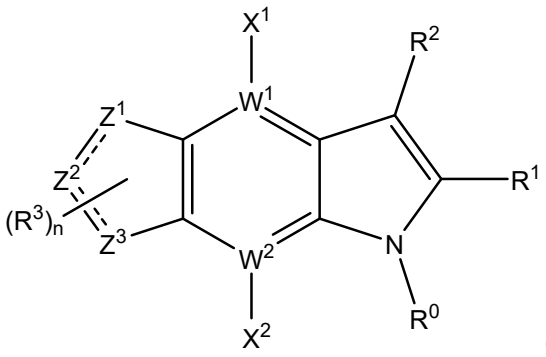
CLAIMS

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

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

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

wherein each $\mathbf{R^A}$ 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 chosen from halogens, C_1-C_6 linear, branched, and cyclic groups 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,

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- 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 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 $\mathbf{R^2}$ 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 of $\mathbf{W^1}$ and $\mathbf{W^2}$ is independently 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 $\mathbf{R^3}$ 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 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;

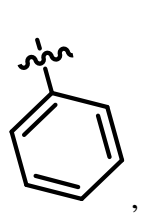
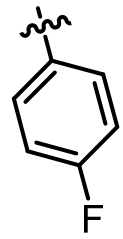
(viii) $\mathbf{n}$ is an integer chosen from 0, 1, 2, and 3; and

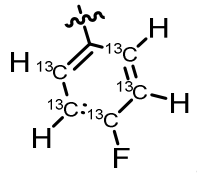
(ix) two of $\mathbf{Z^1}$, $\mathbf{Z^2}$, and $\mathbf{Z^3}$ are nitrogen, and the other is chosen from carbon and nitrogen, wherein the valences of carbon and nitrogen are completed with hydrogen atoms, halogen, C_1-C_6 linear, branched, and cyclic alkyl groups, and C_1-C_6 linear, branched, and cyclic alkoxy groups, wherein the C_1-C_6 linear, branched, and cyclic alkyl groups and the C_1-C_6 linear, branched, and

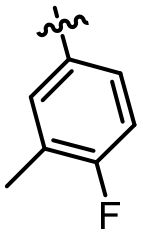
cyclic alkoxy groups are optionally substituted with 1-4 substituents independently chosen from halogens, hydroxy groups, and carboxylic acid.

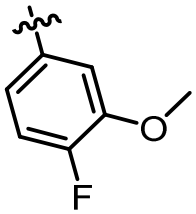
2. The compound according to claim 1, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein $\mathbf{R^0}$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

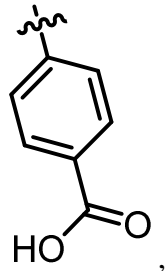
3. The compound according to claim 1 or 2, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein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

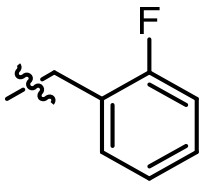

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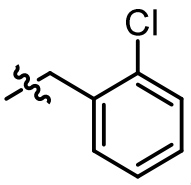
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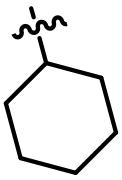
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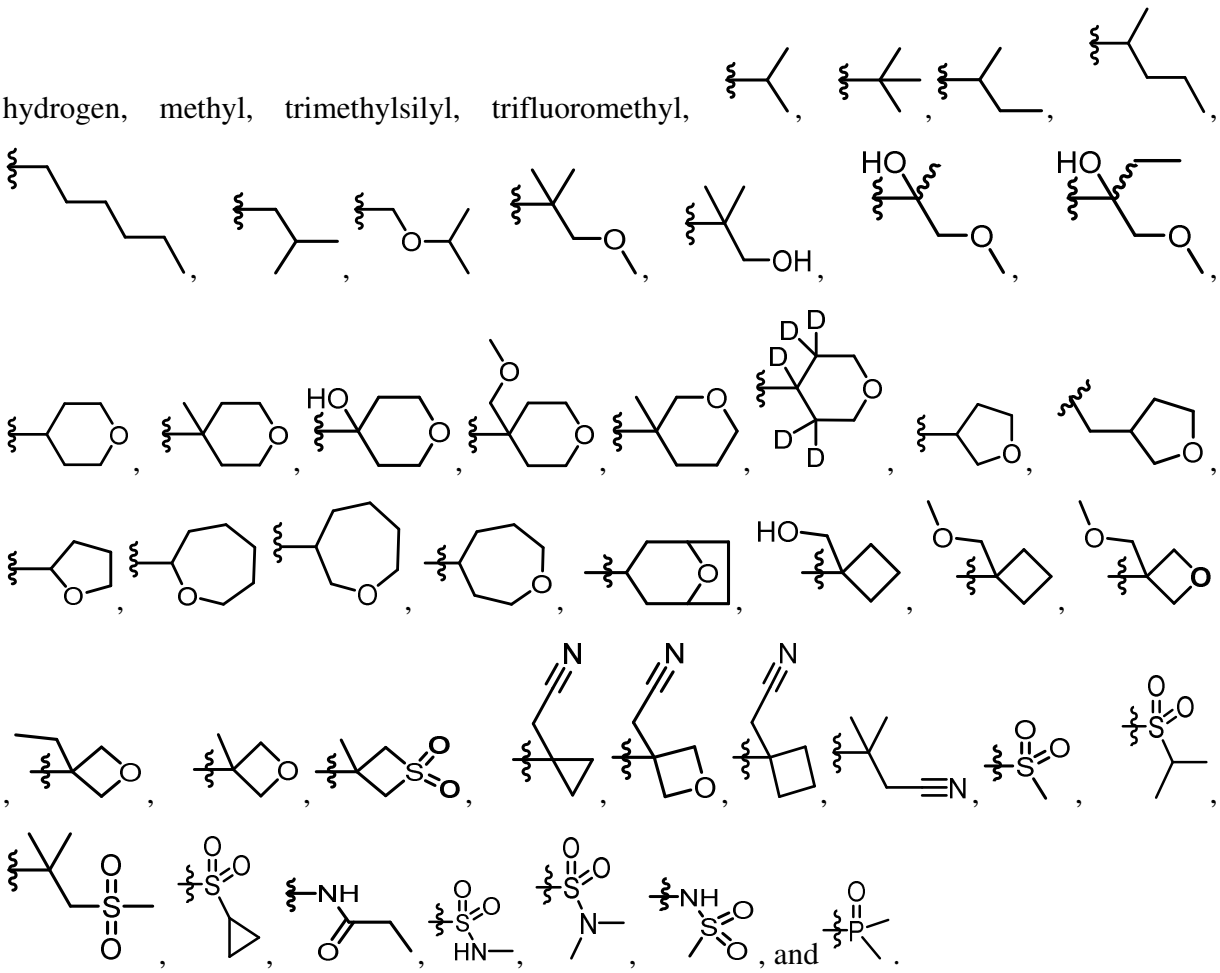
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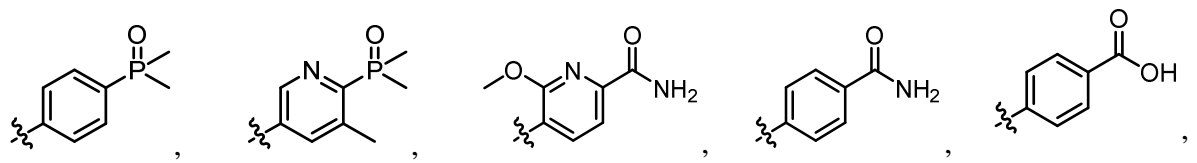
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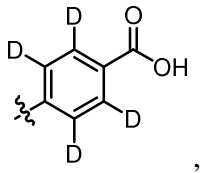
4. The compound according to any one of claims 1 to 3, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the

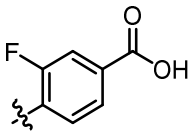
tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein **R[1]** is chosen from:

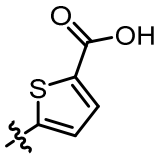
hydrogen, methyl, trimethylsilyl, trifluoromethyl, 

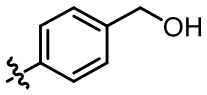
5. The compound according to any one of claims 1 to 4, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt,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

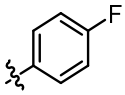




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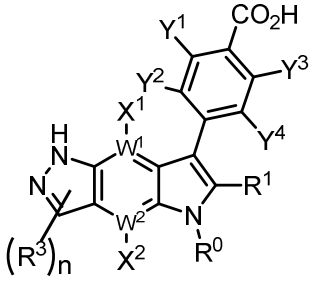
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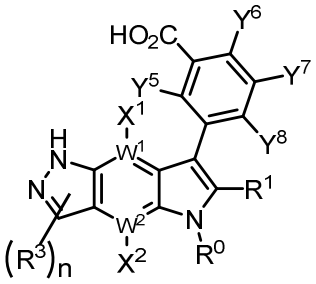
6. The compound according to any one of claims 1 to 5, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt,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

7. The compound according to any one of claims 1 to 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.

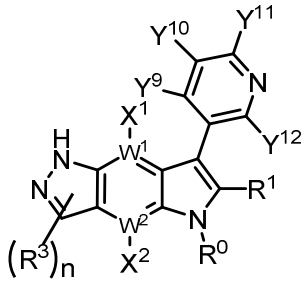
8. The compound according to claim 1, wherein the compound is chosen from compounds of Formula **I-A**, **I-B**, **I-C**, **I-D**, **I-E**, **I-F**, **I-G**, and **I-H**:



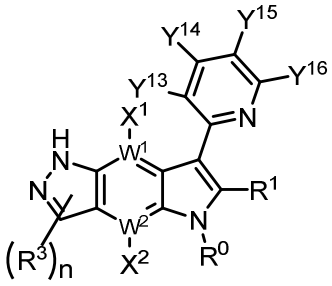
I-A



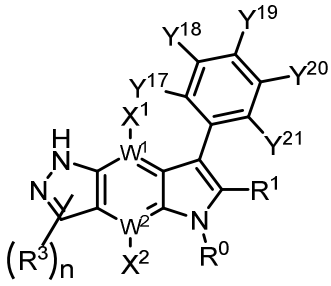
I-B



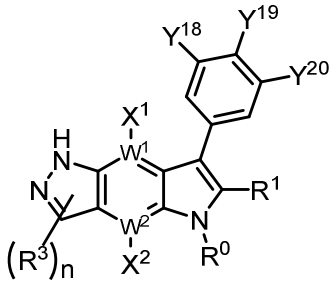
I-C



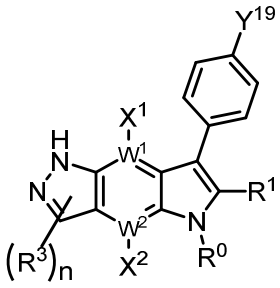
I-D



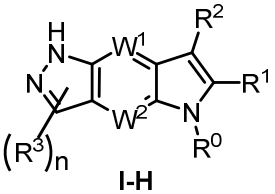
I-E



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 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;

$\mathbf{Y^5}$, $\mathbf{Y^6}$, $\mathbf{Y^7}$, and $\mathbf{Y^8}$ 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,

$\mathbf{Y^9}$, $\mathbf{Y^{10}}$, $\mathbf{Y^{11}}$, $\mathbf{Y^{12}}$, $\mathbf{Y^{13}}$, $\mathbf{Y^{14}}$, $\mathbf{Y^{15}}$, and $\mathbf{Y^{16}}$ 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,

$\mathbf{Y^{17}}$, $\mathbf{Y^{18}}$, $\mathbf{Y^{19}}$, $\mathbf{Y^{20}}$, and $\mathbf{Y^{21}}$ 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,

