5-yl)-7-methyl-1*H*-indole-2-carboxamide (Cpd. No. 82)

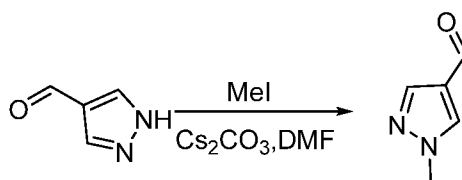


[0673] Into a 40-mL vial purged and maintained with an inert atmosphere of nitrogen, was placed a solution of 4-fluoro-7-methyl-1H-indole-2-carboxamide (100 mg, 0.52 mmol, 1.00 equiv) in N,N-dimethylformamide (10 mL), 7-fluoroisoquinolin-5-amine (100 mg, 0.62 mmol, 1.20 equiv), CuI (110 mg, 0.58 mmol, 1.00 equiv), Cs₂CO₃ (537 mg, 1.65 mmol, 3.00 equiv), (1S,2S)-1-N,2-N-dimethylcyclohexane-1,2-diamine (100 mg, 0.70 mmol, 1.40 equiv). The resulting solution was stirred for 2 h at 80 °C. The reaction progress was monitored by LCMS. The resulting solution was quenched by 20 ml of water/ice. The resulting solution was extracted with 3x10 mL of ethyl acetate and the organic layers combined. The resulting mixture was washed with 3x10 mL of H₂O. The crude product (300 mg) was purified by Prep-HPLC with the following conditions: Column, XBridge Prep OBD C18 Column, 30*150 mm 5 μm; mobile phase, Water (10 mmol/L NH₄HCO₃) and ACN (39% ACN up to 61% in 7 min); Detector, UV 254/220 nm. This resulted in 31.8 mg (yield = 18%) of 4-fluoro-N-(7-fluoroisoquinolin-5-yl)-7-methyl-1H-indole-2-carboxamide as a white solid. LCMS (Method B, ESI): m/z = 337.9 [M+H]⁺. ¹H NMR (300 MHz, DMSO-d₆) δ 12.03 (s, 1H), 10.69 (s, 1H), 9.37 (s, 1H), 8.58 (d, J = 6.0 Hz, 1H), 8.03 (t, J = 4.5Hz, 6.0Hz, 2H), 7.91 (d, J = 9.0 Hz, 1H), 7.68 (s, 1H), 7.01 (t, J = 6.9Hz, 5.7Hz, 1H), 6.85 – 6.75 (m, 1H), 3.30 (s, 3H) ppm.

EXAMPLE 9

Synthesis of 4-fluoro-7-methyl-N-(2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethyl)-1H-indole-2-carboxamide (Cpd. No. 85)

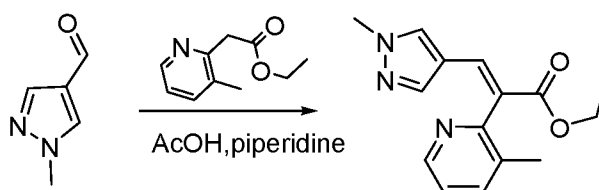
[0674] Step 1. Synthesis of 1-methyl-1H-pyrazole-4-carbaldehyde



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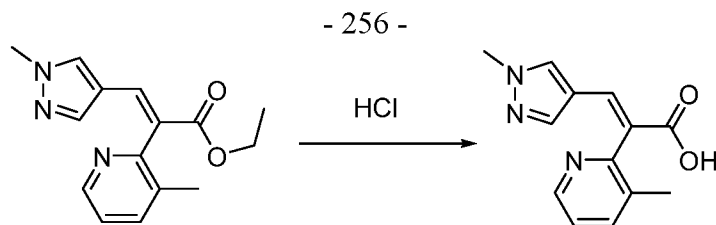
[0675] Into a 8-mL vial, was placed a solution of 1H-pyrazole-4-carbaldehyde (50 mg, 0.52 mmol, 1.00 equiv) in N,N-dimethylformamide (1 mL), CH₃I (96 mg, 0.68 mmol, 1.30 equiv), Cs₂CO₃ (510 mg, 1.57 mmol, 3.00 equiv). The resulting solution was stirred for 1 h at 60 °C. The reaction progress was monitored by LCMS. The reaction was quenched by 10 ml of water. The resulting solution was extracted with 3x12 mL of ethyl acetate and the organic layers combined. The organic phase was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:4). This resulted in 40 mg (yield = 80%) of 1-methyl-1H-pyrazole-4-carbaldehyde as white solid. LCMS (Method A, ESI): RT = 0.699 min, m/z = 111.1[M+H]⁺.

[0676] Step 2. Synthesis of E)-ethyl 3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)acrylate



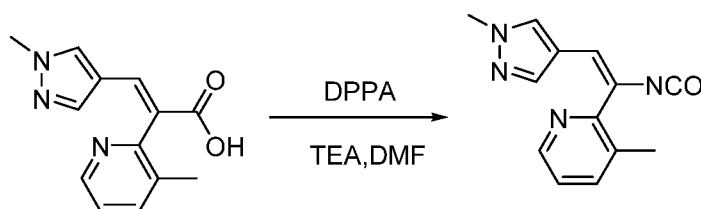
[0677] Into a 40-mL vial purged and maintained with an inert atmosphere of nitrogen, was placed a solution of 1-methyl-1H-pyrazole-4-carbaldehyde (465 mg, 4.22 mmol, 1.50 equiv) in ethanol (20 mL), ethyl 2-(3-methylpyridin-2-yl)acetate (500 mg, 2.79 mmol, 1.00 equiv), acetic acid (840 mg, 13.99 mmol, 5.00 equiv), piperidine (1.2 g, 14.09 mmol, 5.00 equiv). The resulting solution was stirred for 48h at 80 °C. The reaction progress was monitored by LCMS. The resulting solution was concentrated under vacuum and the residue was dissolved by 20 ml of dichloromethane, and the resulting mixture was washed by 3x15 ml of water, the organic phase was dried over anhydrous sodium sulfate, and concentrated. The residue was applied onto a silica gel column with dichloromethane/methanol (10:1). This resulted in 620.00 mg (yield = 75%) of (E)-ethyl 3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)acrylate as a white solid. LCMS (Method A, ESI): RT = 0.842 min, m/z = 272.1 [M+H]⁺. ¹H NMR (300 MHz, DMSO-d₆) δ 8.48 (t, J = 3.0Hz, 1H), 7.75 (s, 2H), 7.37 (t, J = 6.0 Hz, 1H), 7.30 (s, 1H), 6.44 (s, 1H), 4.14 (q, J = 6.0Hz, 15 Hz, 2H), 3.72 (s, 3H), 2.06 (s, 3H), 1.17(t, J = 6.0 Hz, 3H) ppm.

[0678] Step 3. Synthesis of E)-3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)acrylic acid



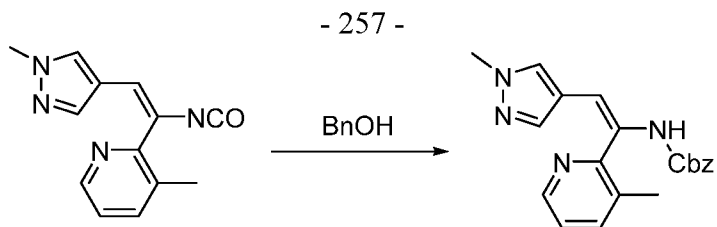
[0679] Into a 40-mL vial, was placed a solution of ethyl (2E)-3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)prop-2-enoate (620 mg, 2.29 mmol, 1.00 equiv) in hydrogen chloride (6 mol/L) (20 mL). The resulting solution was stirred for 15 h at 80° C. The reaction progress was monitored by LCMS. The resulting solution was concentrated under vacuum, This resulted in 500.00 mg (yield = 80%) of (E)-3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)acrylic acid as a white solid, which was used for next step without further purification. LCMS (Method A, ESI): RT = 0.745 min, m/z = 244.0[M+H]⁺.

[0680] Step 4. Synthesis of (E)-2-(1-isocyanato-2-(1-methyl-1H-pyrazol-4-yl)vinyl)-3-methylpyridine



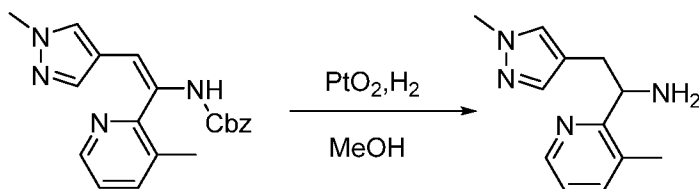
[0681] Into a 40-mL vial purged and maintained with an inert atmosphere of nitrogen, was placed a solution of (2E)-3-(1-methyl-1H-pyrazol-4-yl)-2-(3-methylpyridin-2-yl)prop-2-enoic acid (500 mg, 2.06 mmol, 1.00 equiv) in N,N-dimethylformamide (20 mL), DPPA (850 mg, 3.09 mmol, 1.50 equiv), TEA (1.05 g, 10.38 mmol, 5.00 equiv). The resulting solution was stirred for 2 h at 80 °C. The reaction progress was monitored by LCMS. The resulting solution was quenched by 30 ml of water, and the resulting mixture was extracted by 3x35 ml of dichloromethane, the organic phase was dried over anhydrous sodium sulfate, concentrated. The residue was applied onto a silica gel column with dichloromethane/methanol (20:1). This resulted in 170.00 mg (yield = 34%) of (E)-2-(1-isocyanato-2-(1-methyl-1H-pyrazol-4-yl)vinyl)-3-methylpyridine as solid. LCMS (ESI): RT = 0.736 min, m/z = 241.0 [M+H]⁺.

[0682] Step 5. Synthesis of (E)-benzyl 2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)vinylcarbamate



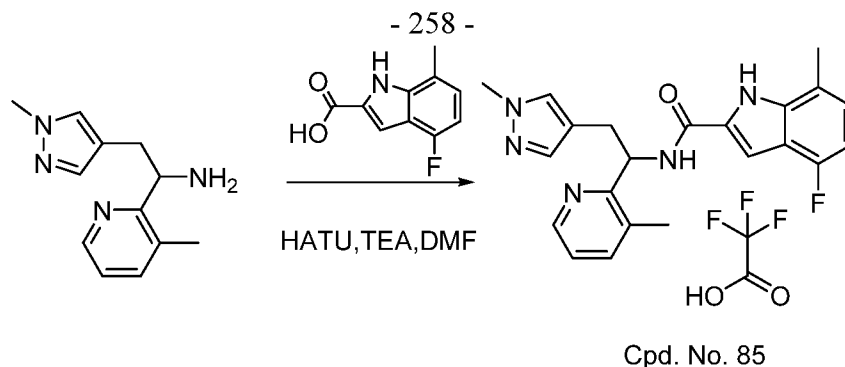
[0683] Into a 20-mL vial, was placed a solution of 2-[(E)-1-isocyanato-2-(1-methyl-1H-pyrazol-4-yl)ethenyl]-3-methylpyridine (170 mg, 0.71 mmol, 1.00 equiv) in benzyl alcohol (2 mL). The resulting solution was stirred for 15 h at 100 °C. The reaction progress was monitored by LCMS. The resulting solution was quenched by 30 ml of water, and the resulting mixture was extracted by 3x20 ml of dichloromethane, the organic phase was dried over anhydrous sodium sulfate, and concentrated. The residue was applied onto a silica gel column with dichloromethane/methanol (15:1). This resulted in 80.00 mg (yield = 46%) of (E)-benzyl 2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)vinylcarbamate as white solid. LCMS (Method, ESI): RT = 0.859 min, m/z = 349.0[M+H]⁺.

[0684] Step 6. Synthesis of 2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethanamine



[0685] Into a 50-mL round-bottom flask, was placed a solution of benzyl N-[(E)-2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethenyl]carbamate (80 mg, 0.23 mmol, 1.00 equiv) in MeOH (5 mL), PtO₂ (20 mg). To the above mixture, hydrogen was introduced. The resulting solution was stirred for 20 min at 25 °C. The reaction progress was monitored by LCMS. The solids were removed by filtration, the resulting mixture was concentrated under vacuum, and 70 mg (yield = 85%) of 2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethanamine was obtained. LCMS (Method A, ESI): RT = 0.326 min, m/z = 216.0 [M+H]⁺.

[0686] Step 7. Synthesis of 4-fluoro-7-methyl-N-(2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethyl)-1H-indole-2-carboxamide

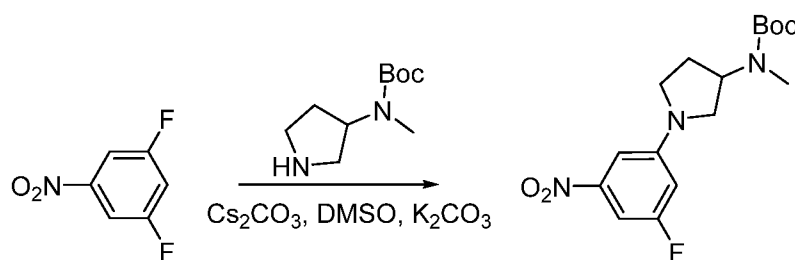


[0687] Into a 100-mL round-bottom flask, was placed a solution of 2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethan-1-amine (80 mg, 0.37 mmol, 1.00 equiv) in N,N-dimethylformamide (3 mL), 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (80 mg, 0.41 mmol, 1.10 equiv), TEA (113 mg, 1.12 mmol, 3.00 equiv), HATU (183 mg, 0.48 mmol, 1.30 equiv) was added batchwise. The resulting solution was stirred for 1 h at 25 °C. The crude product (100 mg) was purified by Prep-HPLC with the following conditions: Column, XSelect CSH Prep C18 OBD Column, 5 μ m, 19*150 mm; mobile phase, Water (0.05% TFA) and ACN (16.0% ACN up to 42.0% in 7 min); Detector, UV 220/254 nm. This resulted in 37.5 mg (yield = 20%) of 4-fluoro-7-methyl-N-[2-(1-methyl-1H-pyrazol-4-yl)-1-(3-methylpyridin-2-yl)ethyl]-1H-indole-2-carboxamide as the trifluoroacetic acid salt as a white solid. LCMS (Method A, ESI): m/z = 391.9 $[M+H]^+$. ^1H NMR (400 MHz, Methanol- d_4) δ 8.56 (s, 1H), 8.16 (s, 1H), 7.68 (s, 1H), 7.41 (d, J = 2.7 Hz, 1H), 7.32 (d, J = 1.1 Hz, 1H), 7.20 (d, J = 4.7 Hz, 1H), 6.99 – 6.96 (m, 1H), 6.73 – 6.63 (m, 1H), 5.56 (t, J = 7.6 Hz, 1H), 4.86 (s, 3H), 3.36 (s, 1H), 3.27 – 3.17 (m, 1H), 2.53 – 2.45 (m, 6H) ppm.

EXAMPLE 10

Synthesis of 4-fluoro-N-(3-fluoro-5-(3-(N-methylacetamido)pyrrolidin-1-yl)phenyl)-7-methyl-1H-indole-2-carboxamide (Cpd. No. 1)

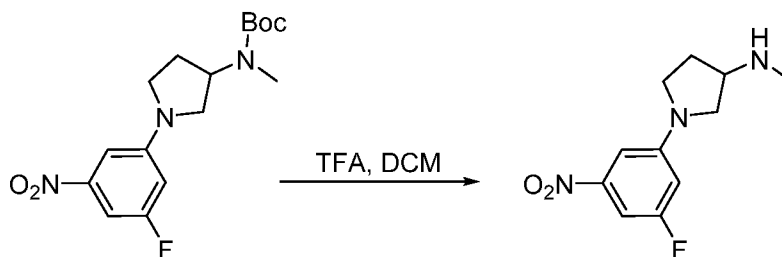
[0688] Step 1. Synthesis of tert-butyl N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylcarbamate



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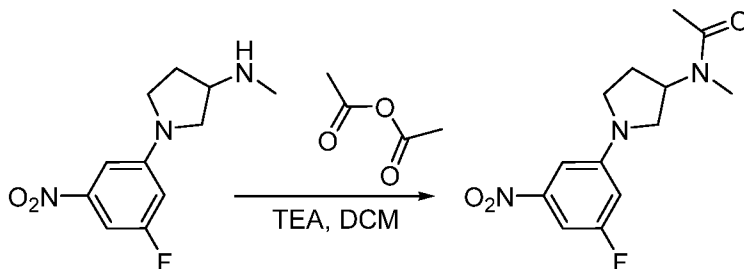
[0689] Into a 250-mL round-bottom flask, was placed 1,3-difluoro-5-nitrobenzene (2 g, 12.57 mmol, 1.00 equiv), Cs_2CO_3 (13 g, 39.90 mmol, 3.17 equiv), DMSO (30 mL), tert-butyl N-methyl-N-(pyrrolidin-3-yl)carbamate (2.6 g, 12.98 mmol, 1.03 equiv). The resulting solution was stirred for 2 h at 100 °C. The reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:1). The collected fractions were combined and concentrated under vacuum. This resulted in 680 mg (yield = 16%) of tert-butyl N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylcarbamate as a light yellow solid. LCMS (Method A, ESI): RT = 2.876 min, m/z = 340.00 $[\text{M}+\text{H}]^+$.

[0690] Step 2. Synthesis of 1-(3-fluoro-5-nitrophenyl)-N-methylpyrrolidin-3-amine



[0691] Into a 40-mL vial, was placed tert-butyl N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylcarbamate (650 mg, 1.92 mmol, 1.00 equiv) in dichloromethane (7 mL), trifluoroacetic acid (3 mL). The resulting solution was stirred for 1 h at 25 °C and the reaction progress was monitored by LCMS. The resulting mixture was concentrated under vacuum. This resulted in 350 mg (yield = 76%) of 1-(3-fluoro-5-nitrophenyl)-N-methylpyrrolidin-3-amine as a light yellow solid. LCMS (Method A, ES): RT = 0.900 min, m/z = 240.00 $[\text{M}+\text{H}]^+$.

