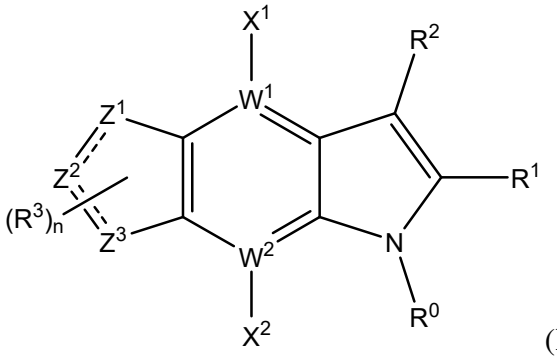
CLAIMS

1. A compound of formula (**I**):



(**I**),

a tautomer thereof, a pharmaceutically acceptable salt of any of the foregoing, and/or a deuterated derivative of any of the foregoing;

wherein:

(i) **R^0** is chosen from:

(a) C_1-C_8 linear, branched, and cyclic alkyl groups, wherein the alkyl group is optionally substituted with 1-4 **R^A**; and

(b) 5- to 14-membered aromatic rings optionally substituted with 1-4 **R^A**;

wherein each **R^A** is independently chosen from halogens, cyano, hydroxy, thiol, sulfonic acid, sulfonamide, sulfinamide, amino, amide, carboxylic acid, 5- to 10-membered aromatic rings, and C_1-C_6 linear, branched, and cyclic groups,

wherein the amide nitrogen atom in the amide of R^A is optionally substituted with a heterocyclyl group that is optionally further substituted with oxo,

wherein the C_1-C_6 linear, branched, and cyclic groups are chosen from alkyl, alkoxy, thioalkyl, alkylsulfoxide, alkylsulfonyl, alkylsulfonamide, alkylsulfinamide, aminoalkyl, and alkylamide,

wherein the 5- to 10-membered aromatic rings and C_1-C_6 linear, branched, and cyclic groups are optionally substituted with 1-4 substituents ~~selected~~ chosen from halogens, C_1-C_6 linear, branched, and cyclic groups and methoxy, and

wherein an **R^A** group is optionally linked to an **R^B** group on an **R^2** group;

(ii) **R^1** is chosen from:

(a) hydrogen,

(b) C_1-C_8 linear, branched, and cyclic alkyl groups, wherein the alkyl group is optionally substituted with 1-4 substituents independently chosen from

halogens,

cyano,

cyanoalkyl,

hydroxy,

alkylsulfonyl, and

C_1-C_6 linear, branched, and cyclic groups, wherein the C_1-C_6 linear, branched, and cyclic groups are independently chosen from alkyl and alkoxy groups, and wherein the C_1-C_6 linear, branched, and cyclic groups are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

(c) C_1-C_8 linear, branched, and cyclic alkoxy or cyclic thioalkyl groups optionally substituted with 1-4 substituents independently chosen from

halogens,

cyano,

cyanoalkyl;

sulfone,

sulfonamide,

hydroxy, and

C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 halogens or alkoxy groups

(d) C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups optionally substituted with C_1-C_6 linear or branched alkyl groups;

(e) aminosulfonyl groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups;

(f) C_1-C_6 linear, branched, and cyclic alkylsulfonyl amino groups; and

(g) phosphine oxide groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups;

(h) C_1-C_6 linear, branched, and cyclic trialkylsilyl groups;

(i) C_1-C_6 alkylamide;

(iii) $\mathbf{R^2}$ is chosen from ~~5- and 6-membered heterocyclic rings (optionally substituted with oxo and/or C_1-C_6 linear and branched alkyl groups) and~~ 5- to 6-membered aromatic rings comprising 0-4 heteroatoms independently chosen from O, N, and S, wherein the 5-membered aromatic ring is optionally substituted with 1-4 $\mathbf{R^B}$ groups and the 6-membered aromatic ring is optionally substituted with 1-5 $\mathbf{R^B}$ groups, wherein the $\mathbf{R^B}$ groups are independently chosen from:

amides, optionally substituted with 1-3 groups ~~selected~~ independently chosen from C_1-C_6 linear, branched, and cyclic alkyl groups (optionally substituted with heteroaryl), 4- to 6-membered heterocyclyl (optionally substituted with oxo, C_1-C_6 linear, branched, and cyclic alkyl groups, hydroxyalkyl, amide, alkylsulfonyl, and acetamide); or wherein the amide nitrogen atom forms part of a 3- to 8-membered heterocyclyl ring (optionally substituted with alkylsulfonyl or C_1-C_6 linear, branched, and cyclic alkyl group),

imidazolidine-2,4-dione,

heterocyclyls, optionally substituted with one or more groups independently chosen from oxo, acyl, and C_1-C_6 linear, branched, and cyclic alkyl group (which is optionally further substituted with 1-3 groups independently chosen from oxo, hydroxy, and acyl),

phosphorous acid optionally esterified with a C_1-C_6 linear, branched, or cyclic alkyl group,

di(C_1-C_6)alkylphosphine oxides,

(C_1-C_6)alkylphosphinic acids optionally esterified with a C_1-C_6 linear, branched, or cyclic alkyl group,

halogens,

cyano,

hydroxy,

carboxylic acids optionally esterified with a uronic acid or a C_1-C_6 linear, branched, or cyclic alkyl group,

oxo,

dihydroxylboryl,

5- and 6-membered aromatic rings comprising 0-4 heteroatoms independently chosen from O, N, and S, optionally substituted with 1 or 2 substituents independently chosen from C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 substituents independently chosen from

hydroxy,

carboxylic acids,

pyrrolidin-2-one,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

sulfonic acid,

alkylsulfonamide,

C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups,

aminosulfonyl groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups,

C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy,

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkoxy groups,

heterocyclyl optionally substituted with oxo, and

amide,

C_1-C_6 linear, branched, and cyclic alkoxy groups that are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy,

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups, and

tetrazolyl groups that are optionally substituted with substituents chosen from

halogens,

hydroxy,

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

wherein 2 adjacent hydrogens on the 5- or 6-membered aromatic ring can be replaced by attachments to a second 5- or 6-membered aromatic ring comprising 0-4 heteroatoms independently chosen from O, N, and S to form a bicyclic **R^2** group that is optionally substituted with 1-6 R^B groups;

(iv) **X^1** and **X^2** are independently chosen from hydrogen, halogens, cyano, hydroxy, C_1-C_6 linear, branched, and cyclic groups wherein the C_1-C_6 linear, branched, and cyclic groups are independently chosen from alkyl, alkoxy, thioalkyl, and aminoalkyl groups, and wherein the C_1-C_6 linear, branched, and cyclic groups are optionally substituted by 1-4 independently chosen halogens;

(v) each of **W^1** and **W^2** is independently ~~selected~~ chosen from C and N;

(vi) each ═══ represents a single or double bond, provided that no more than one ═══ is a double bond;

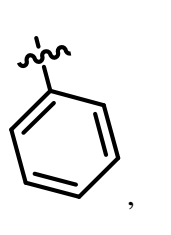
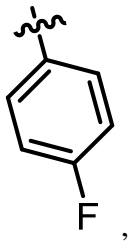
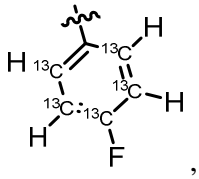
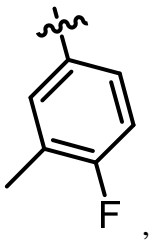
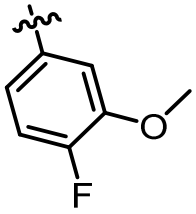
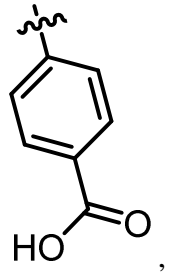
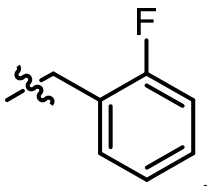
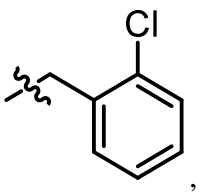
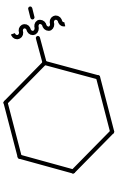
(vii) each **R^3** is independently chosen from hydrogen, halogens, cyano, C_1-C_6 linear, branched, and cyclic alkyl groups, and C_1-C_6 linear, branched, and cyclic alkoxy groups, wherein the C_1-C_6 linear, branched, and cyclic alkyl groups and the C_1-C_6 linear, branched, and cyclic alkoxy groups are optionally substituted with 1-4 substituents independently chosen from halogens, hydroxy groups, and carboxylic acid;

(viii) **n** is an integer chosen from 0, 1, 2, and 3; and

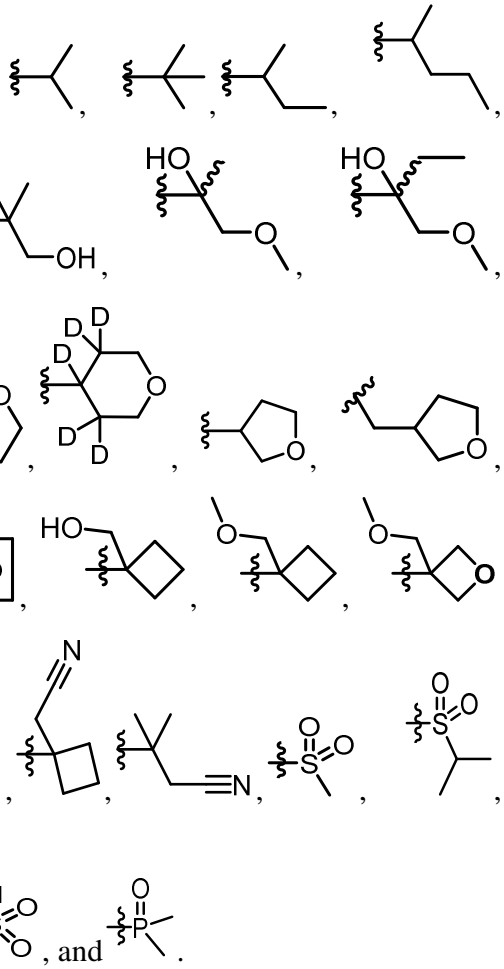
(ix) two of **Z^1**, **Z^2**, and **Z^3** are ~~independently chosen from carbon,~~ nitrogen, ~~sulfur,~~ and ~~oxygen, wherein when **Z^1**, **Z^2**, and/or **Z^3** are~~ the other is chosen from carbon ~~or~~ and nitrogen, wherein the valences of carbon and nitrogen are completed with hydrogen atoms, halogen, C_1-C_6 linear, branched, and cyclic alkyl groups, and C_1-C_6 linear, branched, and cyclic alkoxy groups, wherein the C_1-C_6 linear, branched, and cyclic alkyl groups and the C_1-C_6 linear, branched, and cyclic alkoxy groups are optionally substituted with 1-4 substituents independently chosen from halogens, hydroxy groups, and carboxylic acid.

2. The compound according to claim 1, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein $\mathbf{R^0}$ is chosen from aryl rings, heteroaryl rings, and C_1-C_8 linear, branched, and cyclic alkyl groups, each of which is optionally substituted with 1-2 substituents independently chosen from halogen, carboxylic acid, C_1-C_6 linear, branched, and cyclic alkyl groups, C_1-C_6 linear, branched, and cyclic alkoxy groups, aryl rings, and heteroaryl rings.

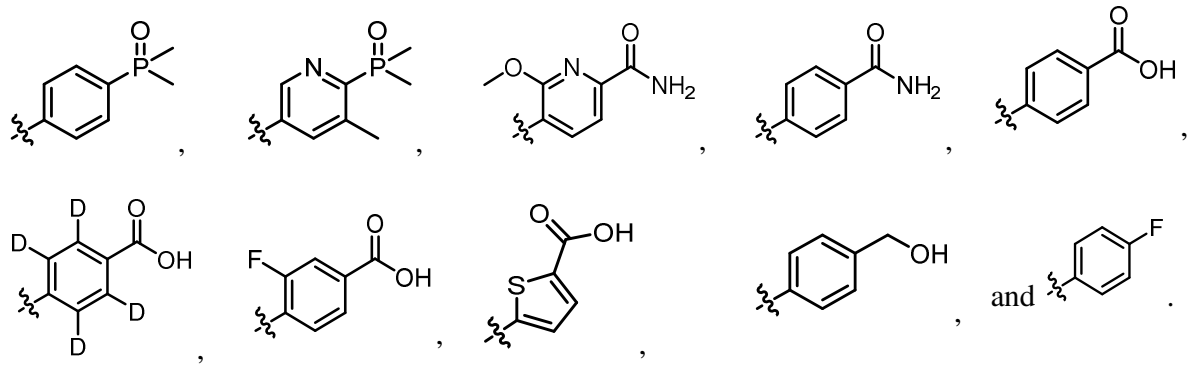
3. The compound according to claim 1 or 2, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein $\mathbf{R^0}$ is chosen from:


,

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,

,

,

,

,

, and

.

4. The compound according to any one of claims 1 to 3, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein $\mathbf{R^1}$ is chosen from:

hydrogen, methyl, trimethylsilyl, trifluoromethyl, , and .

5. The compound according to any one of claims 1 to 4, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein **R^2** is chosen from:

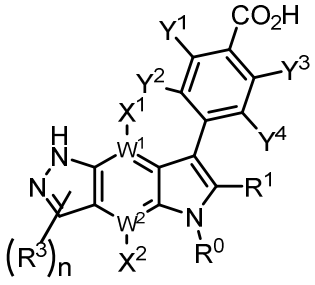
, and .

~~6. The compound according to any one of claims 1 to 5, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein two of $\mathbf{Z^1}$, $\mathbf{Z^2}$, and $\mathbf{Z^3}$ are nitrogen and the other is chosen from carbon and nitrogen.~~

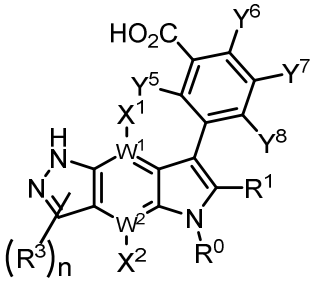
~~7~~6. The compound according to any one of claims 1 to ~~6~~5, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein each $\mathbf{R^3}$ is independently chosen from hydrogen, deuterium, halogen, C_1-C_6 linear alkyl groups, and heterocyclyl groups.

~~8~~7. The compound according to any one of claims 1 to ~~7~~6, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein $\mathbf{X^1}$ and $\mathbf{X^2}$ are independently chosen from hydrogen and halogen.

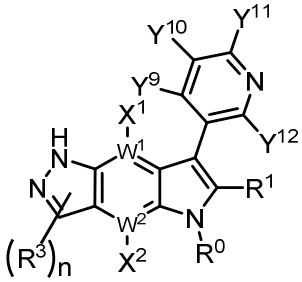
~~9~~8. The compound according to claim 1, wherein the compound is chosen from compounds of Formula **I-A**, **I-B**, **I-C**, **I-D**, **I-E**, **I-F**, **I-G**, and **I-H**:



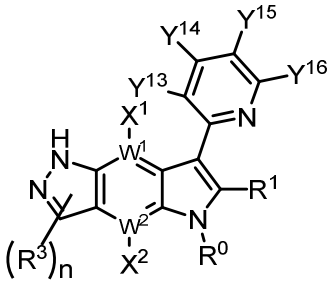
I-A



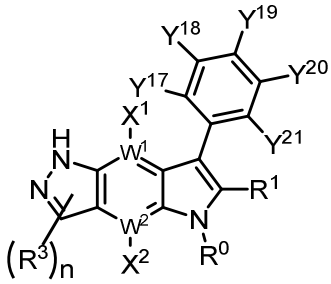
I-B



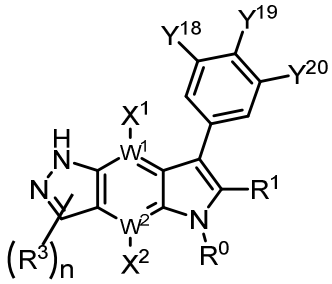
I-C



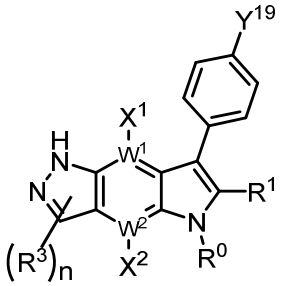
I-D



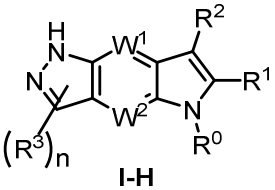
I-E



I-F



I-G



I-H

a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein:

R^0, R^1, **R^2**, **R^3**, and **n** are defined for compounds of Formula (**I**)

X^1 and **X^2** are independently chosen from hydrogen and fluorine, or **X^1** is fluorine and **X^2** is hydrogen, or **X^2** is fluorine and **X^1** is hydrogen, or **X^1** and **X^2** are each hydrogen,

each of **W^1** and **W^2** is independently ~~selected~~ chosen from C and N,

Y^1, **Y^2**, **Y^3**, and **Y^4** are independently chosen from

hydrogen,

cyano,

halogen groups,

C_1-C_6 linear, branched, and cyclic alkyl groups,

C_1-C_6 linear, branched, and cyclic alkoxy groups that are optionally substituted with 1-4 substituents independently chosen from

hydroxy,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups;

Y^5, **Y^6**, **Y^7**, and **Y^8** are independently chosen from

hydrogen,

halogen groups,

hydroxy,

C_1-C_6 linear, branched, and cyclic alkyl groups optionally substituted with 1-4 independently chosen halogen substituents, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

Y^9, **Y^{10}**, **Y^{11}**, **Y^{12}**, **Y^{13}**, **Y^{14}**, **Y^{15}**, and **Y^{16}** are independently chosen from

carboxylic acid,

hydrogen,

halogen groups,

C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups,

C_1-C_6 linear, branched, and cyclic alkyl groups optionally substituted with 1-4 independently chosen halogen substituents, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

Y^{17}, **Y^{18}**, **Y^{19}**, **Y^{20}**, and **Y^{21}** are independently chosen from

hydrogen,

carboxylic acid,

halogen groups,

cyano,

hydroxy,

C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy, and

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkoxy groups that are optionally substituted with a carboxylic acid group,

dihydroxyboryl,

sulfonic acid,

carboxylic acid optionally esterified with a uronic acid,

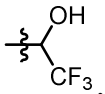
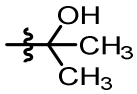
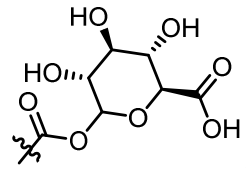
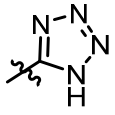
tetrazolyl groups,

aminosulfonyl groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups, and

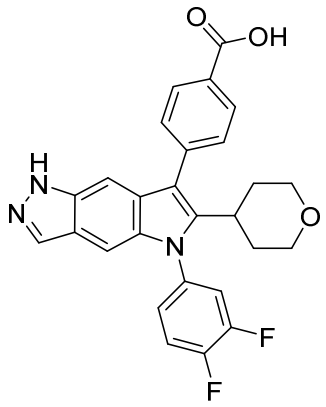
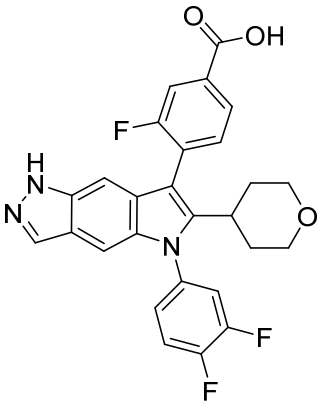
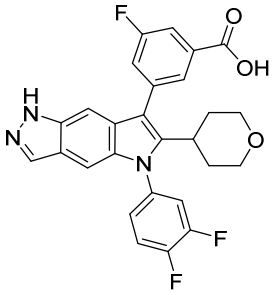
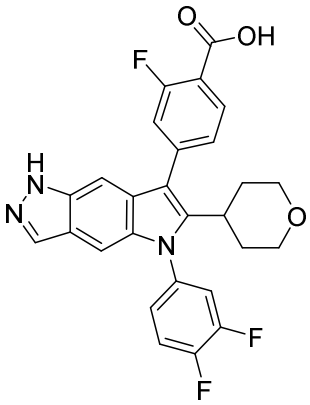
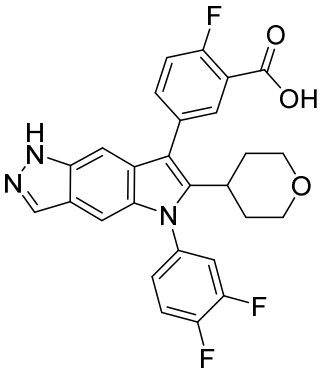
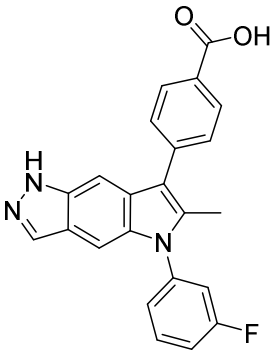
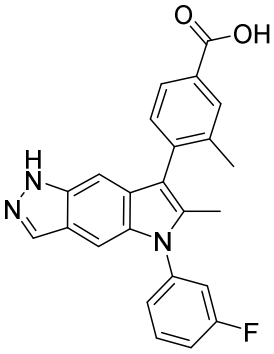
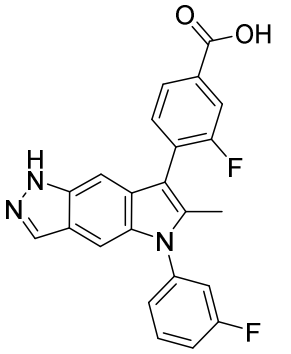
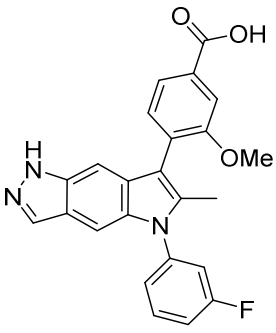
C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups

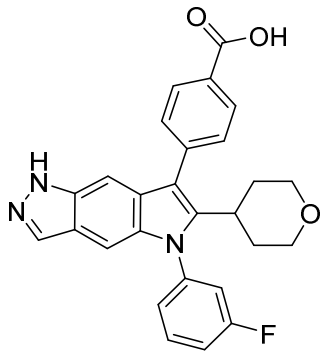
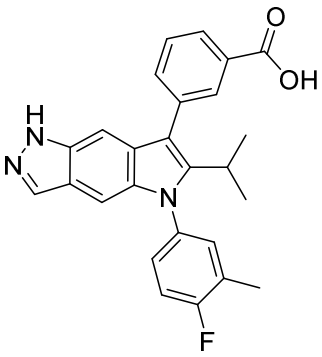
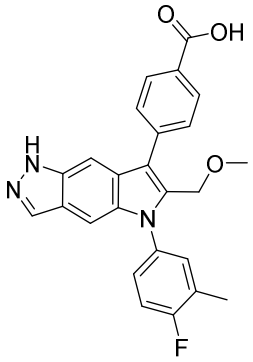
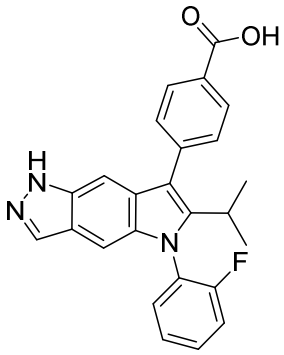
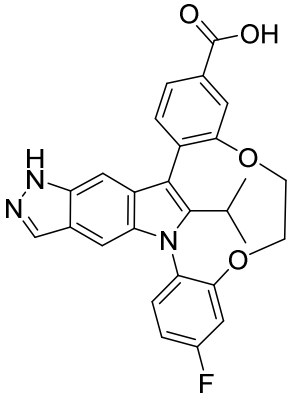
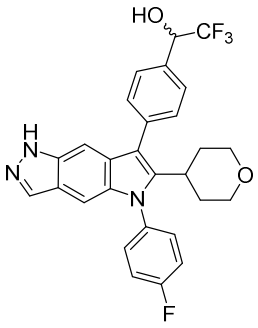
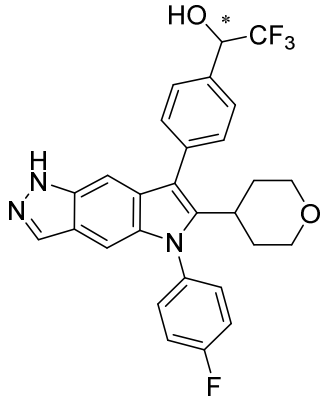
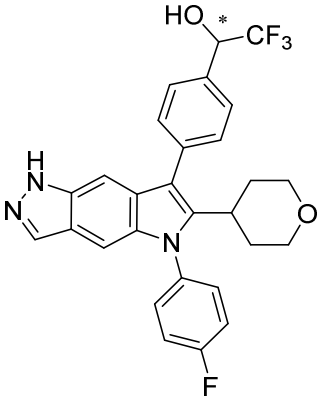
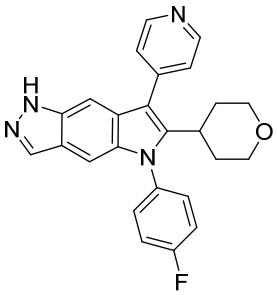
with the proviso that, in Formula **I-E**, at least one of $\mathbf{Y^{17}}$, $\mathbf{Y^{18}}$, $\mathbf{Y^{19}}$, $\mathbf{Y^{20}}$, and $\mathbf{Y^{21}}$ is hydrogen.