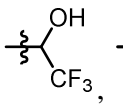
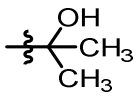
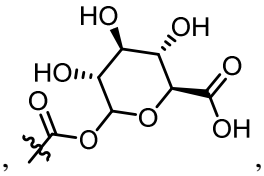
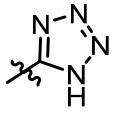
tetrazolyl groups,

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

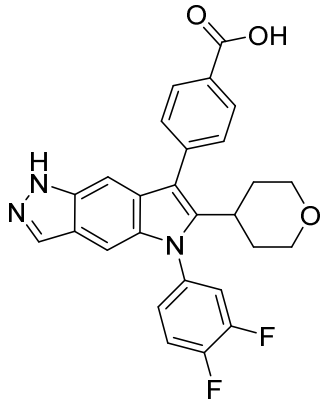
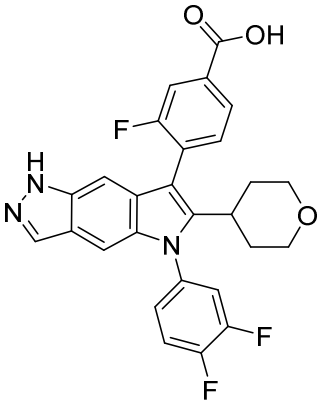
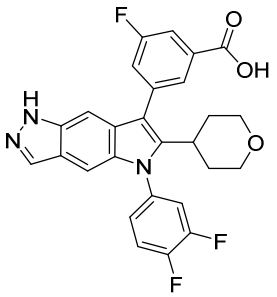
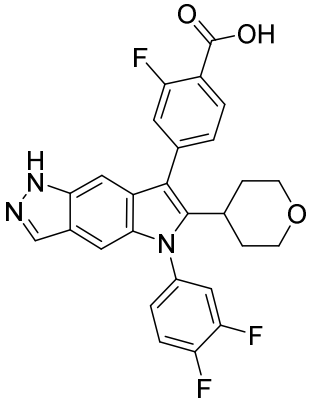
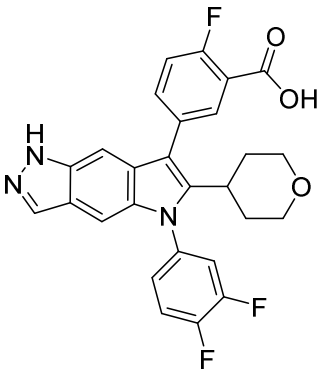
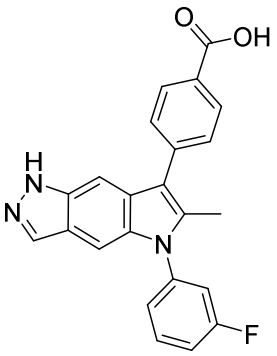
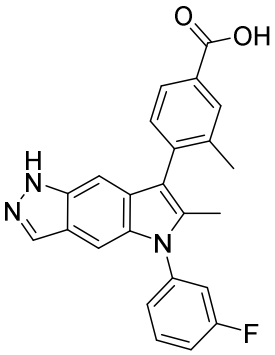
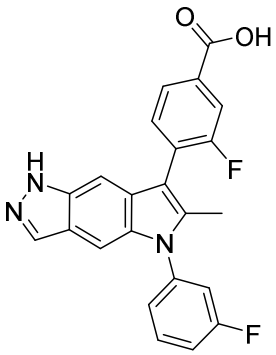
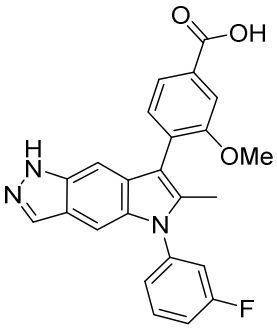
C_1-C_6 linear, branched, and cyclic alkyl groups, and

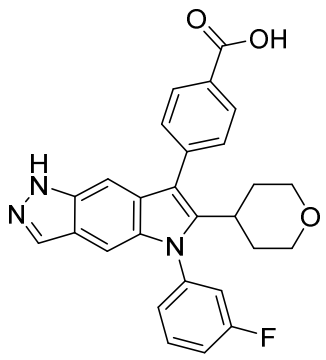
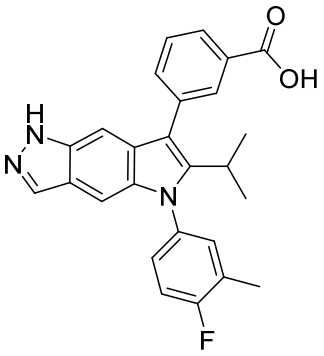
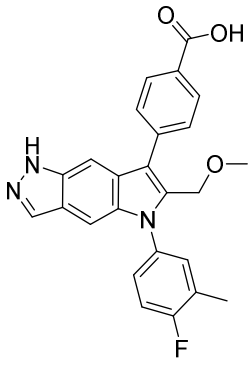
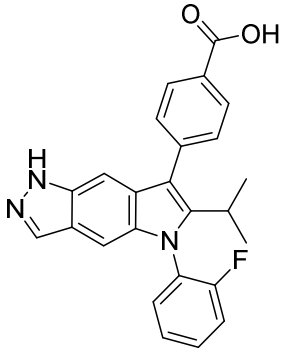
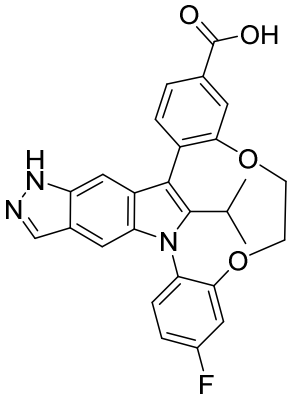
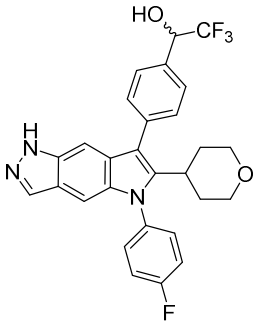
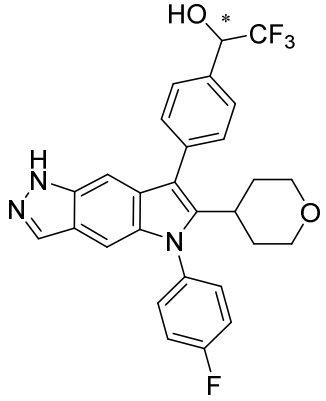
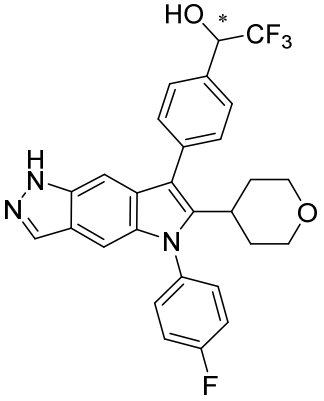
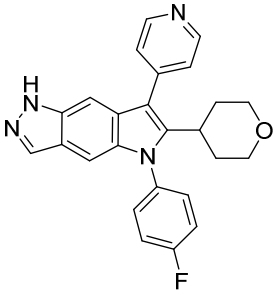
C_1-C_6 linear, branched, and cyclic alkylsulfonyl groups

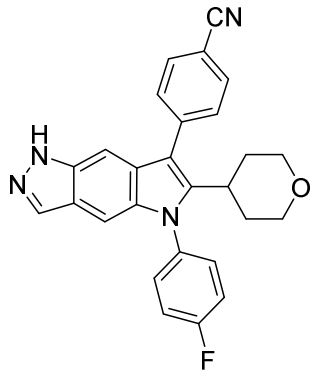
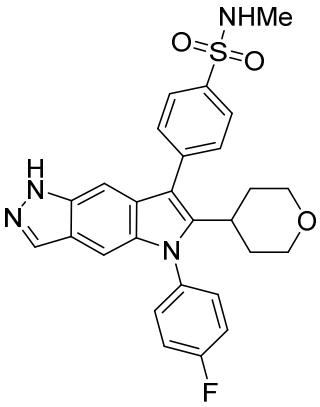
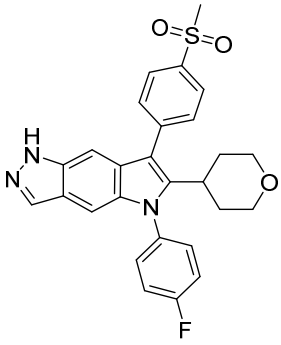
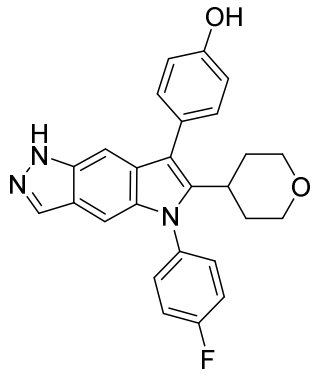
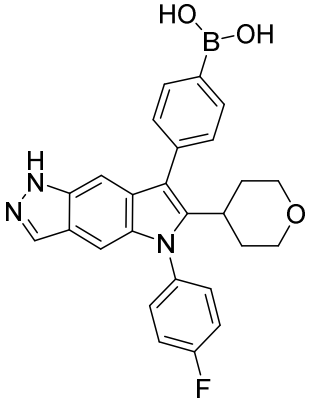
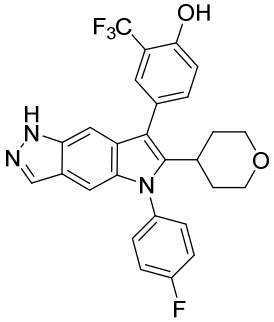
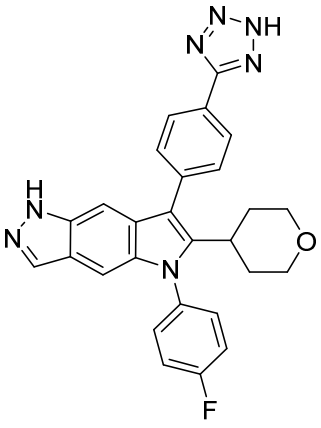
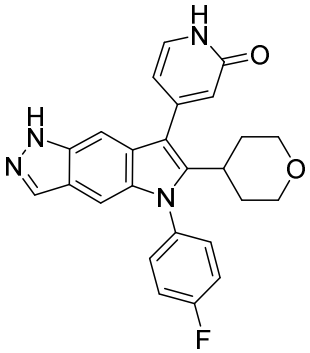
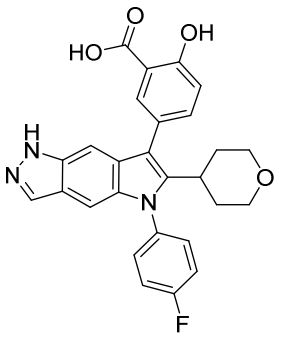
with the proviso that, in Formula **I-E**, at least one of $\mathbf{Y^{17}}$, $\mathbf{Y^{18}}$, $\mathbf{Y^{19}}$, $\mathbf{Y^{20}}$, and $\mathbf{Y^{21}}$ is hydrogen.