[0692] Step 3. Synthesis of N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylacetamide

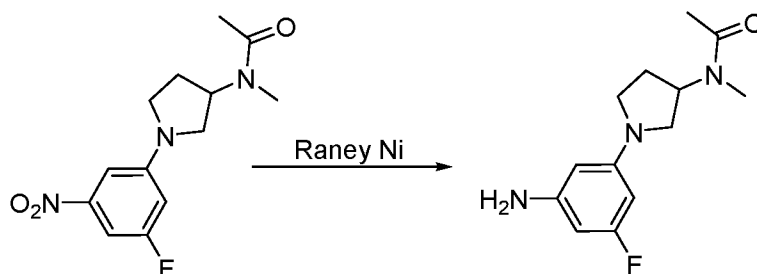


[0693] Into a 40-mL vial was placed 1-(3-fluoro-5-nitrophenyl)-N-methylpyrrolidin-3-amine (1 g, 4.18 mmol, 1.00 equiv), TEA (2 g, 19.76 mmol, 4.73 equiv) in dichloromethane (10 mL), and acetyl acetate (750 mg, 7.35 mmol, 1.76 equiv) was added by dropwise at 0 °C. The resulting solution was stirred for 2 h at 25 °C. The reaction progress was monitored

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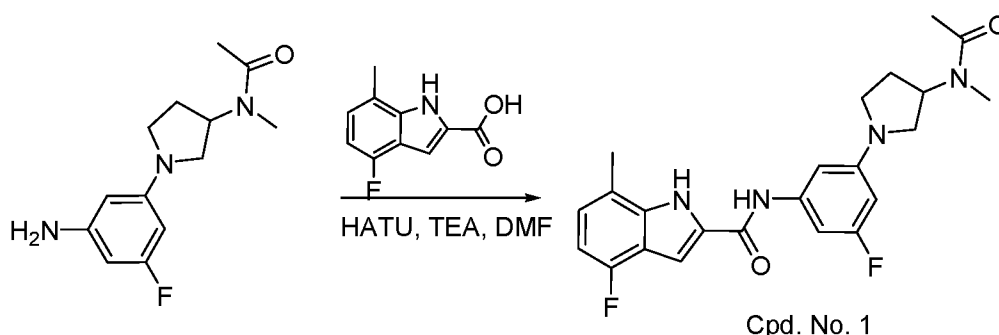
by LCMS. The resulting mixture was concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:1). The collected fractions were combined and concentrated under vacuum. This resulted in 900 mg (yield = 77%) of N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylacetamide as a light yellow solid. LCMS (Method A, ES): RT = 1.188 min, m/z = 282.00 [M+H]⁺.

[0694] Step 4. Synthesis of N-[1-(3-amino-5-fluorophenyl)pyrrolidin-3-yl]-N-methylacetamide



[0695] Into a 100-mL round-bottom flask was placed N-[1-(3-fluoro-5-nitrophenyl)pyrrolidin-3-yl]-N-methylacetamide (300 mg, 1.07 mmol, 1.00 equiv), Raney Ni (100 mg) in methanol (10 mL). To the above mixture hydrogen was introduced. The resulting solution was stirred for 1 h at 25 °C. The reaction progress was monitored by LCMS. The solids were filtered out. The resulting mixture was concentrated under vacuum. This resulted in 220 mg (yield = 82%) of N-[1-(3-amino-5-fluorophenyl)pyrrolidin-3-yl]-N-methylacetamide as an off-white solid. LCMS (Method A, ESI): RT = 0.834 min, m/z = 252.00 [M+H]⁺.

[0696] Step 5. Synthesis of 4-fluoro-N-(3-fluoro-5-(3-(N-methylacetamido)pyrrolidin-1-yl)phenyl)-7-methyl-1H-indole-2-carboxamide



[0697] Into a 40-mL vial was placed N-[1-(3-amino-5-fluorophenyl)pyrrolidin-3-yl]-N-methylacetamide (330 mg, 1.31 mmol, 1.00 equiv), TEA (700 mg, 6.92 mmol, 5.27 equiv) in N,N-dimethylformamide (10 mL), 4-fluoro-7-methyl-1H-indole-2-carboxylic acid (250 mg, 1.29 mmol, 0.99 equiv) and HATU (649 mg, 1.71 mmol, 1.30 equiv) was added batchwise. The resulting solution was stirred for 2 h at 25 °C. The

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resulting mixture was concentrated under vacuum. The reaction progress was monitored by LCMS, and the reaction solution was quenched by 20 ml of water. The resulting solution was extracted with 3x20 ml of ethyl acetate and the organic layers combined and concentrated under vacuum. The residue was applied onto a silica gel column with ethyl acetate/petroleum ether (1:1). The crude product (200 mg) was purified by Prep-HPLC with the following conditions: Column, XBridge Shield RP18 OBD Column, 5 μ m, 19*150 mm; mobile phase, Water (10 mmol/L NH_4HCO_3) and ACN (40.0% ACN up to 68.0% in 7 min); Detector, UV 220/254 nm. This resulted in 47.4 mg (yield = 8%) of 4-fluoro-N-(3-fluoro-5-(3-(N-methylacetamido)pyrrolidin-1-yl)phenyl)-7-methyl-1H-indole-2-carboxamide as a light yellow solid. LCMS (Method B, ES): RT = 3.206 min, m/z = 427 $[\text{M}+\text{H}]^+$. ^1H NMR (400 MHz, $\text{DMSO}-d_6$) δ 11.92 (s, 1H), 10.19 (s, 1H), 7.51 (s, 1H), 7.19 – 7.08 (m, 1H), 7.03 – 6.93 (m, 1H), 6.87 (d, J = 2.1 Hz, 1H), 6.86 – 6.73 (m, 1H), 6.17 – 6.13 (m, 1H), 5.23 – 4.63 (m, 1H), 3.54 – 3.33 (m, 2H), 3.26 – 3.16 (m, 2H), 2.90 (s, 2H), 2.76 (s, 1H), 2.61 – 2.51 (s, 3H), 2.24 – 2.00 (m, 5H) ppm.

EXAMPLE 11

In-cell western (ICW) assay of SETD2 Inhibitors (A549 assay)

[0698] Representative Compounds of the Disclosure were tested in the A549 assay according the following protocol. A549 assay results are provided in Table 1B.

[0699] Protocol:

[0700] 1. Reagents and Consumables:

Reagent Number	Reagent Name	Reagent Source	Catalog Number
1	A549	ATCC	CCL-185
2	F12K	Hyclone	SH30526.01
3	FBS	Gbico	10099-141
4	Penicillin-Streptomycin	Gbico	15140-122
5	Poly-D-Lysine Black/Clear Microtest (TM) Tissue-Culture Treated Polystyrene, 384-well plate	Corning	356663
6	Methanol	Concord Technology	R266
7	PBS powder	Solarbio	P1010
8	Odyssey Blocking Buffer	LI-COR	927-40000
9	Tri-Methyl-Histone H3 (Lys36) (D5A7) XP® Rabbit mAb	CST	4909S
10	Tween-20	Sigma	P2287

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12	IRDye 800CW Goat anti-Rabbit IgG (H + L)(LI-COR, 926-32211, 0.5 mg)	LI-COR	926-32211
13	DRAQ5 (CST, 4084L, 200ul)	CST	4084L
14	384-Well Clear plate	Labcyte	P-05525

[0701] 2. Tools and Equipment:

Tool Number	Tool Name	Brand	Model
1	Cell Counter	Invitrogen	Countess [®] Automated Cell Counter
2	CO ₂ incubator	Thermo Scientific	371
3	Biological Safety Cabinet (Class II)	Thermo Scientific	1389
4	Centrifuge	Eppendorf	5810R
5	ELx405 plate washer	BioTek	ELx405 Select CW
6	Echo 550	Echo	Echo 550
7	Plate Shaker	Eppendorf	MixMate
8	ODYSSEY CLx	LI-COR	ODYSSEY CLx
9	Multiflo	Biotek	MultiFlo FX
10	Liquid handle system	Tecan	Freedom EVO200

[0702] 3. Screening Method

[0703] Prepare plates with compounds. Seed A549 cells to the plates with compounds, 4,000 cells/well, 50 µl/well. Put the plates at room temperature on a non-vibrating surface for 20 minutes before placing in the incubator. Incubate the plate at 37°C incubator with CO₂ for 3 days. Remove plate from incubator and bring to room temperature. Blot media out of the plate and add 50 µL of ice cold 100% methanol. Incubate 30 minutes at room temperature. Remove methanol by aspiration. Wash 3X with PBST. Add 50 µL of Blocking Buffer + 0.1% Tween 20. Incubate 1 hour. Remove Blocking Buffer, wash 3X with PBST. Add 20 µL of H3K36me3 (1:1000 dilution). (Cell Signaling Technologies mAb #4909). Incubate overnight at 4°C. Wash plate 5X with PBS-T. Add 20 µL of DRAQ5 (1:1000) and IRDye 800CW Goat anti-Rabbit IgG (1:500). Incubate for 1 hour in the dark. Wash plate 5X with PBS-T. Wash plate 3X with water. Dry by blotting on paper towel, then centrifuge plate upside down on a thin layer of paper towels for 1 minute at 1000 rpm to remove excess reagent. Leave plate uncovered for ~10 minutes out of direct light before reading. Read on Licor instrument

[0704] 4. Licor Instrument Settings:

[0705] Preset: Plate; Resolution: 84 μm ; Quality: low; Focus offset: 4.0; 700 channel intensity: 2; and 800 channel intensity: 3.

EXAMPLE 12

SETD2 (1434-1711) Assay

[0706] Representative Compounds of the Disclosure were tested in the SETD2 (1434-1711) assay using the following protocol. SETD2 (1434-1711) assay results are provided in Table 1B.

[0707] 1. Reagents

Reagent Number	Reagent Name	Reagent Source	Catalog Number
1	0.5 M Bicine pH 8.0	Alfa Aesar	J63924
2	Tween 20, 100%	Sigma	P2287
3	β -mercaptoethanol (β -Me)	Sigma	M3148
4	Bovine Serum Gelatin (BSG), 2%	Sigma	G1393
5	Peptide #6 (H3 26-40, 15-mer)	Biopeptide	N/A
6	Tritium isotope, ^3H SAM 1 mCi, (12.5 μM)	ARC	ART0288
7	S-5'-adenosyl -L methionine chloride (SAM)	ARC	ARCD0767
8	SETD2(1434-1711) (RCP-83-1, 198 μM)	Supplied by Epizyme	N/A

[0708] 2. List of tools/equipment

Tool Number	Tool Name	Tool Source
1	Multi-channel pipettes	Rainin & Thermo Scientific Matrix
2	Multi-drop	Thermo Scientific
3	TopCount	Perkin Elmer
4	Platemate	Thermo
5	ELx406 plate washer	BioTek

[0709] 3. Reagent Formulations

Prepared Reagent Number	Prepared Reagent Name/ Description	Prepared Reagent Volume	Component Name	Component Quantity	Final Component Conc
3	Fresh made SAM (from powder)	10 mL	dH ₂ O SAM	10 mL 4.35 mg	1 mM

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4	COLD SAM aliquots	10 mL	dH ₂ O 200 mM SAM	10 mL 869.8 mg	200 mM
4	Tween-20	100 mL	Tween 20 dH ₂ O	10 mL 90 mL	10%

[0710] 4. Procedure description

Step Number	Step Description
1	Add 40 µL per well of Enzyme mix using Multi-drop to wells of prepared Compound Stock plate.
2	Incubate the enzyme in the Compound Stock plate for 30 minutes.
3	Add 10 µL per well of Substrate mix to Compound Stock plate using Multi-drop.
4	Cover plate and incubate 2.5 hours at room temperature.
5	Stop reaction with addition of 10 µL per well of Stop mix; added using Multi-drop.
6	Transfer 50 µL of volume per well to Flashplate from Compound Stock plate using a Thermo Platamate.
7	Cover Flashplate and incubate for 2 hr minimum at room temperature or overnight at 4 degrees C.
8	Wash Flashplate with dH ₂ O + 0.1% Tween using the BioTek plate washer, program 'Flashplate Wash 1X.LHC'. Plate is washed 1X, with final aspiration (Appendix 6). Seal Flashplate with TopSeal.
9	Read plate in TopCount.

EXAMPLE 13

14 Day KMS-34 Long Term Proliferation (LTP) Assay

[0711] Representative Compounds of the Disclosure were tested in the 14 day KMS-34 LTP assay using the following protocol. Assay results for 14 day KMS-34 LTP assay are provided in Table 5 and Fig. 2. Fig. 3 compares the KMS-34 LTP activity with the A549 H3K36me3 activity, *see* Example 11, of Cpd. Nos. 7, 11, 15, 22, 31, 32, 34, 64, 65, 66, 76, 115, 134, 151, 194, and 221.

[0712] 1. Reagents, Consumables, and Equipment:

Materials	Source	Cat. No.	Lot. No
KMS-34			
RPMI 1640	Invitrogen	11875-119	1694256
FBS	BI	04-002-1A	1609758
96-well plate, flat	Corning	3599	
Poly-D-Lysine 96-well Microplates, black/clear	BD BIOCOAT	356640	
Calcein-AM	Invitrogen	C3099	1887153

[0713] 2. Screening method

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[0714] Day 0:

[0715] In a flat bottom 96-well plate, add 100 μ l of cells per well at 1.25×10^5 cells/ml density (Note: Only internal wells. PBS placed in all outer wells to avoid evaporation of the internal wells.) Add 50 μ l of compounds to each well. Final volume in each well is 150 μ l. Incubate plates for 96 hrs.

Day 1, 2, 3: wait

Day 4:

[0716] Pipette cells up and down to mix in each well. Aspirate 20 μ l of cell suspension in the V-bottom plate and add to a poly-D-lysine coated 96-well plate. Add 30 μ l HBSS and 50 μ l of HBSS containing 2 μ M Calcein-AM. The final concentration is 1 μ M. Let cells sit at RT for 10 mins followed by a quick spin to get cells settled on the bottom of the wells. Incubate the plate for additional 40 mins in the incubator (to load Calcein AM and to give cells more time to attach). Take out the plate and read by Acumen. Calculate the cell numbers taken into account the dilution factors. Split the master plate by taking the total viable cell count calculated. Pipette cells up and down to mix in each well. Aspirate 1.1* of calculated cell suspension from each well and add to a V-bottom plate. Spin the plate at 1100 rpm for 5 minutes. Following the spin remove the media, careful not to disturb the cell pellet. Resuspend pellet in 110 μ l fresh media. Pipette cells up and down to mix in each well. Aspirate 100 μ l of cell suspension from each well and add to a new 96-well flat bottom plate. Add 50 μ l of compound solution. Incubate plates for 72 hrs.

[0717] Day 7:

[0718] Pipette cells up and down to mix in each well. Aspirate 20 μ l of cell suspension in the V-bottom plate and add to a poly-D-lysine coated 96-well plate. Add 30 μ l HBSS and 50 μ l of HBSS containing 2 μ M Calcein-AM. The final concentration is 1 μ M. Let cells sit at RT for 10 mins followed by a quick spin to get cells settled on the bottom of the wells. Incubate the plate for additional 40 mins in the incubator (to load Calcein AM and to give cells more time to attach). Take out the plate and read by Acumen. Calculate the cell numbers taken into account the dilution factors. Split the master plate by taking the total viable cell count calculated. Pipette cells up and down to mix in each well. Aspirate 1.1* of calculated cell suspension from each well and add to a V-bottom plate. Spin the plate at 1100 rpm for 5 minutes. Following the spin remove the media, careful not to disturb the cell pellet. Resuspend pellet in 110 μ l fresh media. Pipette cells up and down to mix

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in each well. Aspirate 100 µl of cell suspension from each well and add to a new 96-well flat bottom plate. Add 50 µl of compound solution. Incubate plates for 96 hrs.

[0719] Day 11:

[0720] Pipette cells up and down to mix in each well. Aspirate 20 µl of cell suspension in the V-bottom plate and add to a poly-D-lysine coated 96-well plate. Add 30 µl HBSS and 50 µl of HBSS containing 2 µM Calcein-AM. The final concentration is 1 µM. Let cells sit at RT for 10 mins followed by a quick spin to get cells settled on the bottom of the wells. Incubate the plate for additional 40 mins in the incubator (to load Calcein AM and to give cells more time to attach). Take out the plate and read by Acumen. Calculate the cell numbers taken into account the dilution factors. Split the master plate by taking the total viable cell count calculated. To reduce the variation that may be caused by pipetting: Pipette cells up and down to mix in each well. Aspirate all the cell suspension from B1-2, C1-2, D1-2 and add to a V-bottom plate. Aspirate 1.1* of calculated cell suspension from the other wells and add to a V-bottom plate. Spin the plate at 1100 rpm for 5 minutes. Following the spin remove the media, careful not to disturb the cell pellet. Resuspend pellet in B1-2, C1-2, D1-2 in 100uL fresh media. Pipette cells up and down to mix in each well. Resuspend pellet in the other wells in 110 µl fresh media. Pipette cells up and down to mix in each well. Aspirate 100 µl of cell suspension from each well and add to a new 96-well flat bottom plate.

[0721] Day 14: Pipette cells up and down to mix in each well. Aspirate 20 µl of cell suspension in the V-bottom plate and add to a poly-D-lysine coated 96-well plate. Add 30 µl HBSS and 50 µl of HBSS containing 2 µM Calcein-AM. The final concentration is 1 µM. Let cells sit at RT for 10 mins followed by a quick spin to get cells settled on the bottom of the wells. Incubate the plate for additional 40 mins in the incubator (to load Calcein AM and to give cells more time to attach. Take out the plate and read by Acumen. Calculate the cell numbers taken into account the dilution factors.

[0722] To calculate growth for days 4,7,11, and 14:

[0723] 1. Calculate the split factor for day 4 to 7, day 7 to 11, and day 11-14 The split factor is the viable cells/mL on Day X (either 4, 7, or 11) divided by the density the cells are being split back to.

2. For growth of cells from day 4 to 7, multiply the day 7 viable cells/mL density by the split factor from day 4.

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- [0724] 3. For growth of cells from day 7 to 11, multiply the day 11 viable cells/mL density by the days 4, and 7 split factors.
- [0725] 4. For growth of cells from Day 11 to 14, multiply the Day 14 viable cells/mL density by the days 4, 7, and 11 split factors.
5. Plot growth on semi-log chart (viable cells/mL on Y axis, in log, and days on X axis).
- [0726] Compound preparation:
- [0727] Compounds were dissolved in DMSO at 10 mM and were stored at -20°C. Compounds were diluted with DMSO in 3-fold serial dilution. From 5 mM to 0.25 μ M. Transfer 1.2 μ l of compounds from compound plate and add to a 96-well plate with 200 μ l of media in each well. Mix well by pipetting up and down. Transfer 50 μ l of compound-containing media to the cell plate.

Table 5

Cpd. No.	LTP Day 14 Abs IC ₅₀ (nM)
7	60
11	90
15	80
22	110
31	130
32	110
34	250
64	380
65	280
66	420
76	360
115	260
134	800
151	580
194	1,040
221	930
359	7800
372	10,000
373	10,000
509	2600

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EXAMPLE 14

14 Day LTP Assay in Multiple Myeloma Cells

[0728] Cpd. No. 15 was tested in several multiple myeloma cell lines in the LTP assay described in EXAMPLE 13. The results are presented in Table 6 and Fig. 1.