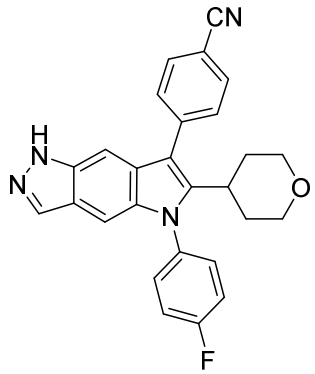
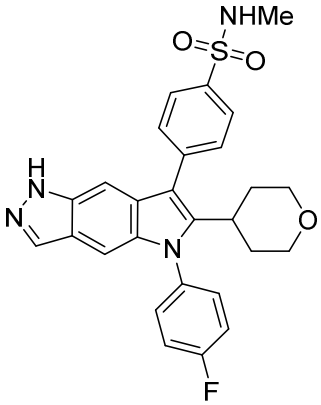
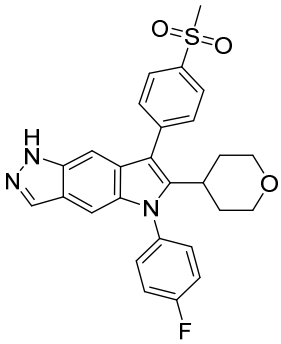
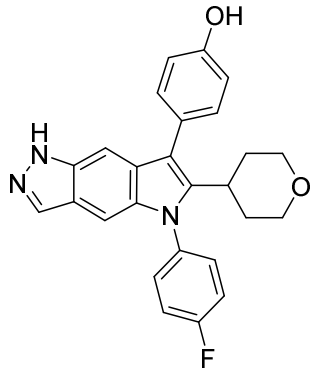
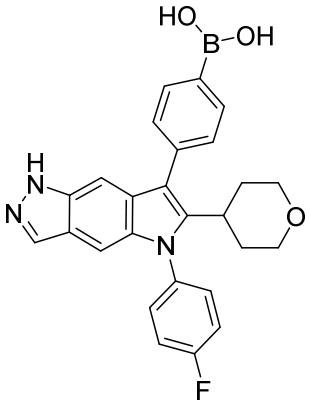
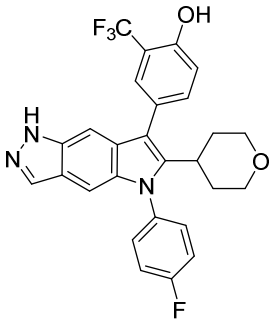
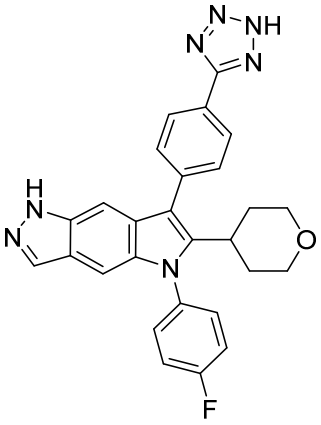
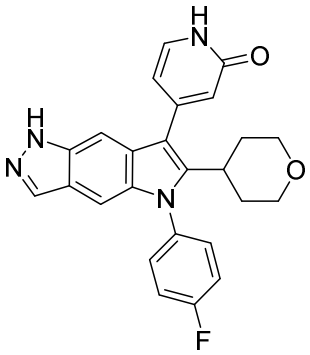
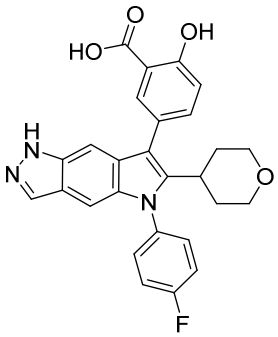
~~10~~9. The compound according to claim ~~9~~8, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein one or more of $\mathbf{Y^{17}}$, $\mathbf{Y^{18}}$, $\mathbf{Y^{19}}$, $\mathbf{Y^{20}}$, and $\mathbf{Y^{21}}$ is chosen from methyl, methoxy, cyano, fluorine, hydroxy, $-CF_3$, $-B(OH)_2$, $-SO_2NHMe$, $-SO_2Me$, $-SO_2H$, $-CH_2CO_2H$, , , , and .

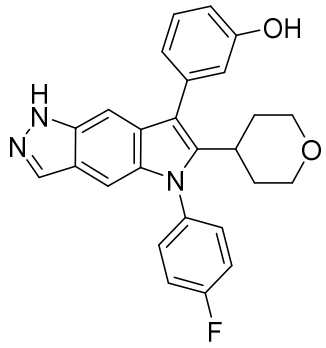
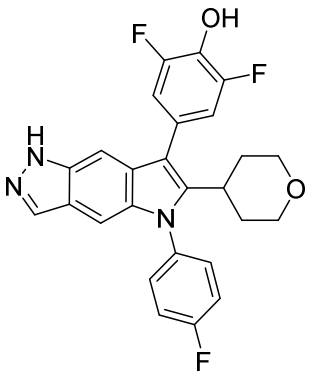
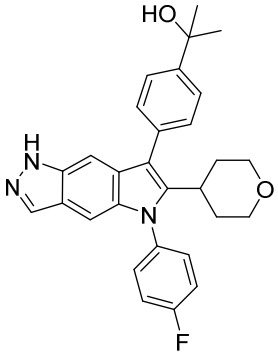
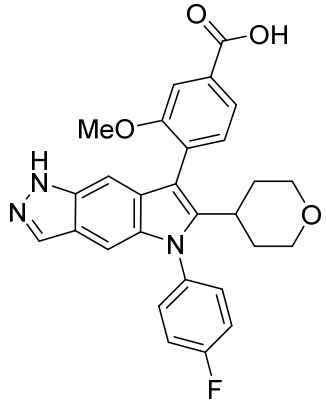
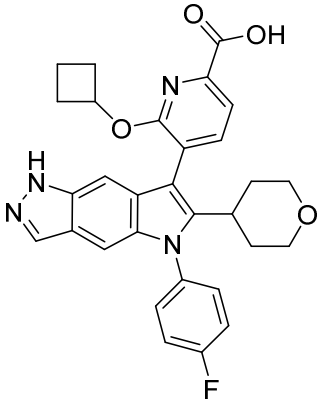
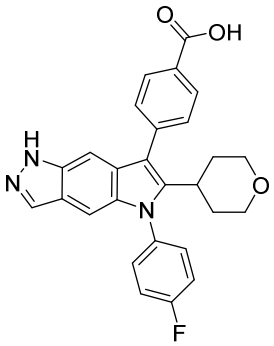
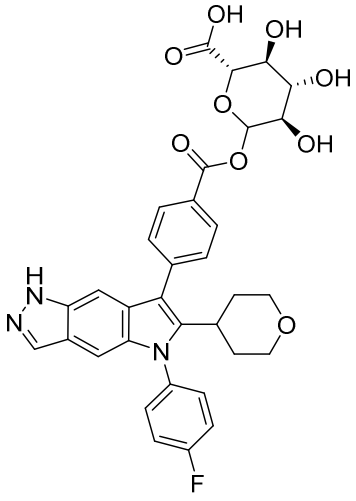
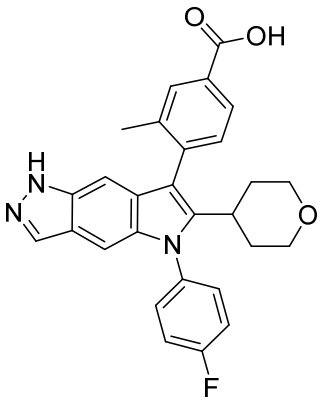
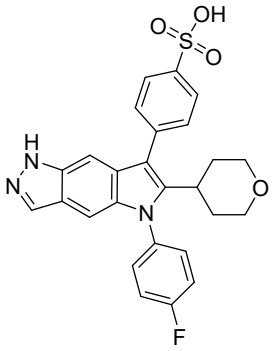
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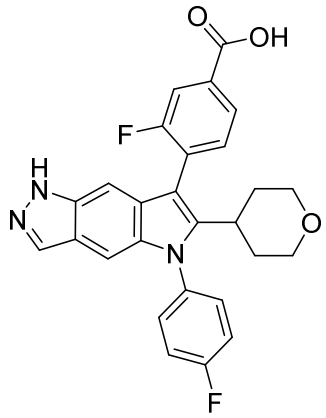
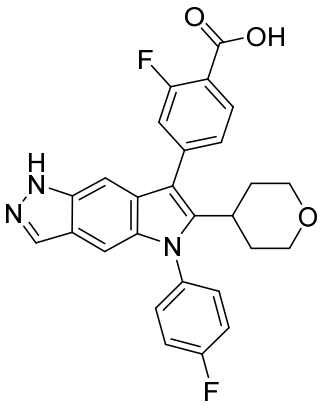
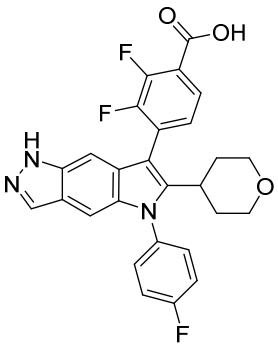
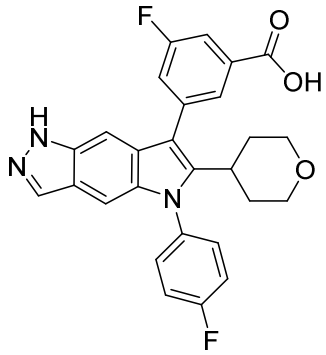
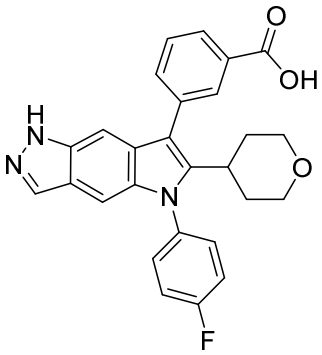
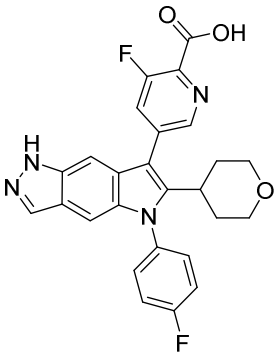
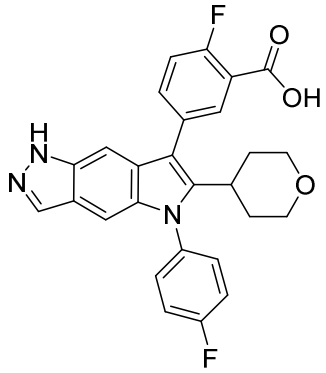
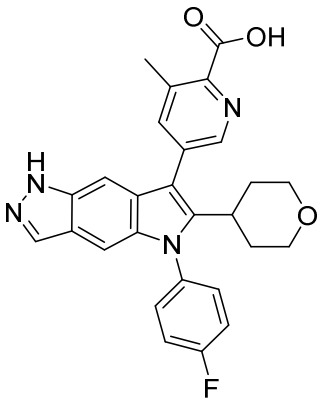
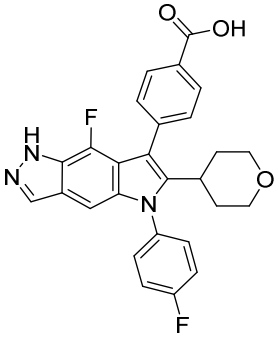
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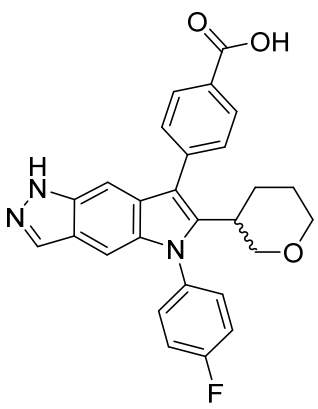
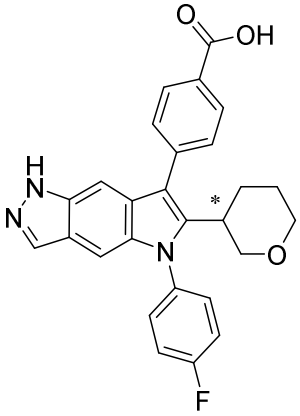
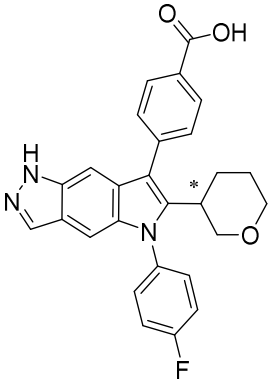
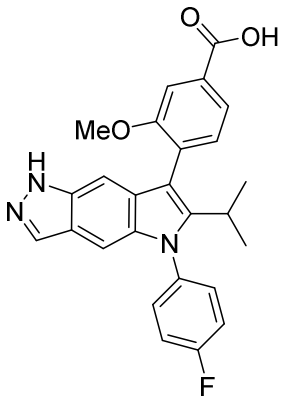
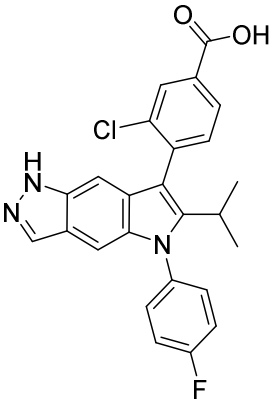
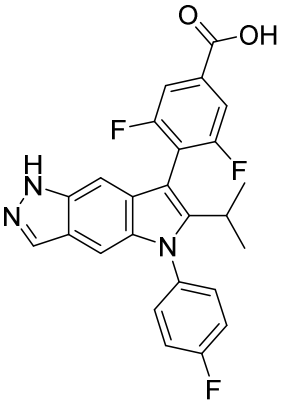
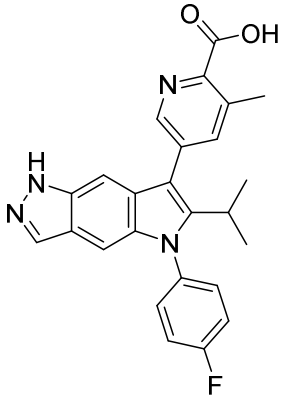
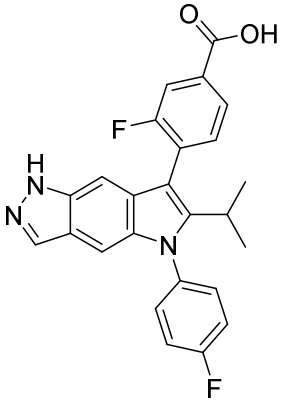
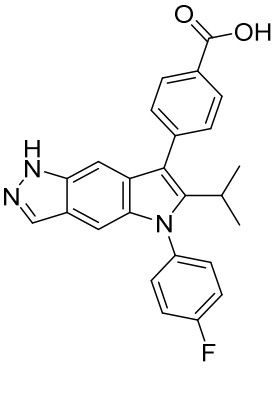
		
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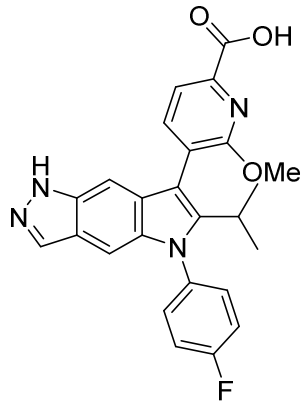
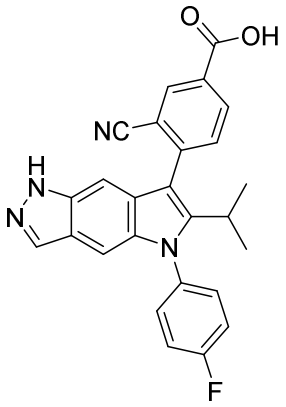
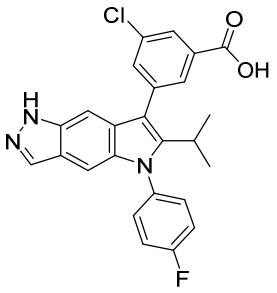
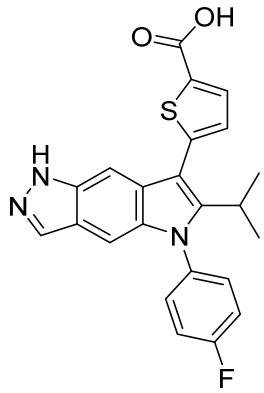
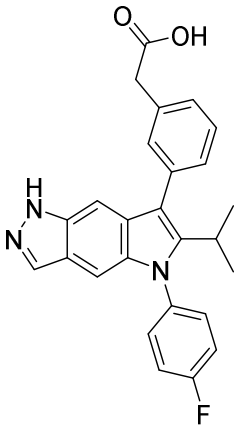
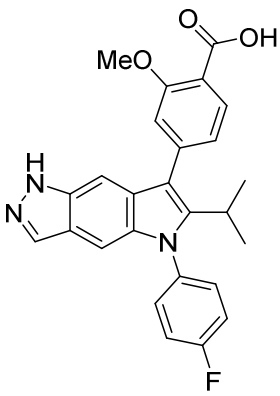
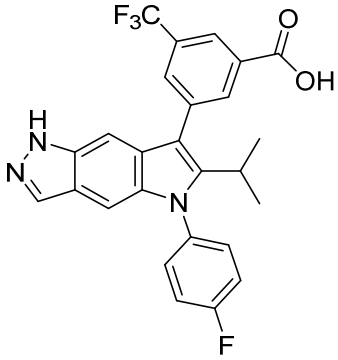
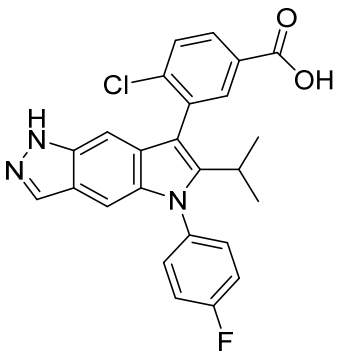
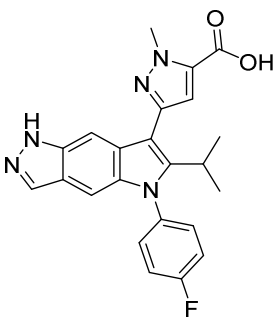
		
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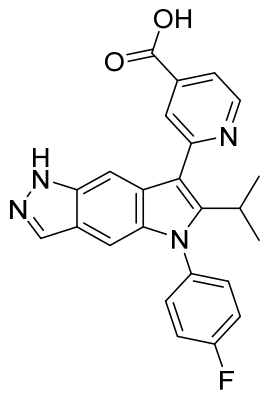
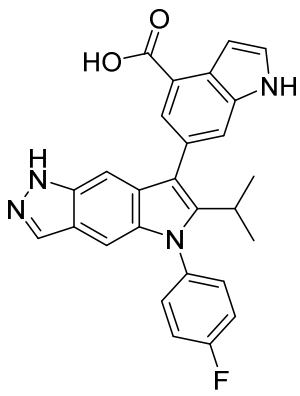
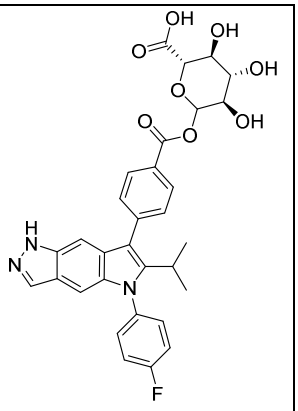
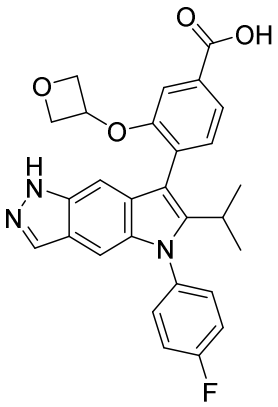
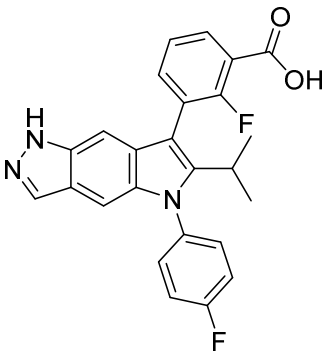
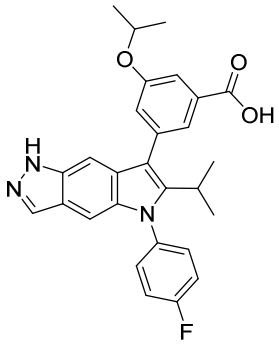
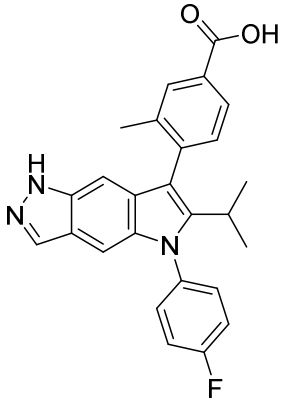
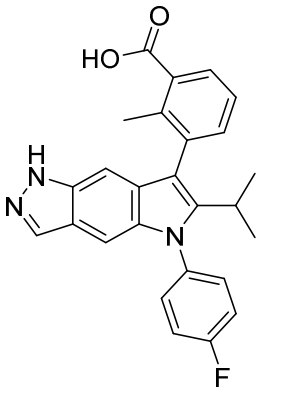
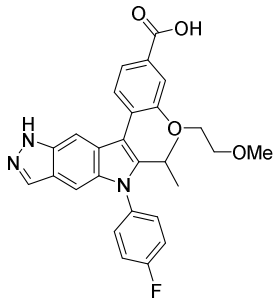
		