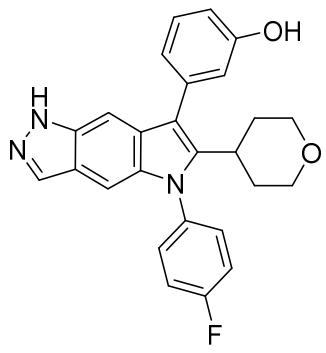
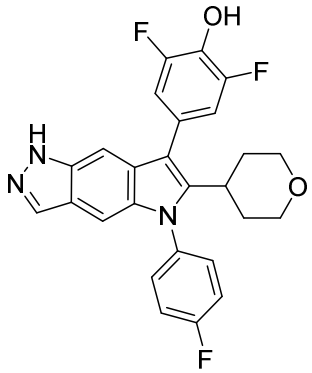
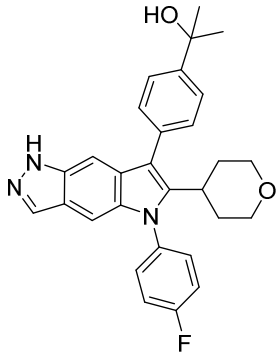
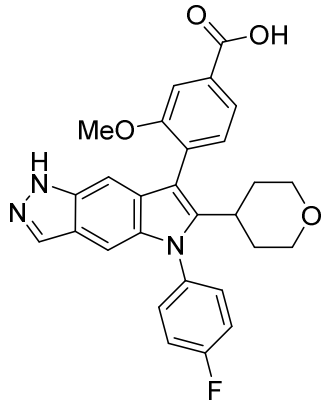
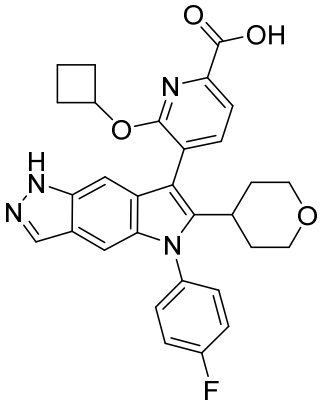
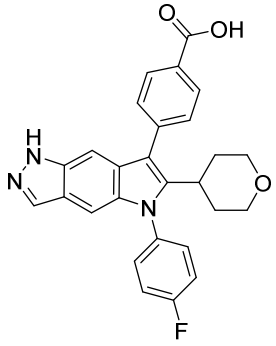
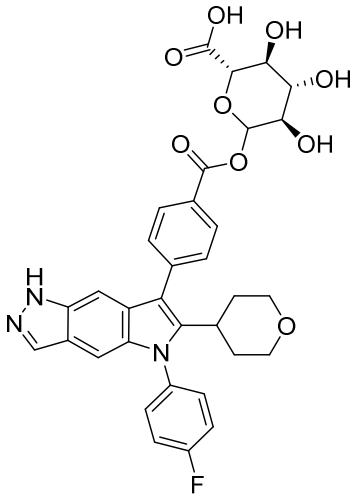
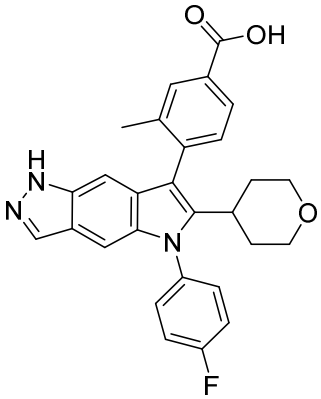
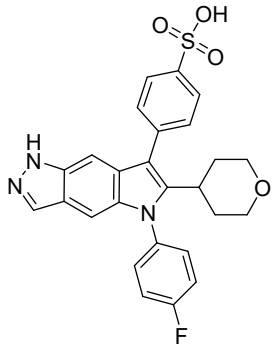
9. The compound according to claim 8, a tautomer thereof, a pharmaceutically acceptable salt of the compound, a pharmaceutically acceptable salt of the tautomer, a deuterated derivative of the compound, a deuterated derivative of the tautomer, and/or a deuterated derivative of the salt, wherein one or 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 .

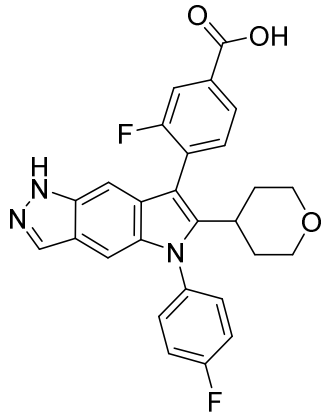
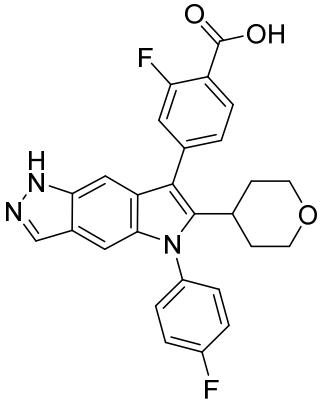
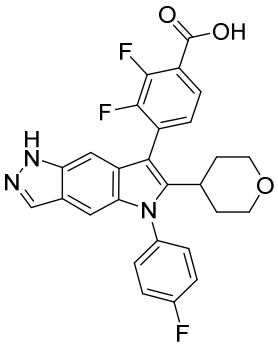
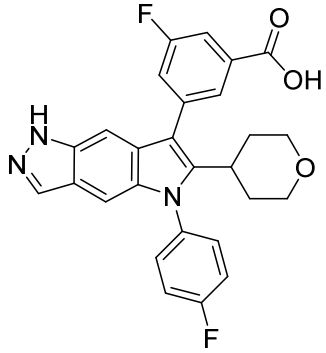
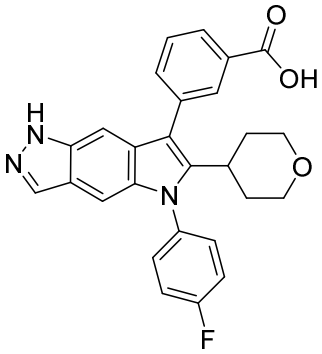
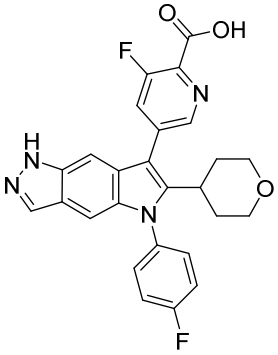
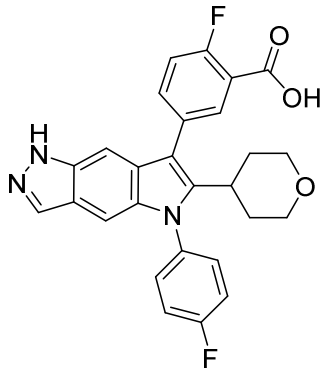
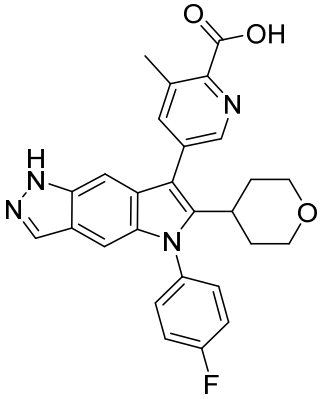
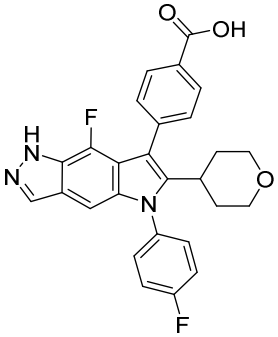
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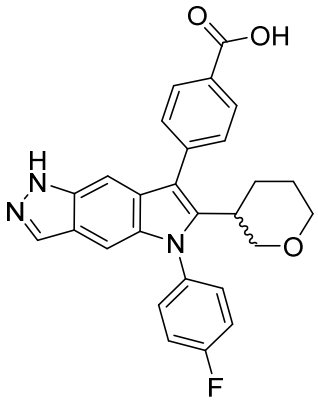
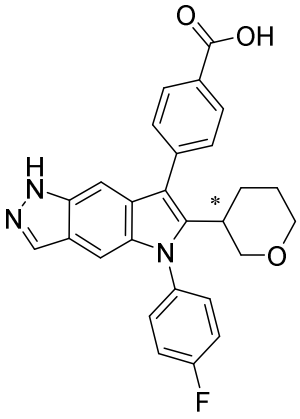
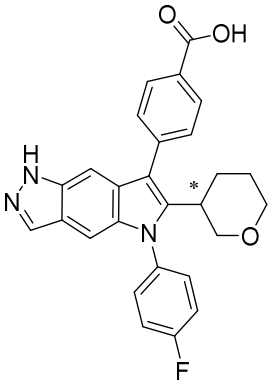
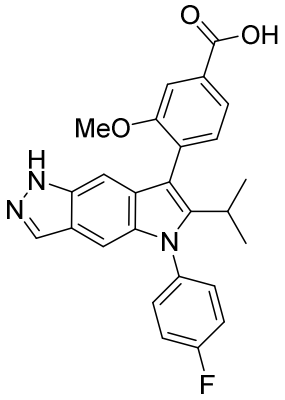
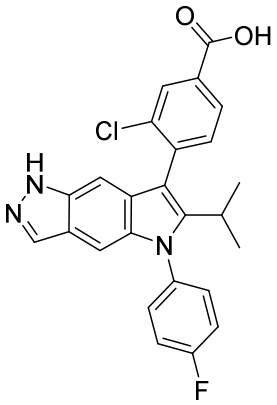
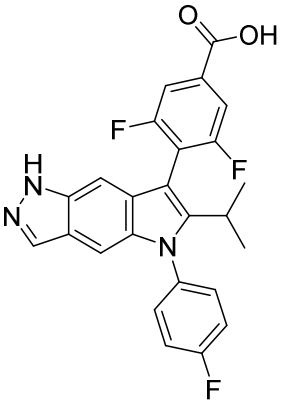
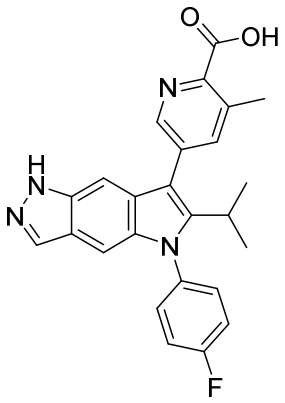
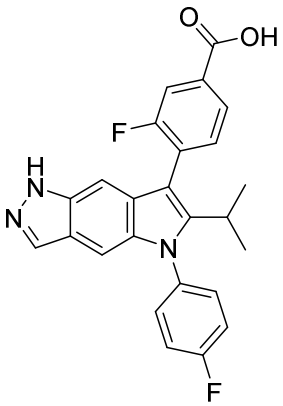
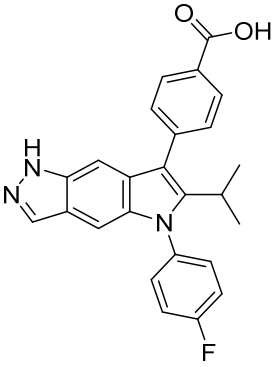
1	2	3
		