Table 6

Cell Line	Translocation	14 day LTP IC ₅₀ (μM)
NCI-H929	t(4:14)	0.24
LP-1	t(4:14)	0.07
OPM-2	t(4:14)	0.09
KMS-11	t(4:14)	0.14
KMS-28-BM	t(4:14)	>10
KMS-34	t(4:14)	0.08
KMS-12-BM	t(11:14)	1.9
MM.1R	t(4:16)	1.2
MM.1S	t(4:16)	3
U266B1	t(11:14)	6.1
HuNS1	None	0.6
RPMI	t(14:16)	3.3

EXAMPLE 15

Evaluation of the Anti-Tumor Activity of Cpd. No. 15 as a Single Agent in Human
Myeloma KMS-11 Tumor-bearing NOD SCID Mice

[0729] Animals

[0730] Species & Strain: NOD SCID mice; Age: 6 to 8 weeks; Total Number: 75 mice including spare, study used 50 mice; Sex: Female; Body Weight: 18 to 22 g

[0731] Groups and Treatments

[0732] Groups and treatments were started when the mean tumor volume reached about 118 mm³. Based on the tumor volume and body weight, mice were assigned to respective groups such that the average starting tumor size and body weight was the same for each treatment group. The study groups and number of animals per group are shown in Table 7.

Table 7. Group and Treatments for efficacy study

Group #	Drug	Animals / group	Dose (mg/kg)	Vol (ml/kg)	Route	Regimen	Duration
1	Vehicle control	10	-	10	p.o.	BID	28 days
2	Cpd. No. 15	10	31.25	10	p.o.	BID	28 days

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3	Cpd. No. 15	10	62.5	10	p.o.	BID	28 days
4	Cpd. No. 15	10	125	10	p.o.	BID BID(3D-4D+)	18 days 7days
5	Cpd. No. 15	10	175	10	p.o.	BID BID(3D-4D+)	11 days 14 days

[0733] Method for Cell Culture

[0734] The KMS-11 tumor cell line was maintained in vitro as monolayer culture in RPMI-1640 + 10% FBS at 37°C in an atmosphere of 5% CO₂ in air. The tumor cells were routinely subcultured before confluence, not to exceed 4-5 passages. The cells growing in an exponential growth phase were harvested and counted for tumor inoculation.

[0735] Method for Tumor Inoculation

[0736] Each mouse was inoculated subcutaneously on the right flank with KMS-11 tumor cells (1×10^7) and matrigel mixture (1:1 ratio) in 0.1 ml of RPMI-1640 for tumor development. The treatment was started when the mean tumor size reached 118 mm³. Mice were then assigned to groups such that the mean tumor volume was the same for each treatment group and time point. The treatments were administered to the tumor-bearing mice accordingly to the study design showed in Table 7.

[0737] Tumor Measurements

[0738] The measurement of tumor size was conducted twice weekly with a caliper and the tumor volume (mm³) is estimated using the formula: $TV = a \times b \times b/2$, where "a" and "b" are long and short diameters of a tumor, respectively. The TVs are used for calculation of the tumor growth inhibition and tumor growth delay. For the tumor growth inhibition (TGI), the value using the formula:

[0739] a. $\% \Delta T / \Delta C = (TreatedTV_{final} - TreatedTV_{initial}) / (VehicleTV_{final} - VehicleTV_{initial}) * 100$

[0740] b. $\%TGI = [1 - (TreatedTV_{final} - TreatedTV_{initial}) / (VehicleTV_{final} - VehicleTV_{initial})] * 100$

[0741] The "TV_{final}" and "TV_{initial}" are the mean tumor volumes on the final day and initial day of dosing.

[0742] After take down 5 mice of G2~G5 post the final dosing, the remaining mice were maintained for monitoring tumor outgrowth twice weekly.

[0743] Termination criterion

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[0744] Animals that were observed to be in a continuing deteriorating condition or their tumor size exceeding 3,000 mm³ (individual tumor or group average > 3,000 mm³) were euthanized prior to death, or before reaching a comatose state. Animals showing obvious signs of severe distress and/or pain were humanely sacrificed by carbon dioxide followed by cervical dislocation to ensure death.

[0745] Samples Collection

[0746] Tumor samples and plasma were collect at the indicated day.

[0747] Data Acquisition and Statistical Analysis

[0748] Data Acquisition: Protocol-required measurements and observations were recorded manually on appropriate forms, or directly on a computerized database.

[0749] Statistical Analysis: All statistical tests were conducted, and the level of significance was set at 5% or $P < 0.05$. The group means, standard deviation were calculated for all measurement parameters as study designed. Two-way RM ANOVA followed by Tukeys post hoc comparisons of the means.

[0750] Tumor volumes

[0751] The therapeutic effects of compound as a single agent in the KMS-11 subcutaneous xenograft model were evaluated. The tumor sizes in different groups at different time points during the treatment period are shown Tables 8 and 9, and Fig. 4.

Table 8. The Mean Value of Tumor Sizes in the Different Treatment Groups

[Tumor volume (mm³, Mean $\pm$ SEM)]

Group	PG-D1	PG-D4	PG-D7	PG-D11	PG-D14	PG-D18	PG-D21	PG-D25
	D7	D10	D13	D17	D20	D24	D27	D31
G1	118 $\pm$ 5	229 $\pm$ 23	338 $\pm$ 29	573 $\pm$ 50	908 $\pm$ 112	1320 $\pm$ 178	1624 $\pm$ 199	2558 $\pm$ 301
G2	119 $\pm$ 6	225 $\pm$ 21	271 $\pm$ 19	408 $\pm$ 46	478 $\pm$ 54	609 $\pm$ 71	686 $\pm$ 80	763 $\pm$ 97
G3	117 $\pm$ 6	178 $\pm$ 11	216 $\pm$ 11	231 $\pm$ 16	184 $\pm$ 17	176 $\pm$ 22	129 $\pm$ 25	115 $\pm$ 30
G4	117 $\pm$ 6	191 $\pm$ 11	219 $\pm$ 9	196 $\pm$ 11	119 $\pm$ 10	99 $\pm$ 16	85 $\pm$ 20	131 $\pm$ 39
G5	119 $\pm$ 6	192 $\pm$ 13	221 $\pm$ 17	199 $\pm$ 24	167 $\pm$ 27	189 $\pm$ 32	214 $\pm$ 45	225 $\pm$ 45

TABLE 9. The Mean Value of Tumor Sizes in the Different Treatment Groups Post the Final Dosing Group

[Tumor volume (mm³, Mean $\pm$ SEM)]

Group	PG-D28		PG-D32		PG-D35		PG-D39	
	D34		D38		D41		D45	
G1	3362 $\pm$ 387	n=10						
G2	882 $\pm$ 131	n=	1123 $\pm$ 149	n=5	1499 $\pm$	n=4	1747 $\pm$ 24	n=3

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		10			196		3	
G3	117±36	n=10	65±23	n=5	150±60	n=5	309±108	n=5
G4	99±20	n=4	239±68	n=4	421±108	n=4	757±215	n=4
G5	269±146	n=4	589±378	n=3	732±422	n=3	1183±686	n=3

[0752] Inhibition Rate for Tumor Growth

[0753] The inhibition rate for tumor growth of each group is shown in Table 10.

Table 10. Antitumor Activity in KMS-11 Subcutaneous Xenograft Model

Treatment	Tumor Size (mm ³) at PG-Day25	$\Delta T/\Delta C$ (%) ^b	TGI (%) ^c	P Valued
G1, Vehicle control, p.o., BID×28days	2558±301	-	-	-
G2, , 31.25 mg/kg, p.o., BID×28days	763±97	26	74	****
G3, 3, 62.5 mg/kg, p.o., BID×28days	115±30	0	100	****
G4, 125 mg/kg, p.o., BID×18days, BID(3D-4D+)×7days	131±39	1	99	****
G5, 175 mg/kg, p.o., BID×18days, BID(3D-4D+)×14days	225±45	4	96	****
Note: a. Mean ± SEM; b. $\Delta T/\Delta C = (TV \text{ treated final} - TV \text{ treated initial}) / (TV \text{ Vehicle final} - TV \text{ Vehicle initial}) * 100\%$; c. $TGI = [1 - (TV \text{ treated final} - TV \text{ treated initial}) / (TV \text{ Vehicle final} - TV \text{ Vehicle initial})] * 100\%$; d. vs. Vehicle control, via Tukeys multiple comparisons test; ** $P < 0.01$, *** $P < 0.001$, **** $P < 0.0001$, ns: no significant.				

[0754] Cpd. No. 15 was also tested in MM.1S a non-t(4;14) multiple myeloma xenograft model using similar methods and BID dosing. The results are provided in Fig. 5.

[0755] Having now fully described this invention, it will be understood by those of ordinary skill in the art that the same can be performed within a wide and equivalent range of conditions, formulations, and other parameters without affecting the scope of the invention or any embodiment thereof.

[0756] Other embodiments of the invention will be apparent to those skilled in the art from consideration of the specification and practice of the invention disclosed herein. It is intended that the specification and examples be considered as exemplary only, with a true scope and spirit of the invention being indicated by the following claims.

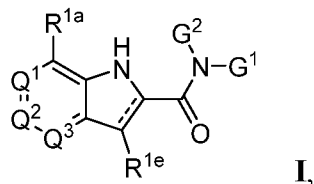
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[0757] All patents and publications cited herein are fully incorporated by reference herein in their entirety.

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What is Claimed Is:

1. A compound of Formula I:



wherein:

R^{1a} is selected from the group consisting of halogen, alkyl, alkoxy, cycloalkyl, (hydroxy)alkyl, and (cycloalkyl)alkyl;

Q^1 is selected from the group consisting of $-C(R^{1b})=$ and $-N=$;

Q^2 is selected from the group consisting of $-C(R^{1c})=$ and $-N=$;

Q^3 is selected from the group consisting of $-C(R^{1d})=$ and $-N=$;

provided that at least one of Q^1 , Q^2 , or Q^3 is $-C(R^{1b})=$, $-C(R^{1c})=$, or $-C(R^{1d})=$, respectively;

R^{1b} , R^{1c} , and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, alkyl, alkenyl, (hydroxy)alkyl, and alkoxy;

R^{1e} is selected from the group consisting of hydrogen, halogen, alkyl, cycloalkyl, (hydroxy)alkyl, and (cycloalkyl)alkyl;

$=$ is a single or double bond;

G^1 is selected from the group consisting of: optionally substituted aryl; optionally substituted heteroaryl; optionally substituted heterocyclo; optionally substituted cycloalkyl; (aryl)alkyl; (heteroaryl)alkyl; (heterocyclo)alkyl; (amino)(aryl)alkyl; (heteroaryl)(aryl)alkyl; (heteroaryl)(heterocyclo)alkyl; (heteroaryl)(carboxamido)alkyl; (heteroaryl)(cycloalkyl)alkyl; (aryl)(alkoxycarbonyl)alkyl; (cycloalkyl)alkyl; (heteroaryl)(amino)alkyl; (cycloalkyl)(alkoxycarbonyl)alkyl; (heteroaryl)(alkoxycarbonyl)alkyl; (heterocyclo)(cycloalkyl)alkyl; (aryl)(cycloalkyl)alkyl; (aryl)(hydroxy)alkyl; (cycloalkyl)(hydroxy)alkyl; (hydroxy)alkyl; optionally substituted alkyl; (aryl)(haloalkyl)alkyl; (cycloalkyl)(haloalkyl)alkyl; (hydroxy)(haloalkyl)alkyl; and (alkoxycarbonyl)(haloalkyl)alkyl; and

G^2 is selected from the group consisting of hydrogen and alkyl; or

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G¹ and G² taken together with the nitrogen atom to which they are attached form an optionally substituted heterocyclo,

provided that the compound of Formula I is not N-(1-(1-(L-alanyl)piperidin-4-yl)ethyl)-7-methyl-1H-indole-2-carboxamide; N-((1r,4r)-4-(3-aminopropanamido)cyclohexyl)-7-methyl-1H-indole-2-carboxamide; or N-((1r,4r)-4-aminocyclohexyl)-7-methyl-1H-indole-2-carboxamide, or a pharmaceutically acceptable salt or solvate thereof.

2. The compound of claim 1, wherein:

R^{1a} is selected from the group consisting of halogen, C₁-C₆ alkyl, C₁-C₆ alkoxy, C₃-C₈ cycloalkyl, (hydroxy)C₁₋₆ alkyl, and (C₃-C₆ cycloalkyl)C₁₋₆ alkyl;

R^{1b}, R^{1c}, and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, C₁-C₆ alkyl, C₂-C₆ alkenyl, (hydroxy)C₁₋₆ alkyl, and C₁-C₆ alkoxy;

R^{1e} is selected from the group consisting of hydrogen and C₁-C₆ alkyl;

G¹ is selected from the group consisting of:

optionally substituted C₆-C₁₀ aryl; optionally substituted 5- to 10-membered heteroaryl; optionally substituted 3- to 10-membered heterocyclo; optionally substituted C₃-C₈ cycloalkyl; (C₆-C₁₀ aryl)C₁-C₆ alkyl; (5- to 10-membered heteroaryl)C₁-C₆ alkyl; (3- to 10-membered heterocyclo)C₁-C₆ alkyl; (amino)(C₆-C₁₀ aryl)C₁-C₆ alkyl; (5- to 14-membered heteroaryl)(C₆-C₁₀ aryl)C₁-C₆ alkyl; (5- to 10-membered heteroaryl)(3- to 10-membered heterocyclo)C₁-C₆ alkyl; (5- to 10-membered heteroaryl)(carboxamido)C₁-C₆ alkyl; (5- to 10-membered heteroaryl)(C₃-C₆ cycloalkyl)C₁-C₆ alkyl; (C₆-C₁₀ aryl)(alkoxycarbonyl)C₁-C₆ alkyl; (C₃-C₆ cycloalkyl)C₁-C₆ alkyl; (5- to 10-membered heteroaryl)(amino)C₁-C₆ alkyl; (C₃-C₆ cycloalkyl)(alkoxycarbonyl)C₁-C₆ alkyl; (5- to 14-membered heteroaryl)(alkoxycarbonyl)C₁-C₆ alkyl; (3- to 14-membered heterocyclo)(C₃-C₈ cycloalkyl)C₁-C₆ alkyl; (C₆₋₁₀ aryl)(C₃-C₈ cycloalkyl)C₁-C₆ alkyl; (C₆-C₁₀ aryl)(hydroxy)C₁-C₆ alkyl; (C₃-C₆ cycloalkyl)(hydroxy)C₁-C₆ alkyl; (hydroxy)C₁-C₆ alkyl; optionally substituted C₁-C₆ alkyl; (C₆-C₁₀ aryl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; (C₃-C₆ cycloalkyl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; (hydroxy)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; and (alkoxycarbonyl)(C₁-C₆ haloalkyl)C₁-C₆ alkyl; and

G² is selected from the group consisting of hydrogen and C₁-C₆ alkyl; or

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G¹ and G² taken together with the nitrogen atom to which they are attached form a 5- to 10-membered optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

3. The compound of claim 2, wherein:

R^{1a} is selected from the group consisting of halogen, C₁-C₃ alkyl, C₁-C₃ alkoxy, C₃-C₆ cycloalkyl, (hydroxy)C₁₋₄ alkyl, and (C₃-C₆ cycloalkyl)C₁₋₄ alkyl;

R^{1b}, R^{1c}, and R^{1d} are each independently selected from the group consisting of hydrogen, halogen, C₁-C₃ alkyl, C₂-C₄ alkenyl, (hydroxy)C₁₋₄ alkyl, and C₁-C₃ alkoxy;

R^{1e} is selected from the group consisting of hydrogen and C₁-C₃ alkyl;

G¹ is selected from the group consisting of: optionally substituted C₆-C₁₀ aryl; optionally substituted 5- to 10-membered heteroaryl; optionally substituted 3- to 10-membered heterocyclo; optionally substituted C₃-C₈ cycloalkyl; (C₆-C₁₀ aryl)C₁-C₄ alkyl; (5- to 10-membered heteroaryl)C₁-C₆ alkyl; (3- to 10-membered heterocyclo)C₁-C₄ alkyl; (amino)(C₆-C₁₀ aryl)C₁-C₆ alkyl; (5- to 14-membered heteroaryl)(C₆-C₁₀ aryl)C₁-C₄ alkyl; (5- to 10-membered heteroaryl)(3- to 10-membered heterocyclo)C₁-C₄ alkyl; (5- to 10-membered heteroaryl)(carboxamido)C₁-C₄ alkyl; (5- to 10-membered heteroaryl)(C₃-C₆ cycloalkyl)C₁-C₄ alkyl; (C₆-C₁₀ aryl)(alkoxycarbonyl)C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)C₁-C₄ alkyl; (5- to 10-membered heteroaryl)(amino)C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)(alkoxycarbonyl)C₁-C₄ alkyl; (5- to 14-membered heteroaryl)(alkoxycarbonyl)C₁-C₄ alkyl; (3- to 14-membered heterocyclo)(C₃-C₆ cycloalkyl)C₁-C₄ alkyl; (C₆-C₁₀ aryl)(C₃-C₆ cycloalkyl)C₁-C₄ alkyl; (C₆-C₁₀ aryl)(hydroxy)C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)(hydroxy)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; optionally substituted C₁-C₄ alkyl; (C₆-C₁₀ aryl)(C₁-C₄ haloalkyl)C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)(C₁-C₄ haloalkyl)C₁-C₄ alkyl; (hydroxy)(C₁-C₄ haloalkyl)C₁-C₄ alkyl; and (alkoxycarbonyl)(C₁-C₄ haloalkyl)C₁-C₄ alkyl; and

G² is selected from the group consisting of hydrogen and C₁-C₄ alkyl; or

G¹ and G² taken together with the nitrogen atom to which they are attached form a 5- to 10-membered optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

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4. The compound of any one of claims 1-3, wherein $\equiv$ is a double bond, or a pharmaceutically acceptable salt or solvate thereof.

5. The compound of any one of claims 1-4, wherein Q^1 and Q^2 are $-\text{C}(\text{H})=$, or a pharmaceutically acceptable salt or solvate thereof.

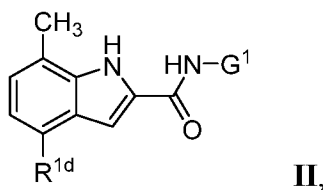
6. The compound of any one of claims 1-4, wherein Q^3 is $-\text{C}(\text{R}^{1d})=$; and R^{1d} is selected from the group consisting of hydrogen and halo, or a pharmaceutically acceptable salt or solvate thereof.

7. The compound of any one of claims 1-6, wherein R^{1e} is hydrogen, or a pharmaceutically acceptable salt or solvate thereof.

8. The compound of any one of claims 1-7, wherein R^{1a} is $\text{C}_1\text{-C}_3$ alkyl, or a pharmaceutically acceptable salt or solvate thereof.