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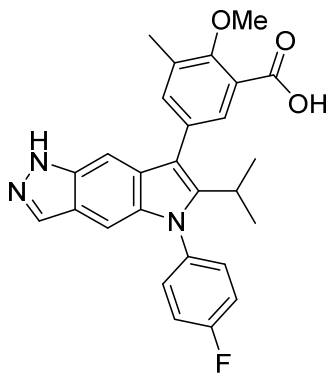
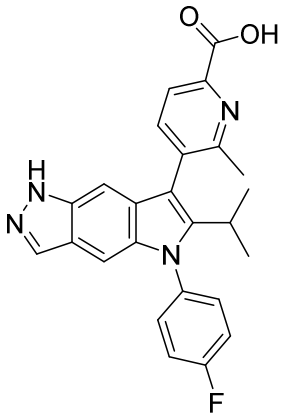
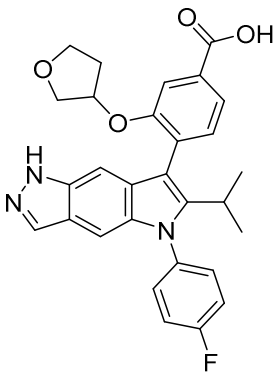
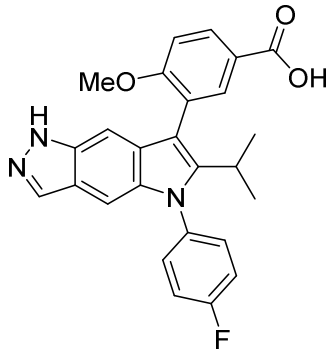
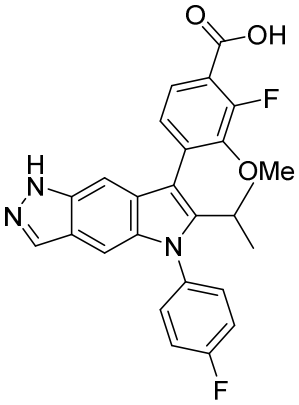
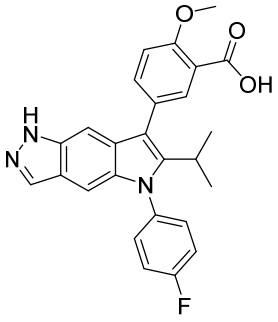
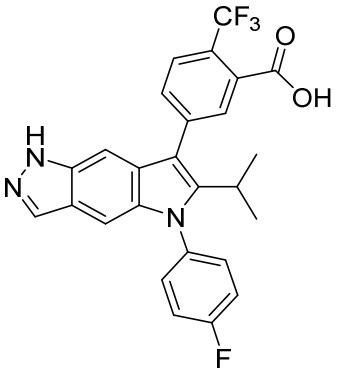
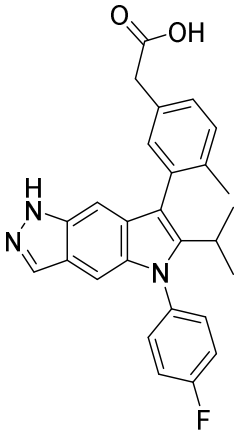
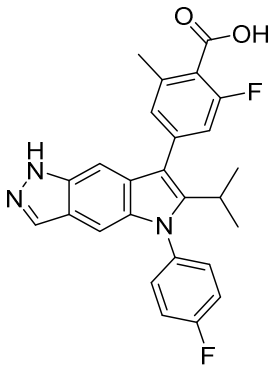
		
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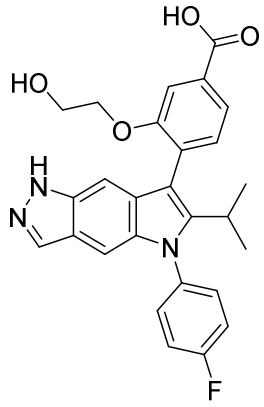
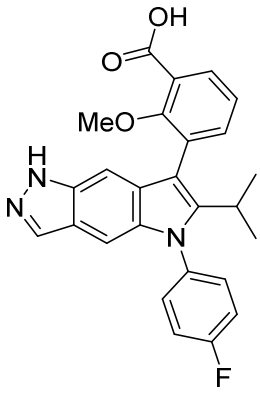
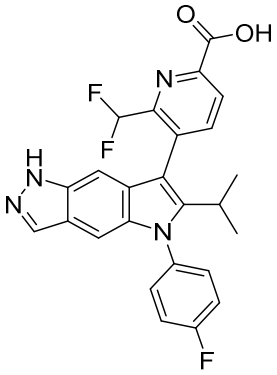
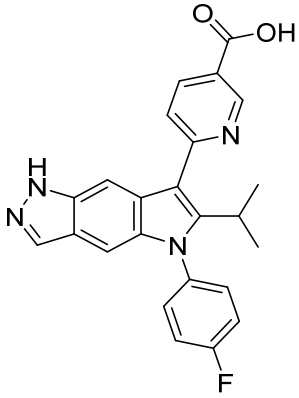
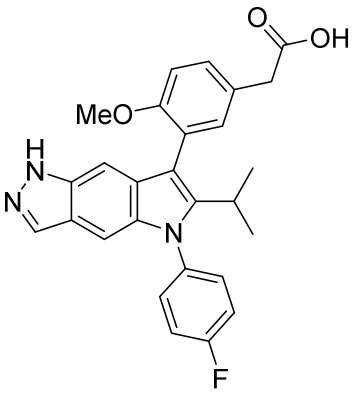
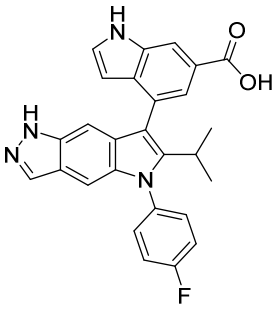
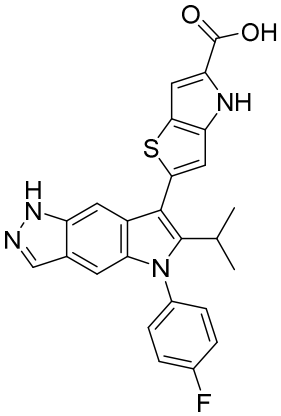
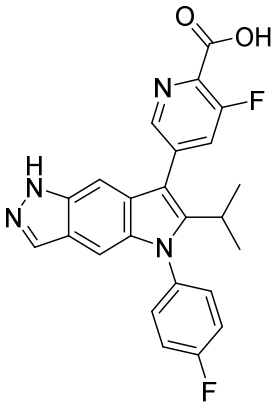
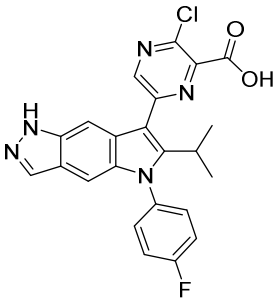
		
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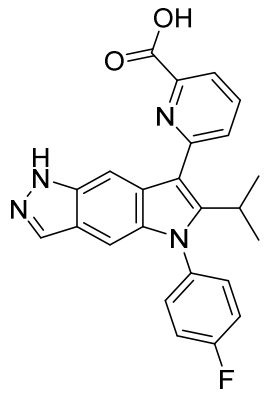
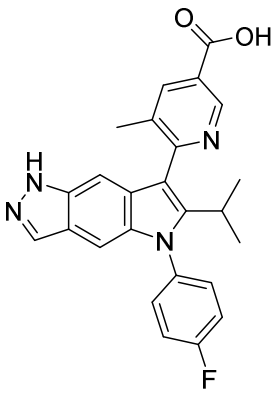
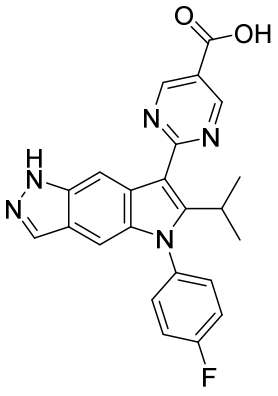
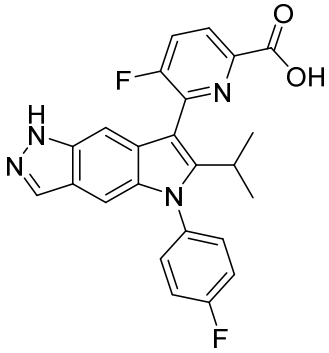
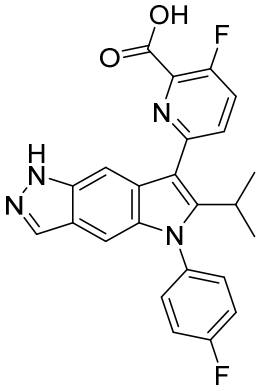
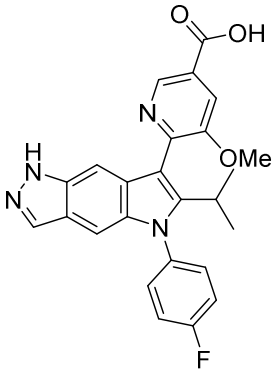
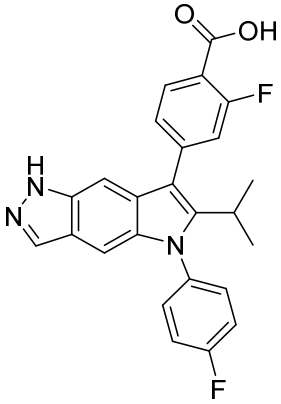
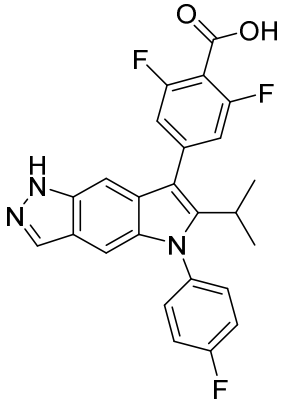
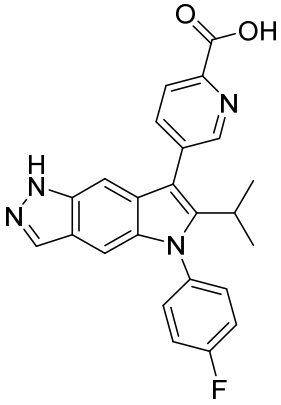
		
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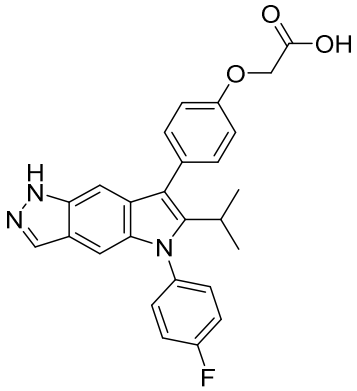
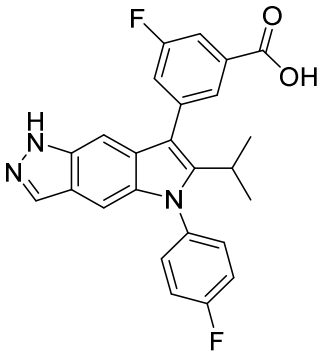
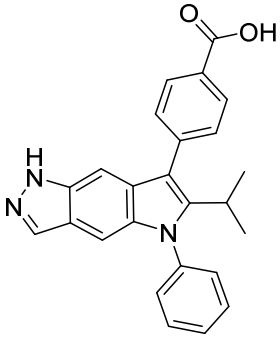
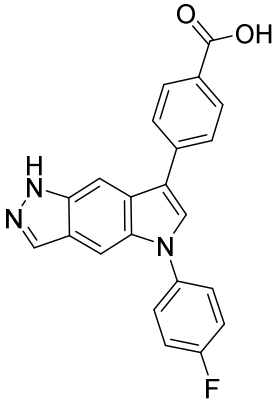
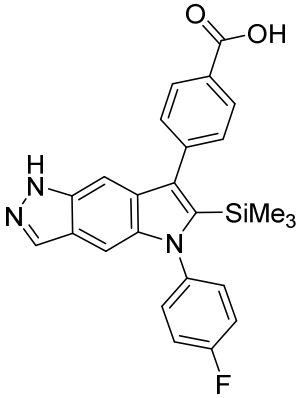
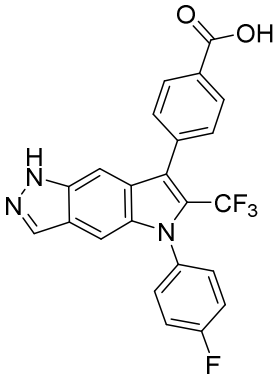
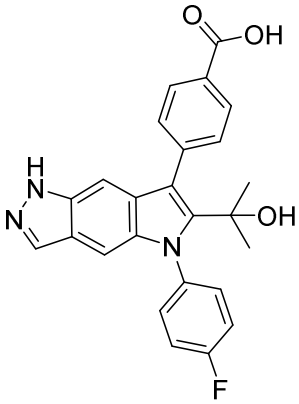
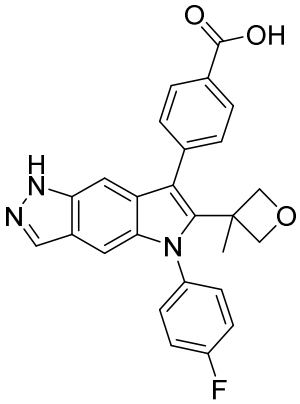
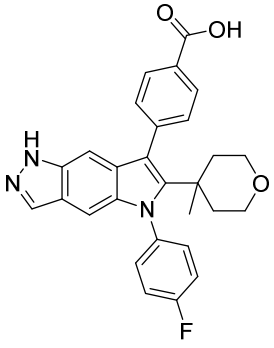
		
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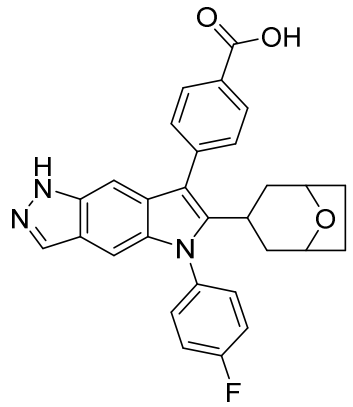
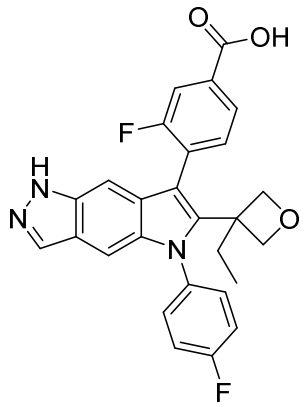
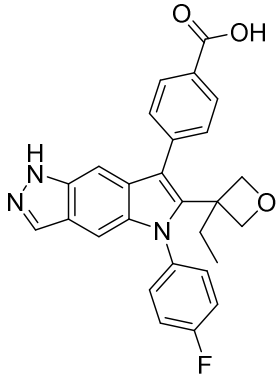
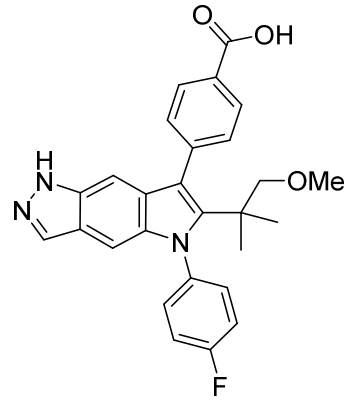
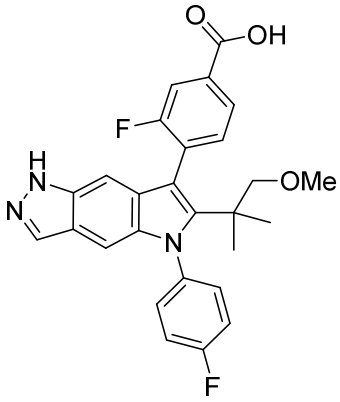
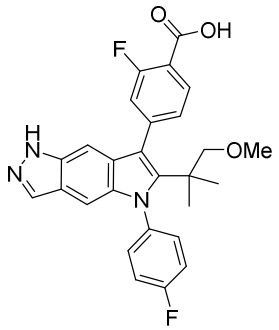
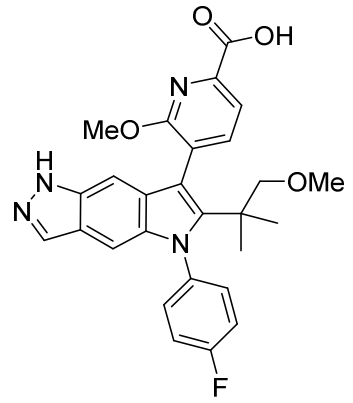
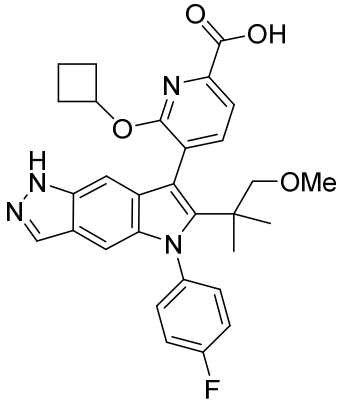
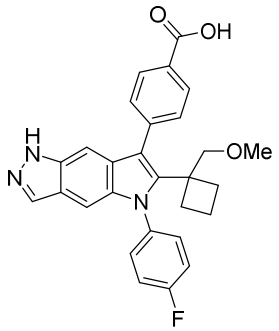
		
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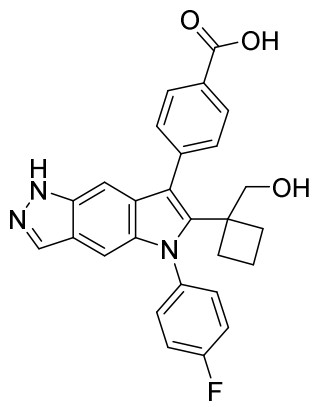
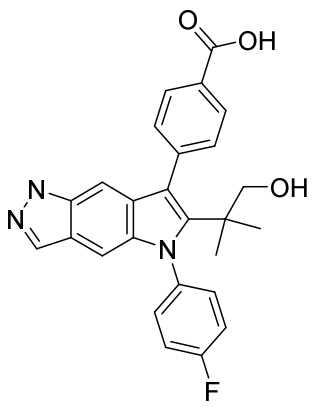
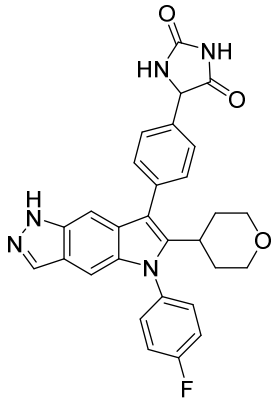
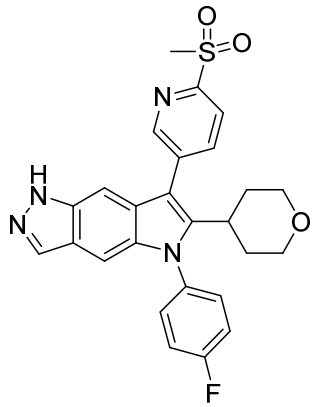
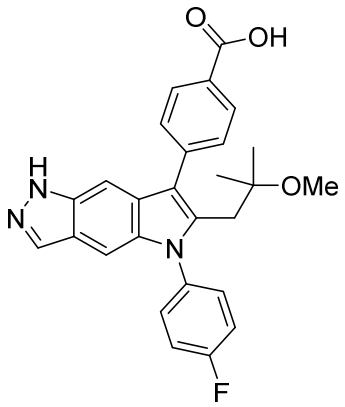
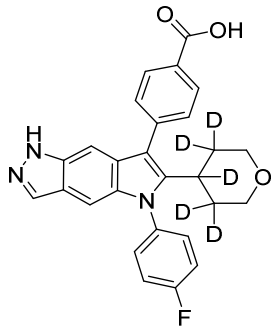
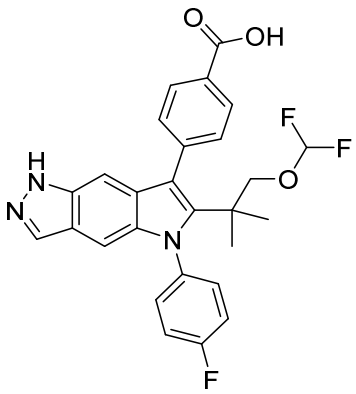
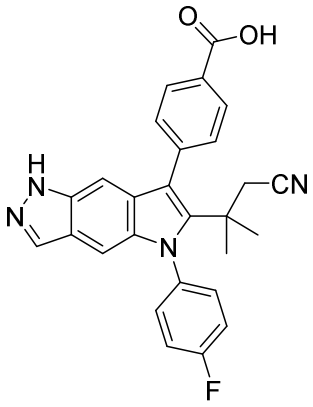
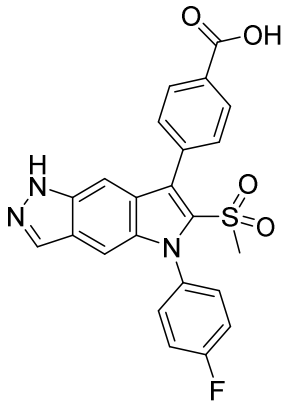
		
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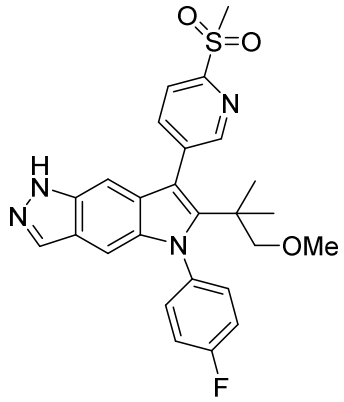
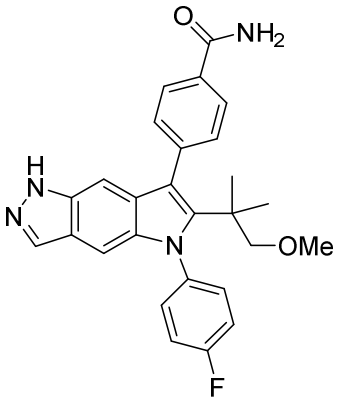
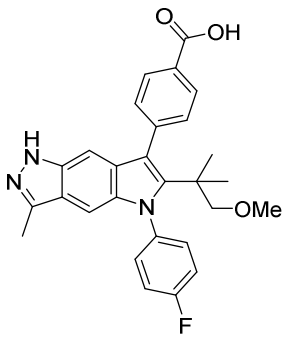
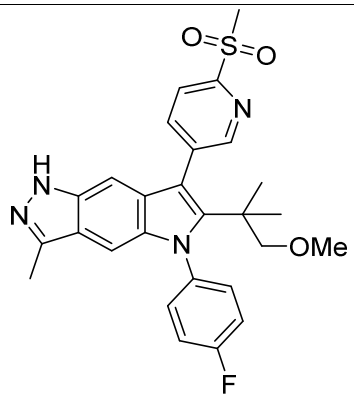
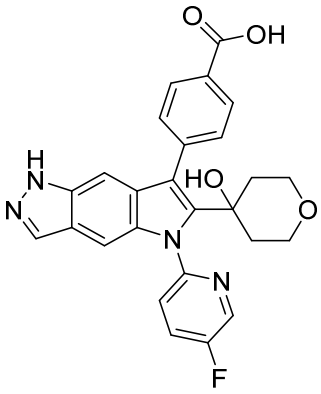
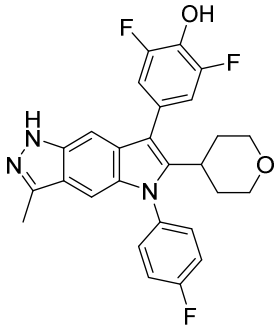
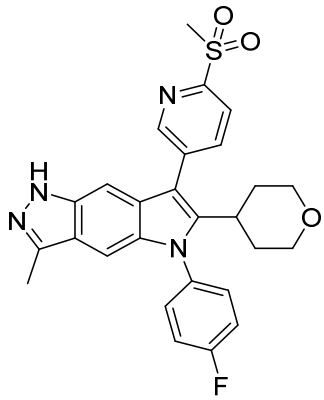
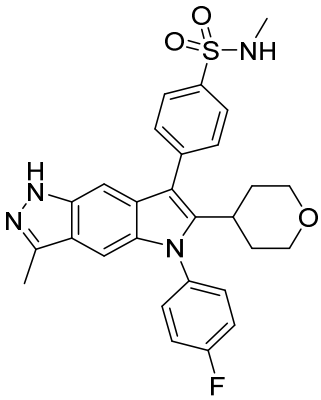
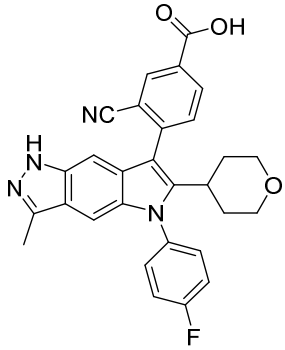
		