4	**5**	**6**
		
7	**8**	**9**
		

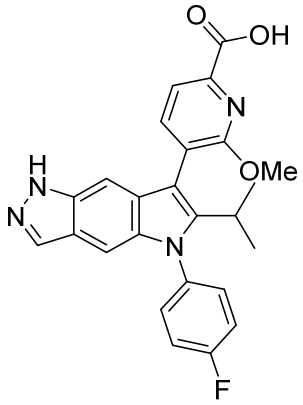
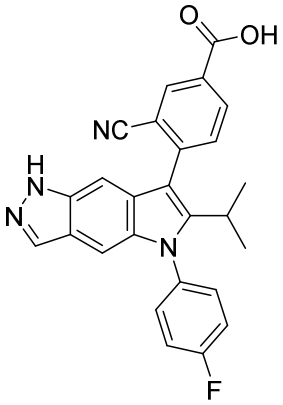
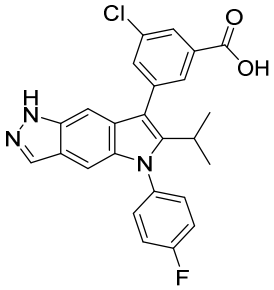
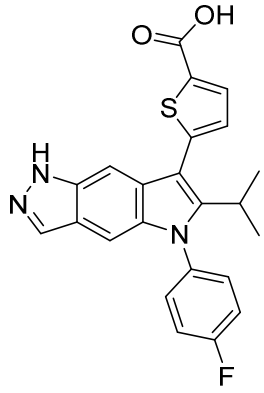
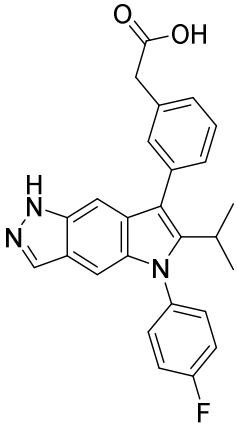
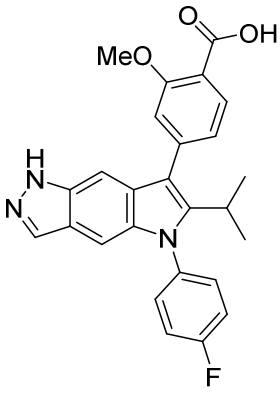
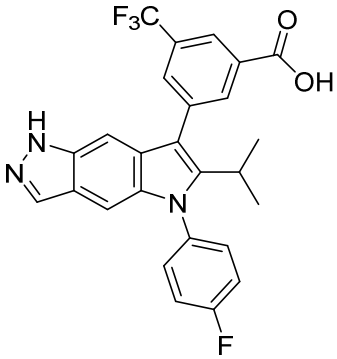
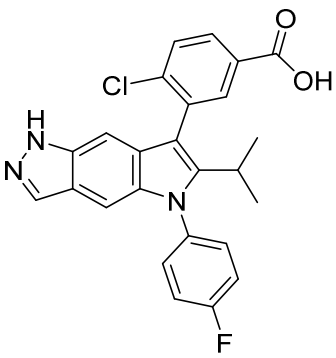
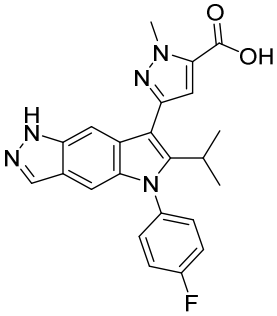
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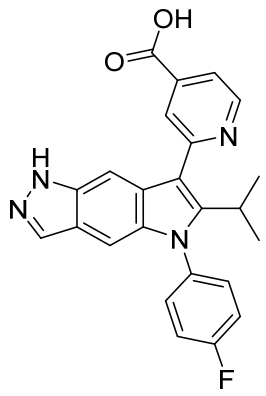
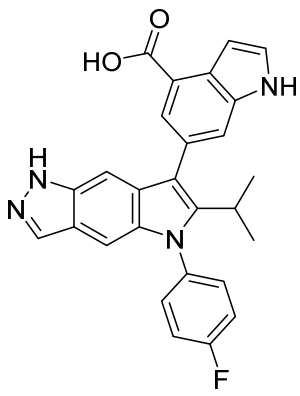
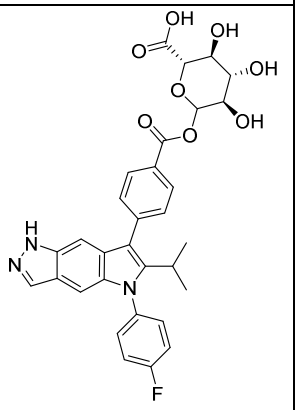
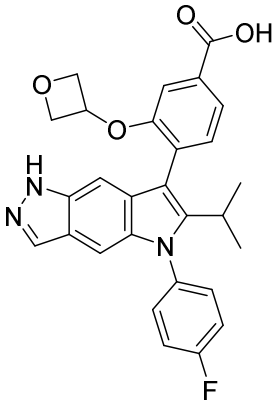
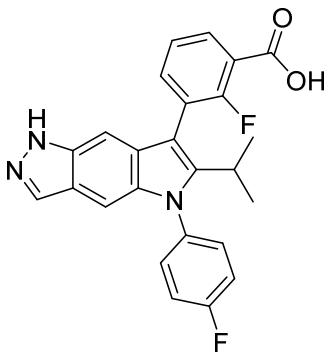
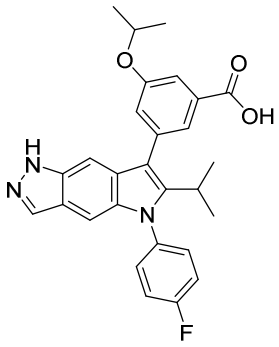
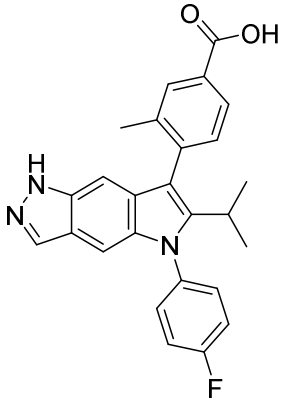
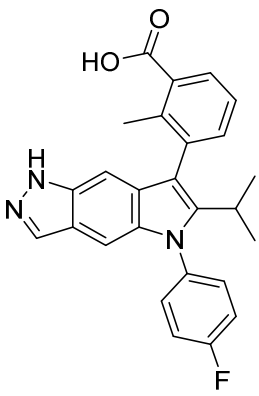
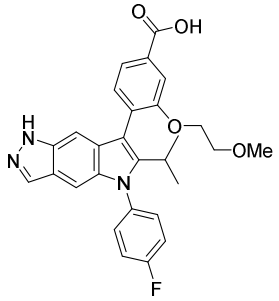
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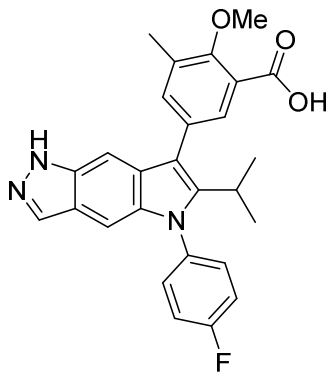
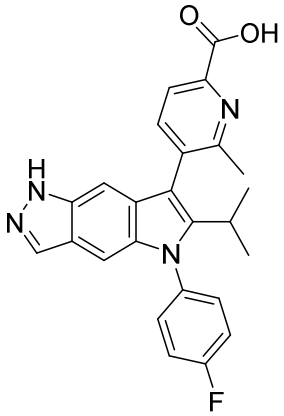
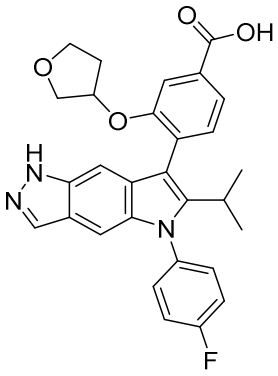
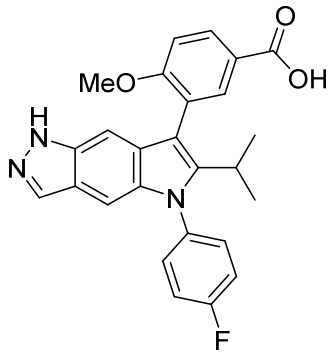
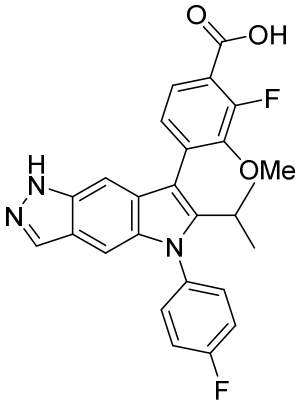
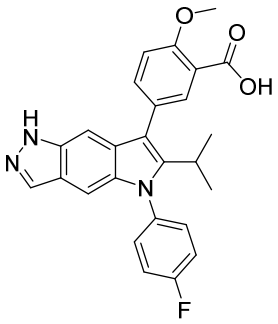
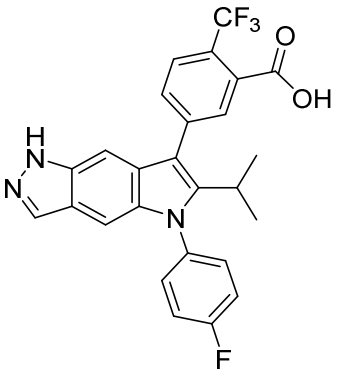
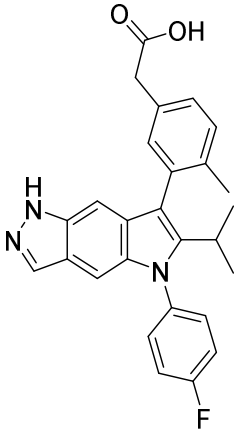
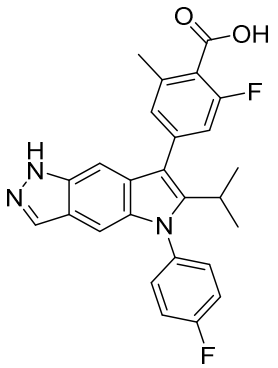
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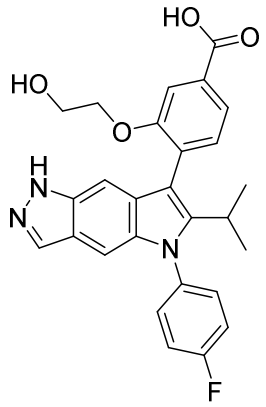
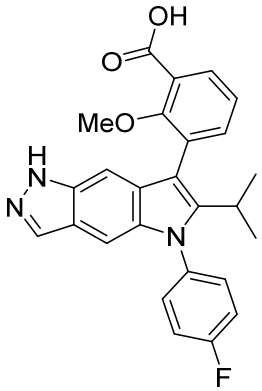
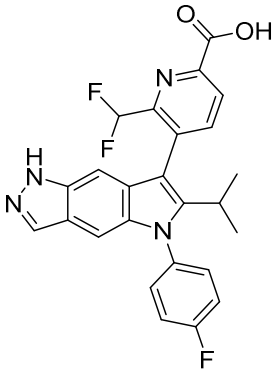
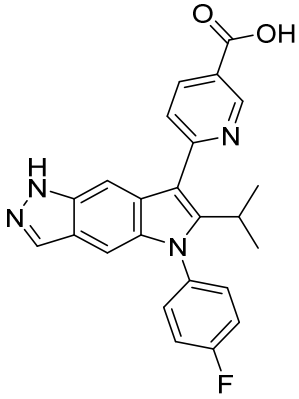
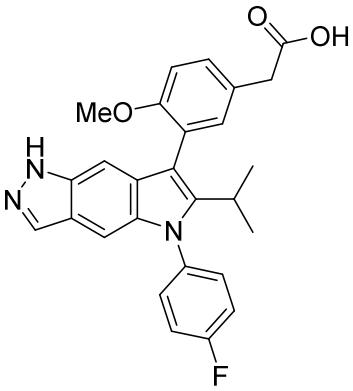
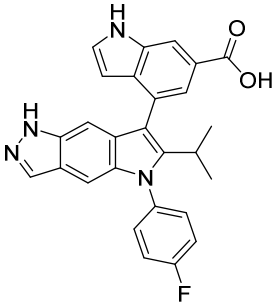
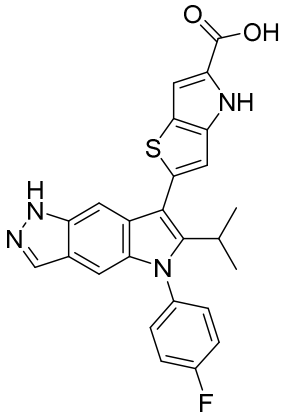
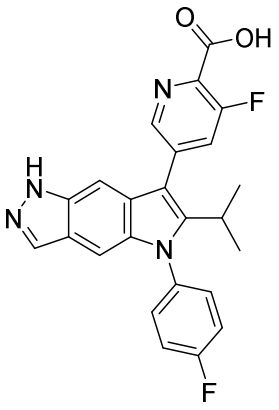
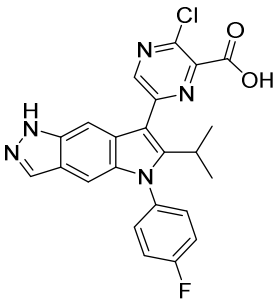