9. The compound of any one of claims 1-8, wherein G^2 is hydrogen, or a pharmaceutically acceptable salt or solvate thereof.

10. The compound of any one of claims 1-9 of Formula II:

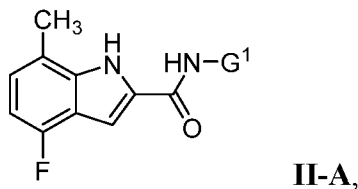


or a pharmaceutically acceptable salt or solvate thereof.

11. The compound of claim 10, wherein R^{1d} is selected from the group consisting of hydrogen and fluoro, or a pharmaceutically acceptable salt or solvate thereof.

12. The compound of claim 11 of Formula II-A:

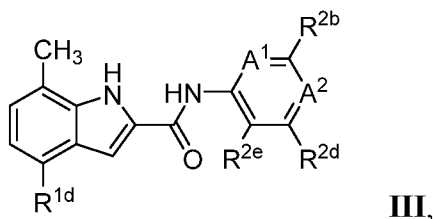
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or a pharmaceutically acceptable salt or solvate thereof.

13. The compound any one of claims 10 -12, wherein G^1 is selected from the group consisting of: optionally substituted C_6 - C_{10} aryl; optionally substituted 5- to 9-membered heteroaryl; optionally substituted 3- to 10-membered heterocyclo; optionally substituted C_6 - C_8 cycloalkyl; (5- to 9-membered heteroaryl) C_1 - C_6 alkyl; (5- to 9-membered heteroaryl)(C_{6-10} aryl) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl heteroaryl)(C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl; and (C_3 - C_6 cycloalkyl) C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

14. The compound of claim 13 of Formula **III**:



wherein:

A^1 is selected from the group consisting of $-N=$ and $-C(R^{2a})=$;

R^{2a} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

R^{2b} is selected from the group consisting of optionally substituted alkyl, optionally substituted heterocyclo, optionally substituted cycloalkyl, optionally substituted heteroaryl, optionally substituted aryl, (carboxamido)alkyl, $-OR^{10c}$, amino, (heterocyclo)alkyl, (amino)alkyl, (hydroxy)alkyl, carboxamido, (heteroaryl)alkyl, $-S(=O)R^{9b}$, $-S(=O)_2R^{9b}$, and $-C(=O)R^{9c}$;

A^2 is selected from the group consisting of $-N=$ and $-C(R^{2c})=$;

R^{2c} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

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R^{2d} is selected from the group consisting of hydrogen, alkyl, halogen, cyano, and haloalkyl;

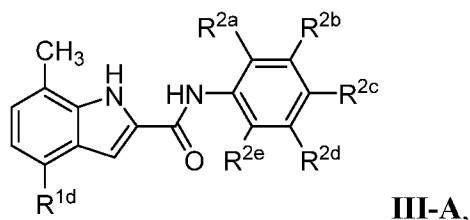
R^{2e} is selected from the group consisting of hydrogen, alkyl, halogen, and haloalkyl;

R^{9b} is selected from the group consisting of amino, alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heterocyclo, and optionally substituted heteroaryl;

R^{9c} is selected from the group consisting of amino, alkyl, optionally substituted cycloalkyl, optionally substituted aryl, optionally substituted heterocyclo, and optionally substituted heteroaryl; and

R^{10c} is selected from the group consisting of alkyl, (hydroxy)alkyl, and (amino)alkyl, or a pharmaceutically acceptable salt or solvate thereof.

15. The compound of claim 14 having Formula **III-A**:



or a pharmaceutically acceptable salt or solvate thereof.

16. The compound of claims 14 or 15, wherein:

R^{2a} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, halogen, and C_1 - C_4 haloalkyl;

R^{2b} is selected from the group consisting of:

(A) unsubstituted 4- to 10-membered heterocyclo;

(B) substituted 4- to 10-membered heterocyclo having one, two, three, or four substituents independently selected from the group consisting of (i) $-N(R^{3a})C(=O)R^{4a}$; (ii) $-NR^{5a}R^{5b}$; (iii) unsubstituted 4- to 10-membered heterocyclo; (iv) substituted 4- to 10-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of hydroxy, $-NR^{5c}R^{5d}$, C_1 - C_4 alkyl, C_1 - C_6 alkoxy, $-C(R^{6a})(R^{6b})C(=O)NR^{5e}R^{5f}$, $-C(=O)R^{4b}$, (hydroxy) C_1 - C_4 alkyl, and halo; (v) unsubstituted C_3 - C_6 cycloalkyl; (vi) (hydroxy) C_1 - C_4 alkyl; (vii) C_1 - C_6 alkyl; (viii) -

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$C(=O)NR^{5g}R^{5h}$; (ix) halo; (x) $-C(=O)R^{4c}$; (xi) C_1-C_6 haloalkyl; (xii) hydroxy; (xiii) (amino) C_1-C_4 alkyl; (xiv)(C_1-C_4 alkoxy) C_1-C_4 alkyl; (xv) $-S(=O)_2R^{9a}$; (xvi) (3- to 8-membered heterocyclo) C_1-C_4 alkyl; (xvii) C_1-C_6 alkoxy; (xviii) (C_3-C_6 cycloalkyl) C_1-C_4 alkyl; (xix) (C_{6-10} aryl) C_1-C_4 alkyl; and (xxii) $-OR^{10b}$;

(C) unsubstituted C_3-C_8 cycloalkyl;

(D) substituted C_3-C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of: (i) unsubstituted 4- to 10-membered heterocyclo; (ii) substituted 4- to 10-membered heterocyclo having one or two substituents, independently selected from the group consisting of amino and C_1-C_4 alkyl; (iii) unsubstituted 5- or 6-membered heteroaryl; (iv) substituted 5- or 6-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1-C_4 alkyl, (3- to 8-membered heterocyclo)alkyl, hydroxy, and amino; (v) $-NR^{5i}R^{5j}$; (vi) cyano; (vii) $-N(R^{3d})C(=O)R^{4f}$; (viii) hydroxy; and (ix) C_1-C_4 alkyl;

(E) unsubstituted 5- to 10-membered heteroaryl;

(F) substituted 5- to 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of: (i) halo; (ii) C_1-C_4 alkyl; (iii) (C_1-C_4 alkoxy) C_1-C_4 alkyl; (iv) (hydroxy) C_1-C_4 alkyl; (v) C_3-C_6 cycloalkyl; (vi) (amino) C_1-C_4 alkyl; (vii) unsubstituted C_3-C_6 cycloalkyl; (viii) substituted C_3-C_6 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of $-NR^{5g}R^{5h}$; (xi) unsubstituted 4- to 14-membered heterocyclo; (xii) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C_1-C_4 alkyl; (xiii) $-NR^{5q}R^{5r}$; and (ix) (3- to 8-membered heterocyclo) C_1-C_4 alkyl;

(G) unsubstituted C_6-C_{10} aryl;

(H) substituted C_6-C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of: (i) halo; (ii) C_1-C_4 alkyl; (iii) $-CH_2N(H)S(=O)_2R^8$; (iv) (5- to 9-membered heteroaryl) C_1-C_4 alkyl; (v) $-OR^{10a}$; (vi) $-N(R^{3b})C(=O)R^{4b}$; (vii) (amino) C_1-C_4 alkyl; and (viii) (hydroxy) C_1-C_4 alkyl;

(I) (carboxamido) C_1-C_4 alkyl;

(J) $-OR^{10c}$;

(K) $-NR^{5o}R^{5p}$;

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- (L) (3- to 8-membered heterocyclo)C₁-C₄ alkyl;
- (M) (amino)C₁-C₄ alkyl;
- (N) (hydroxy)C₁-C₄ alkyl;
- (O) -C(=O)NR^{5s}R^{5t};
- (P) (5- to 9-membered heteroaryl)C₁-C₄ alkyl; and
- (Q) -S(=O)₂R^{9b};

R^{2c} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, and C₁-C₄ haloalkyl;

R^{2d} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, cyano, and C₁-C₄ haloalkyl;

R^{2e} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, halogen, and C₁-C₄ haloalkyl;

R^{3a}, R^{3b}, R^{3c}, and R^{3d} are each independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, optionally substituted C₃-C₆ cycloalkyl, and optionally substituted 4- to 14-membered heterocyclo;

R^{4a}, R^{4b}, R^{4c}, R^{4d}, R^{4e}, and R^{4f} are each independently selected from the group consisting of C₁-C₆ alkyl; C₁-C₆ haloalkyl; C₃-C₆ cycloalkyl; C₁-C₆ alkoxy; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (C₆₋₁₀ aryl)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (hydroxy)C₁-C₄ alkyl; (cyano)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted C₆-C₁₀ aryl; substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; and substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo and C₁-C₄ alkyl;

R^{5a} and R^{5b} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered

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heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;

R^{5c} and R^{5d} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

R^{5c} and R^{5d} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5e} and R^{5f} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

R^{5e} and R^{5f} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5g} and R^{5h} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

R^{5g} and R^{5h} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

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R^{5i} and R^{5j} are independently selected from the group consisting of hydrogen; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; (hydroxy) C_1 - C_4 alkyl; (amino) C_1 - C_4 alkyl; (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C_1 - C_4 alkyl; or

R^{5i} and R^{5j} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5k} and R^{5l} are independently selected from the group consisting of hydrogen; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; (hydroxy) C_1 - C_4 alkyl; (amino) C_1 - C_4 alkyl; (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C_1 - C_4 alkyl; or

R^{5k} and R^{5l} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5m} and R^{5n} are independently selected from the group consisting of hydrogen; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; (hydroxy) C_1 - C_4 alkyl; (amino) C_1 - C_4 alkyl; (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C_1 - C_4 alkyl; or

R^{5m} and R^{5n} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5o} and R^{5p} are independently selected from the group consisting of hydrogen; C_1 - C_4 alkyl; C_1 - C_4 haloalkyl; (hydroxy) C_1 - C_4 alkyl; (amino) C_1 - C_4 alkyl;

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(C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl; or

R^{5o} and R^{5p} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{5q} and R^{5r} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;

R^{5s} and R^{5t} are independently selected from the group consisting of hydrogen; C₁-C₄ alkyl; C₁-C₄ haloalkyl; (hydroxy)C₁-C₄ alkyl; (amino)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (5- to 9-membered heteroaryl)C₁-C₄ alkyl; unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;

R^{6a}, R^{6b}, R^{6c}, and R^{6d} are each independently selected from the group consisting of hydrogen and C₁-C₄ alkyl;

R⁸ is C₁-C₆ alkyl;

R^{9a} is selected from the group consisting of C₁-C₆ alkyl; unsubstituted C₃-C₈ cycloalkyl; and substituted C₃-C₈ cycloalkyl having one or two substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl;

R^{9b} is selected from the group consisting of C₁-C₆ alkyl and amino;

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R^{10a} is selected from the group consisting of alkyl, (hydroxy) C_1 - C_4 alkyl, and (amino) C_1 - C_4 alkyl;

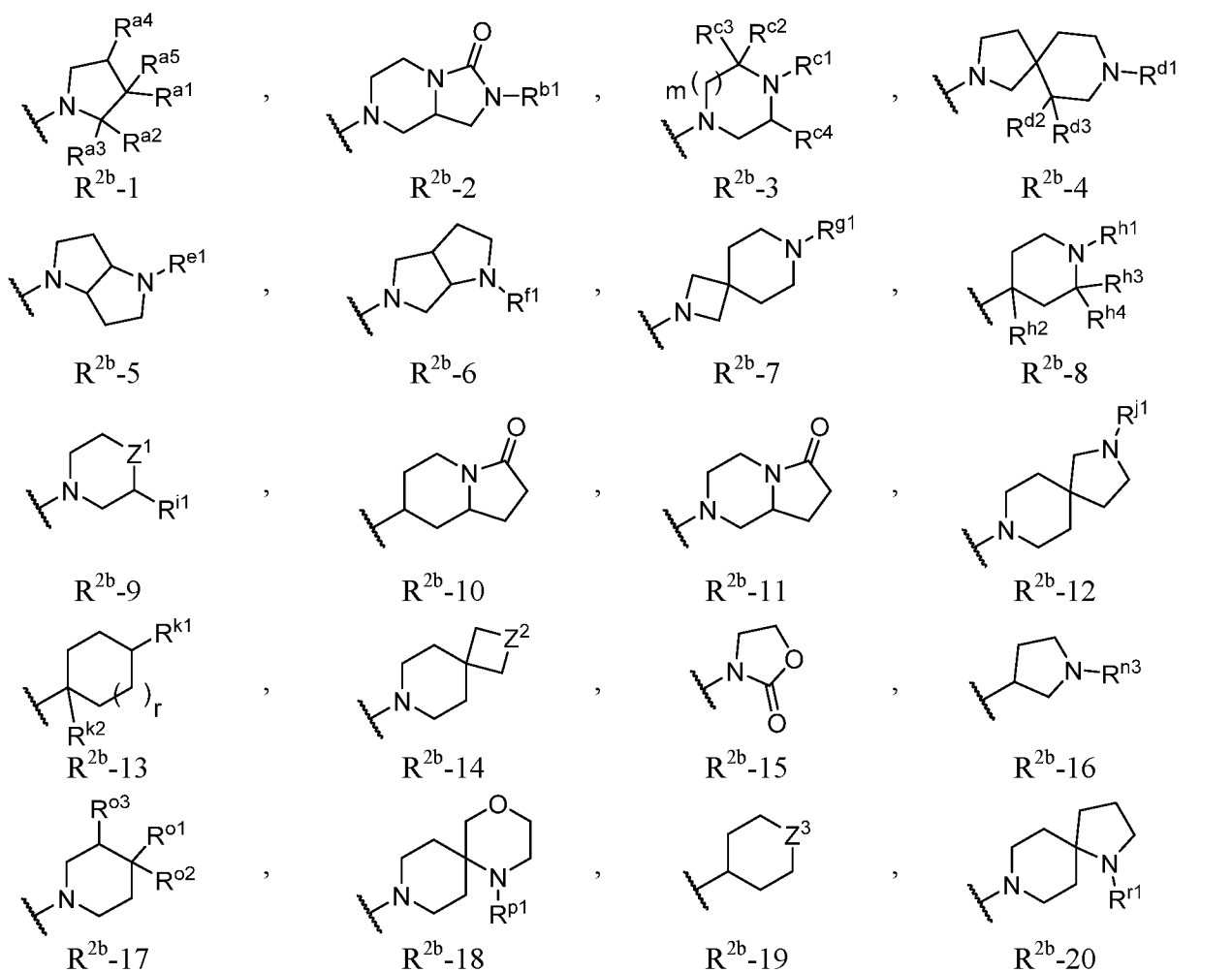
R^{10b} is (amino) C_1 - C_4 alkyl; and

R^{10c} is (amino) C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

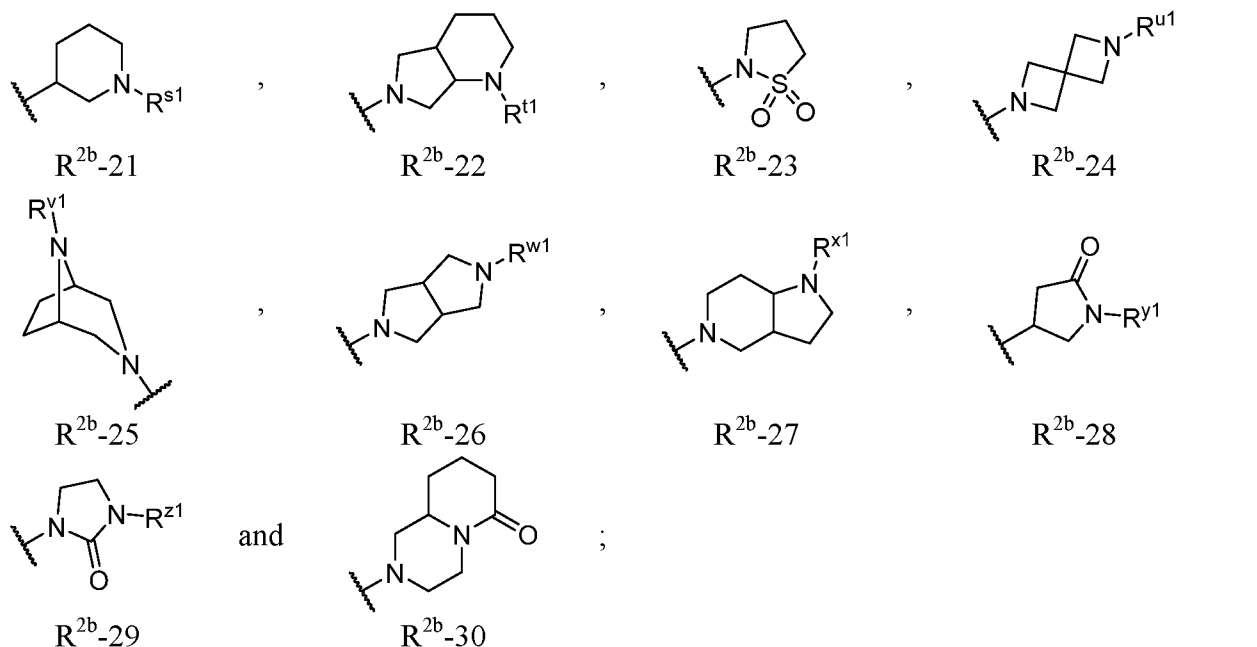
17. The compound any one of claims 14-16, wherein: A^1 and A^2 are $-C(H)=$; R^{2e} is hydrogen; and R^{2d} is selected from the group consisting of hydrogen and halogen, or a pharmaceutically acceptable salt or solvate thereof.