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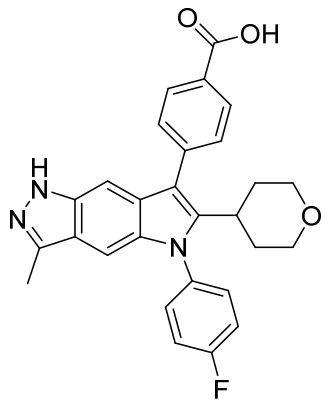
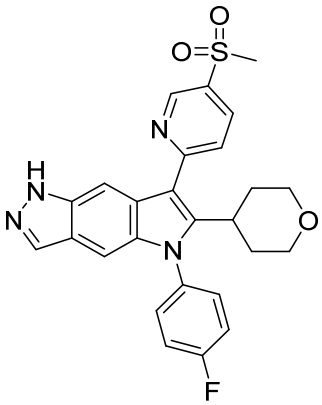
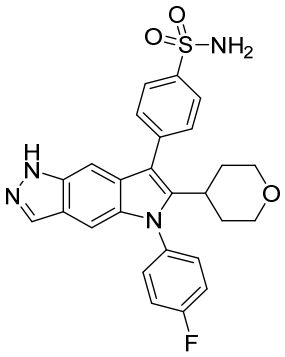
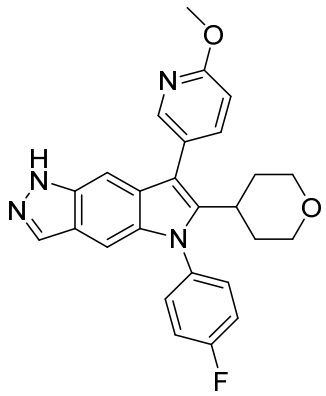
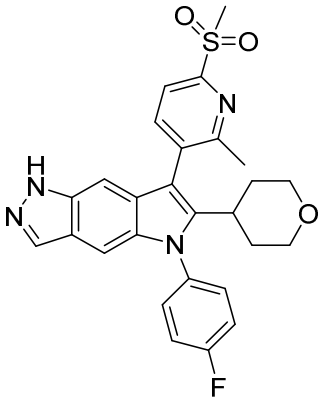
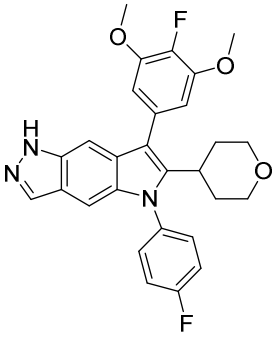
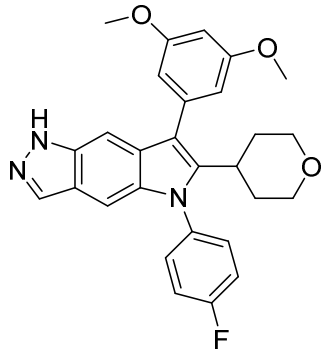
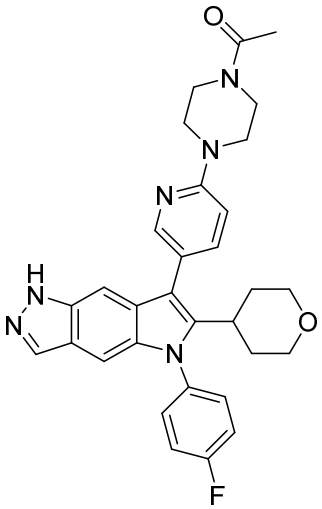
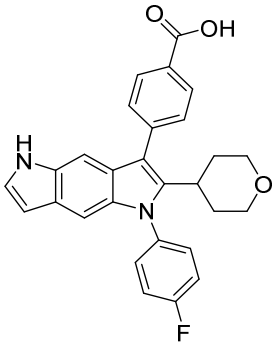
		
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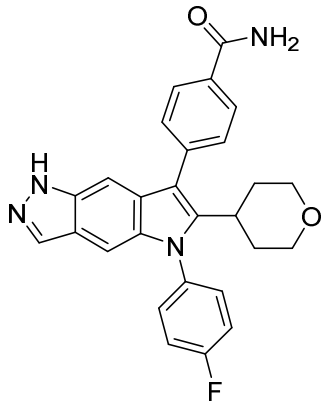
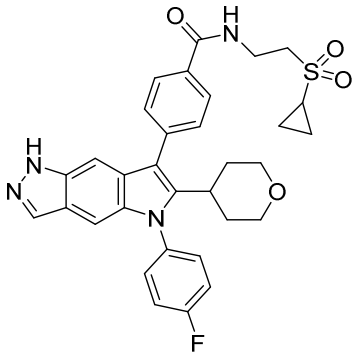
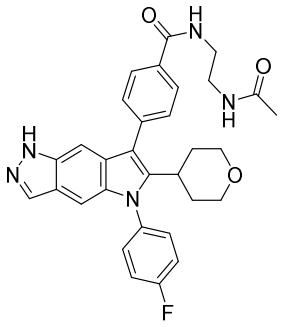
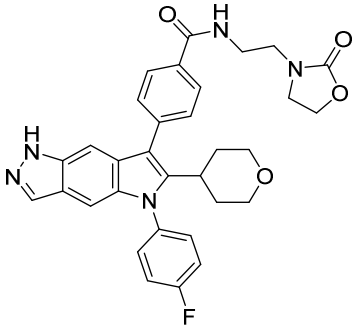
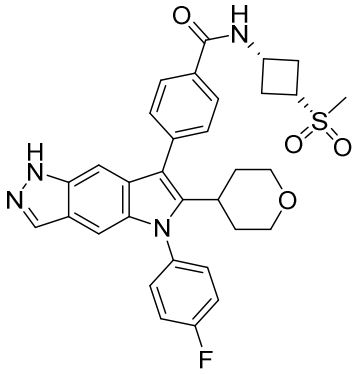
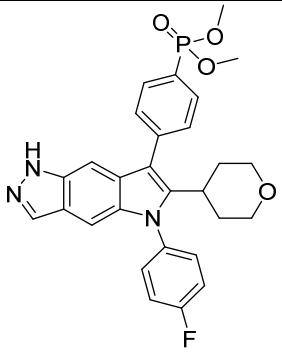
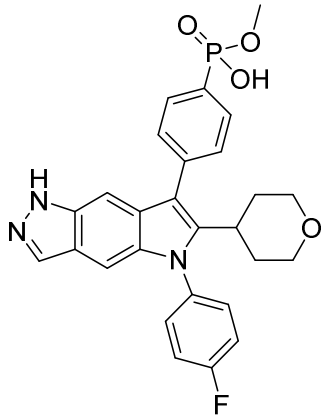
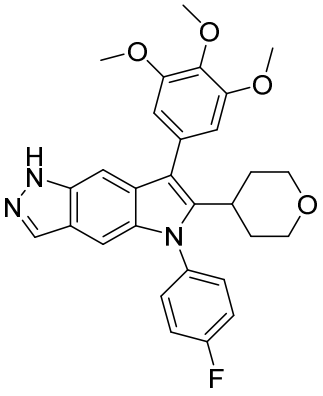
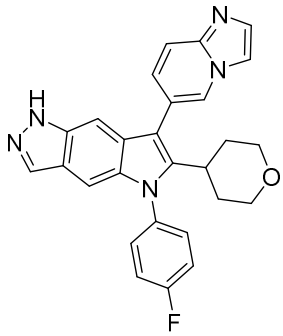
		
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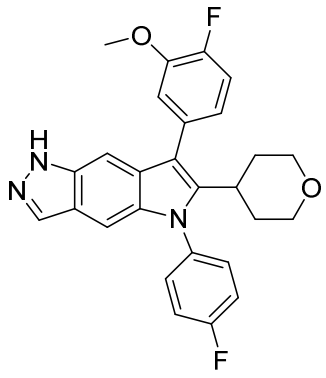
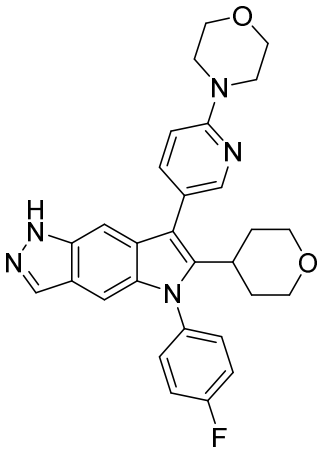
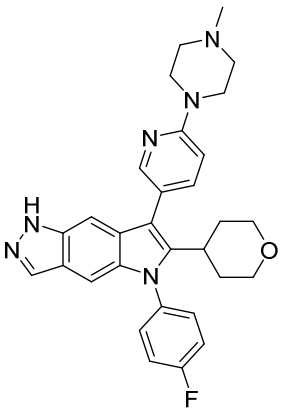
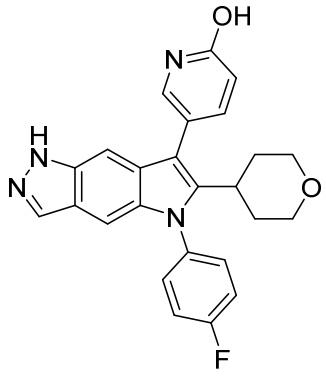
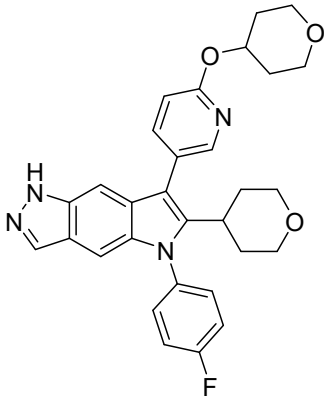
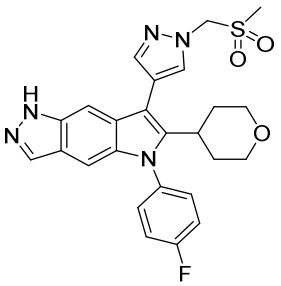
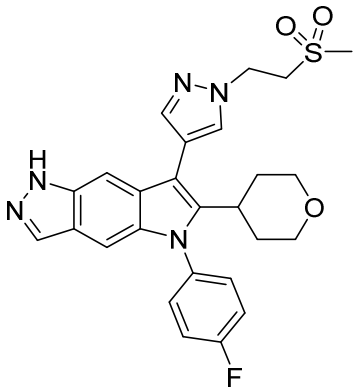
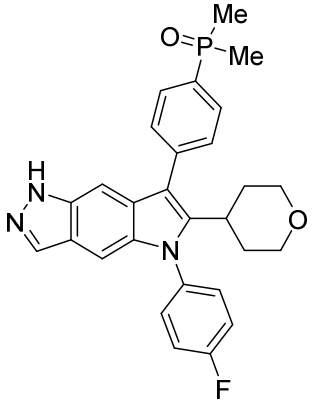
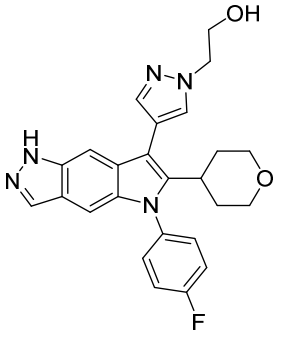
		
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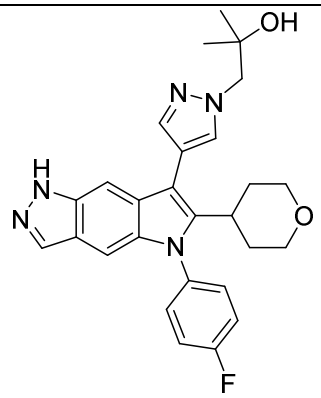
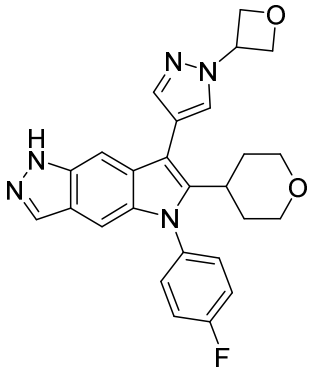
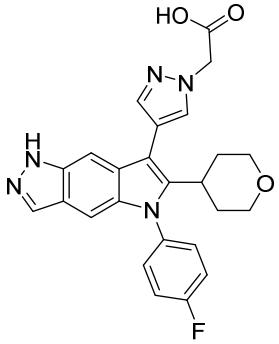
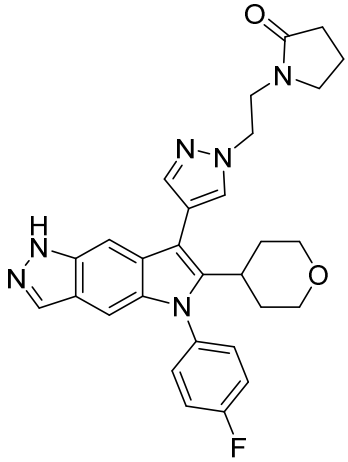
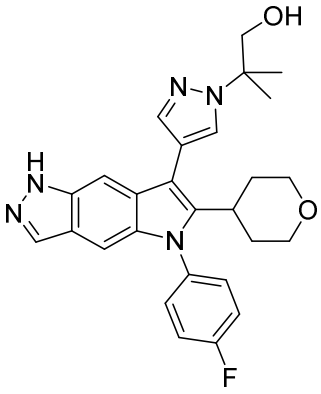
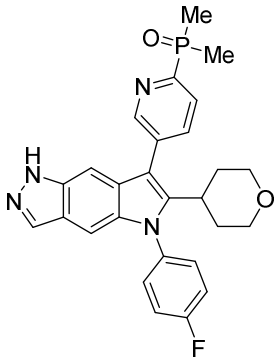
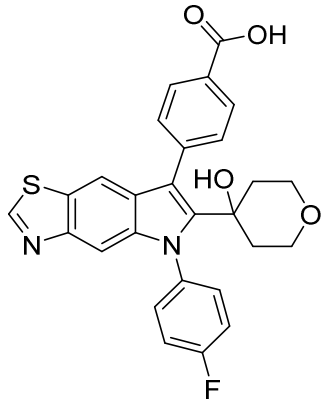
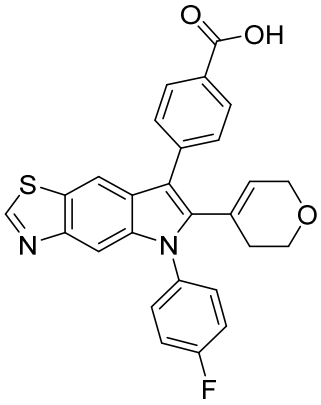
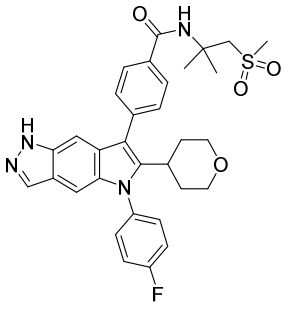
		
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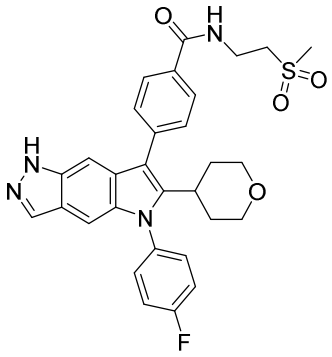
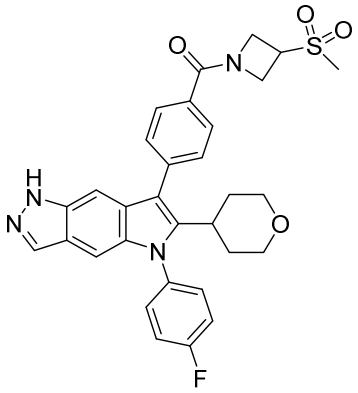
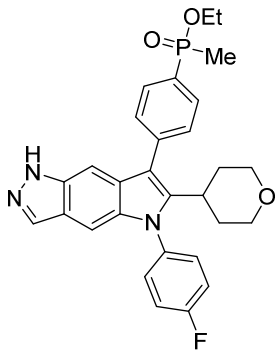
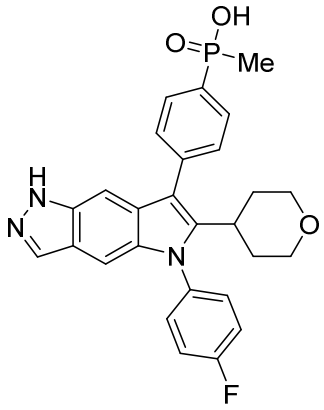
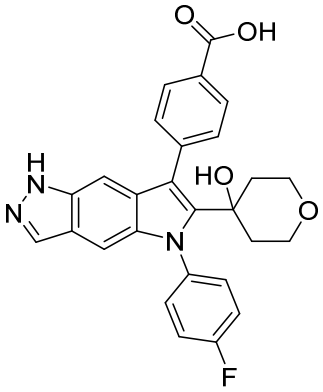
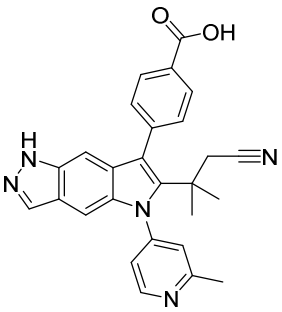
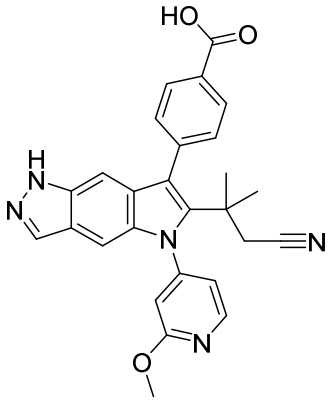
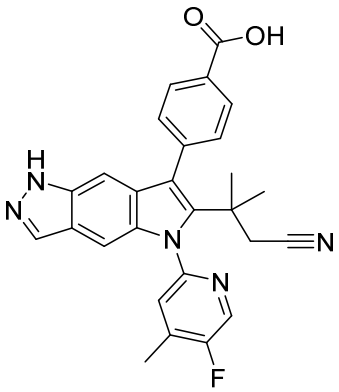
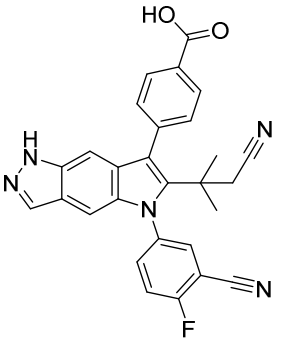
		
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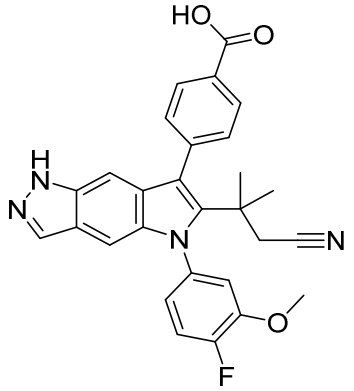
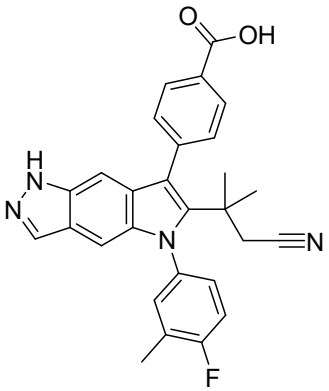
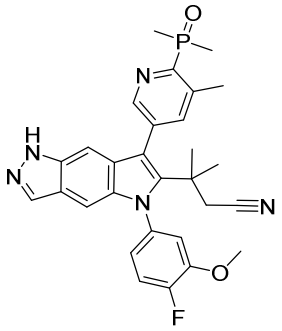
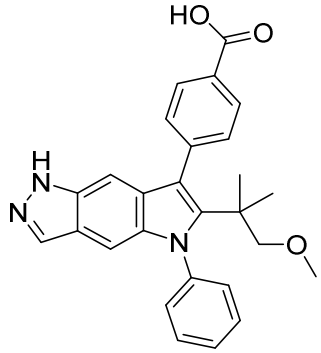
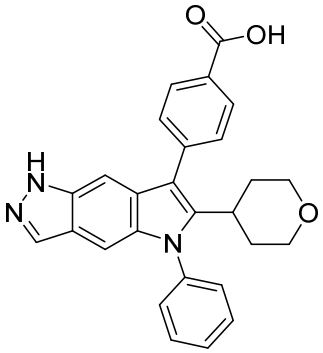
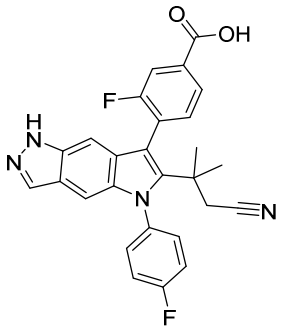
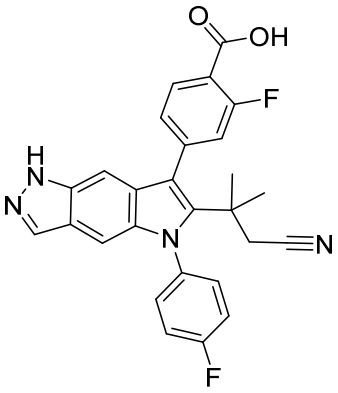
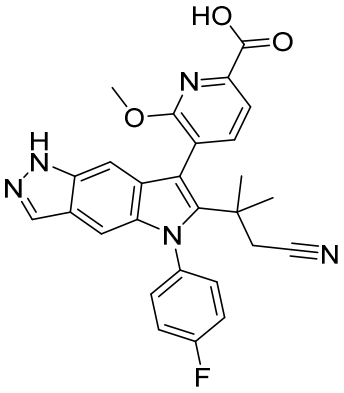
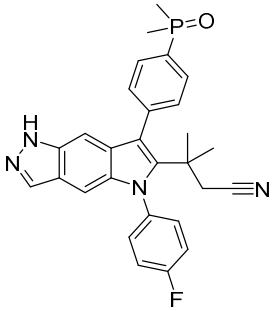
		
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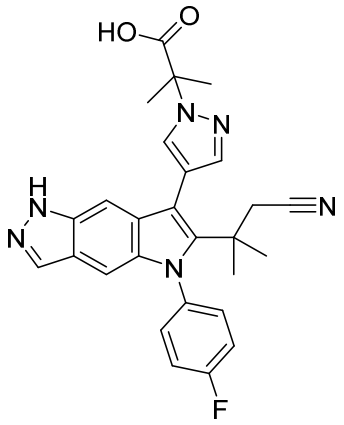
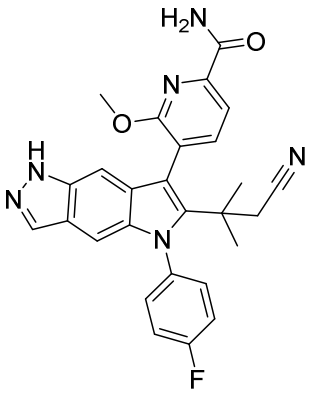
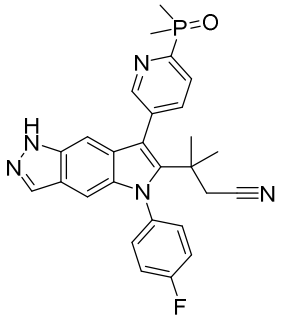
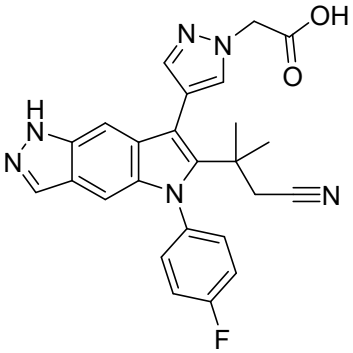
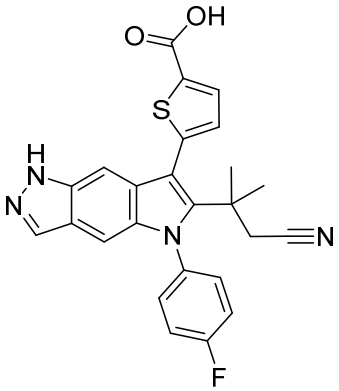
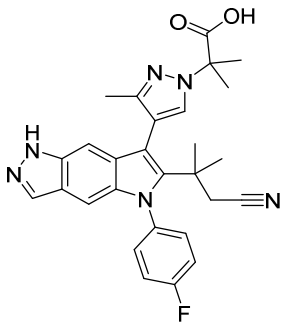
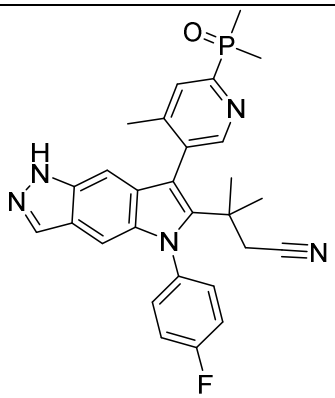
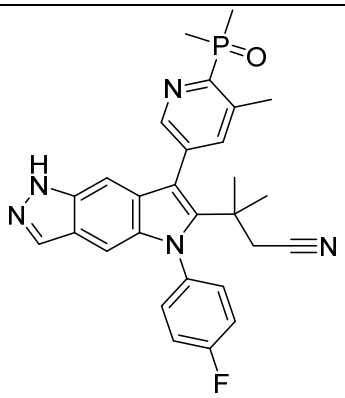
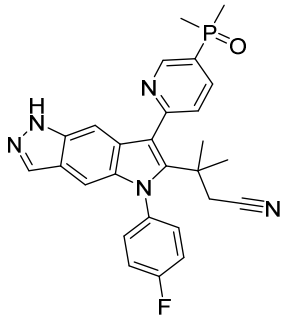
		