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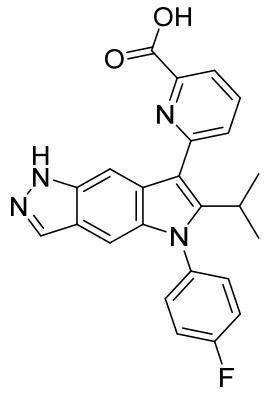
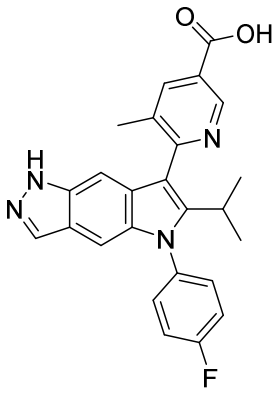
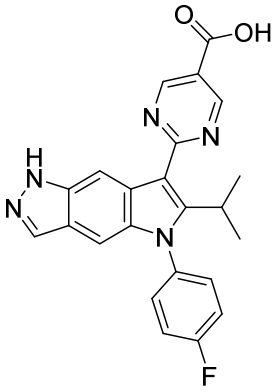
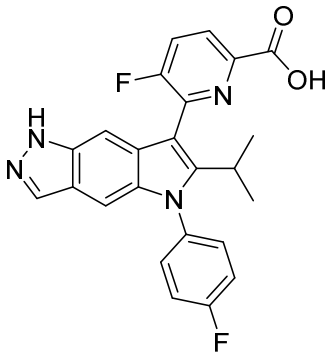
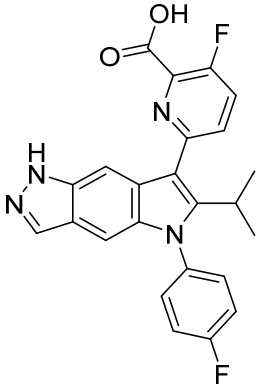
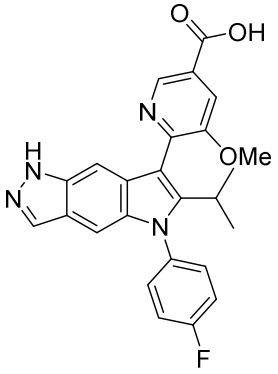
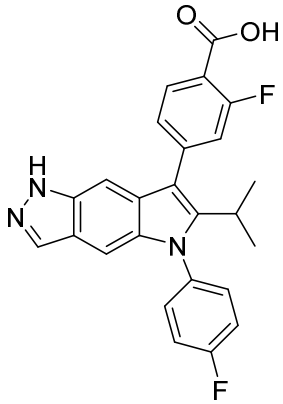
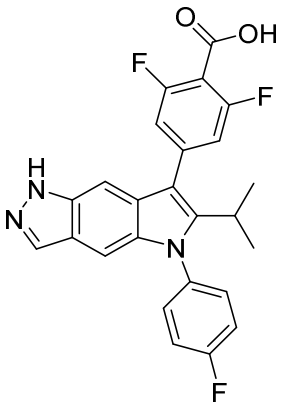
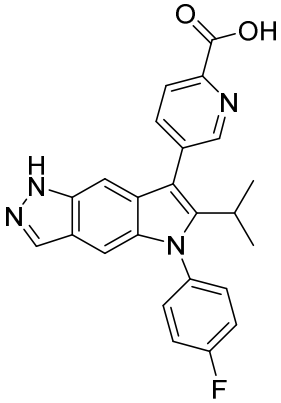
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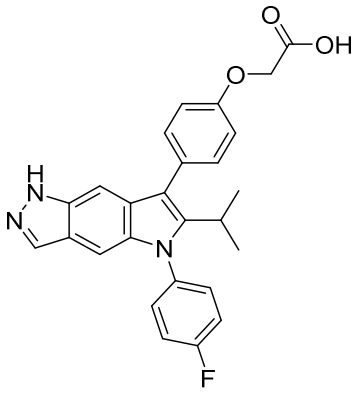
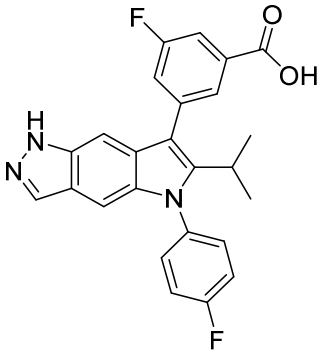
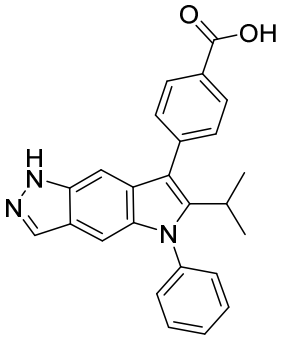
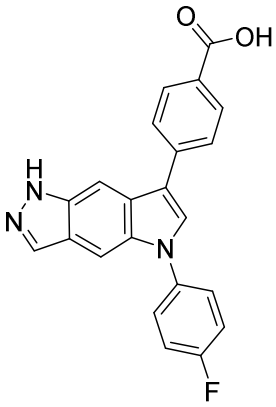
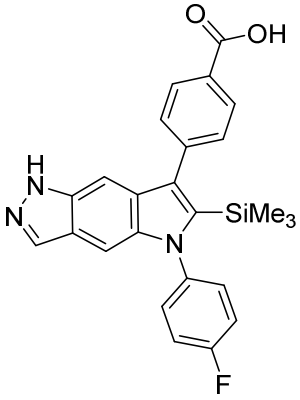
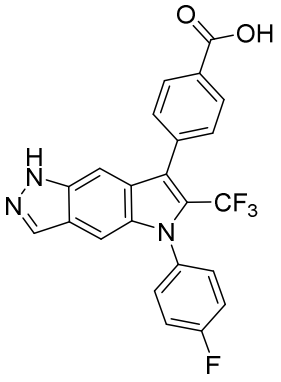
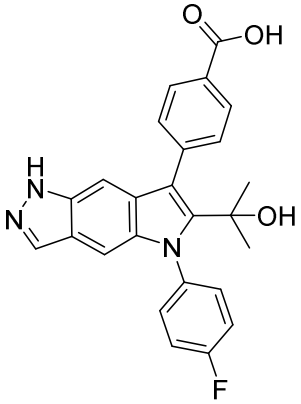
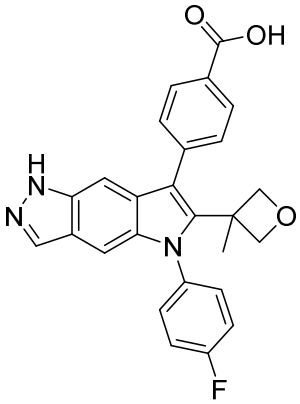
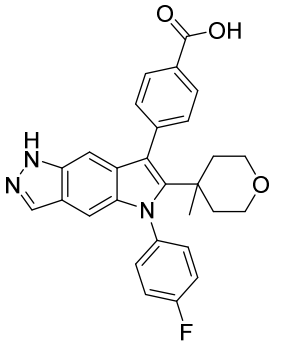
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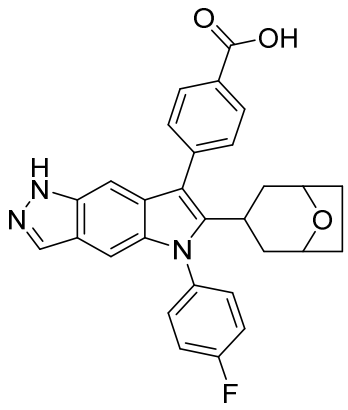
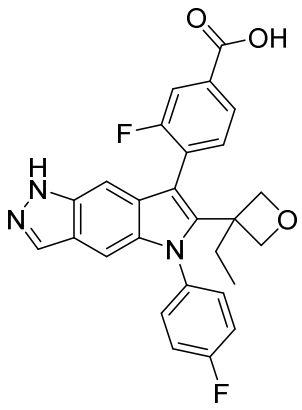
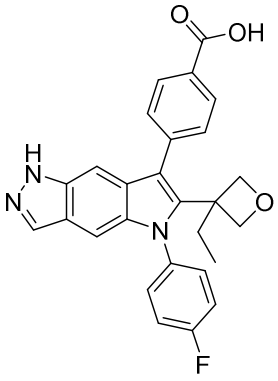
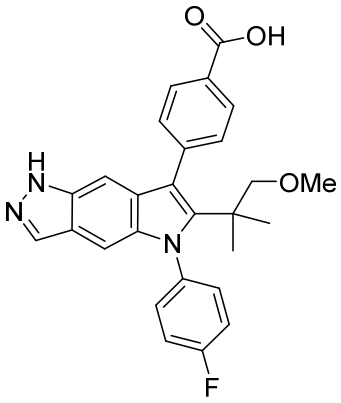
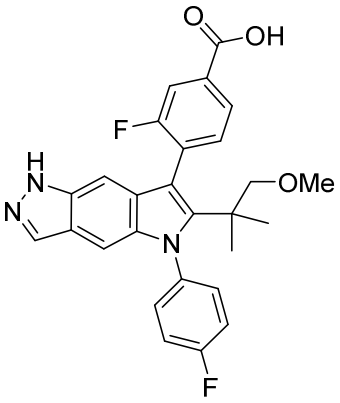
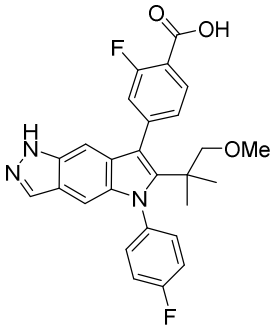
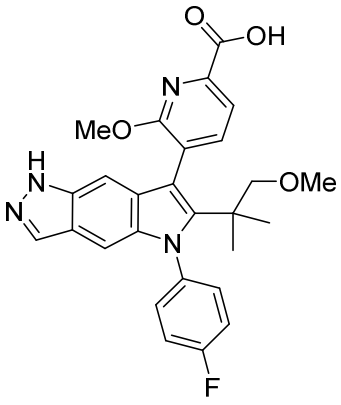
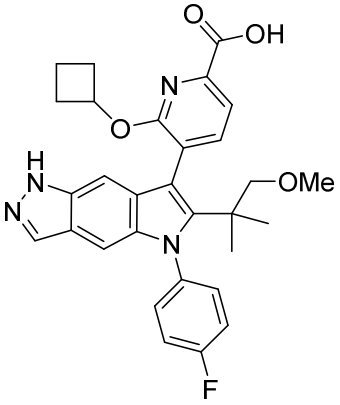
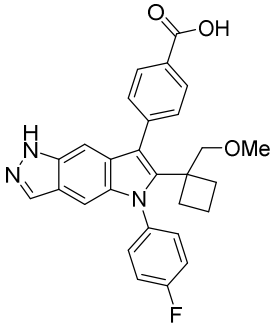
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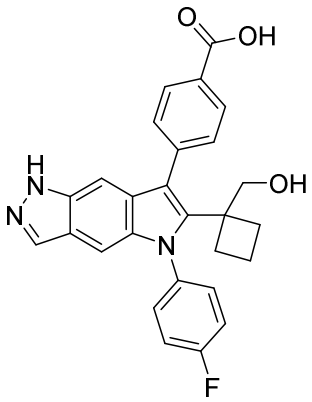
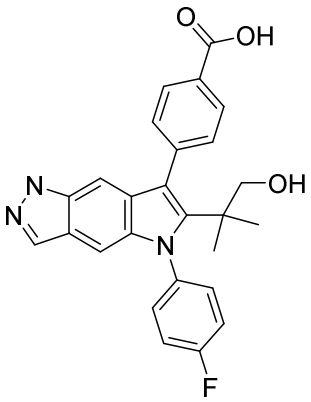
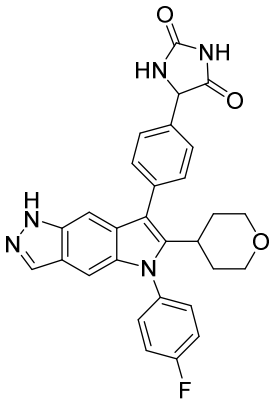
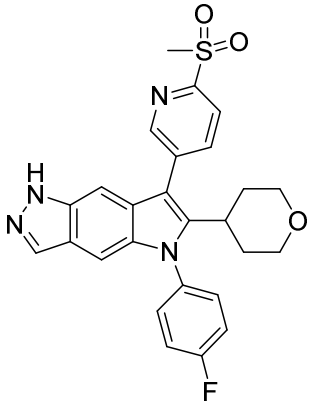
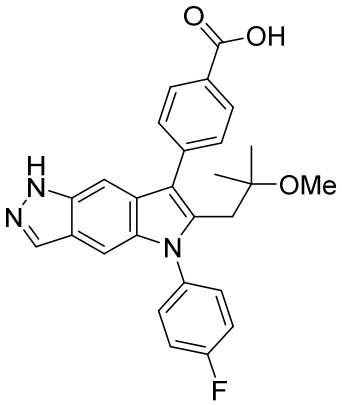
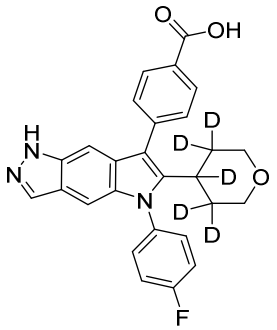
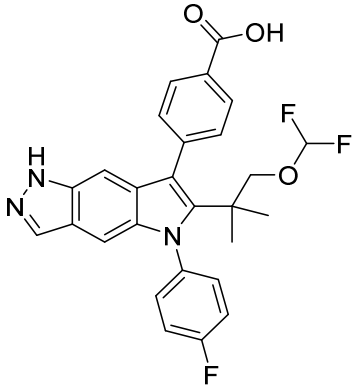
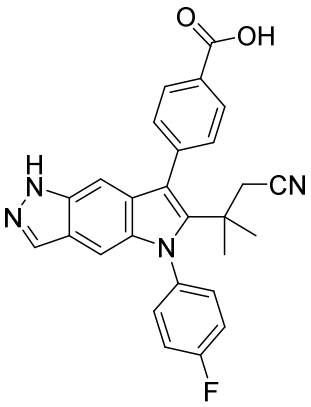
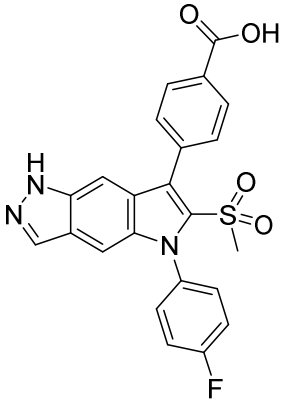
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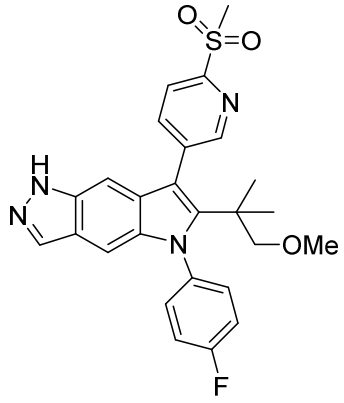