18. The compound of any one of claims 14-17, wherein:

R^{2b} is selected from the group consisting of:



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R^{a1} is selected from the group consisting of $-N(R^{3a})C(=O)R^{4a}$, $-NR^{5a}R^{5b}$, unsubstituted 4- to 10-membered heterocyclo; substituted 4- to 10-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of hydroxy, $-NR^{5c}R^{5d}$, C_1 - C_4 alkyl, C_1 - C_6 alkoxy, $-C(R^{6a})(R^{6b})C(=O)NR^{5e}R^{5f}$, $-C(=O)R^{4b}$, (hydroxy) C_1 - C_4 alkyl, and halo;

R^{a2} and R^{a3} are each hydrogen; or

R^{a2} and R^{a3} taken together with the carbon atom to which they are attached form a $C(=O)$ group;

R^{a4} is selected from the group consisting of hydrogen, halo, and hydroxy;

R^{a5} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_3 - C_6 cycloalkyl;

R^{b1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_3 - C_6 cycloalkyl;

R^{c1} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;

R^{c2} and R^{c3} are each independently selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_1 - C_4 haloalkyl; or

R^{c2} and R^{c3} taken together with the carbon atom to which they are attached form a $C(=O)$ group;

R^{c4} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl;

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m is 1 or 2;

R^{d1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O) R^{4c} ,

R^{d2} and R^{d3} are each independently selected from the group consisting of hydrogen and fluoro;

R^{e1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₃-C₆ cycloalkyl, and -C(=O) R^{4c} ;

R^{f1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₃-C₆ cycloalkyl, and -C(=O) R^{4c} ;

R^{g1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, -C(=O) R^{4c} , C₁-C₄ haloalkyl, (C₁-C₄ alkoxy)C₁-C₄ alkyl

R^{h1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₃-C₆ cycloalkyl, and -C(=O) R^{4c} ;

R^{h2} is selected from the group consisting of hydrogen and C₁-C₄ alkyl;

R^{h3} and R^{h4} are each independently selected from the group consisting of hydrogen and C₁-C₄ alkyl; or

R^{h3} and R^{h4} taken together with the carbon atom to which they are attached form a C(=O) group;

R^{i1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₃-C₆ cycloalkyl, (hydroxy)C₁-C₄ alkyl, -N(R^{3a})C(=O) R^{4a} , and (amino)C₁-C₄ alkyl;

Z^1 is selected from the group consisting of -CH₂- and -O-;

R^{j1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₃-C₆ cycloalkyl, and -C(=O) R^{4c} ;

R^{k1} is selected from the group consisting of C₁-C₄ alkyl, unsubstituted 4- to 14-membered heterocyclo and -NR^{5a}R^{5b};

R^{k2} is selected from the group consisting of hydrogen, hydroxy, and C₁-C₄ alkyl;

r is 0, 1, or 2;

Z^2 is selected from the group consisting of -O- and -N(R^{m3})-;

R^{m3} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and C₁-C₄ haloalkyl;

R^{n1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O) R^{4c} ;

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R^{o1} is selected from the group consisting of hydroxy, (hydroxy)C₁-C₄ alkyl, (amino)C₁-C₄ alkyl, (C₁-C₄ alkoxy)C₁-C₄ alkyl, C₁-C₄ alkoxy, -NR^{5a}R^{5b}, unsubstituted 4- to 14-membered heterocyclo, substituted 4- to 14-membered heterocyclo having one, two, or three substituents independently selected from the group consisting of halo, C₁-C₄ alkyl and C₁-C₄ alkoxy;

R^{o2} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and (C₁-C₄ alkoxy)C₁-C₄ alkyl

R^{o3} is selected from the group consisting of hydrogen, fluoro, and C₁-C₄ alkyl;

R^{p1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

Z³ is selected from the group consisting of -O- and -N(R^{q1})-;

R^{q1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{r1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{s1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{t1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{u1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{v1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

R^{w1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

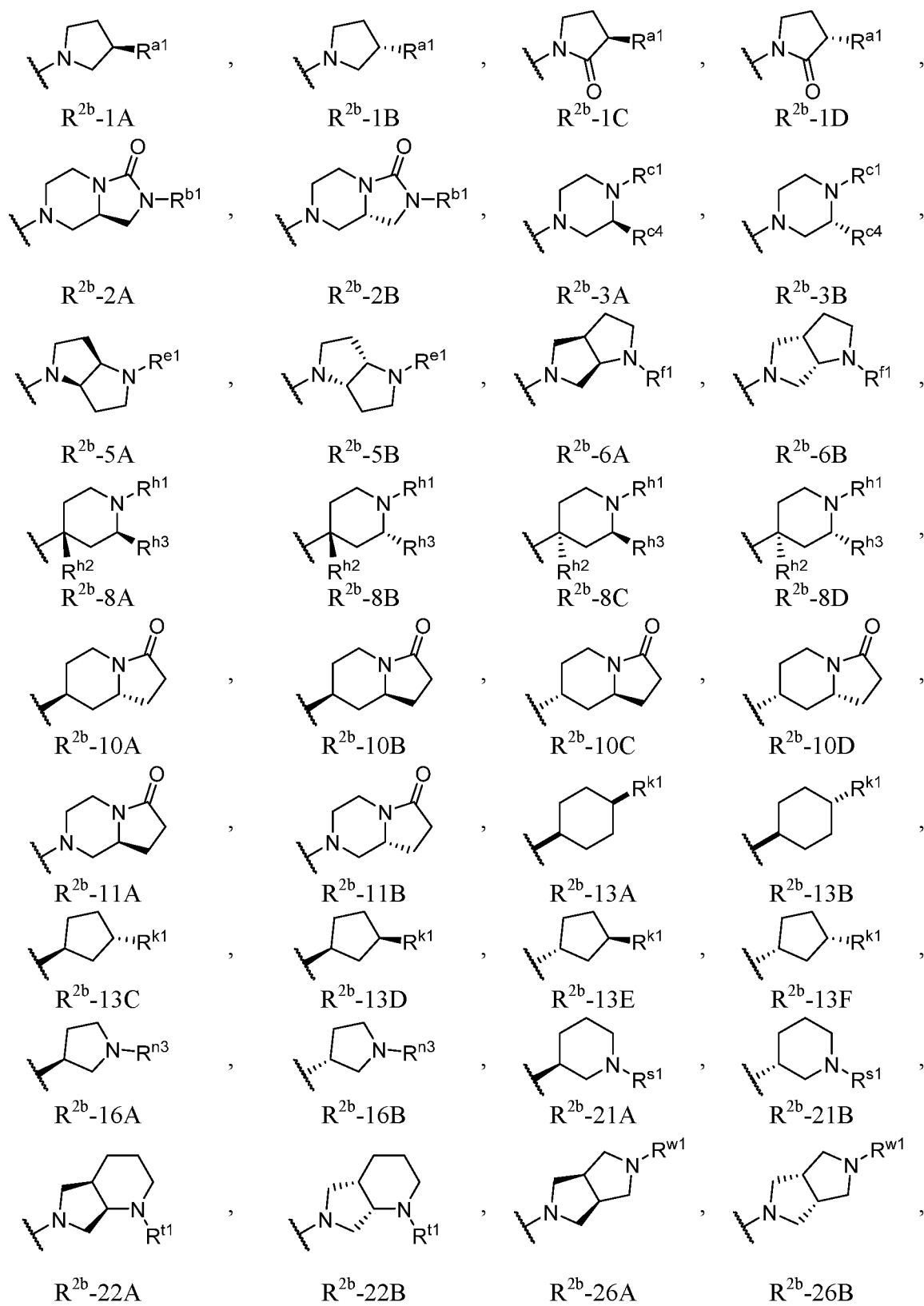
R^{x1} is selected from the group consisting of hydrogen, C₁-C₄ alkyl, and -C(=O)R^{4c};

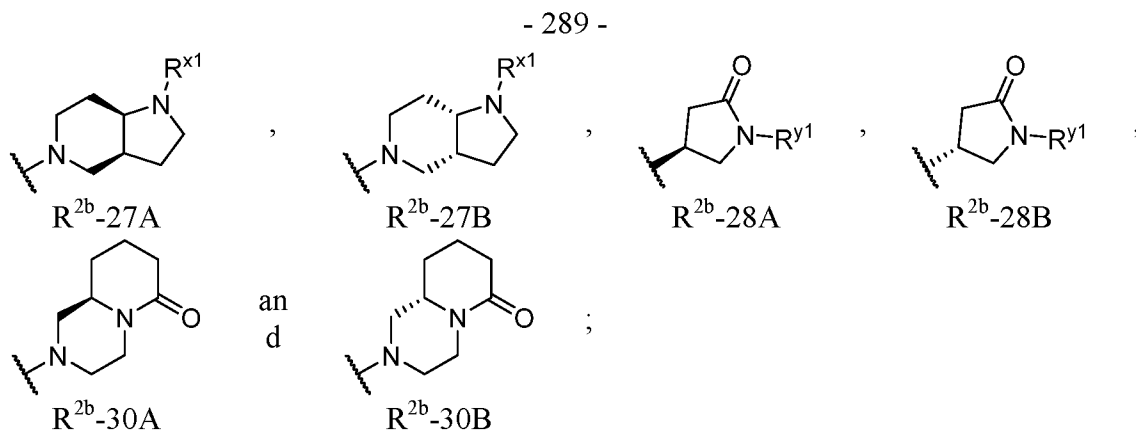
R^{y1} is selected from the group consisting of hydrogen and C₁-C₄ alkyl; and

R^{z1} is selected from the group consisting of hydrogen and C₁-C₄ alkyl, or a pharmaceutically acceptable salt or solvate thereof.

19. The compound claim 18, wherein

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 R^{2b} is selected from the group consisting of:



or a pharmaceutically acceptable salt or solvate thereof.

20. The compound of claim 19, wherein R^{2b} is selected from the group consisting of R^{2b} -1A, R^{2b} -1B, R^{2b} -1C, and R^{2b} -1D, or a pharmaceutically acceptable salt or solvate thereof.

21. The compound of claim 19, wherein: R^{2b} is selected from the group consisting of R^{2b} -2A and R^{2b} -2B; and R^{b1} is C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

22. The compound of claim 19, wherein: R^{2b} is selected from the group consisting of R^{2b} -5A and R^{2b} -5B; and R^{e1} is $-C(=O)R^{4c}$, or a pharmaceutically acceptable salt or solvate thereof.

23. The compound of claim 19, wherein: R^{2b} is selected from the group consisting of R^{2b} -6A and R^{2b} -6B; and R^{f1} is $-C(=O)R^{4c}$, or a pharmaceutically acceptable salt or solvate thereof.

24. The compound of claim 19, wherein: R^{2b} is selected from the group consisting of R^{2b} -10A, R^{2b} -10B, R^{2b} -10C, and R^{2b} -10d, or a pharmaceutically acceptable salt or solvate thereof.

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25. The compound of claim 19, wherein: R^{2b} is selected from the group consisting of R^{2b} -11A and R^{2b} -11B, or a pharmaceutically acceptable salt or solvate thereof.

26. The compound of claim 18, wherein: R^{2b} is R^{2b} -4; R^{d1} is $-C(=O)R^{4c}$; and R^{d2} and R^{d3} are each hydrogen or fluoro, or a pharmaceutically acceptable salt or solvate thereof.

27. The compound of claim 18, wherein:
 R^{2b} is R^{2b} -3;
 R^{c1} is selected from the group consisting of C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl, and $-C(=O)R^{4c}$;
 R^{c2} and R^{c3} are each hydrogen; or
 R^{c2} and R^{c3} taken together with the carbon atom to which they are attached form a $C(=O)$ group;
 R^{c4} is hydrogen; and
 m is 1;
or a pharmaceutically acceptable salt or solvate thereof.

28. The compound of claim 18, wherein: R^{2b} is R^{2b} -8; R^{h1} is $-C(=O)R^{4c}$; and R^{h2} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

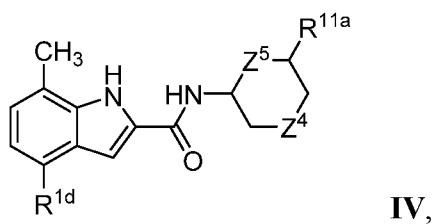
29. The compound of claim 18, wherein: R^{2b} is R^{2b} -12; and R^{j1} is $-C(=O)R^{4c}$, or a pharmaceutically acceptable salt or solvate thereof.

30. The compound of any one of claims 18, 19, 22, 23, or 26-29, wherein R^{4c} is C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

31. The compound of any one of claims 14-30, wherein R^{2d} is selected from the group consisting of hydrogen, fluoro, and chloro, or a pharmaceutically acceptable salt or solvate thereof.

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32. The compound of claim 13 of Formula **IV**:



wherein:

Z^4 is selected from the group consisting of $-O-$, $-C(R^{28a})(R^{28b})-$, and $-N(R^{23})-$; or Z^4 is absent;

Z^5 is selected from the group consisting of $-CH_2-$ and $-CH_2CH_2-$;

R^{11a} is selected from the group consisting of optionally substituted alkyl, optionally substituted heterocyclo, optionally substituted heteroaryl, and $-N(R^{12b})C(=O)R^{13c}$;

R^{12b} is selected from the group consisting of hydrogen, alkyl, cycloalkyl, and heterocyclo, $(C_1-C_4 \text{ alkoxy})C_1-C_4 \text{ alkyl}$, and $(\text{hydroxy})C_1-C_4 \text{ alkyl}$; and

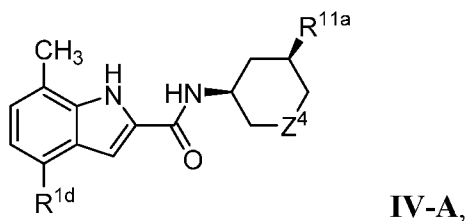
R^{13c} is selected from the group consisting of alkyl, haloalkyl, alkoxy, (alkoxy)alkyl, (hydroxy)alkyl, (cyano)alkyl, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, and optionally substituted heterocycle, amino, (amino)alkyl, $(C_3-C_6 \text{ cycloalkyl})\text{oxy}$, and (4- to 8-membered heterocyclo)oxy;

R^{23} is selected from the group consisting of hydrogen and C_1-C_4 alkyl; and

R^{28a} and R^{28b} are independently selected from the group consisting of hydrogen, alkyl, and halo;

or a pharmaceutically acceptable salt or solvate thereof.

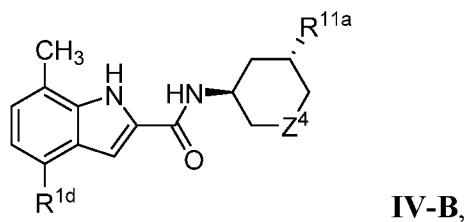
33. The compound of claim 32 of Formula **IV-A**:



or a pharmaceutically acceptable salt or solvate thereof.

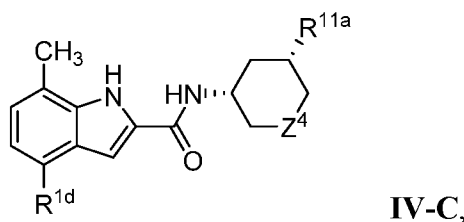
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34. The compound of claim 32 of Formula **IV-B**:



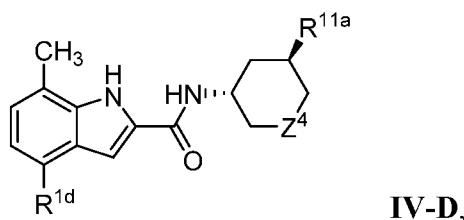
or a pharmaceutically acceptable salt or solvate thereof.

35. The compound of claim 32 of Formula **IV-C**:



or a pharmaceutically acceptable salt or solvate thereof.

36. The compound of claim 32 of Formula **IV-D**:



or a pharmaceutically acceptable salt or solvate thereof.

37. The compound of any one of claims 32-36, wherein:

R^{11a} is selected from the group consisting of:

(A) unsubstituted 4- to 14-membered heterocyclo;

(B) substituted 4- to 14-membered heterocyclo having one, two or three substituents independently selected from the group consisting of:

(i) $-N(R^{12a})C(=O)R^{13a}$; (ii) $-C(=O)R^{13b}$; (iii) C_1-C_4 alkyl; (iv) $(C_1-C_4 \text{ alkoxy})C_1-C_4$ alkyl; (v) $(\text{hydroxy})C_1-C_4$ alkyl; (vi) C_1-C_4 haloalkyl; (vii) amino; (viii) $-N(R^{12a})S(=O)_2R^{24}$; (ix) $-S(=O)_2R^{24}$; (x) unsubstituted C_3-C_6 cycloalkyl; (xi) substituted C_3-C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1-C_4 alkyl, amino, and $(\text{amino})C_1-C_4$ alkyl; (xii)

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unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (xiii) -C(=N-R⁶⁰)R⁶¹; and (xiv) -C(=C-NO₂)R⁶⁴;

(C) unsubstituted 5- to 10-membered heteroaryl;

(D) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo and C₁-C₄ alkyl;

(E) C₁-C₆ alkyl; and

(F) -N(R^{12b})C(=O)R^{13c};

R^{12a} and R^{12b} are each independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, (C₁-C₄ alkoxy)C₁-C₄ alkyl, and (hydroxy)C₁-C₄ alkyl;

R^{13a}, R^{13b}, and R^{13c} are each independently selected from the group consisting of (A) C₁-C₆ alkyl; (B) C₁-C₆ haloalkyl; (C) unsubstituted C₃-C₆ cycloalkyl; (D) C₁-C₆ alkoxy; (E) (C₁-C₄ alkoxy)C₁-C₄ alkyl; (F) (hydroxy)C₁-C₄ alkyl; (G) (cyano)alkyl; (H) unsubstituted C₆-C₁₀ aryl; (I) substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (J) unsubstituted 5- or 6-membered heteroaryl; (K) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (L) unsubstituted 4- to 14-membered heterocyclo; (M) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (N) amino; (O) (amino)alkyl; (P) (C₃-C₆ cycloalkyl)oxy; and (Q) (4- to 8-membered heterocyclo)oxy; and

R²⁴ is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl;

R⁶⁰ is selected from the group consisting of cyano, nitro, hydroxy, C₁-C₆ alkoxy, -C(=O)R⁶², and -S(=O)₂R⁶²;

R⁶¹ is selected from the group consisting of C₁-C₆ alkyl, C₃-C₆ cycloalkyl, and -NR^{63a}R^{63b};

R⁶² is selected from the group consisting of C₁-C₆ alkyl, C₃-C₆ cycloalkyl, and -NR^{63a}R^{63b};

R^{63a} is selected from the group consisting of hydrogen, C₁-C₆ alkyl, and C₃-C₆ cycloalkyl;

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R^{63b} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl; or

R^{63a} and R^{63b} taken together with the nitrogen atom to which they are attached form a 4- to 6-membered optionally substituted heterocyclo;