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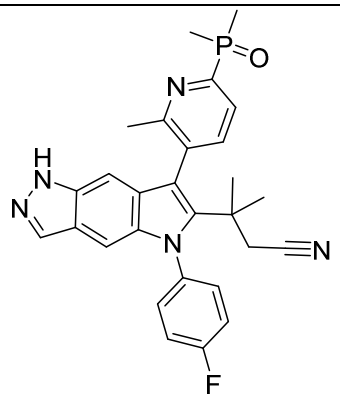
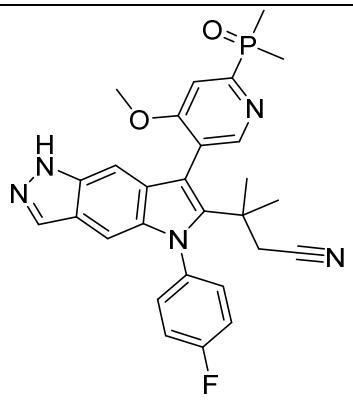
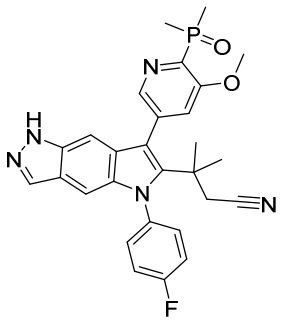
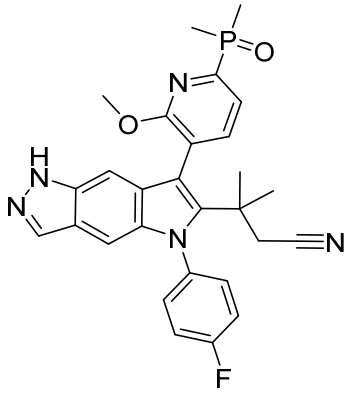
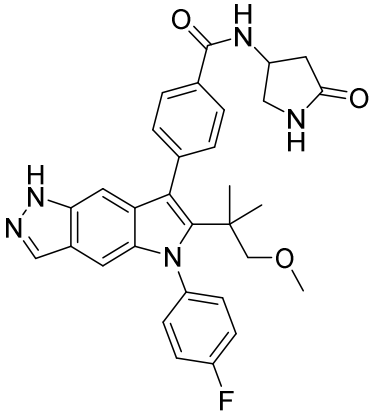
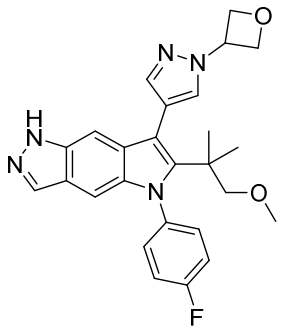
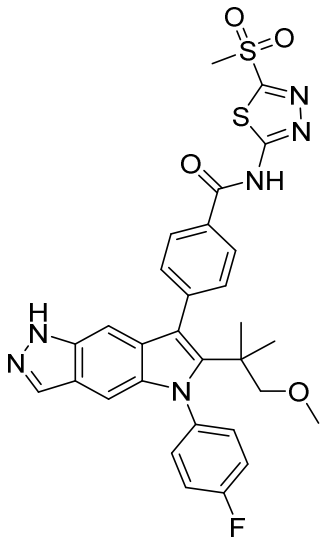
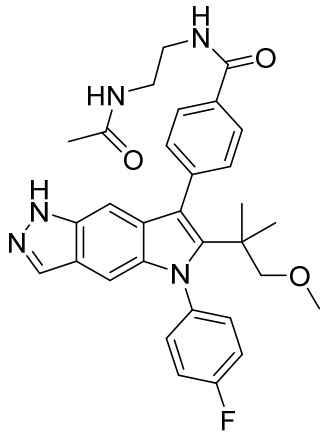
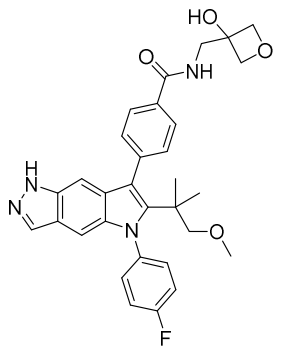
		
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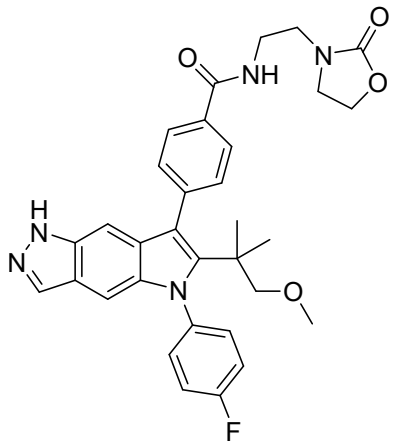
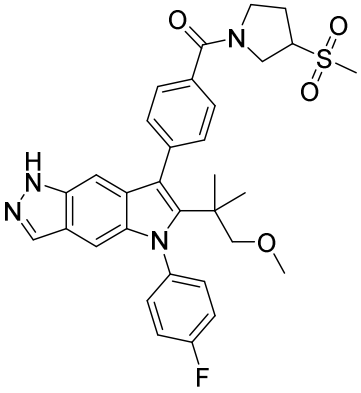
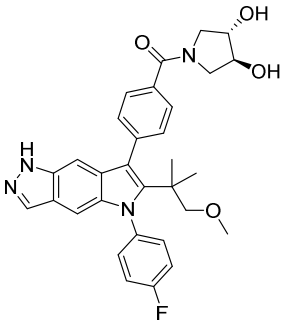
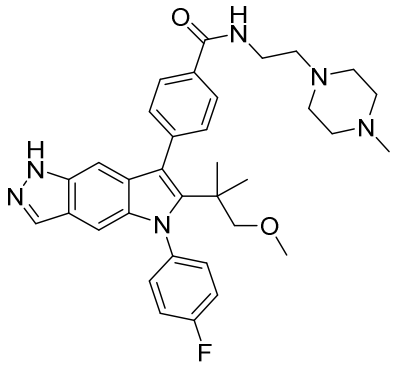
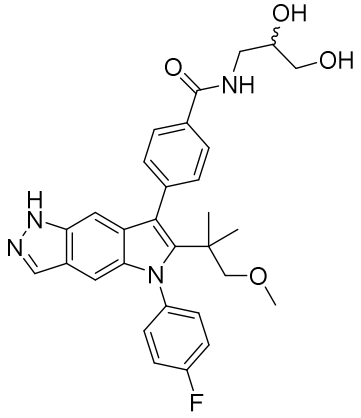
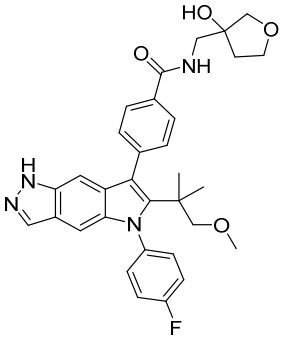
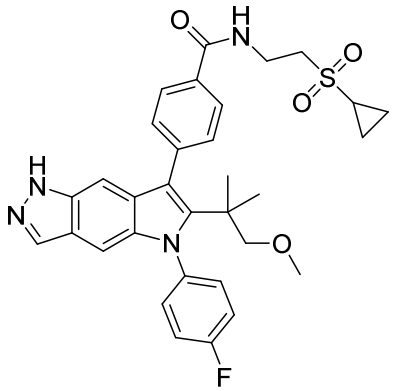
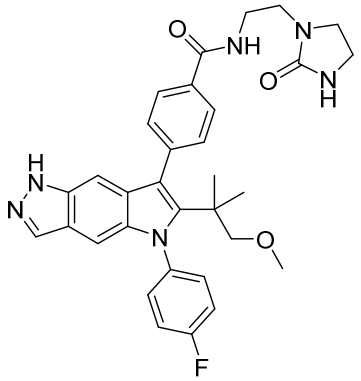
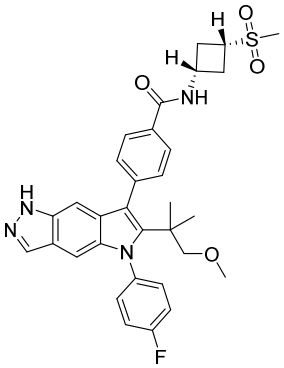
		
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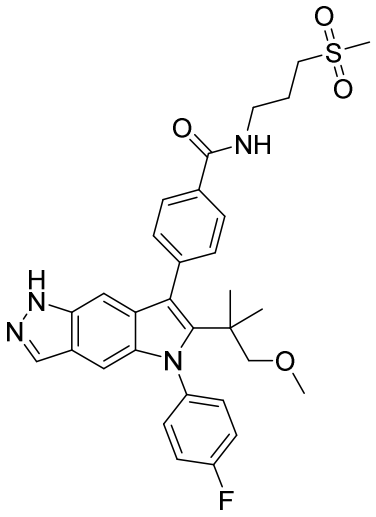
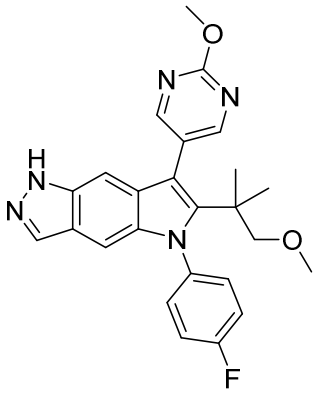
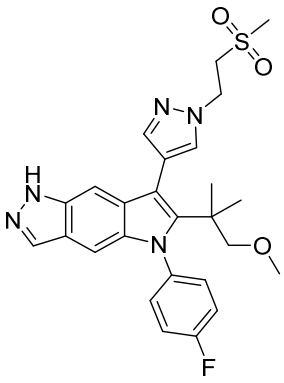
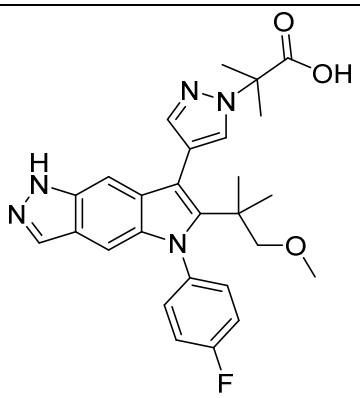
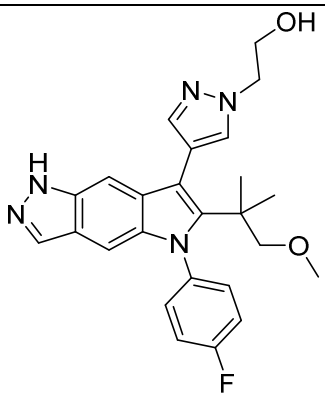
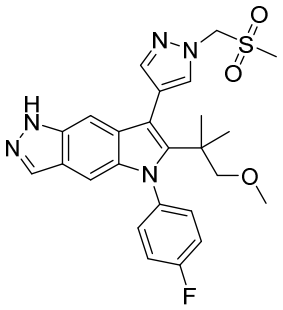
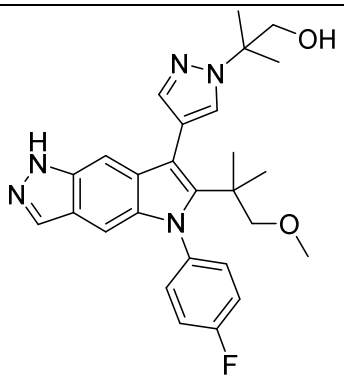
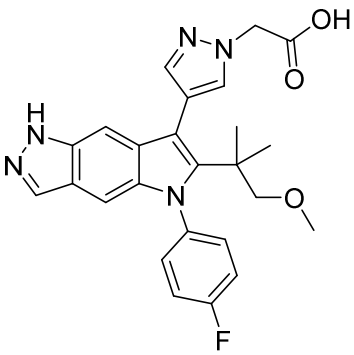
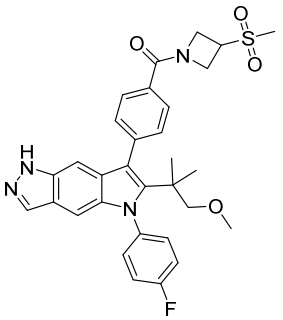
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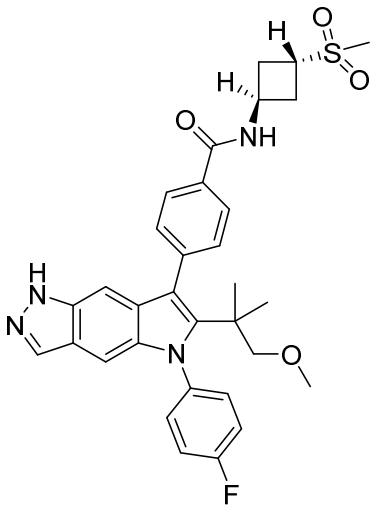
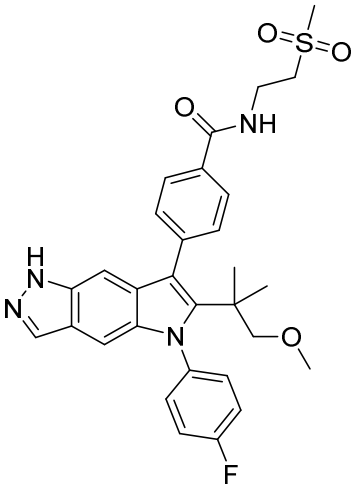
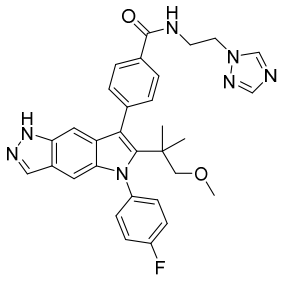
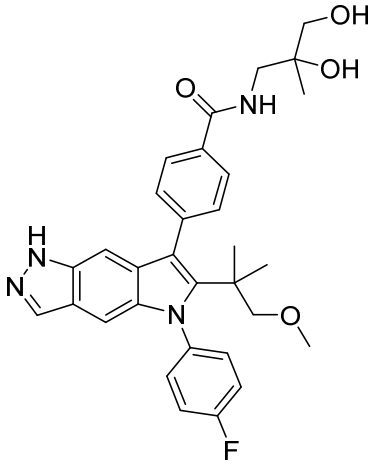
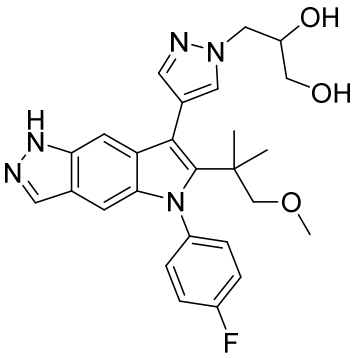
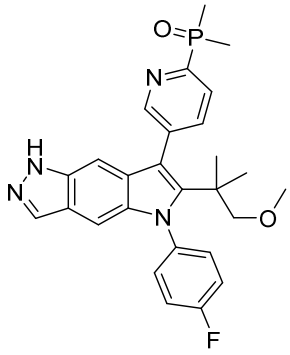
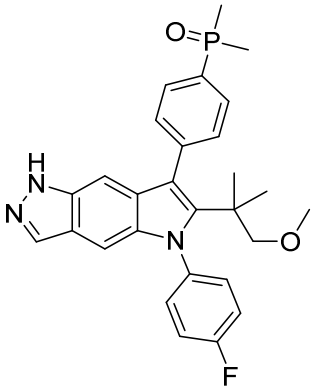
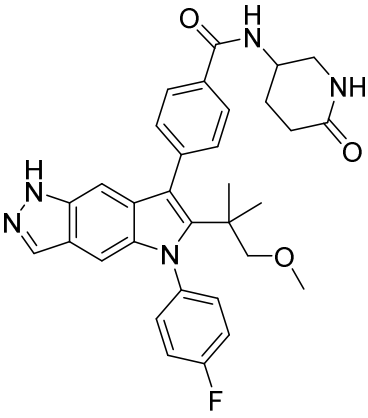
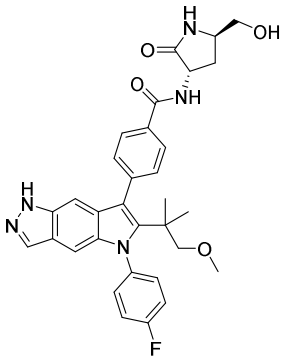
		
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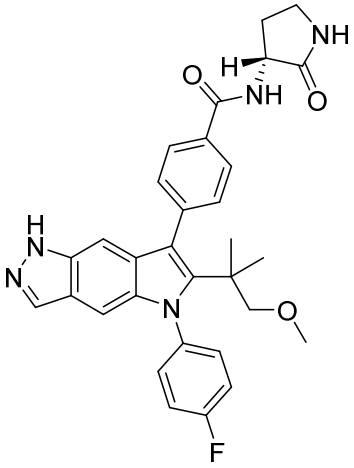
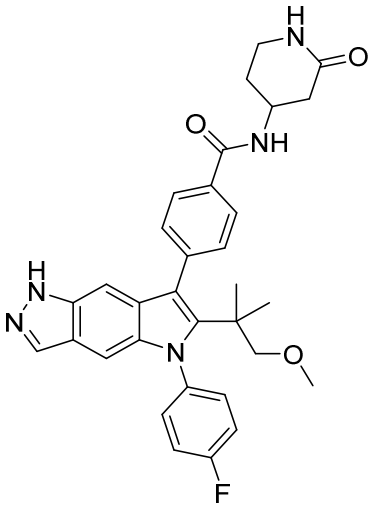
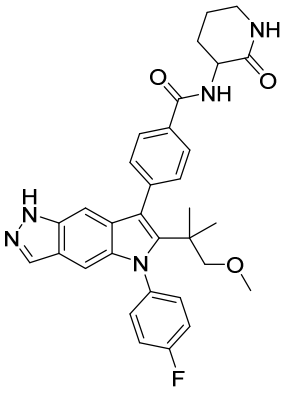
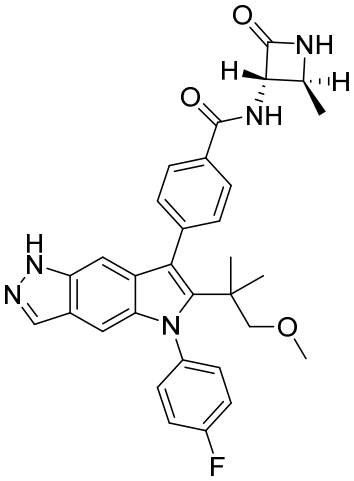
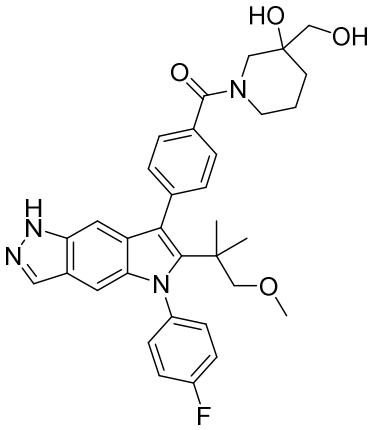
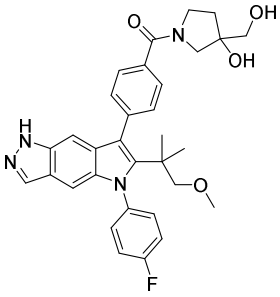
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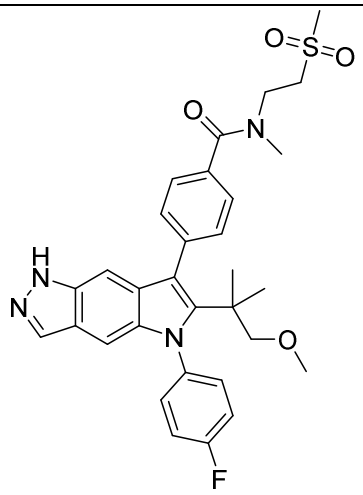
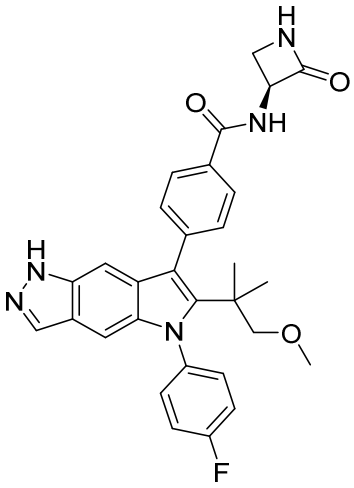
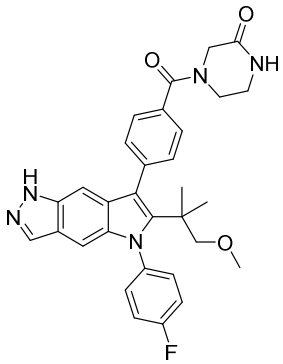
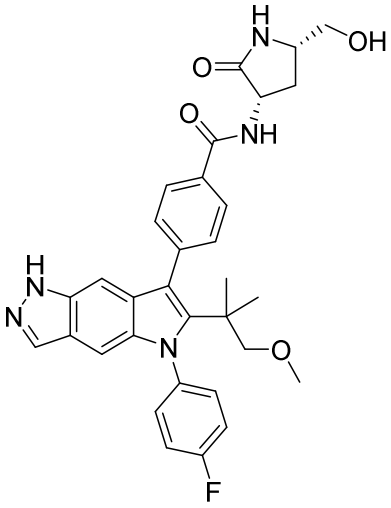
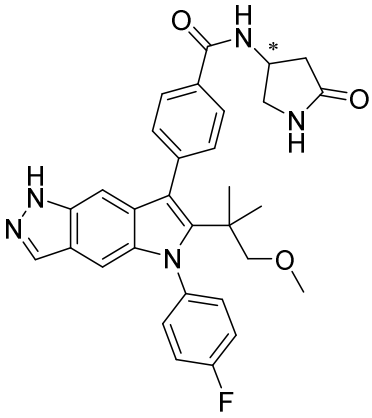
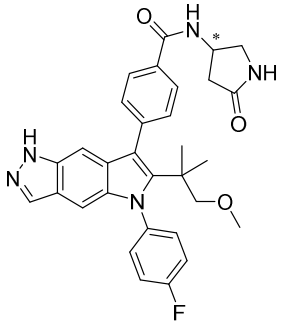
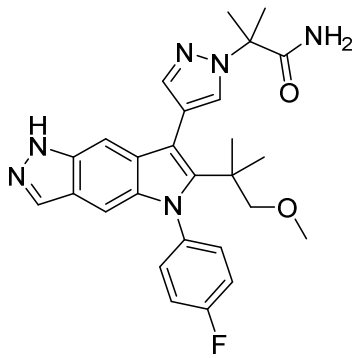
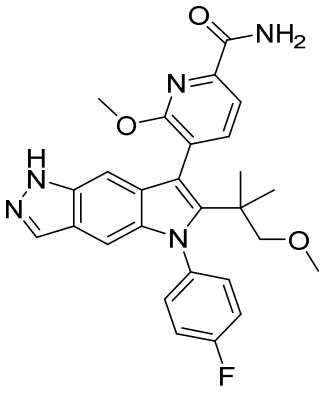
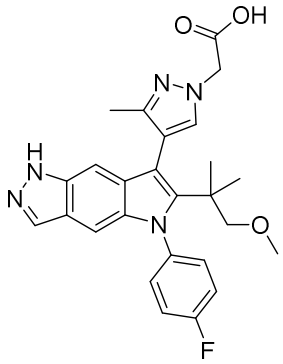
		