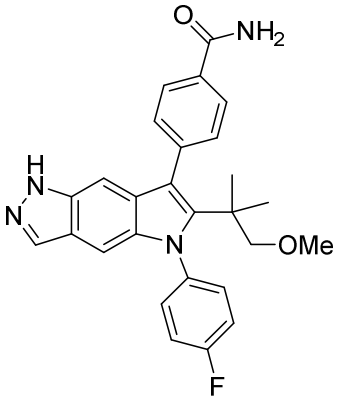
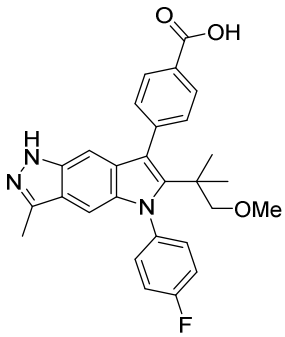
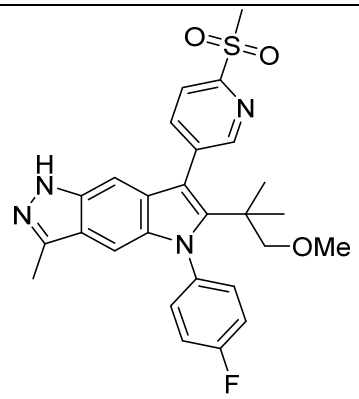
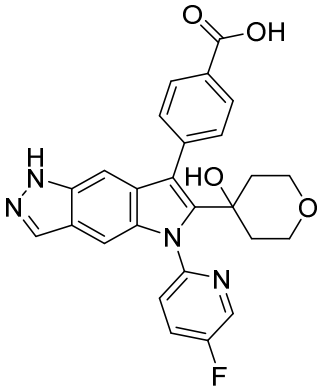
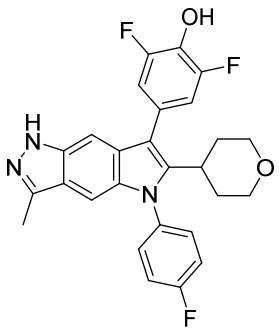
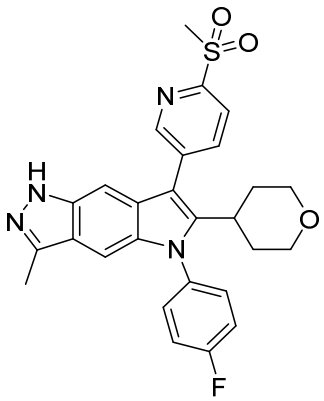
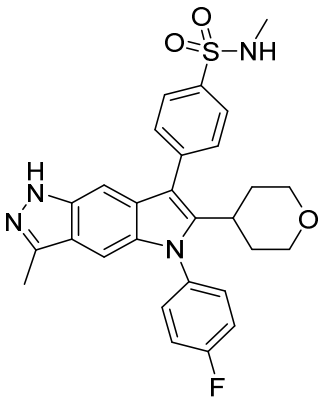
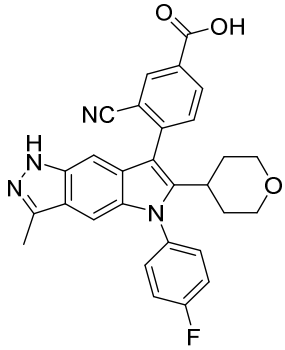
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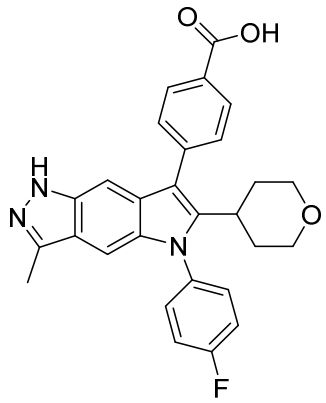
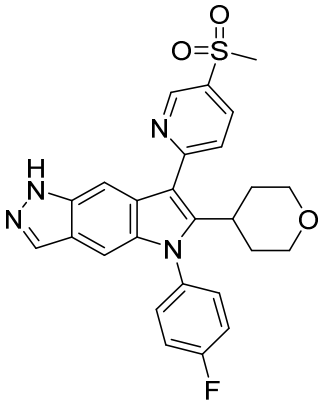
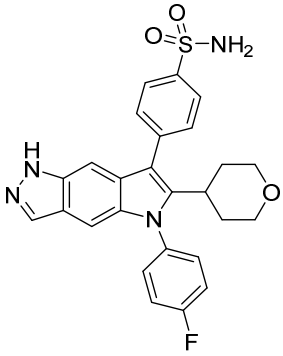
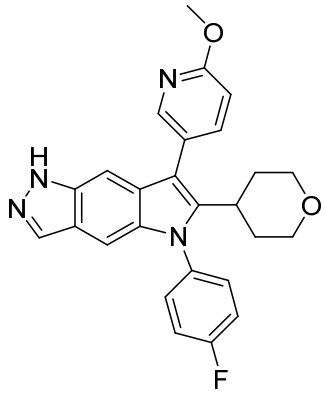
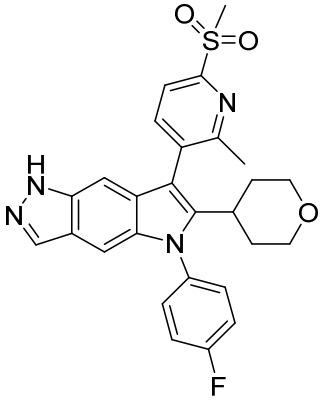
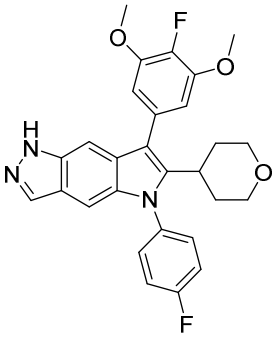
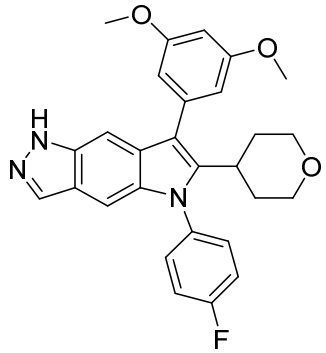
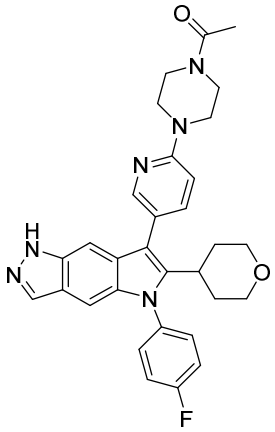
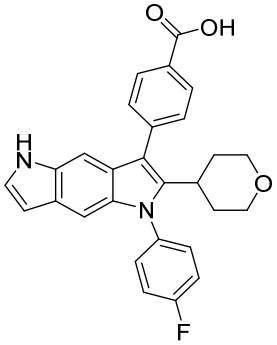
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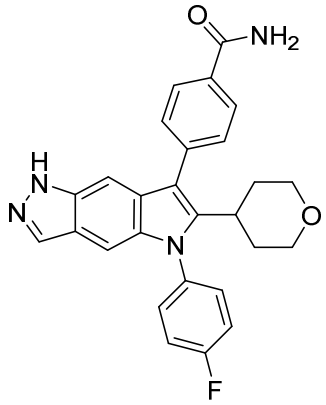
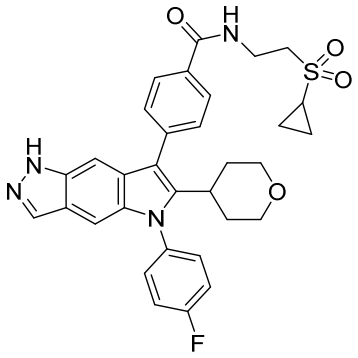
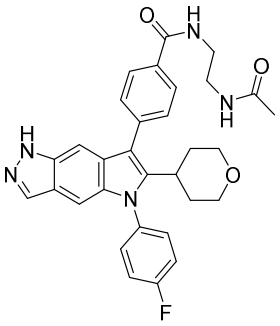
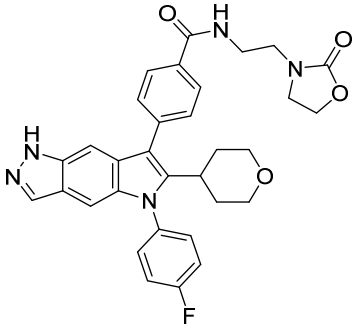
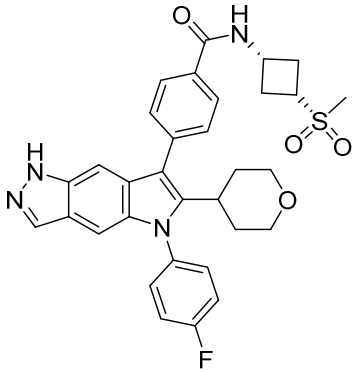
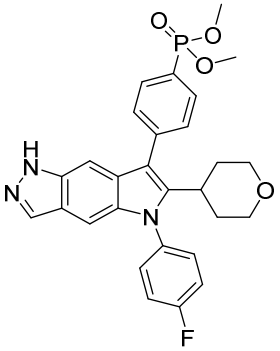
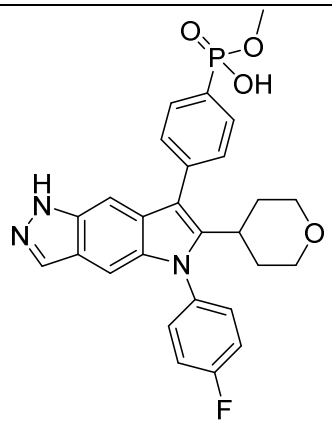
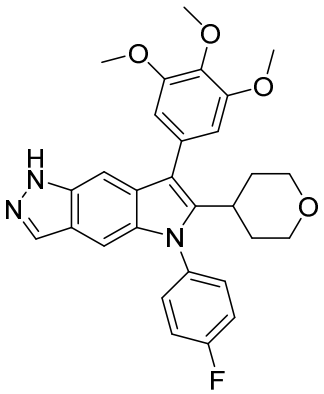
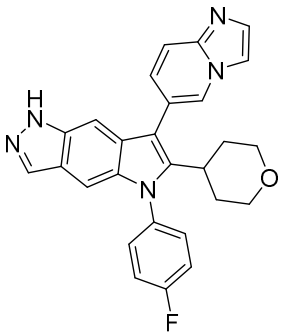
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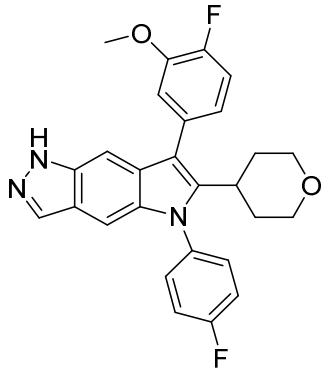
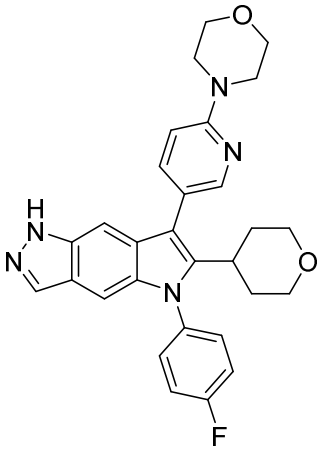
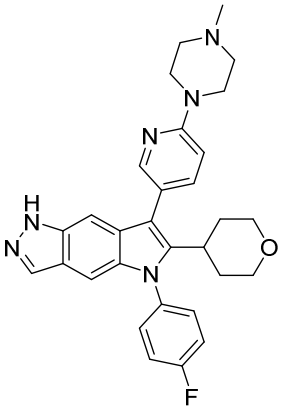
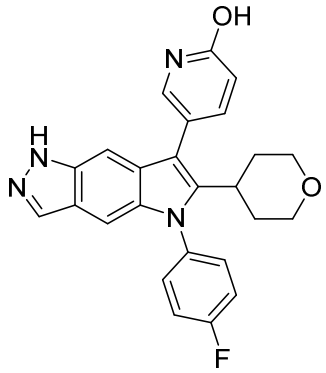
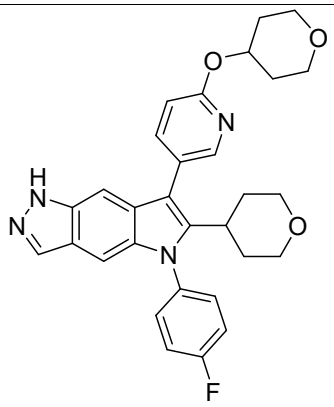
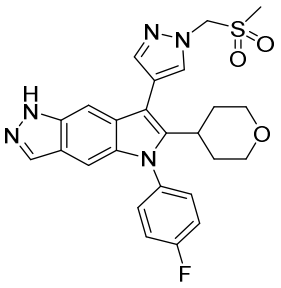
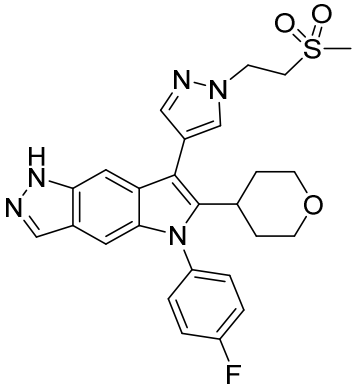
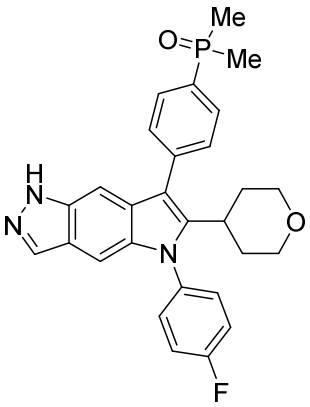
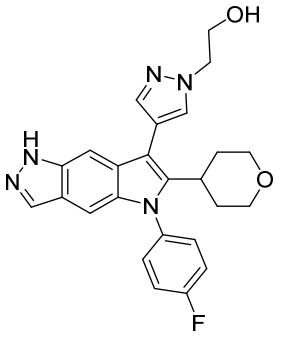
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115	**116**	**117**
		