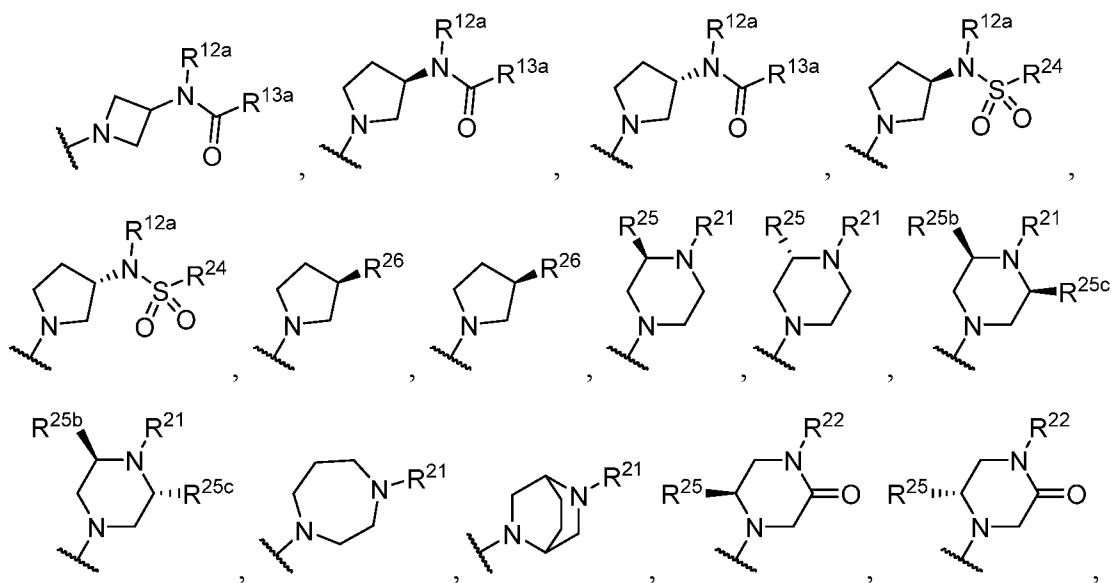
R^{64} is selected from the group consisting of C_1 - C_6 alkyl, C_3 - C_6 cycloalkyl, and $-NR^{63c}R^{63d}$;

R^{63c} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl;

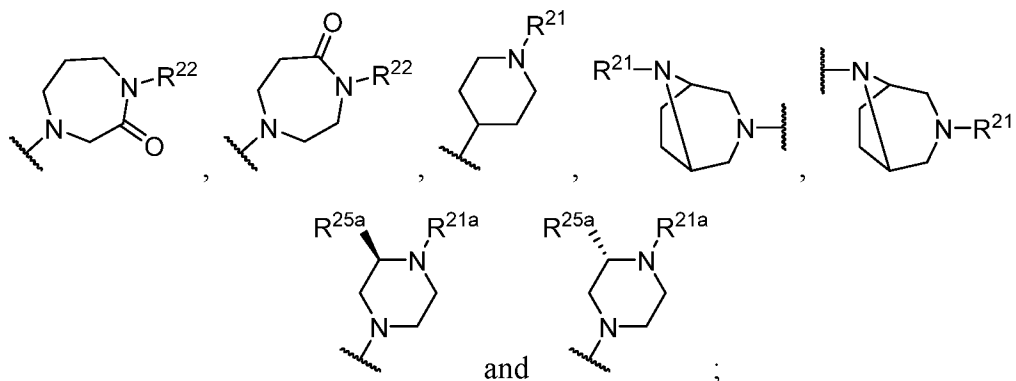
R^{63d} is selected from the group consisting of hydrogen, C_1 - C_6 alkyl, and C_3 - C_6 cycloalkyl; or

R^{63c} and R^{63d} taken together with the nitrogen atom to which they are attached form a 4- to 6-membered optionally substituted heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

38. The compound of claim 37, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo selected from the group consisting of:



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R^{12a} is selected from the group consisting of hydrogen, C_1 - C_3 alkyl, $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; and (hydroxy) C_1 - C_4 alkyl;

R^{13a} is selected from the group consisting of C_1 - C_4 alkyl; amino; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; (hydroxy) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl;

R^{13b} is selected from the group consisting of C_1 - C_4 alkyl; amino; C_1 - C_4 haloalkyl; C_1 - C_4 alkoxy; (hydroxy) C_1 - C_4 alkyl; $(C_1$ - C_4 alkoxy) C_1 - C_4 alkyl; (amino)alkyl; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; $(C_3$ - C_6 cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy;

R^{21} is selected from the group consisting of hydrogen, $-C(=O)R^{13b}$, C_1 - C_4 alkyl, C_1 - C_4 haloalkyl, unsubstituted 4- to 14-membered heterocyclo, and $-S(=O)_2R^{24}$;

R^{22} is C_1 - C_4 alkyl; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl;

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R^{24} is selected from the group consisting of C_1 - C_4 alkyl and (hydroxy) C_1 - C_4 alkyl;

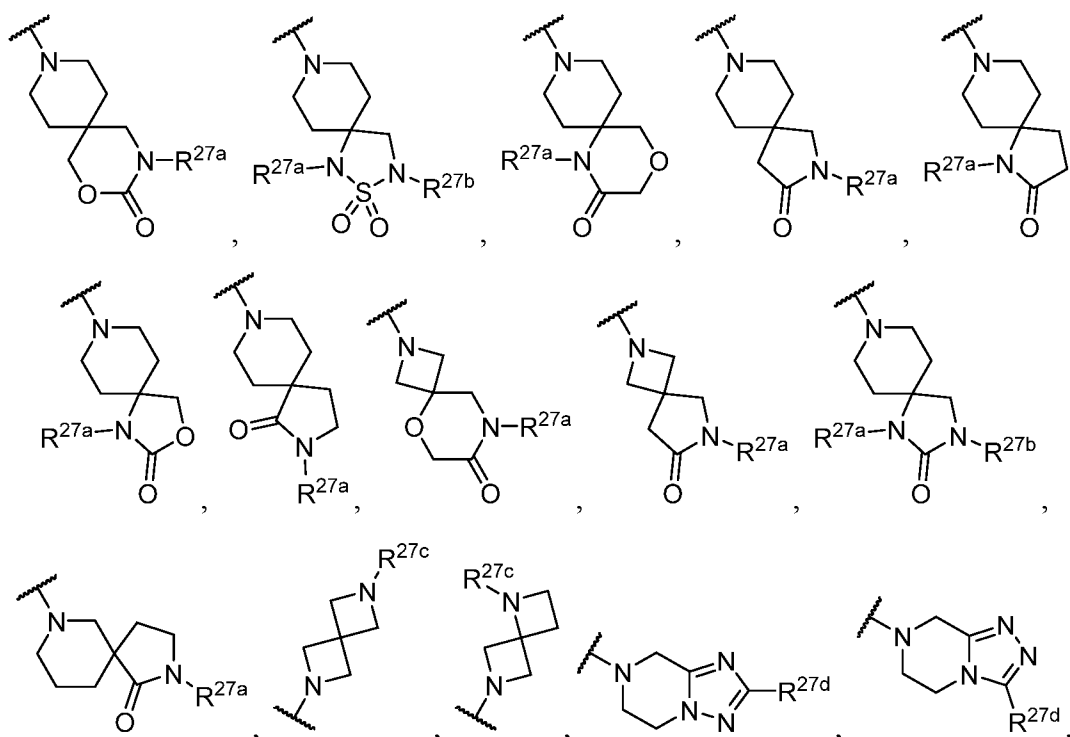
R^{25} is selected from the group consisting of hydrogen, C_1 - C_4 alkyl, and C_1 - C_4 haloalkyl;

R^{25b} and R^{25c} are independently selected from the group consisting of C_1 - C_4 alkyl and C_1 - C_4 haloalkyl;

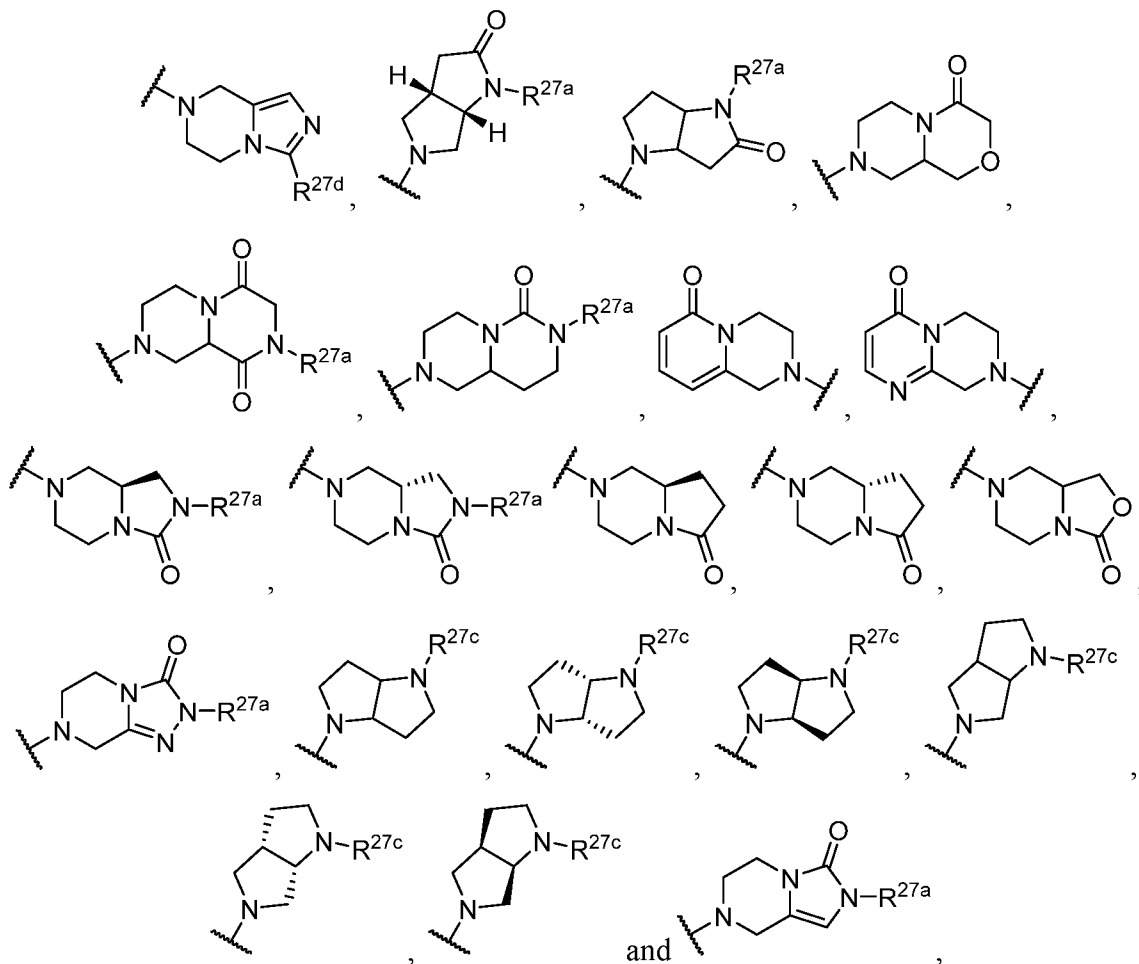
R^{26} is selected from the group consisting of unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; and

R^{21a} and R^{25a} taken together with the atoms to which they are attached form an optionally substituted 4- to 8-membered heterocyclo, or a pharmaceutically acceptable salt or solvate thereof.

39. The compound of claim 37, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo selected from the group consisting of:



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R^{27a} and R^{27b} are each independently selected from the group consisting of hydrogen, C₁-C₄ alkyl, C₁-C₄ haloalkyl, (C₁-C₄ alkoxy)C₁-C₄ alkyl; and (hydroxy)C₁-C₄ alkyl;

R^{27c} is selected from the group consisting of hydrogen; -C(=O)R^{13b}; C₁-C₄ alkyl; C₁-C₄ haloalkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; and -S(=O)₂R²⁴;

R^{27d} is selected from the group consisting of hydrogen; C₁-C₄ alkyl; and C₁-C₄ haloalkyl;

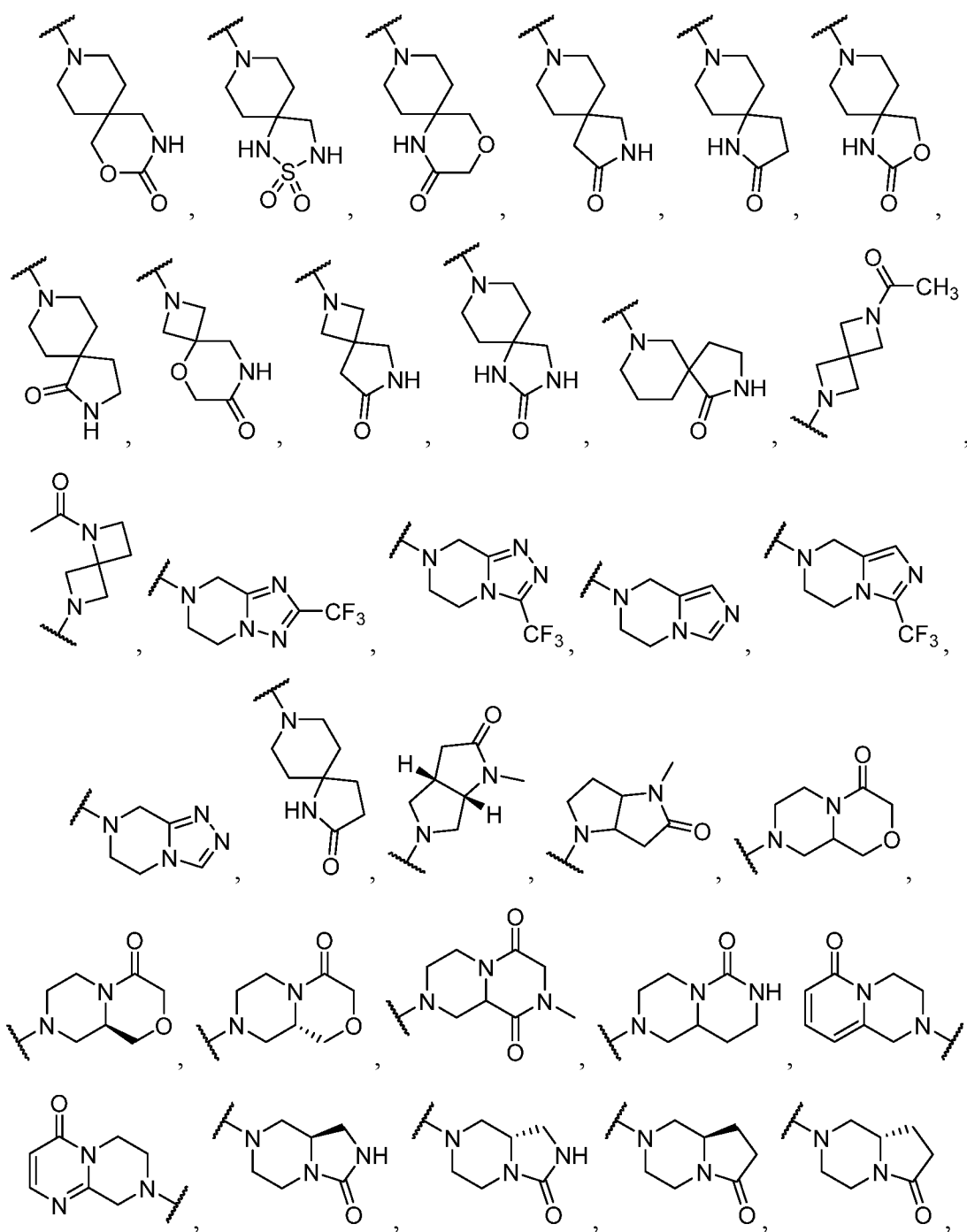
R^{13b} is selected from the group consisting of C₁-C₄ alkyl; aminoC₁-C₄ haloalkyl; C₁-C₄ alkoxy; (hydroxy)C₁-C₄ alkyl; (C₁-C₄ alkoxy)C₁-C₄ alkyl; (amino)alkyl; unsubstituted C₃-C₆ cycloalkyl; substituted C₃-C₆ cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C₁-C₄ alkyl, amino, and (amino)C₁-C₄ alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently

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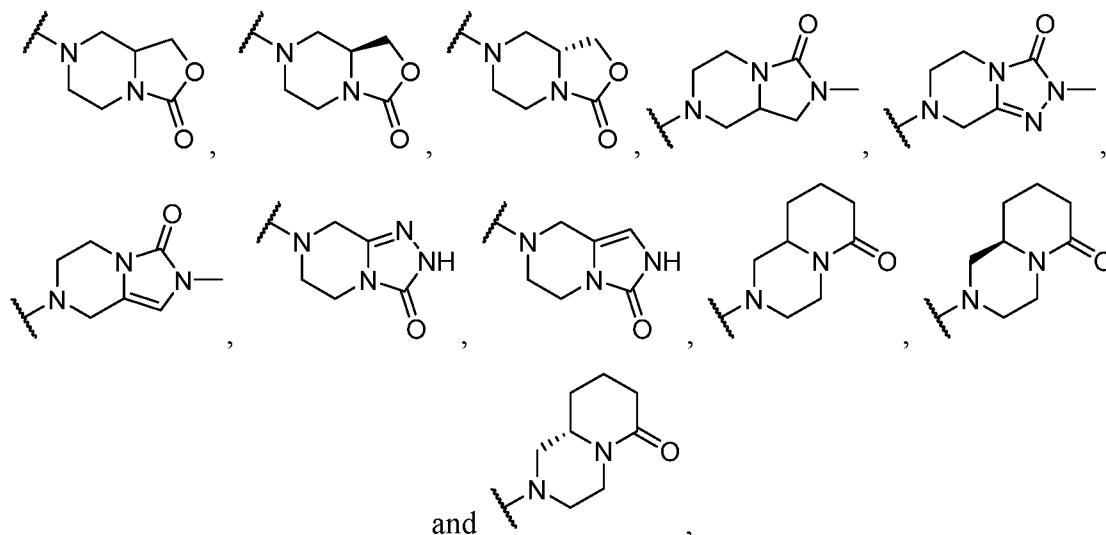
selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy; and

R²⁴ is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl, or a pharmaceutically acceptable salt or solvate thereof.

40. The compound of claim 39, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo selected from the group consisting of:

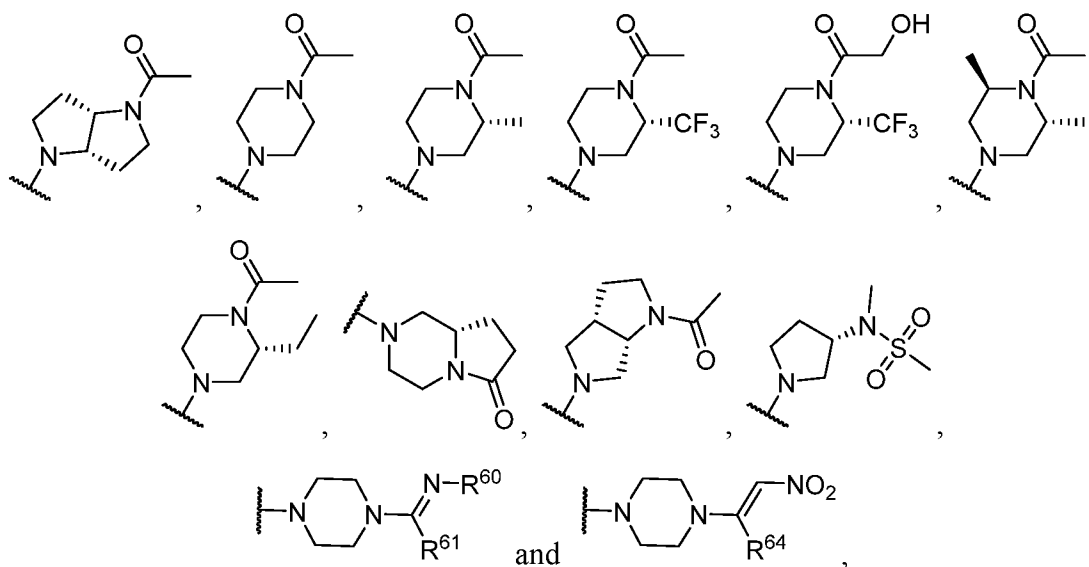


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or a pharmaceutically acceptable salt or solvate thereof.