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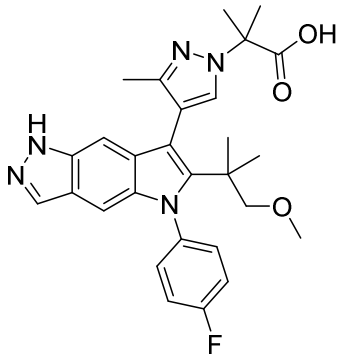
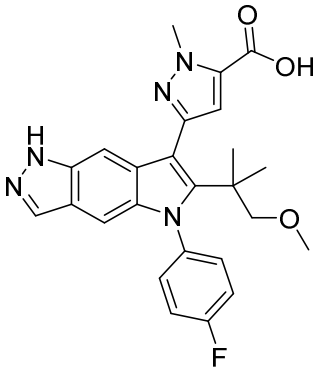
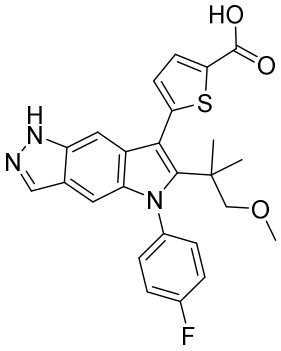
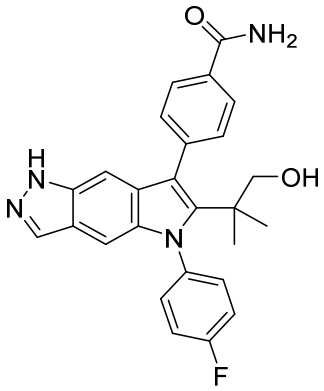
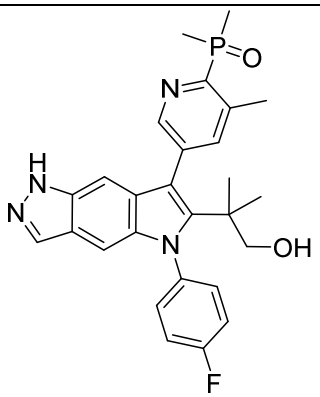
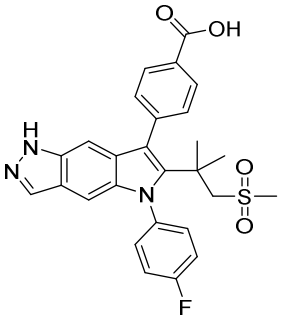
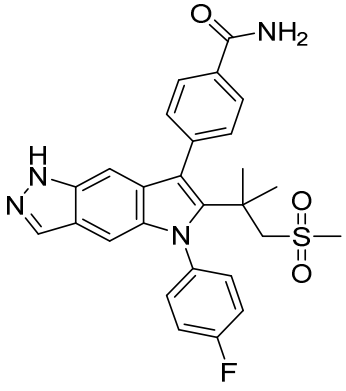
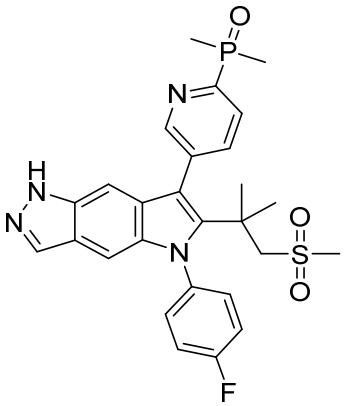
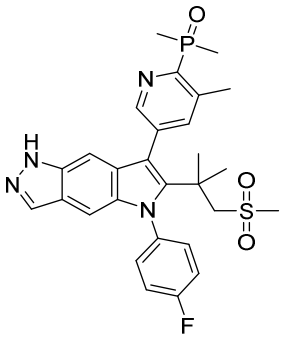
		
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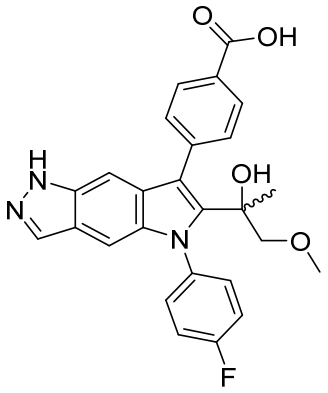
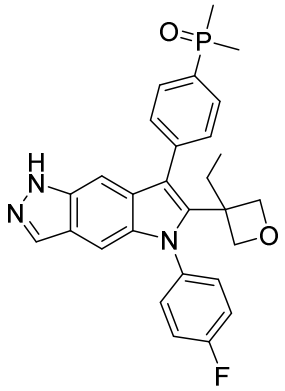
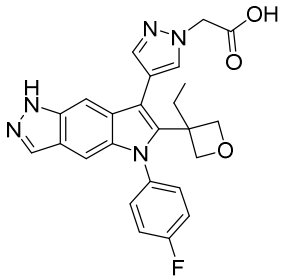
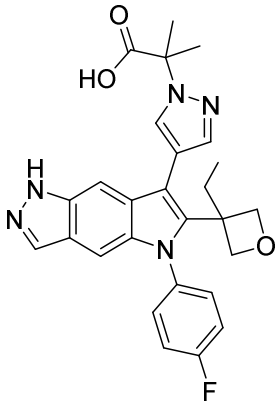
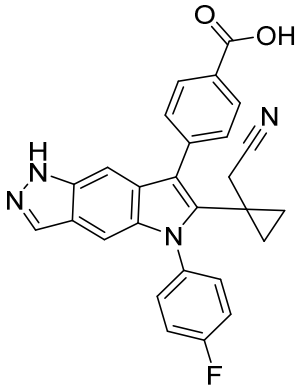
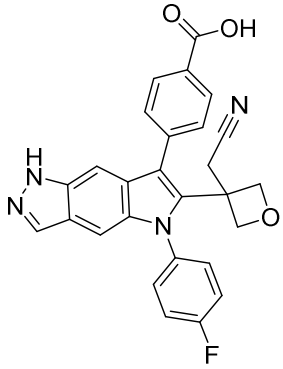
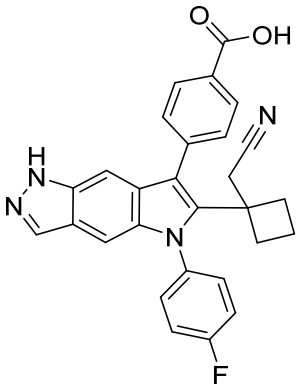
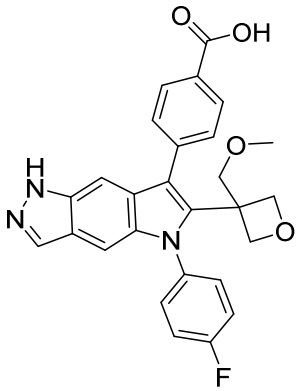
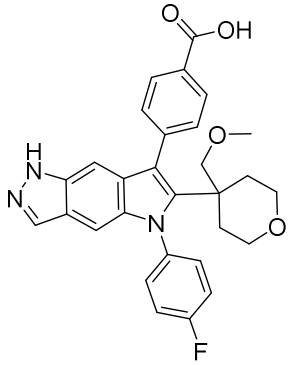
		
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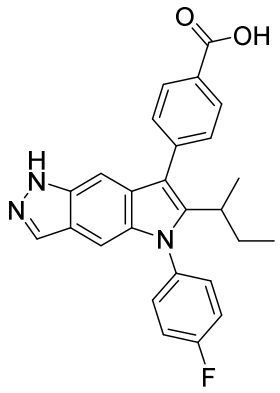
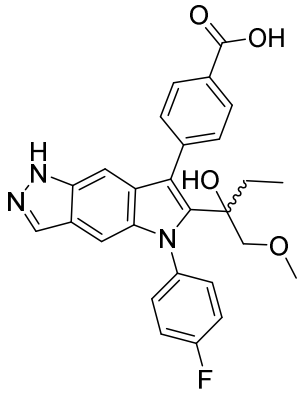
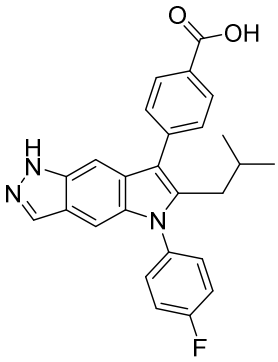
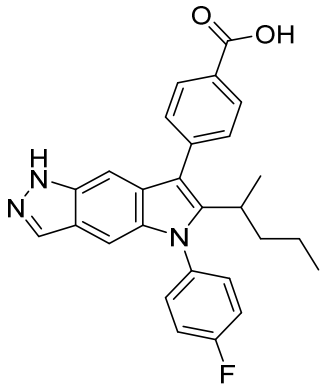
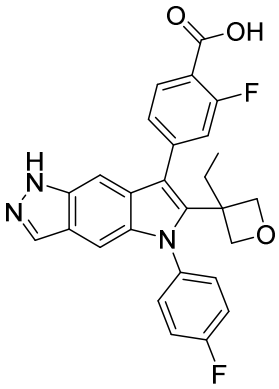
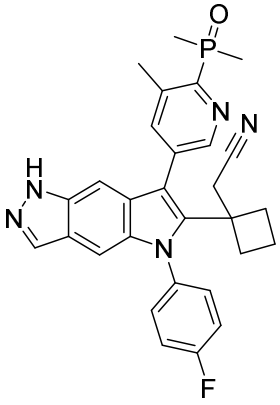
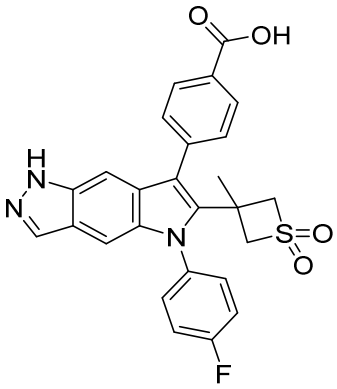
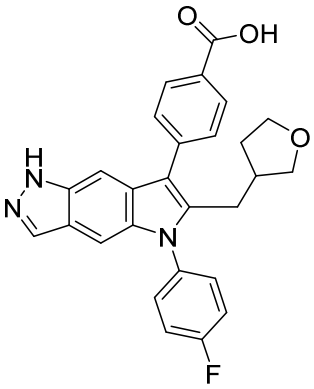
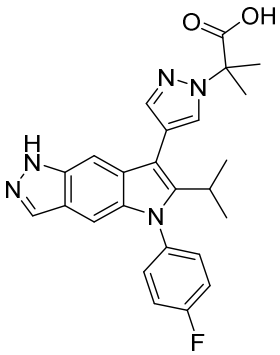
		
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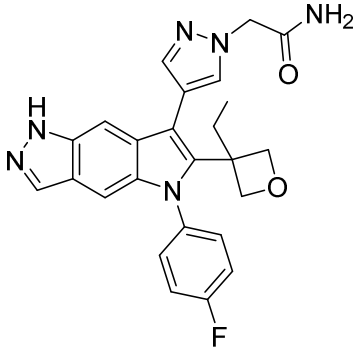
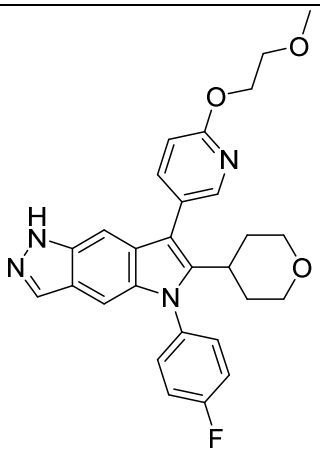
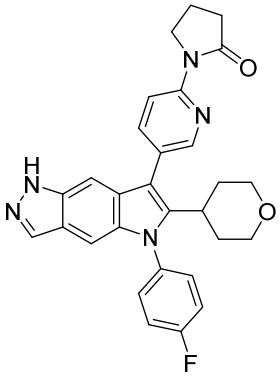
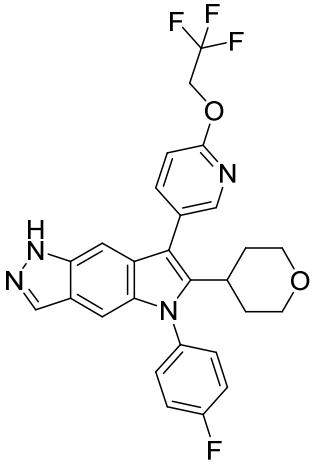
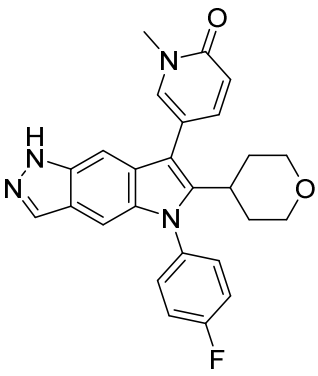
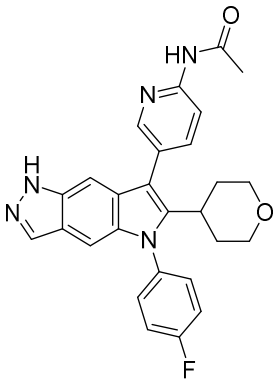
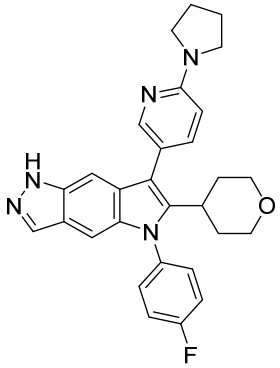
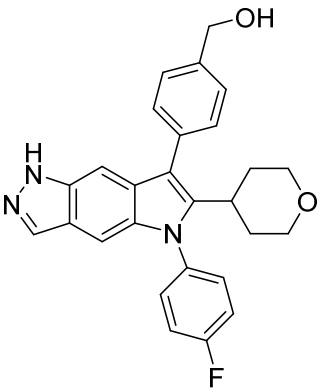
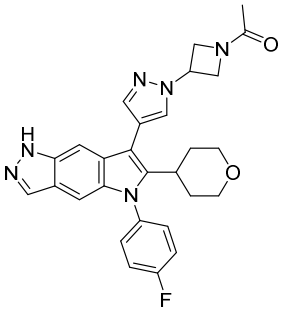
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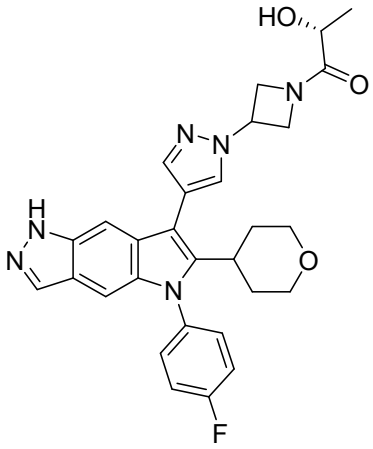
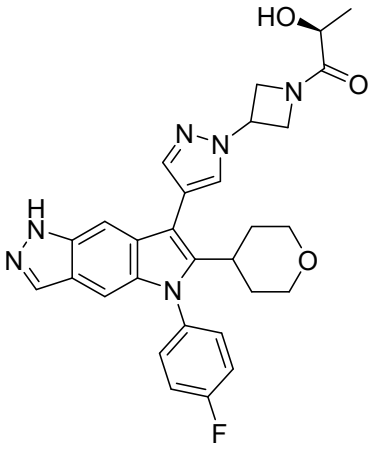
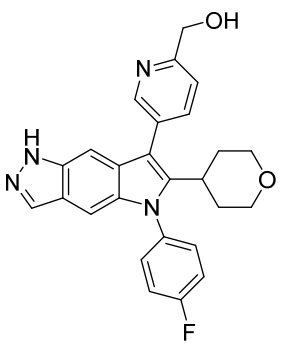
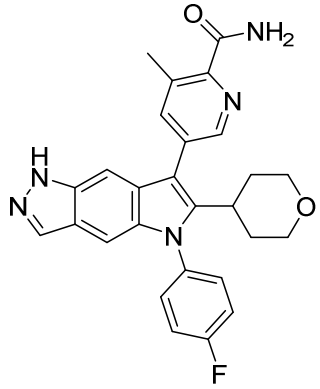
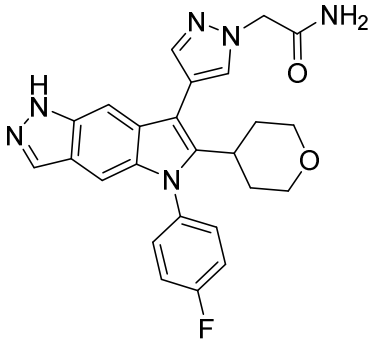
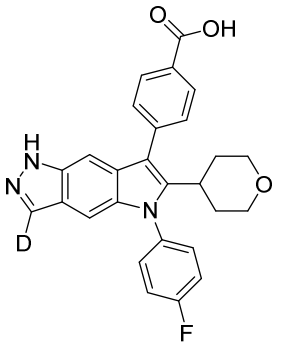
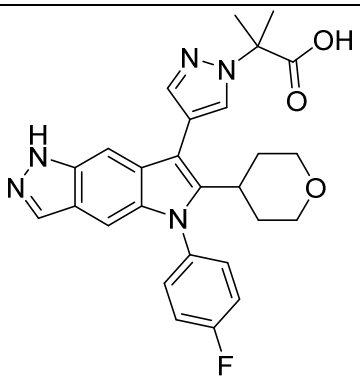
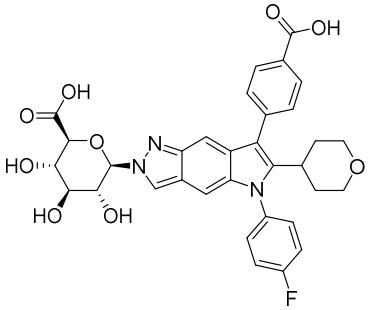
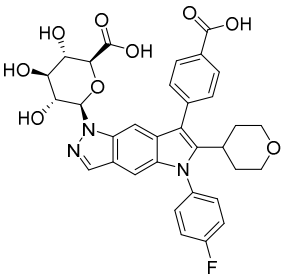
		
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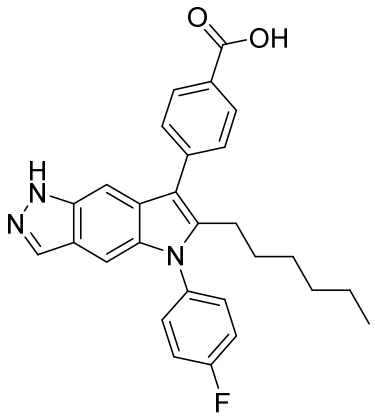
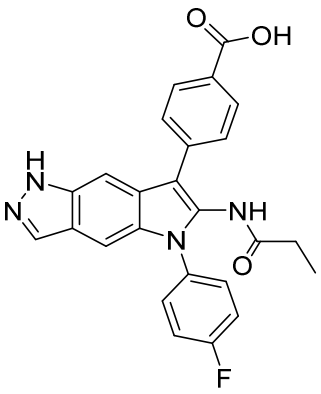
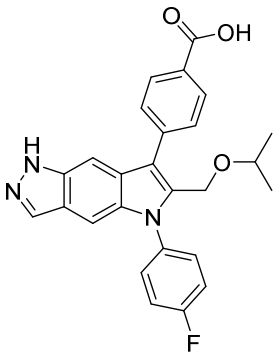
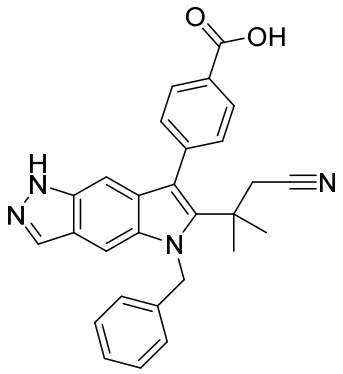
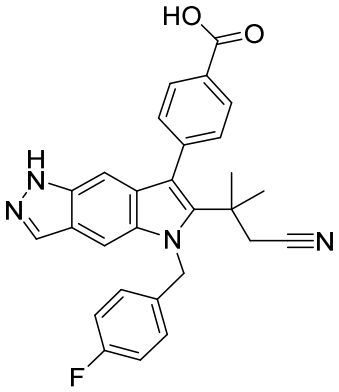
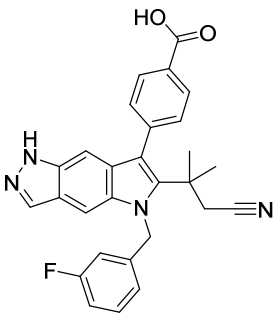
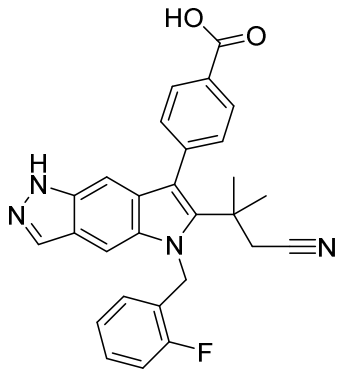
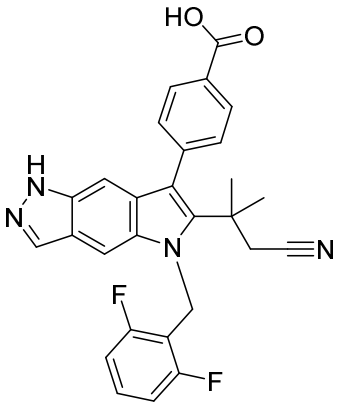
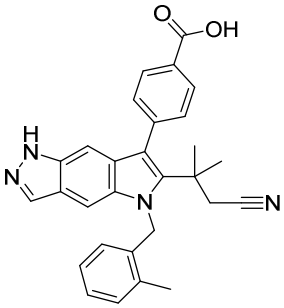
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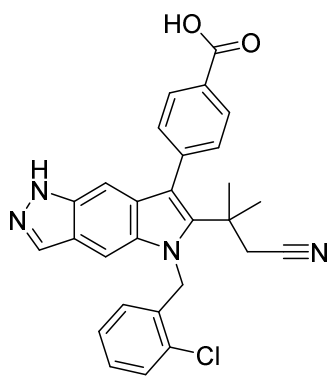
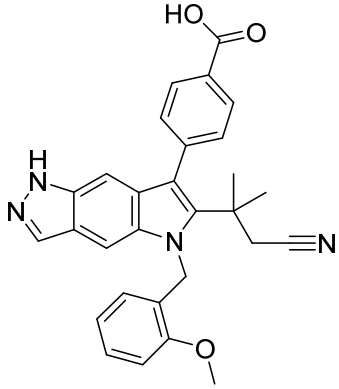
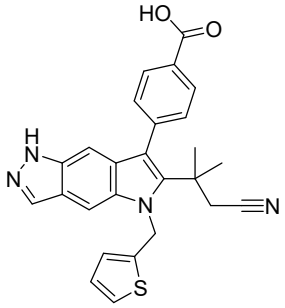
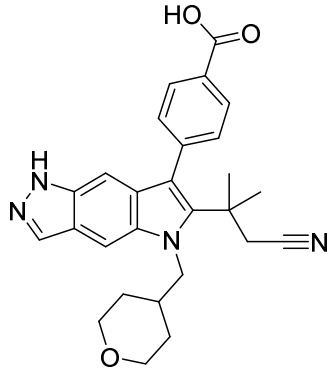
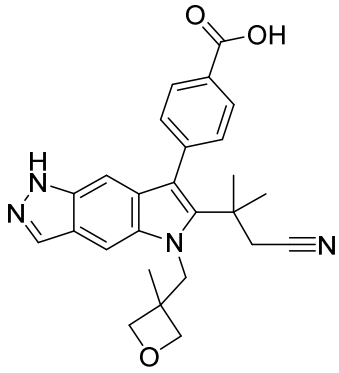
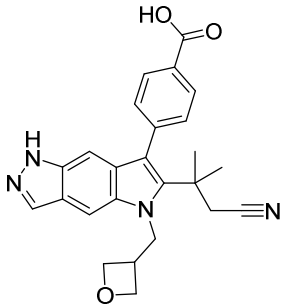
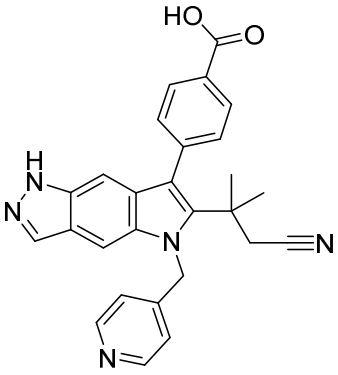
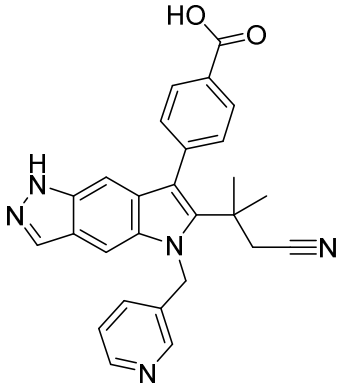
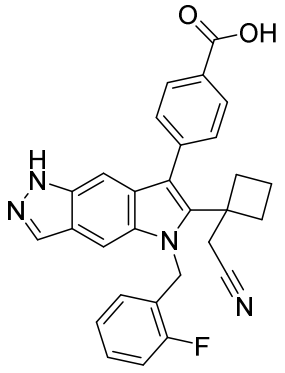
		