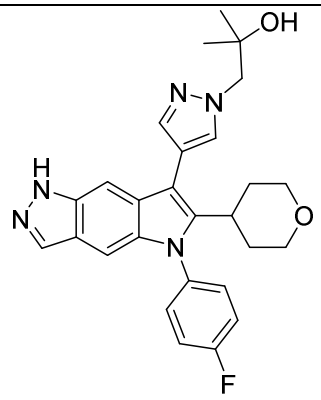
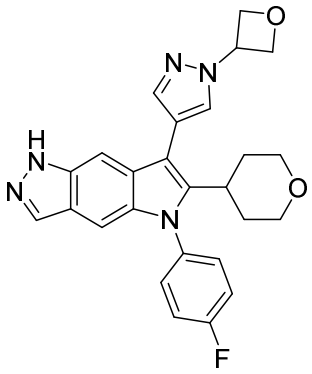
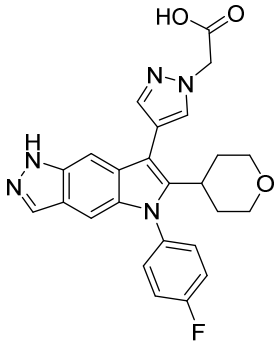
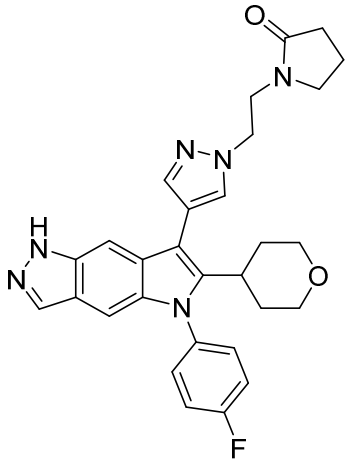
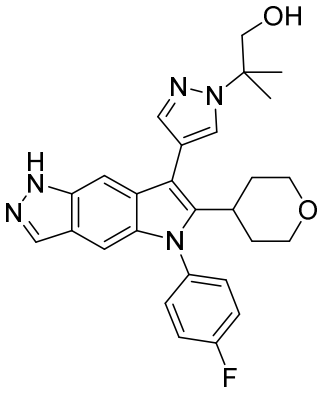
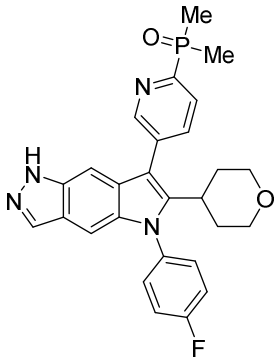
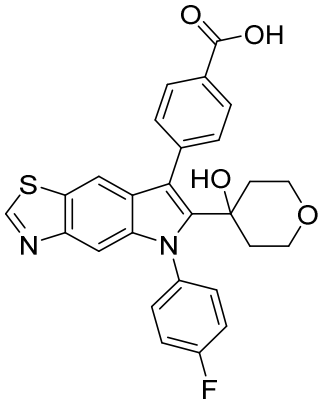
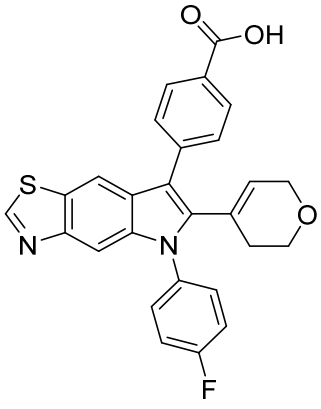
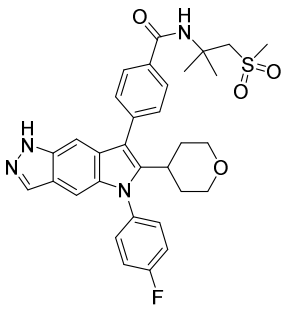
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124	**125**	**126**
		