41. The compound of claim 37, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo selected from the group consisting of:



or a pharmaceutically acceptable salt or solvate thereof.

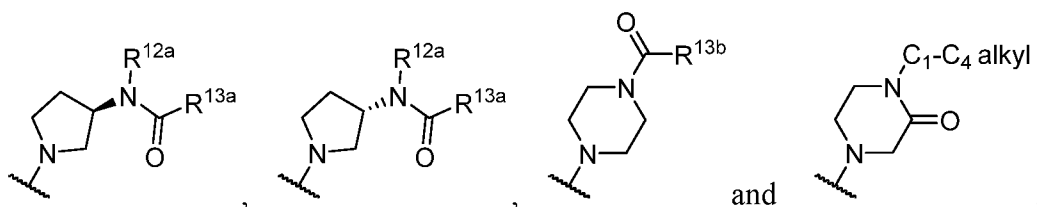
42. The compound of any one of claims 32-41, wherein Z^4 is $-\text{CH}_2-$, or a pharmaceutically acceptable salt or solvate thereof.

43. The compound of any one of claims 32-38 or 42, wherein R^{11a} is selected from the group consisting of unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from

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the group consisting of $-N(R^{12a})C(=O)R^{13a}$, $-C(=O)R^{13b}$, and C_1 - C_4 alkyl; unsubstituted 5- to 10-membered heteroaryl; and substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of halo and C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

44. The compound of any one of claims 32-38, 42, or 43, wherein R^{11a} is a substituted 4- to 14-membered heterocyclo is selected from the group consisting of

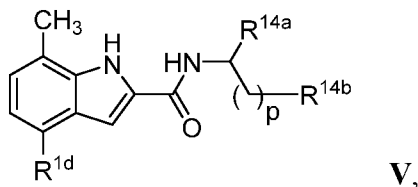


or a pharmaceutically acceptable salt or solvate thereof.

45. The compound of claim 44, wherein: R^{12a} is selected from the group consisting of hydrogen and C_1 - C_3 alkyl; R^{13a} is C_1 - C_4 alkyl; and R^{13b} is C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

46. The compound of claim 45, wherein: R^{12a} is selected from the group consisting of hydrogen and methyl; R^{13a} is methyl; and R^{13b} is methyl, or a pharmaceutically acceptable salt or solvate thereof.

47. The compound claim 13 of Formula V:



wherein:

R^{14a} is selected from the group consisting of optionally substituted alkyl and optionally substituted heteroaryl;

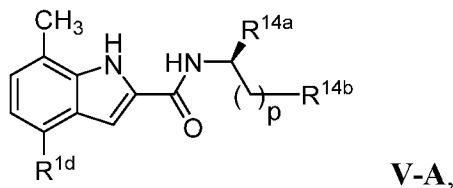
R^{14b} is selected from the group consisting of optionally substituted alkyl, optionally substituted heteroaryl, optionally substituted aryl, optionally substituted heterocyclo, optionally substituted cycloalkyl, and carboxamido; and

p is 0, 1, 2, or 3;

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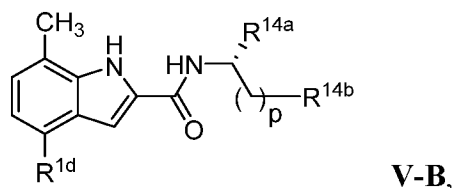
or a pharmaceutically acceptable salt or solvate thereof.

48. The compound of claim 47 of Formula **V-A**:



or a pharmaceutically acceptable salt or solvate thereof.

49. The compound of claim 47 of Formula **V-B**:



or a pharmaceutically acceptable salt or solvate thereof.

50. The compound of any one of claims 47-49, wherein:

R^{14a} is selected from the group consisting of:

- (A) unsubstituted 5- to 10-membered heteroaryl;
- (B) substituted 5- to 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of: (i) halo; (ii) C_1 - C_4 alkyl; (iii) C_1 - C_4 alkoxy; (iv) (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (v) (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; (vi) $-C(=O)NR^{15a}R^{15b}$; (vii) unsubstituted 5- to 10-membered heteroaryl; (viii) substituted 5- to 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, (3- to 8-membered heterocyclo) C_1 - C_4 alkyl, 5- to 9-membered heteroaryl, and $-NR^{15c}R^{15f}$; (ix) $-OR^{16}$; (x) unsubstituted C_3 - C_6 cycloalkyl; (xi) substituted C_3 - C_6 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_4 alkyl and $-N(R^{17a})C(=O)R^{18a}$; (xii) cyano; (xiii) unsubstituted 4- to 14-membered heterocyclo; (xiv) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of C_1 - C_4 alkyl, (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; (xv) (carboxy) C_1 - C_4 alkyl; (xvi) (carboxamido) C_1 - C_4 alkyl; and (xvii) carboxy; and

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(C) C₁-C₆ alkyl;R^{14b} is selected from the group consisting of:

(A) unsubstituted 5- to 10-membered heteroaryl;

(B) substituted 5- or 10-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, and (C₃-C₆ cycloalkyl)C₁-C₄ alkyl;(C) unsubstituted C₆-C₁₀ aryl;(D) substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, C₁-C₄ alkyl, and (3- to 8-membered heterocyclo)C₁-C₄ alkyl;

(E) unsubstituted 4- to 14-membered heterocyclo;

(F) substituted 4- to 14-membered heterocyclo having one, two, three, or four substituents independently selected from the group consisting of hydroxy, amino, and C₁-C₄ alkyl;(G) -C(=O)NR^{15c}R^{15d};(H) unsubstituted C₃-C₆ cycloalkyl; and(I) C₁-C₆ alkyl;

p is 0, 1, 2, or 3;

R^{15a} and R^{15b} are independently selected from the group consisting of: (A) hydrogen; (B) C₁-C₆ alkyl; (C) C₁-C₆ haloalkyl; (D) (C₁-C₄ alkoxy)C₁-C₄ alkyl; (E) (hydroxy)C₁-C₄ alkyl; (F) (cyano)alkyl; (G) unsubstituted C₆-C₁₀ aryl; (H) substituted C₆-C₁₀ aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C₁-C₄ alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (M) unsubstituted C₃-C₈ cycloalkyl; and (N) substituted C₃-C₈ cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C₁-C₆ alkyl and -NR^{15g}R^{15h}, or

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R^{15a} and R^{15b} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{15c} and R^{15d} are independently selected from the group consisting of: (A) hydrogen; (B) C_1 - C_6 alkyl; (C) C_1 - C_6 haloalkyl; (D) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (E) (hydroxy) C_1 - C_4 alkyl; (F) (cyano)alkyl; (G) unsubstituted C_6 - C_{10} aryl; (H) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (M) unsubstituted C_3 - C_8 cycloalkyl; and (N) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_6 alkyl and $-NR^{15g}R^{15h}$, or

R^{15c} and R^{15d} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{15e} and R^{15f} are independently selected from the group consisting of: (A) hydrogen (B) C_1 - C_6 alkyl; (C) C_1 - C_6 haloalkyl; (D) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (E) (hydroxy) C_1 - C_4 alkyl; (F) (cyano)alkyl; (G) unsubstituted C_6 - C_{10} aryl, (G') substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (M) unsubstituted C_3 - C_8 cycloalkyl; and (N) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_6 alkyl and $-NR^{15g}R^{15h}$, or

R^{15e} and R^{15f} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

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R^{15g} and R^{15h} are independently selected from the group consisting of: (A) hydrogen; (B) C_1 - C_6 alkyl; (C) C_1 - C_6 haloalkyl; (D) C_1 - C_6 alkoxy; (E) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (F) (hydroxy) C_1 - C_4 alkyl; (G) (cyano)alkyl; (H) unsubstituted C_6 - C_{10} aryl; (I) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (J) unsubstituted 5- or 6-membered heteroaryl; (K) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (L) unsubstituted 4- to 14-membered heterocyclo; (M) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (N) unsubstituted C_3 - C_8 cycloalkyl; and (O) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of C_1 - C_6 alkyl and $-NR^{15g}R^{15h}$, or

R^{15g} and R^{15g} taken together with the nitrogen atom to which they are attached form an optionally substituted 4- to 14- membered heterocyclo;

R^{16} is (amino)(hydroxy) C_1 - C_4 alkyl;

R^{17a} is selected from the group consisting of hydrogen and C_1 - C_4 alkyl;

R^{18a} is selected from the group consisting of: (A) C_1 - C_6 alkyl; (B) C_1 - C_6 haloalkyl; (C) C_1 - C_6 alkoxy; (D) (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (E) (hydroxy) C_1 - C_4 alkyl; (F) (cyano)alkyl; (G) unsubstituted C_6 - C_{10} aryl; (H) substituted C_6 - C_{10} aryl, having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (I) unsubstituted 5- or 6-membered heteroaryl; (J) substituted 5- or 6-membered heteroaryl having one, two, three, or four substituents independently selected from the group consisting of halo, amino, hydroxy, and C_1 - C_4 alkyl; (K) unsubstituted 4- to 14-membered heterocyclo; (L) substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; (M) unsubstituted C_3 - C_8 cycloalkyl; and (N) substituted C_3 - C_8 cycloalkyl having one, two, three, or four substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl, or a pharmaceutically acceptable salt or solvate thereof.

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51. The compound of any one of claims 47-50, wherein R^{14a} is selected from the group consisting of unsubstituted 5- to 10-membered heteroaryl; and substituted 5- to 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of C_1 - C_4 alkyl; C_1 - C_4 alkoxy; (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; $-C(=O)NR^{15a}R^{15b}$; unsubstituted 5- to 10-membered heteroaryl; substituted 5- to 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, (3- to 8-membered heterocyclo) C_1 - C_4 alkyl, 5- to 9-membered heteroaryl, and $-NR^{15e}R^{15f}$; unsubstituted C_3 - C_6 cycloalkyl; and substituted C_3 - C_6 cycloalkyl having one, two, or three substituents independently selected from the group consisting of C_1 - C_4 alkyl and $-N(R^{17a})C(=O)R^{18a}$, or a pharmaceutically acceptable salt or solvate thereof.

52. The compound of any one of claims 47-51, wherein R^{14a} is a substituted pyridyl having one, two, or three substituents independently selected from the group consisting of C_1 - C_4 alkyl; C_1 - C_4 alkoxy; (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; (5- to 9-membered heteroaryl) C_1 - C_4 alkyl; $-C(=O)NR^{15a}R^{15b}$; unsubstituted 5- to 10-membered heteroaryl; substituted 5- to 10-membered heteroaryl having one, two, or three substituents independently selected from the group consisting of halo, C_1 - C_4 alkyl, (3- to 8-membered heterocyclo) C_1 - C_4 alkyl, 5- to 9-membered heteroaryl, and $-NR^{15e}R^{15f}$; unsubstituted C_3 - C_6 cycloalkyl; and substituted C_3 - C_6 cycloalkyl having one, two, or three substituents independently selected from the group consisting of C_1 - C_4 alkyl and $-N(R^{17a})C(=O)R^{18a}$, or a pharmaceutically acceptable salt or solvate thereof.

53. The compound of any one of claims 47-52, wherein R^{14b} is selected from the group consisting of unsubstituted 5- to 10-membered heteroaryl; substituted 5- to 10-membered heteroaryl having one or two substituents independently selected from the group consisting of C_1 - C_4 alkyl and (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; unsubstituted C_6 - C_{10} aryl; substituted C_6 - C_{10} aryl, having one or two substituents independently selected from the group consisting of C_1 - C_4 alkyl and (3- to 8-membered heterocyclo) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from

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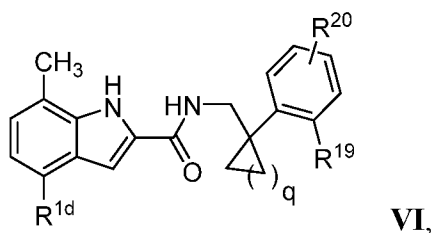
the group consisting of hydroxy, amino, and C₁-C₄ alkyl; and unsubstituted C₃-C₆ cycloalkyl, or a pharmaceutically acceptable salt or solvate thereof.

54. The compound of any one of claims 47-53, wherein R^{14b} is selected from the group consisting of unsubstituted 5- or 6-membered heteroaryl; substituted 5- or 6-membered heteroaryl having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (C₃-C₆ cycloalkyl)C₁-C₄ alkyl; unsubstituted phenyl; substituted phenyl, having one or two substituents independently selected from the group consisting of C₁-C₄ alkyl and (3- to 8-membered heterocyclo)C₁-C₄ alkyl; and unsubstituted C₃-C₆ cycloalkyl, or a pharmaceutically acceptable salt or solvate thereof.

55. The compound of any one of claims 47-54, wherein p is 0, or a pharmaceutically acceptable salt or solvate thereof.

56. The compound of any one of claims 47-54, wherein p is 1, or a pharmaceutically acceptable salt or solvate thereof.

57. The compound of claim 13 of Formula **VI**:



wherein:

R¹⁹ is selected from the group consisting of:

unsubstituted 4- to 14-membered heterocyclo; and

substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl;

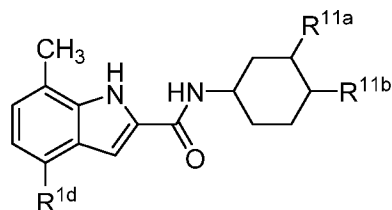
R²⁰ is selected from the group consisting of hydrogen, halo, and C₁-C₄ alkyl; and

q is 1, 2, or 3,

or a pharmaceutically acceptable salt or solvate thereof.

58. The compound of claim 13 of Formula **VII**:

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**VII,**

wherein:

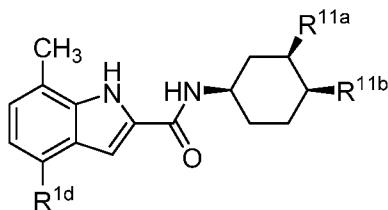
R^{11a} is selected from the group consisting of optionally substituted alkyl, optionally substituted heterocyclo, optionally substituted heteroaryl, and $-N(R^{12b})C(=O)R^{13c}$;

R^{12b} is selected from the group consisting of hydrogen, alkyl, cycloalkyl, and heterocyclo, $(C_1-C_4 \text{ alkoxy})C_1-C_4 \text{ alkyl}$, and $(\text{hydroxy})C_1-C_4 \text{ alkyl}$;

R^{13c} is selected from the group consisting of alkyl, haloalkyl, alkoxy, $(\text{alkoxy})\text{alkyl}$, $(\text{hydroxy})\text{alkyl}$, $(\text{cyano})\text{alkyl}$, optionally substituted aryl, optionally substituted heteroaryl, optionally substituted cycloalkyl, and optionally substituted heterocycle, amino, $(\text{amino})\text{alkyl}$, $(C_3-C_6 \text{ cycloalkyl})\text{oxy}$, and $(4\text{- to } 8\text{-membered heterocyclo})\text{oxy}$; and

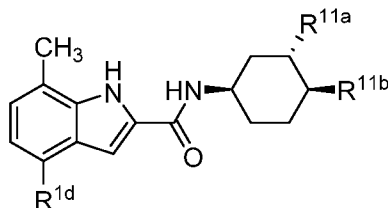
R^{11b} is selected from the group consisting of $C_1-C_4 \text{ alkyl}$, halo, and $C_1-C_4 \text{ haloalkyl}$, or a pharmaceutically acceptable salt or solvate thereof.

59. The compound of claim 58 of Formula **VII-A**:

**VII-A,**

or a pharmaceutically acceptable salt or solvate thereof.

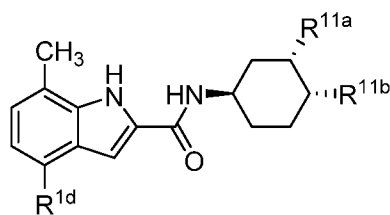
60. The compound of claim 58 of Formula **VII-B**:

**VII-B,**

or a pharmaceutically acceptable salt or solvate thereof.

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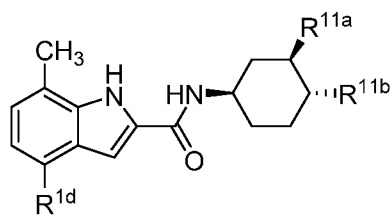
61. The compound of claim 58 of Formula **VII-C**:



VII-C,

or a pharmaceutically acceptable salt or solvate thereof.

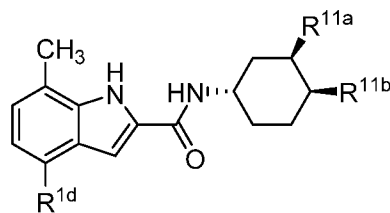
62. The compound of claim 58 of Formula **VII-D**:



VII-D,

or a pharmaceutically acceptable salt or solvate thereof.

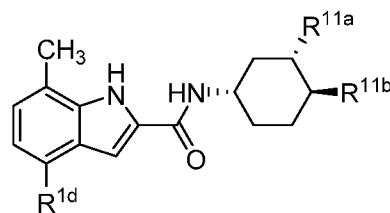
63. The compound of claim 58 of Formula **VII-E**:



VII-E,

or a pharmaceutically acceptable salt or solvate thereof.

64. The compound of claim 58 of Formula **VII-F**:

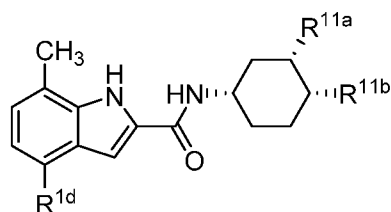


VII-F,

or a pharmaceutically acceptable salt or solvate thereof.

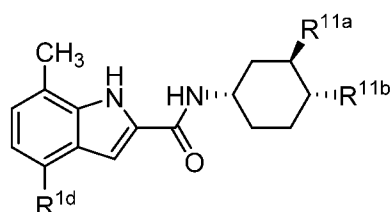
65. The compound of claim 58 of Formula **VII-G**:

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**VII-G,**

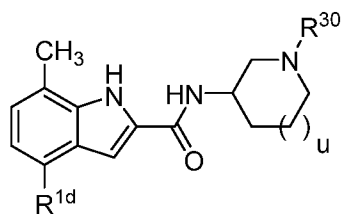
or a pharmaceutically acceptable salt or solvate thereof.