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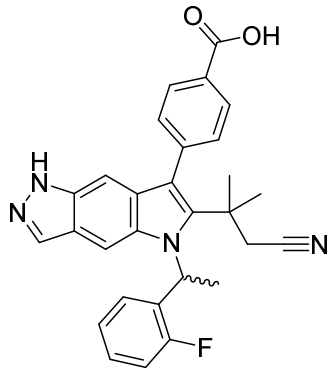
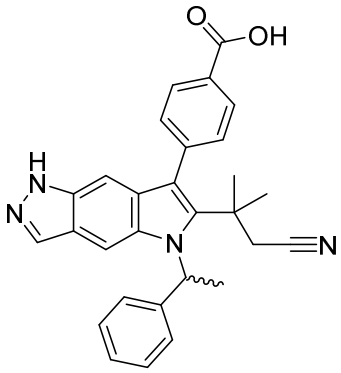
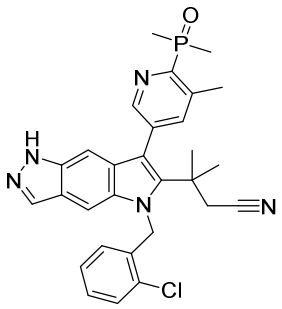
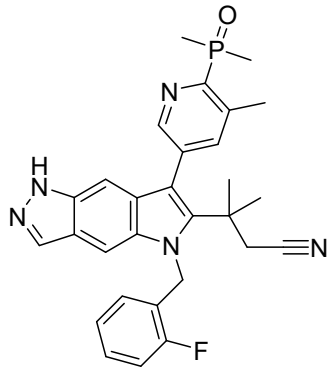
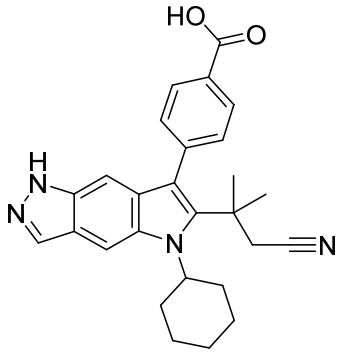
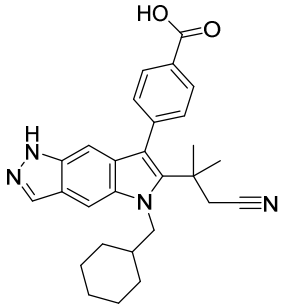
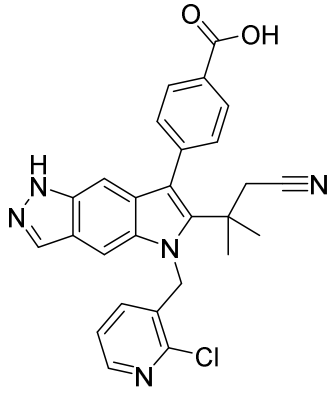
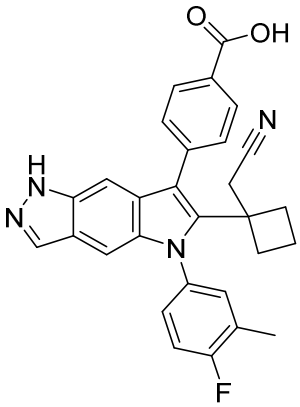
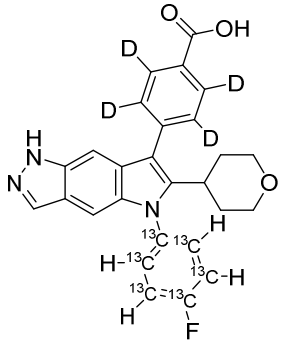
		
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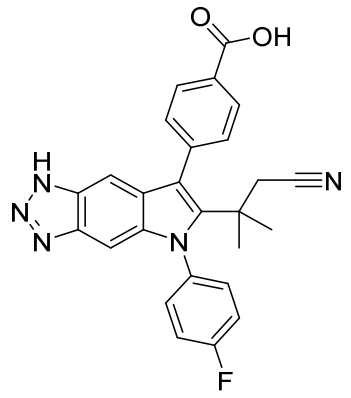
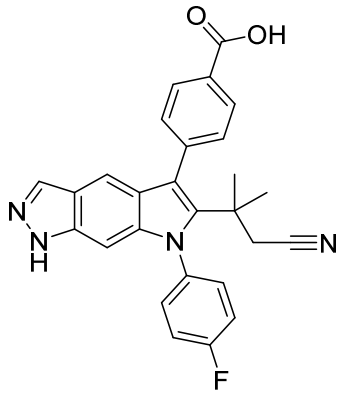
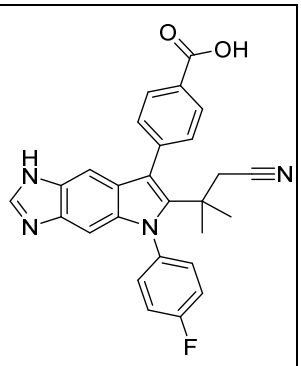
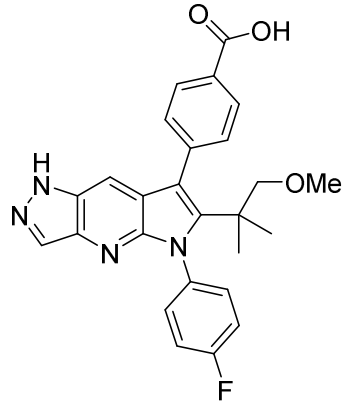
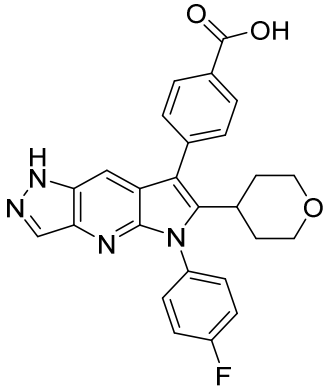
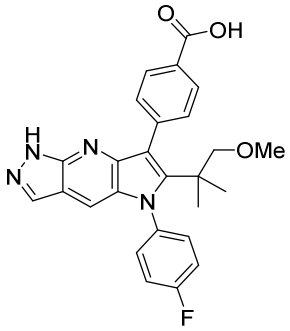
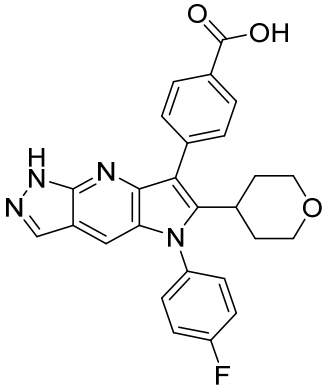
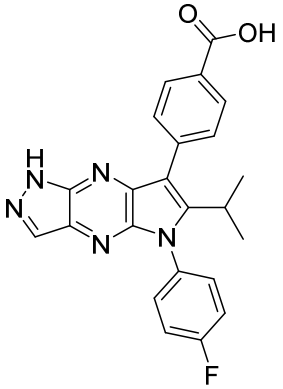
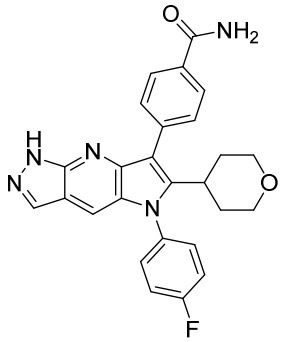
		
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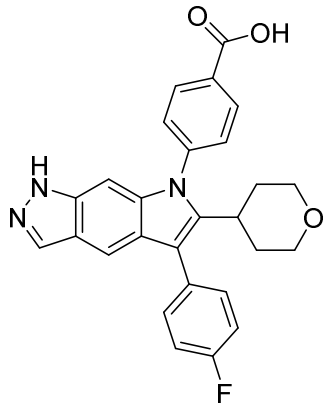
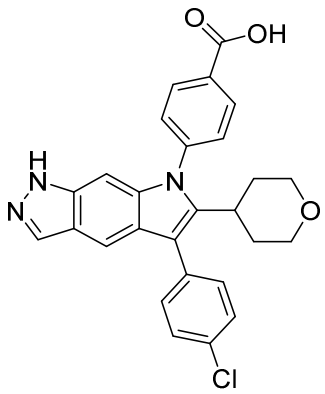
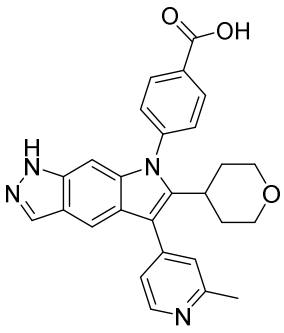
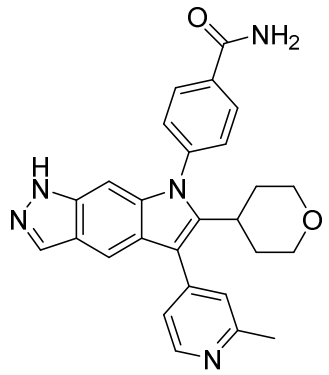
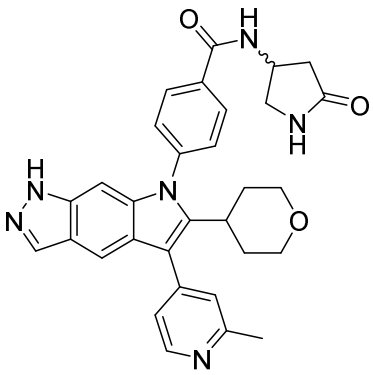
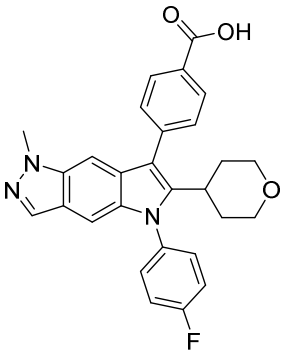
		
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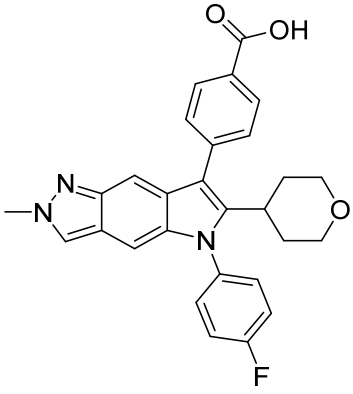
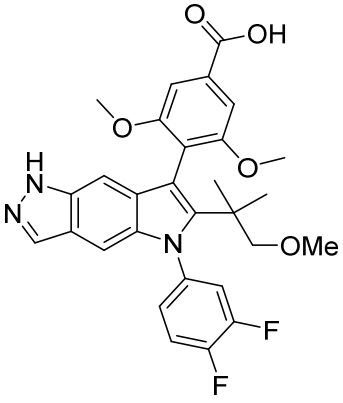
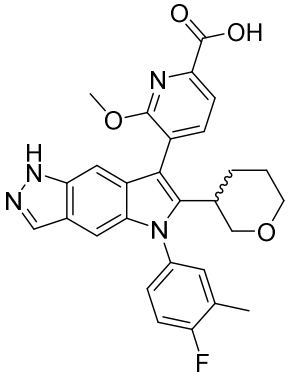
		
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304	**305**	**306**

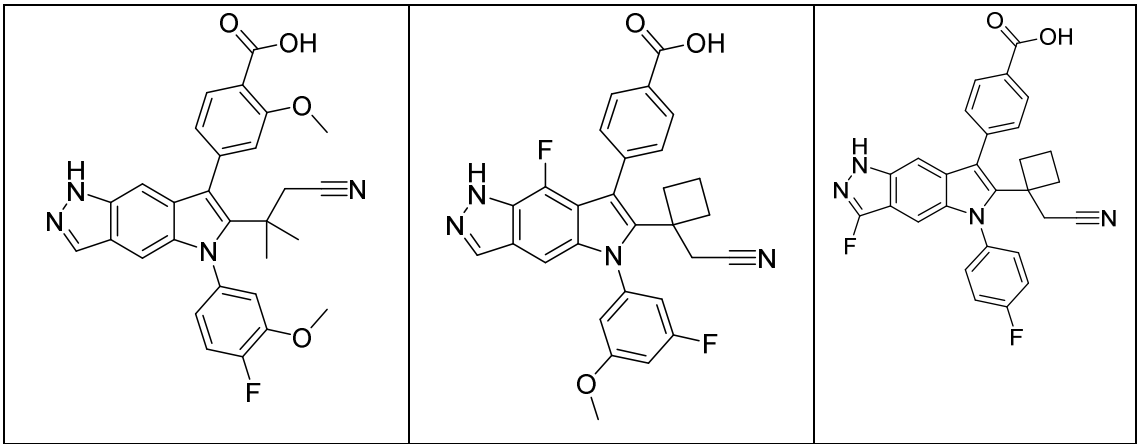
		
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310	**311**	**312**
		
313	**314**	**315**

		
316	**317**	**318**
		
319	**320**	**321**
		
322	**323**	**324**

		
325	**326**	**327**
		
328	**329**	**330**
		
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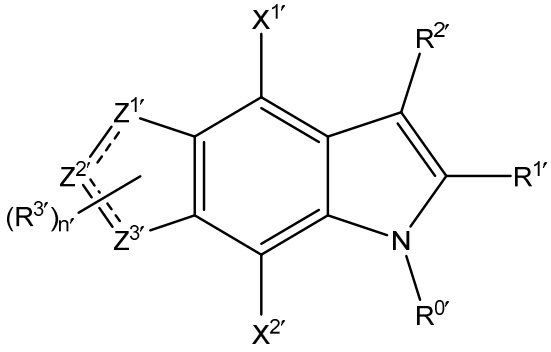
		
334	**335**	**336**
		

337	**338**	**339**
		
340	**341**	**342**



~~a~~ tautomers thereof, ~~a~~ pharmaceutically acceptable salts of the compounds, ~~a~~ pharmaceutically acceptable salts of the tautomers, ~~a~~ deuterated derivatives of the compounds, ~~a~~ deuterated derivatives of the tautomers, and ~~a~~ deuterated derivatives of the salts.

~~12~~11. A compound of formula (**I′**):



(**I′**),

a tautomer thereof, a pharmaceutically acceptable salt of any of the foregoing, and/or a deuterated derivative of any of the foregoing;

wherein:

(i) $\mathbf{R^{0\prime}}$ is chosen from:

(a) C_1-C_8 linear, branched, and cyclic alkyl groups, wherein the alkyl group is optionally substituted with 1-4 $\mathbf{R^{A\prime}}$; and

(b) 5- to 14-membered aromatic rings optionally substituted with 1-4 $\mathbf{R^{A\prime}}$,

wherein each $\mathbf{R^{A\prime}}$ is independently chosen from halogens, cyano, hydroxy, thiol, sulfonic acid, sulfonamide, sulfinamide, amino, amide, 5- to 10-membered aromatic rings, and C_1-C_6 linear, branched, and cyclic groups, wherein the C_1-C_6 linear, branched, and cyclic groups are chosen

from alkyl, alkoxy, thioalkyl, alkylsulfoxide, alkylsulfonyl, alkylsulfonamide, alkylsulfinamide, aminoalkyl, and alkylamide, and wherein the 5- to 10-membered aromatic rings and C_1-C_6 linear, branched, and cyclic groups are optionally substituted with 1-4 substituents ~~selected~~ independently chosen from halogens and methoxy, and

wherein an $\mathbf{R^{A'}}$ group is optionally linked to an $\mathbf{R^{B'}}$ group on an $\mathbf{R^{2'}}$ group;

(ii) $\mathbf{R^{1'}}$ is chosen from:

(a) hydrogen,

(b) C_1-C_8 linear, branched, and cyclic alkyl groups, wherein the alkyl group is optionally substituted with 1-4 substituents independently chosen from

halogens,

cyano,

hydroxy, and

C_1-C_6 linear, branched, and cyclic groups, wherein the C_1-C_6 linear, branched, and cyclic groups are independently chosen from alkyl and alkoxy groups, and wherein the C_1-C_6 linear, branched, and cyclic groups are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

(c) C_1-C_8 linear, branched, and cyclic alkoxy or cyclic thioalkyl groups optionally substituted with 1-4 substituents independently chosen from

halogens,

cyano,

sulfone,

sulfonamide,

hydroxy, and

C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 halogens;

(d) C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups;

(e) aminosulfonyl groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups;

(f) C_1-C_6 linear, branched, and cyclic alkylsulfonyl amino groups; and

(g) phosphine oxide groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups;

(h) C_1-C_6 linear, branched, and cyclic trialkylsilyl groups;

(iii) $\mathbf{R^{2'}}$ is chosen from 5- and 6-membered aromatic rings comprising 0-4 heteroatoms independently chosen from O, N, and S, wherein the 5-membered ring is optionally substituted with 1-4 $\mathbf{R^{B'}}$ groups and the 6-membered ring is optionally substituted with 1-5 $\mathbf{R^{B'}}$ groups, wherein the $\mathbf{R^{B'}}$ groups are independently chosen from

optionally substituted amides,

imidazolidine-2,4-dione,

optionally substituted heterocyclyls,

phosphorous acid optionally esterified with a C_1-C_6 linear, branched, or cyclic alkyl group,

di(C_1-C_6)alkylphosphine oxides,

(C_1-C_6)alkylphosphinic acids optionally esterified with a C_1-C_6 linear, branched, or cyclic alkyl group,

halogens,

cyano,

hydroxy,

carboxylic acids optionally esterified with a uronic acid or a C_1-C_6 linear, branched, or cyclic alkyl group,

oxo,

dihydroxylboryl,

5- and 6-membered aromatic rings comprising 0-4 heteroatoms independently chosen from O, N, and S, optionally substituted with 1 or 2 substituents independently chosen from C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 substituents independently chosen from

hydroxy,

carboxylic acids,

pyrrolidin-2-one,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

sulfonic acid,

C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups,

aminosulfonyl groups, optionally substituted with 1 or 2 substituents independently chosen from

C_1-C_6 linear, branched, and cyclic alkyl groups,

C_1-C_6 linear, branched, and cyclic alkyl groups that are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy,

carboxylic acid, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

C_1-C_6 linear, branched, and cyclic alkoxy groups that are optionally substituted with 1-4 substituents independently chosen from

halogens,

hydroxy,

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups, and

tetrazolyl groups that are optionally substituted with substituents chosen from

halogens,

hydroxy,

carboxylic acid,

C_1-C_6 linear, branched, and cyclic alkyl groups, and

C_1-C_6 linear, branched, and cyclic alkoxy groups,

wherein 2 adjacent hydrogens on the 5- or 6-membered aromatic ring can be replaced by attachments to a second 5- or 6-membered aromatic ring comprising 0-4 heteroatoms independently chosen from O, N, and S to form a bicyclic $\mathbf{R^{2'}}$ group that is optionally substituted with 1-6 $R^{B'}$ groups;

(iv) $\mathbf{X^{1'}}$ and $\mathbf{X^{2'}}$ are independently chosen from hydrogen, halogens, cyano, hydroxy, C_1-C_6 linear, branched, and cyclic groups wherein the C_1-C_6 linear, branched, and cyclic groups are independently chosen from alkyl, alkoxy, thioalkyl, and aminoalkyl groups, and wherein the C_1-C_6 linear, branched, and cyclic groups are optionally substituted by 1-4 independently chosen halogens;

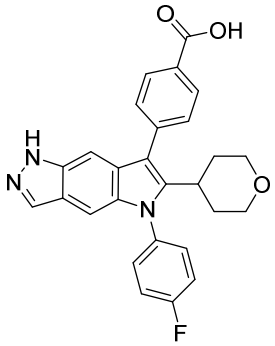
(v) each ▬▬ represents a single or double bond, provided that no more than one ▬▬ is a double bond;

(vi) each $\mathbf{R^{3'}}$ is independently chosen from hydrogen, halogens, cyano, C_1-C_6 linear, branched, and cyclic alkyl groups, and C_1-C_6 linear, branched, and cyclic alkoxy groups, wherein the linear, branched, and cyclic alkyl and alkoxy groups are optionally substituted with 1-4 independently chosen halogens;

(vii) $\mathbf{n'}$ is an integer chosen from 0, 1, 2, and 3; and

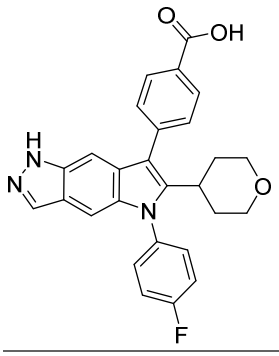
(viii) two of $\mathbf{Z^{1'}}$, $\mathbf{Z^{2'}}$, and $\mathbf{Z^{3'}}$ are ~~independently chosen from carbon,~~ nitrogen, ~~sulfur,~~ and ~~oxygen, wherein when $\mathbf{Z^{1'}}$, $\mathbf{Z^{2'}}$, and/or $\mathbf{Z^{3'}}$ are~~the other is chosen from carbon ~~or~~ and nitrogen, wherein the valences of carbon and nitrogen are completed with hydrogen atoms.

~~13~~12. Crystalline Compound 33 Form A:



(Compound 33), characterized by XRPD signals at 11.0 ± 0.2 degrees two theta, 16.2 ± 0.2 degrees two theta, and 25.5 ± 0.2 degrees two theta.

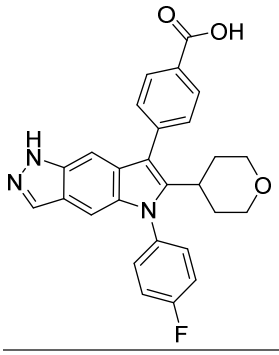
~~14~~13. Crystalline Compound 33 Form B:



(Compound 33),

characterized by XRPD signals at 4.5 ± 0.2 degrees two theta, 9.9 ± 0.2 degrees two theta, and 27.4 ± 0.2 degrees two theta.

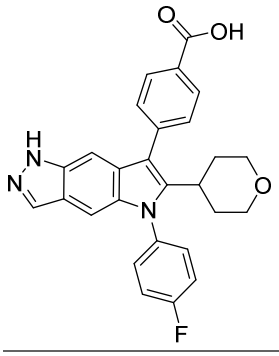
~~15~~14. Crystalline Compound 33 DCM Solvate Form A:



(Compound 33),

characterized by XRPD signals at 14.4 ± 0.2 degrees two theta, 18.3 ± 0.2 degrees two theta, and 20.9 ± 0.2 degrees two theta.

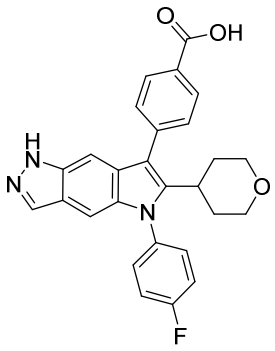
~~16~~15. Crystalline Compound 33 Hydrate Form A:



(Compound 33),

characterized by XRPD signals at 10.4 ± 0.2 degrees two theta, 16.6 ± 0.2 degrees two theta, and 19.5 ± 0.2 degrees two theta.

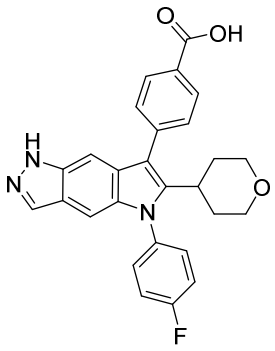
~~17~~16. Crystalline Compound 33 MeOH/H_2O Solvate/Hydrate Form A:



(Compound 33),

characterized by XRPD signals at 10.4 ± 0.2 degrees two theta, 18.2 ± 0.2 degrees two theta, and 19.4 ± 0.2 degrees two theta.

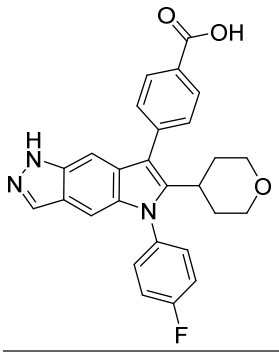
~~18~~17. Crystalline Compound 33 Form C:



(Compound 33),

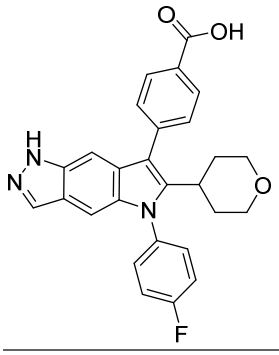
characterized by XRPD signals at 9.4 ± 0.2 degrees two theta, 15.4 ± 0.2 degrees two theta, 18.2 ± 0.2 degrees two theta, and 19.0 ± 0.2 degrees two theta.

~~19~~18. Crystalline Compound 33 Form D:



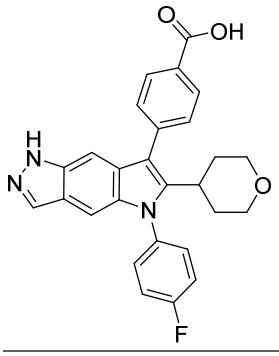
(Compound 33), characterized by XRPD signals at 7.8 ± 0.2 degrees two theta, 8.2 ± 0.2 degrees two theta, 10.4 ± 0.2 degrees two theta, and 13.7 ± 0.2 degrees two theta.

~~20~~19. Crystalline Compound 33 Form E:



(Compound 33), characterized by XRPD signals at 12.6 ± 0.2 degrees two theta, 13.7 ± 0.2 degrees two theta, and 25.0 ± 0.2 degrees two theta.

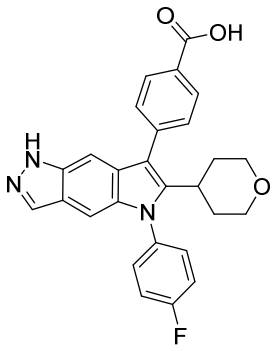
~~21~~20. Crystalline Compound 33 Form F:



(Compound 33),

characterized by XRPD signals at 11.6 ± 0.2 degrees two theta, 12.2 ± 0.2 degrees two theta, and 14.2 ± 0.2 degrees two theta.

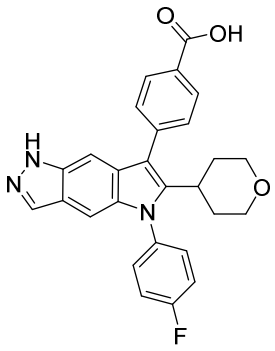
~~22~~21. Crystalline Compound 33 Form G:



(Compound 33),

characterized by XRPD signals at 9.3 ± 0.2 degrees two theta, 11.5 ± 0.2 degrees two theta, and 23.4 ± 0.2 degrees two theta.

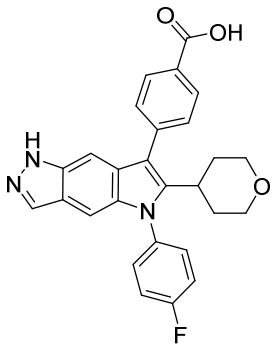
~~23~~22. Crystalline Compound 33 Form H:



(Compound 33),

characterized by an XRPD signal at 5.0 ± 0.2 degrees two theta and two or more XRPD signals chosen from 8.8 ± 0.2 degrees two theta, 15.0 ± 0.2 degrees two theta, 17.6 ± 0.2 degrees two theta, 18.3 ± 0.2 degrees two theta, 18.9 ± 0.2 degrees two theta, 19.5 ± 0.2 degrees two theta, and 20.7± 0.2 degrees two theta.

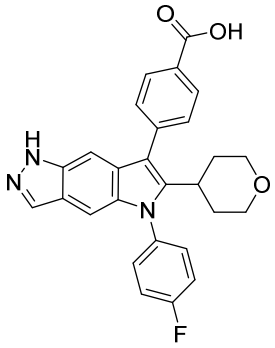
~~24~~23. Crystalline Compound 33 Form I:



(Compound 33),

characterized by XRPD signals at 9.3 ± 0.2 degrees two theta, 15.4 ± 0.2 degrees two theta 18.3 ± 0.2 degrees two theta, 18.6 ± 0.2 degrees two theta, 19.0 ± 0.2 degrees two theta, 20.2 ± 0.2 degrees two theta, and 21.0 ± 0.2 degrees two theta.

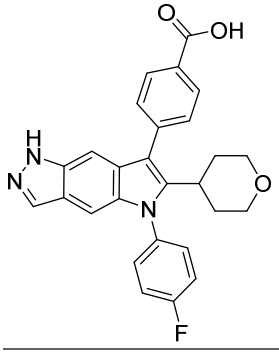
~~25~~24. Crystalline Compound 33 THF Solvate Form A:



(Compound 33),

characterized by XRPD signals at 19.4 ± 0.2 degrees two theta, 21.5 ± 0.2 degrees two theta, and 8.5 ± 0.2 degrees two theta.

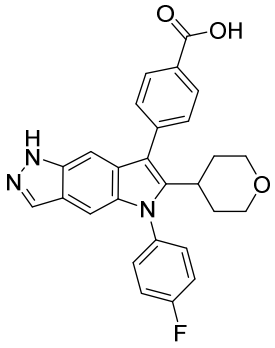
~~26~~25. Crystalline Compound 33 Form J:



(Compound 33),

characterized by XRPD signals at 6.6 ± 0.2 degrees two theta, 7.5 ± 0.2 degrees two theta, and 10.3 ± 0.2 degrees two theta.

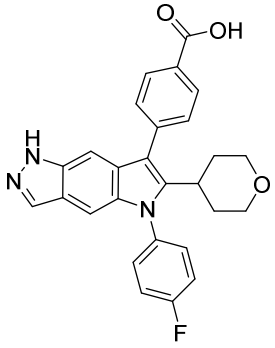
~~27~~26. Crystalline Compound 33 Form K:



(Compound 33),

characterized by XRPD signals at 9.7 ± 0.2 degrees two theta, 11.2 ± 0.2 degrees two theta, 17.0 ± 0.2 degrees two theta, and 19.7 ± 0.2 degrees two theta.

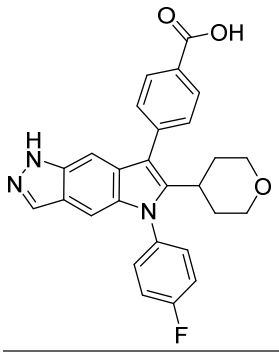
~~28~~27. Crystalline Compound 33 Form L:



(Compound 33),

characterized by XRPD signals at 7.0 ± 0.2 degrees two theta, 9.9 ± 0.2 degrees two theta, and 14.5 ± 0.2 degrees two theta.

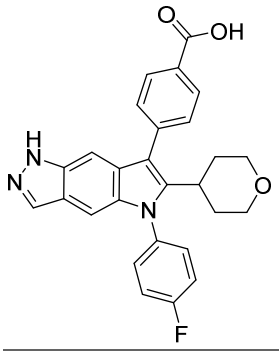
~~29~~28. Crystalline Compound 33 2-MeTHF Solvate Form A:



(Compound 33),

characterized by one or more XRPD signals chosen from 18.1 ± 0.2 degrees two theta, 19 ± 0.2 degrees two theta, and 21.3 ± 0.2 degrees two theta.

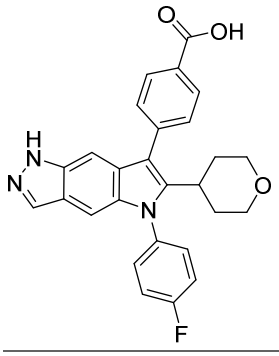
~~30~~29. Crystalline Compound 33 Form M:



(Compound 33),

characterized by XRPD signals at 7.0 ± 0.2 degrees two theta, 8.4 ± 0.2 degrees two theta, and 9.4 ± 0.2 degrees two theta.

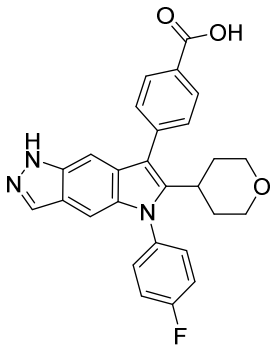
~~31~~30. Crystalline Compound 33 Form N:



(Compound 33),

characterized by XRPD signals at 4.2 ± 0.2 degrees two theta, 11.7 ± 0.2 degrees two theta, and 25.6 ± 0.2 degrees two theta.

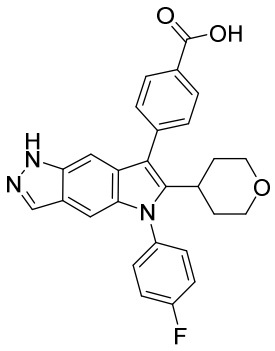
~~32~~31. Crystalline Compound 33 Form O:



(Compound 33),

characterized by XRPD signals at 7.0 ± 0.2 degrees two theta, 10.4 ± 0.2 degrees two theta, and 18.8 ± 0.2 degrees two theta.

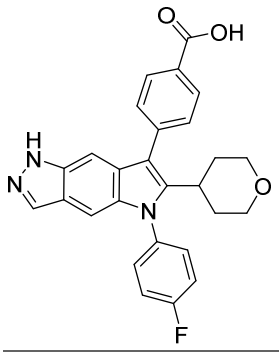
~~33~~32. Crystalline Compound 33 Potassium Salt Form A:



(Compound 33),

characterized by XRPD signals at 11.7 ± 0.2 degrees two theta, 18.0 ± 0.2 degrees two theta, and 20.7 ± 0.2 degrees two theta.

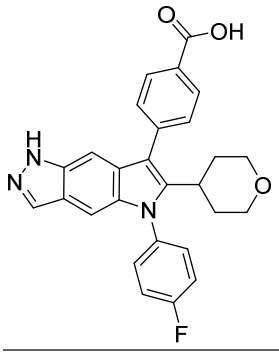
~~34~~33. Crystalline Compound 33 Potassium Salt Form B:



(Compound 33),

characterized by XRPD signals at 10.8 ± 0.2 degrees two theta, 17.5 ± 0.2 degrees two theta, 21.7 ± 0.2 degrees two theta.

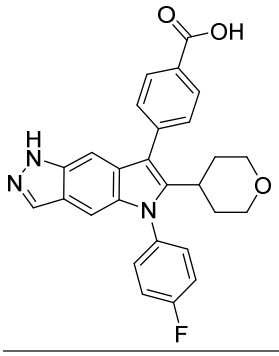
~~35~~34. Crystalline Compound 33 Potassium Salt Form C:



(Compound 33),

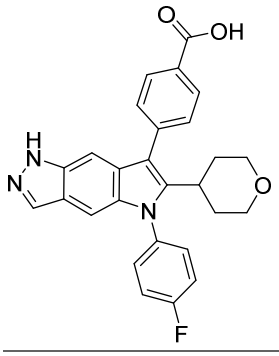
characterized by XRPD signals at 6.7 ± 0.2 degrees two theta, 16.8 ± 0.2 degrees two theta, and 19.3 ± 0.2 degrees two theta.

~~36~~35. Substantially amorphous Compound 33:



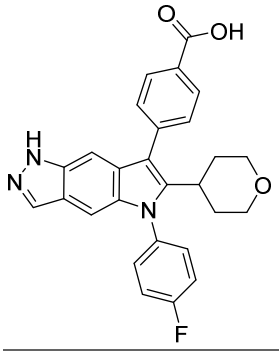
(Compound 33).

~~37~~36. A solid dispersion comprising substantially amorphous Compound 33:



(Compound 33).

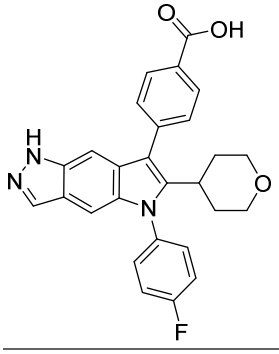
~~38~~37. The solid dispersion comprising substantially amorphous Compound 33:



(Compound 33),

according to claim ~~37~~36, further comprising a polymer.

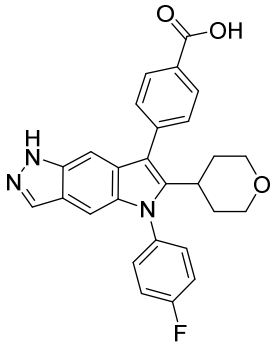
~~39~~38. The solid dispersion comprising substantially amorphous Compound 33:



(Compound 33),

according to claim ~~38~~37, wherein the polymer is ~~selected~~ chosen from polyvinylpyrrolidone/vinyl acetate (PVPVA), hydroxypropylmethylcellulose (HPMC), and hydroxypropylmethylcellulose acetate succinate (HPMCAS).

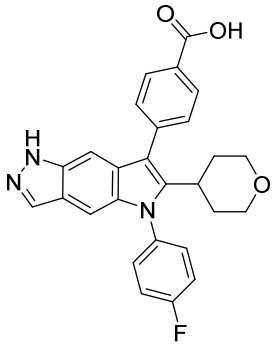
~~40~~39. The solid dispersion comprising substantially amorphous Compound 33:



(Compound 33),

according to claim ~~38~~ 37 or claim ~~39~~38, wherein substantially amorphous Compound 33 is present in an amount from 30-50%.

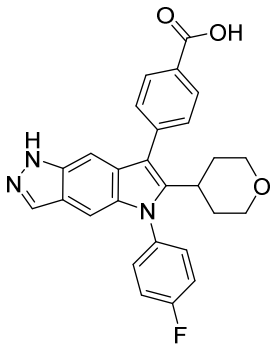
~~41~~40. The solid dispersion comprising substantially amorphous Compound 33:



(Compound 33),

according to claim ~~38~~ 37 or claim ~~39~~38, wherein substantially amorphous Compound 33 is present in an amount from 50-80%.

~~42~~41. The solid dispersion comprising substantially amorphous Compound 33:



(Compound 33),

according to any one of claims ~~38~~ 37 to ~~41~~ 40 prepared as a spray-dried dispersion.

~~43~~42. A pharmaceutical composition comprising the compound, tautomer, salt, or deuterated derivative according to any one of claims 1 to ~~12~~11, crystalline Compound 33 according to any one of claims ~~13~~ 12 to ~~35~~34, substantially amorphous Compound 33 according to claim ~~36~~35, or the solid dispersion according to any one of claims ~~37~~ 36 to ~~42~~41, and a pharmaceutically acceptable carrier.

~~44~~43. A compound chosen from the compounds, tautomers, pharmaceutically acceptable salts, and deuterated derivatives according to any one of claims 1 to ~~12~~11, crystalline Compound 33 according to any one of claims ~~13~~ 12 to ~~35~~34, substantially amorphous Compound 33 according to claim ~~36~~35, or the solid dispersion according to any one of claims ~~37~~ 36 to ~~42~~41, or the pharmaceutical composition according to claim ~~43~~ 42 for use in the treatment of alpha-1 antitrypsin deficiency in a patient.

~~45~~44. The compound according to claim ~~44~~43, wherein the patient with alpha-1 antitrypsin deficiency has a Z mutation in alpha-1 antitrypsin.

~~46~~45. The compound according to claim ~~45~~44, wherein the patient with alpha-1 antitrypsin deficiency has an SZ mutation in alpha-1 antitrypsin.

~~47~~46. The compound according to claim ~~45~~44, wherein the patient with alpha-1 antitrypsin deficiency is homozygous for Z-mutations in alpha-1 antitrypsin.

~~48~~47. A method for preparing the compound 4-[5-(4-fluorophenyl)-6-tetrahydropyran-4-yl-1*H*-pyrrolo[2,3-f]indazol-7-yl]benzoic acid, the method comprising:

(a) contacting methyl 4-(5-(4-fluorophenyl)-1-pivaloyl-6-(tetrahydro-2H-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazol-7-yl)benzoate with a first organic solvent and a first base to form a first reaction mixture;

(b) adding water and a first acid to the first reaction mixture;

(c) isolating an organic portion from step (b), adding an alcohol and optionally adding water to the organic portion, and concentrating the mixture by distillation; and

(d) isolating the compound 4-[5-(4-fluorophenyl)-6-tetrahydropyran-4-yl-1*H*-pyrrolo[2,3-f]indazol-7-yl]benzoic acid from the mixture from step (c) and drying the material to remove all water content.

~~49~~48. The method of claim ~~48~~47, wherein the method further comprises reacting 1-(5-(4-fluorophenyl)-7-iodo-6-(tetrahydro-2H-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5H)-yl)-2,2-dimethylpropan-1-one with 4-(methoxycarbonyl)phenyl)boronic acid to form methyl 4-(5-(4-fluorophenyl)-1-pivaloyl-6-(tetrahydro-2*H*-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazol-7-yl)benzoate.

~~50~~49. The method of claim ~~49~~48, wherein the method further comprises reacting 1-(5-(4-fluorophenyl)-6-(tetrahydro-2*H*-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5*H*)-yl)-2,2-dimethylpropan-1-one with *N*-iodosuccinimide to form 1-(5-(4-fluorophenyl)-7-iodo-6-(tetrahydro-2H-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5H)-yl)-2,2-dimethylpropan-1-one.

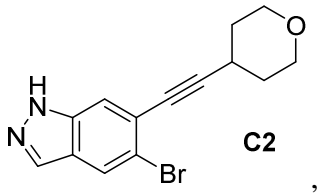
~~51~~50. The method of claim ~~50~~49, wherein the method further comprises reacting 5-(4-fluorophenyl)-6-(tetrahydro-2*H*-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazole with trimethylacetyl chloride to form 1-(5-(4-fluorophenyl)-6-(tetrahydro-2*H*-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5*H*)-yl)-2,2-dimethylpropan-1-one.

~~52~~51. The method of claim ~~51~~50, wherein the method further comprises reacting *N*-(4-fluorophenyl)-6-((tetrahydro-2*H*-pyran-4-yl)ethynyl)-1*H*-indazol-5-amine with a second acid to form 5-(4-fluorophenyl)-6-(tetrahydro-2*H*-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazole.

~~53~~52. The method of claim ~~52~~51, wherein the method further comprises reacting 5-bromo-6-iodo-1*H*-indazole with trimethyl((tetrahydro-2*H*-pyran-4-yl)ethnyl)silane to form 5-bromo-6-((tetrahydro-2*H*-pyran-4-yl)ethynyl)-1*H*-indazole.

~~54~~53. A compound ~~selected~~ chosen from:

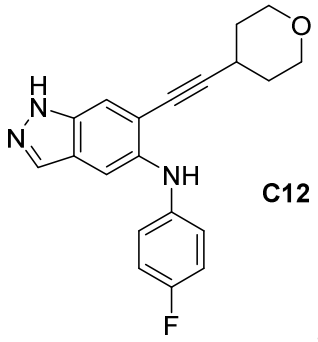
5-bromo-6-((tetrahydro-2*H*-pyran-4-yl)ethynyl)-1*H*-indazole (**C2**)



C2

,

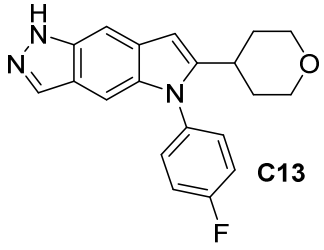
N-(4-fluorophenyl)-6-((tetrahydeo-2*H*-pyran-4-yl)ethynyl-1*H*-indazole-5-amine (**C12**)



C12

,

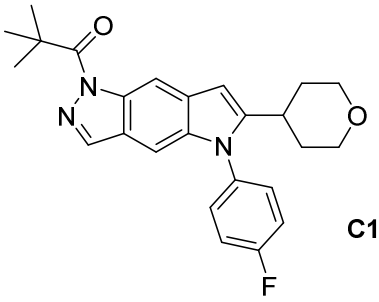
5-(4-fluorophenyl)-6-(tetrahydro-2H-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazole (**C13**)



C13

,

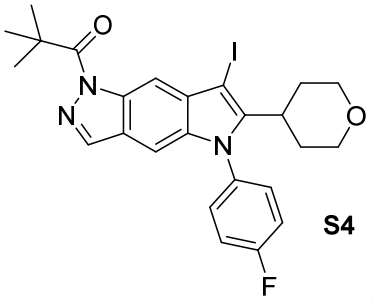
1-(5-(4-fluorophenyl)-6-(tetrahydro-2H-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5H)-yl)-2,2-dimethylpropan-1-one (**C14**)



C14

,

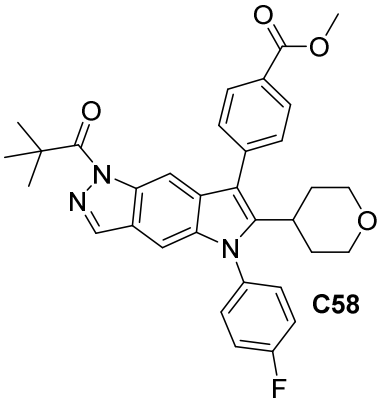
1-(5-(4-fluorophenyl)-7-iodo-6-(tetrahydro-2H-pyran-4-yl)pyrrolo[2,3-f]indazol-1(5H)-yl)-2,2-dimethylpropan-1-one (**S4**)



S4

, and

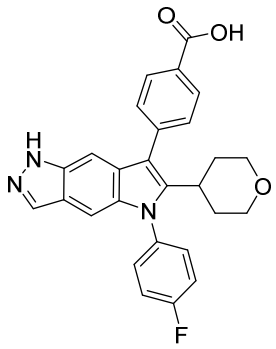
methyl 4-(5-(4-fluorophenyl)-1-pivaloyl-6-(tetrahydro-2H-pyran-4-yl)-1,5-dihydropyrrolo[2,3-f]indazol-7-yl)benzoate (**C58**)



C58

.

~~55~~54. Spray-dried neat amorphous Compound 33:



(Compound 33).