66. The compound of claim 58 of Formula **VII-H**:

**VII-H,**

or a pharmaceutically acceptable salt or solvate thereof.

67. The compound of claim 13 of Formula **VIII**:

**VIII,**

wherein:

R^{30} is selected from the group consisting of hydrogen; C_1 - C_6 alkyl; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; and substituted 4- to 14-membered heterocyclo having one or two substituents independently selected from the group consisting of amino, hydroxy, and C_1 - C_4 alkyl; $-C(=O)R^{13b}$, and $-S(=O)_2R^{24}$;

R^{13b} is selected from the group consisting of C_1 - C_4 alkyl; amino; C_1 - C_4 haloalkyl; C_1 - C_4 alkoxy; (hydroxy) C_1 - C_4 alkyl; (C_1 - C_4 alkoxy) C_1 - C_4 alkyl; (amino)alkyl; unsubstituted C_3 - C_6 cycloalkyl; substituted C_3 - C_6 cycloalkyl having one or two substituents independently selected from the group consisting of halo, hydroxy, C_1 - C_4 alkyl, amino, and (amino) C_1 - C_4 alkyl; unsubstituted 4- to 14-membered heterocyclo; substituted 4- to 14-membered heterocyclo having one or two substituents independently

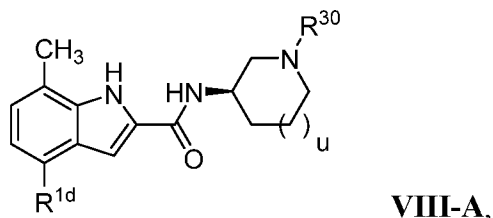
- 310 -

selected from the group consisting of amino, hydroxy, and C₁-C₄ alkyl; (C₃-C₆ cycloalkyl)oxy; and (4- to 8-membered heterocyclo)oxy;

R²⁴ is selected from the group consisting of C₁-C₄ alkyl and (hydroxy)C₁-C₄ alkyl; and

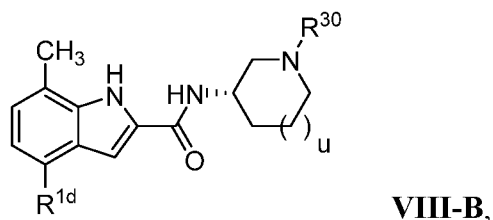
u is 0, 1, 2, or 3, or a pharmaceutically acceptable salt or solvate thereof.

68. The compound of claim 67 of Formula **VIII-A**:



or a pharmaceutically acceptable salt or solvate thereof.

69. The compound of claim 67 of Formula **VIII-B**:



or a pharmaceutically acceptable salt or solvate thereof.

70. The compound of any one of claims 1-11 or 13-69, wherein R^{1d} is fluoro, or a pharmaceutically acceptable salt or solvate thereof.

71. The compound of claim 1 selected from group consisting of the compounds of Table 1, or a pharmaceutically acceptable salt or solvate thereof.

72. A pharmaceutical composition comprising the compound of any one of claim 1-71, or a pharmaceutically acceptable salt or solvate thereof, and a pharmaceutically acceptable carrier.

73. A method of treating a subject in need thereof, the method comprising administering to the subject a therapeutically effective amount of the compound of any

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one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, wherein the subject has cancer.

74. The method of claim 73, wherein the cancer is any one or more of the cancers of Table 2.

75. The method of claim 73, wherein the cancer is a hematological cancer.

76. The method of claim 75, wherein the hematological cancer is any one or more of the cancers of Table 3.

77. The method of claim 76, wherein the hematological cancer is t(4;14) multiple myeloma.

78. The method of any one of claims 73-77 further comprising administering a therapeutically effective amount of a second therapeutic agent useful in the treatment of cancer.

79. The pharmaceutical composition of claim 72 for use in treating cancer.

80. The pharmaceutical composition of claim 79, wherein the cancer is any one or more of the cancers of Table 2.

81. The pharmaceutical composition of claim 79, wherein the cancer is a hematological cancer.

82. The pharmaceutical composition of claim 81, wherein the hematological cancer is any one or more of the cancers of Table 3.

83. The pharmaceutical composition of claim 82, wherein the hematological cancer is t(4;14) multiple myeloma.

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84. A compound of any one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, for use in treatment of cancer.

85. The compound for use of claim 84, wherein the cancer is any one or more of the cancers of Table 2.

86. The compound for use of claim 84, wherein the cancer is a hematological cancer.

87. The compound for use of claim 86, wherein the hematological cancer is any one or more of the cancers of Table 3.

88. The compound for use of claim 87, wherein the hematological cancer is t(4;14) multiple myeloma.

89. Use of a compound of any one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, for the manufacture of a medicament for treatment of cancer.

90. The use of claim 89, wherein the cancer is any one or more of the cancers of Table 2.

91. The use of claim 89, wherein the cancer is a hematological cancer.

92. The use of claim 91, wherein the hematological cancer is any one or more of the cancers of Table 3.

93. The use of claim 92, wherein the hematological cancer is t(4;14) multiple myeloma.

94. A kit comprising the compound of any one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, and instructions for administering the

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compound, or a pharmaceutically acceptable salt or solvate thereof, to a subject having cancer.

95. The kit of claim 94, wherein the cancer is any one or more of the cancers of Table 2.

96. The kit of claim 94, wherein the cancer is a hematological cancer.

97. The kit of claim 96, wherein the hematological cancer is any one or more of the cancers of Table 3.

98. The kit of claim 97, wherein the hematological cancer is t(4;14) multiple myeloma.

99. The kit of any one of claims 94-98 further comprising one or more additional therapeutic agents.

100. A method of treating a subject having multiple myeloma, the method comprising:

- (a) determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject; and
- (b) administering a therapeutically effective amount of a compound of any one of claims 1-71, or a pharmaceutically acceptable salt thereof, to the subject if a chromosomal translocation is present in the biological sample.

101. A method of identifying whether a subject having multiple myeloma as a candidate for treatment with a compound of any one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, the method comprising: (a) determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject; and (b) identifying the subject as being a candidate for treatment if a chromosomal translocation is present; or (c) identifying the subject as not being a candidate for treatment if a chromosomal translocation is absent.

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102. A method of predicting treatment outcome in a subject having multiple myeloma, the method comprising determining whether a chromosomal translocation is present or absent in a biological sample taken from the subject, wherein: (a) the presence of a chromosomal translocation in the biological sample indicates that administering a compound of any one of claims 1-71, or a pharmaceutically acceptable salt thereof, to the subject will likely cause a favorable therapeutic response; and (b) the absence of a chromosomal translocation in the biological sample indicates that administering a compound of any one of claims 1-71, or a pharmaceutically acceptable salt thereof, to the subject will likely cause an unfavorable therapeutic response.

103. A method, comprising administering a therapeutically effective amount of a compound of any one of claims 1-71, or a pharmaceutically acceptable salt or solvate thereof, to a subject in need thereof, wherein: (a) the subject has multiple myeloma; and (b) the multiple myeloma is characterized as having a chromosomal translocation.

104. The method of any one of claims 100-103, wherein the chromosomal translocation is a t(4;14) translocation.

Fig. 1

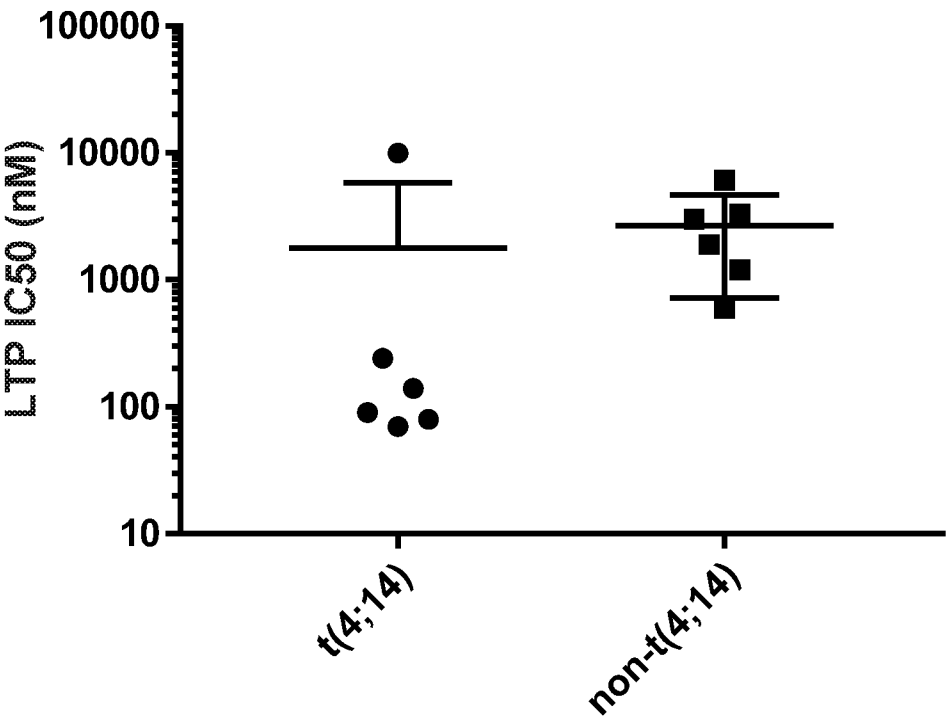


Fig. 2

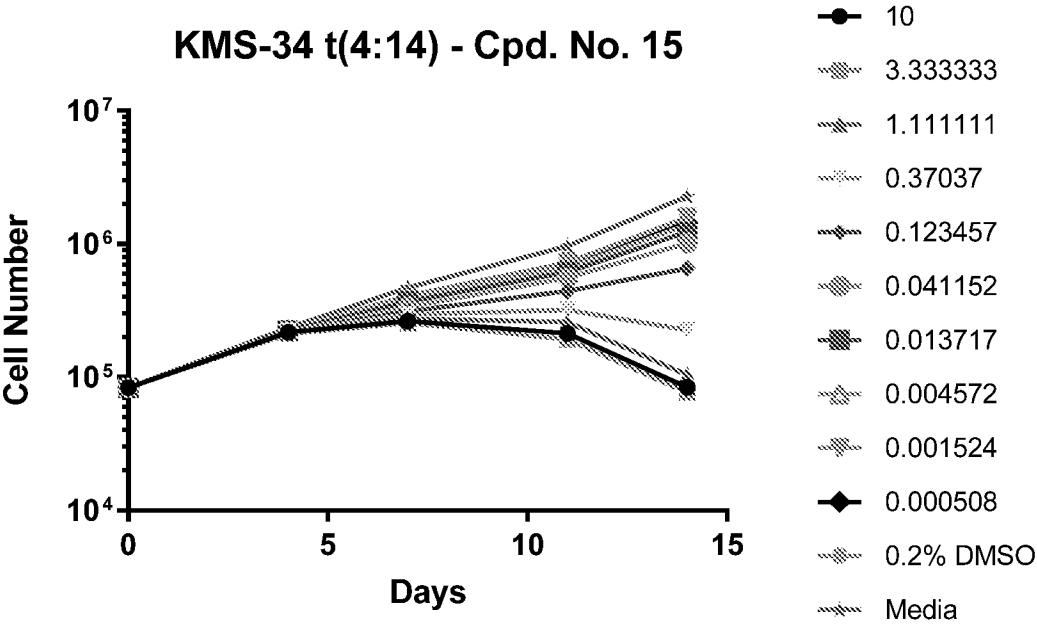
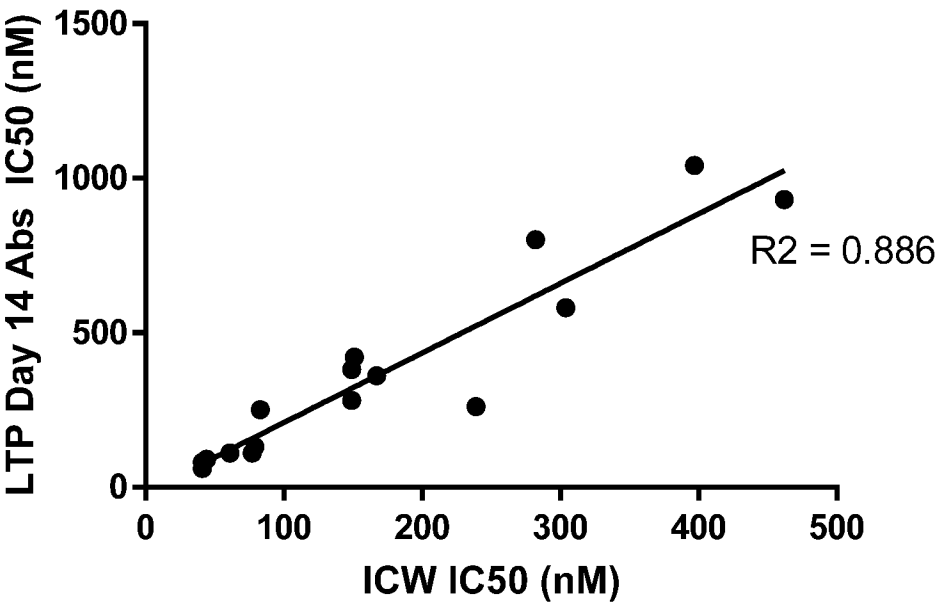
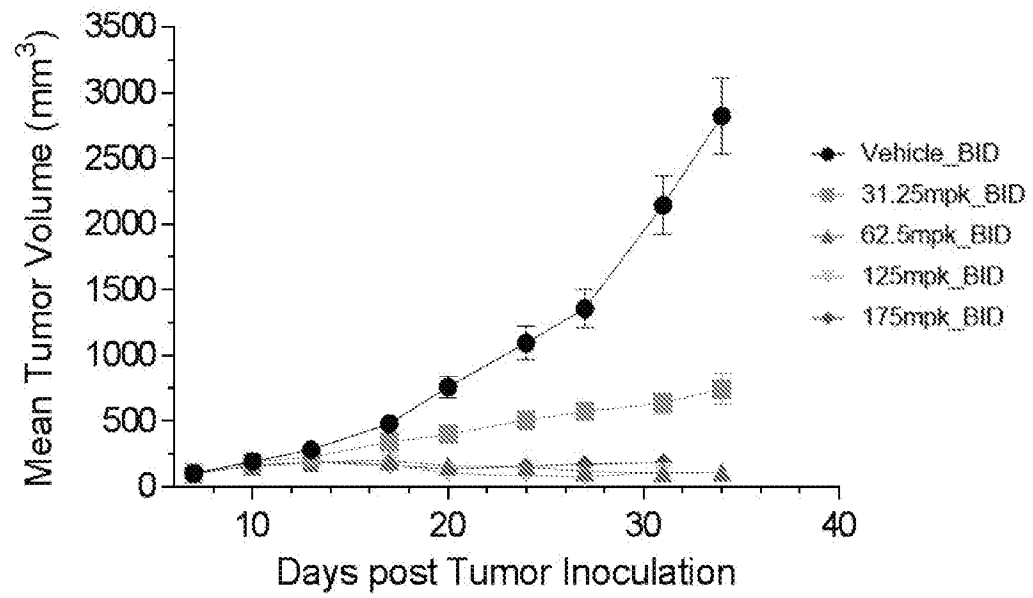


Fig. 3



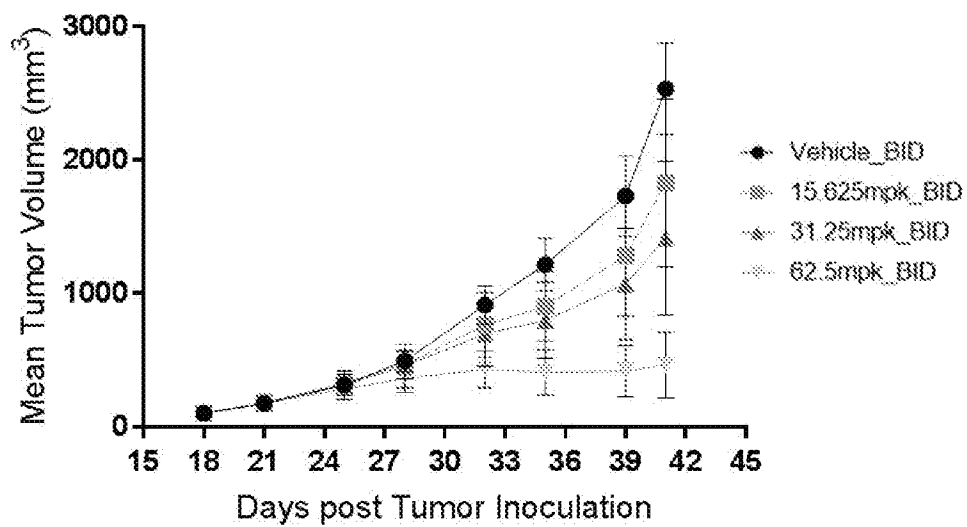
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Fig. 4



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Fig. 5



INTERNATIONAL SEARCH REPORT

International application No.

PCT/US19/46569

A. CLASSIFICATION OF SUBJECT MATTER

IPC - C07D 209/08, 401/12, 403/12 (2019.01)

CPC - C07D 209/08, 401/12, 403/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

See Search History document

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	← PUBCHEM CID 108791761, pages 1-5, Create Date: 2016-01-15; page 2, see 2D structure	1-3, 4/1-3
X	- PUBCHEM CID 131900417, pages 1-5, Create Date: 2017-12-20; page 2, see 2D structure	1-3, 4/1-3
X	- PUBCHEM CID 110853847, pages 1-5, Create Date: 2016-01-18; page 2, see 2D structure	1-3, 4/1-3, 71
X	US 2017/0355695 A1 (EPIZYME, INC.) 14 December 2017; paragraphs [0016], [0019]-[0022], [0025]-[0026], [0032], [0054], [0112], [0134], [0168], [0199]	1-3, 4/1-3, 71
A	US 2011/0136807 A1 (HANGAUER, JR., DG) 09 June 2011; entire document	1-3, 4/1-3, 71
A	US 2017/0044100 A1 (THE JOHNS HOPKINS UNIVERSITY, et al.) 16 February 2017; entire document	1-3, 4/1-3, 71

☐ Further documents are listed in the continuation of Box C.☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"D" document cited by the applicant in the international application

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

28 September 2019 (28.09.2019)

Date of mailing of the international search report

05 NOV 2019

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450

Facsimile No. 571-273-8300

Authorized officer

Shane Thomas

Telephone No. PCT Helpdesk: 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US19/46569

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☒ Claims Nos.: 5-70, 72-104
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.