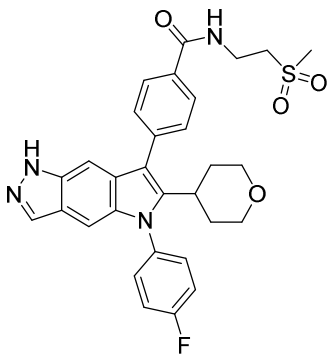
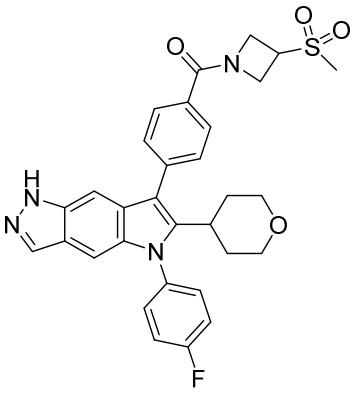
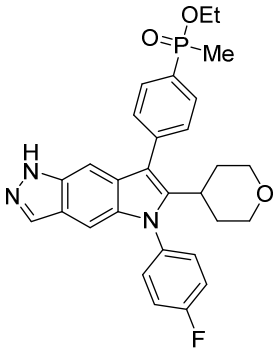
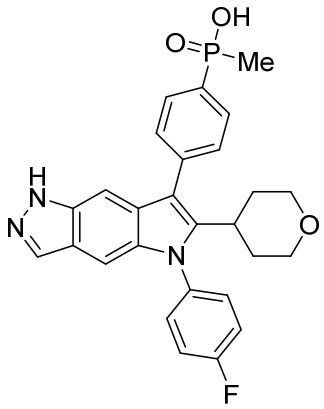
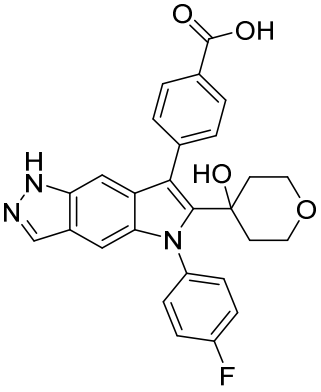
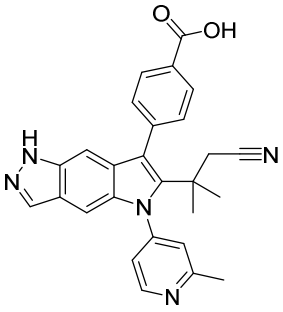
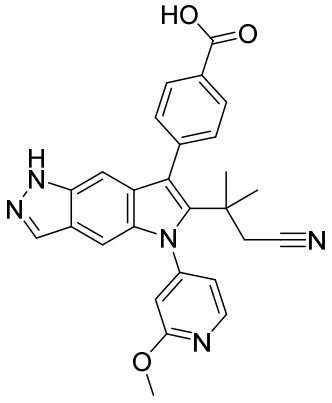
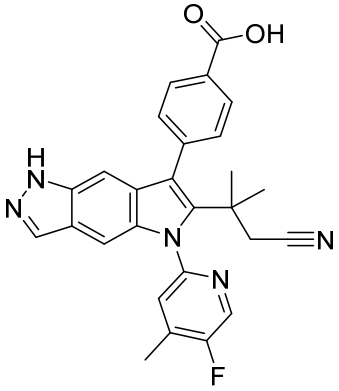
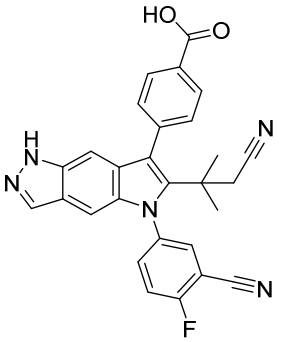
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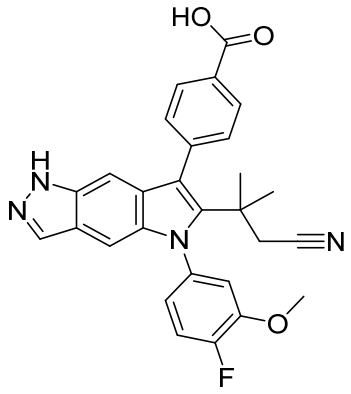
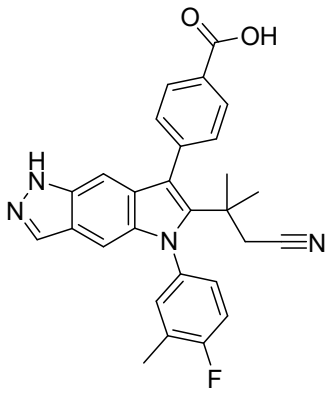
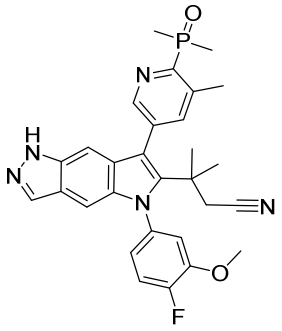
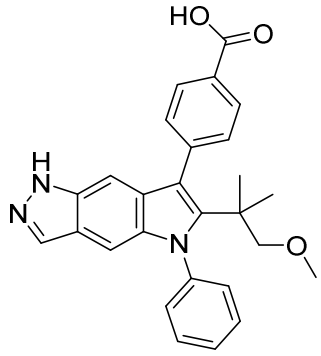
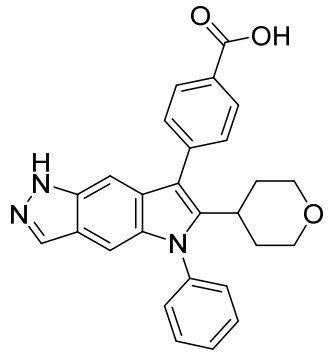
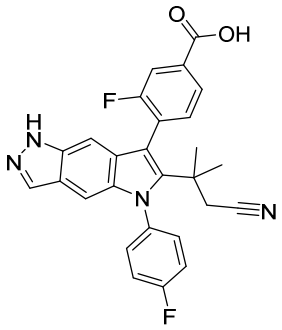
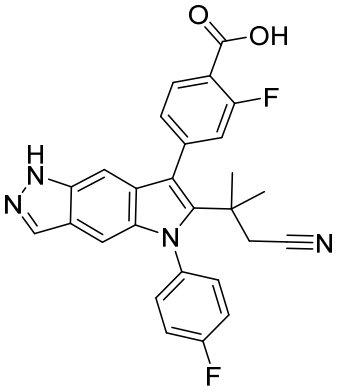
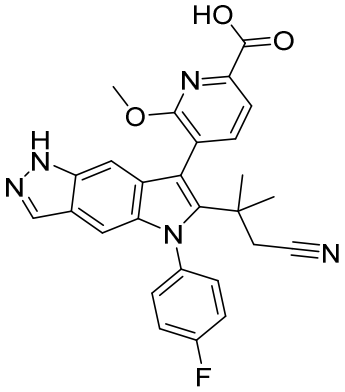
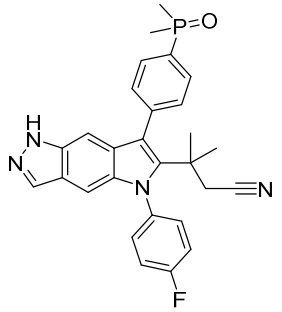
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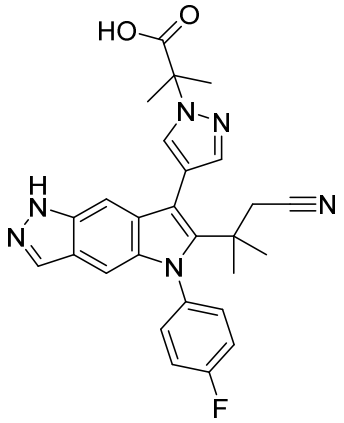
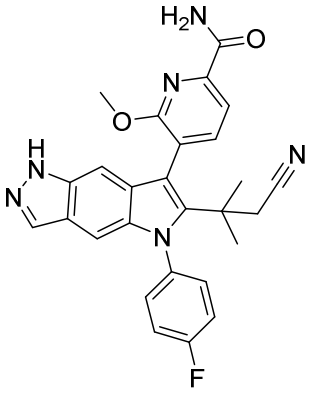
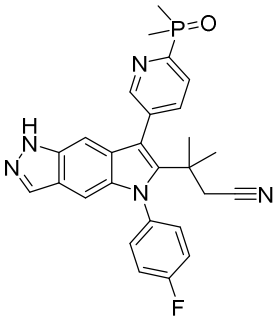
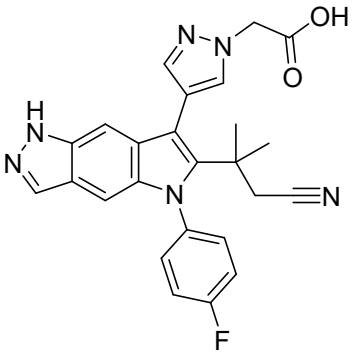
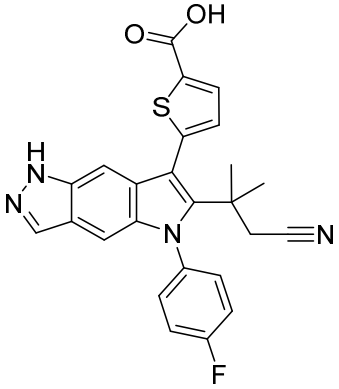
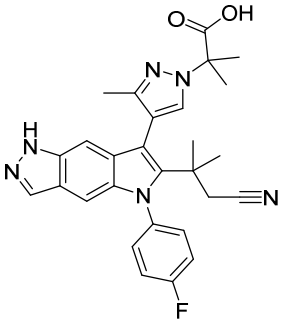
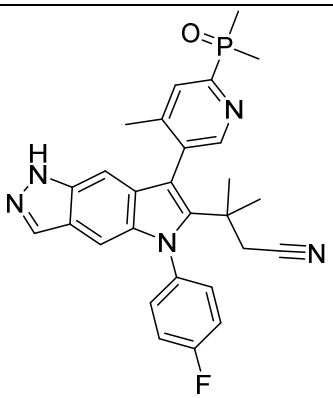
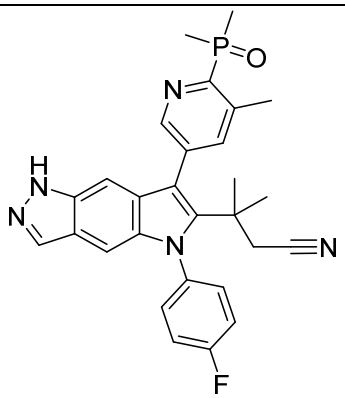
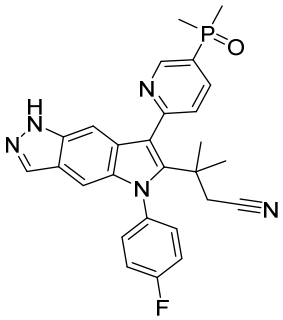
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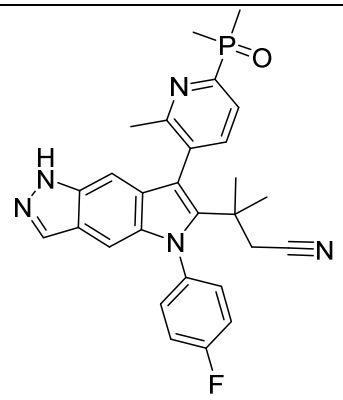
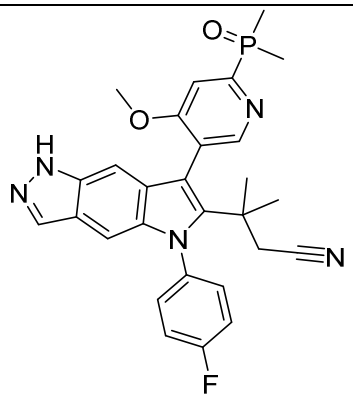
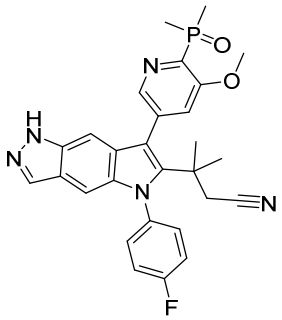
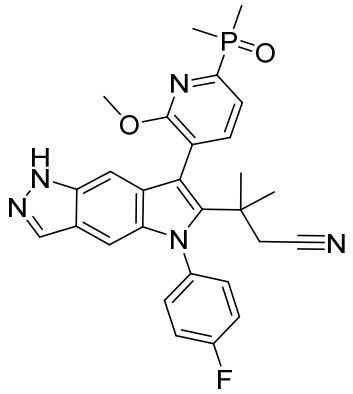
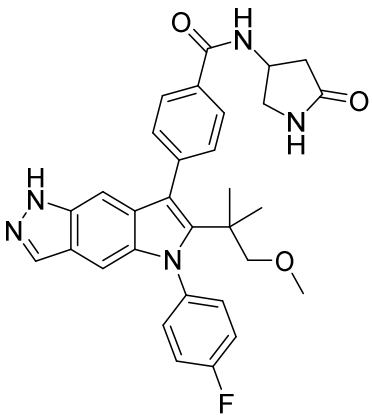
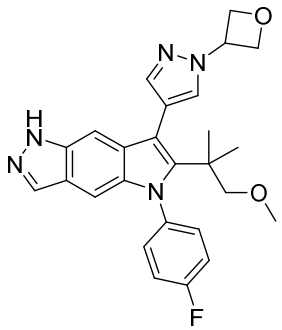
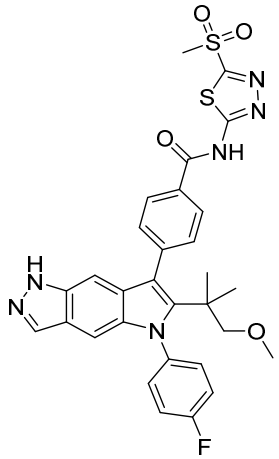
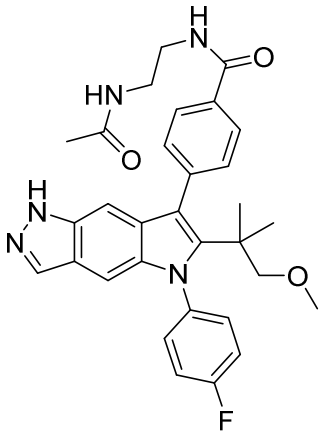
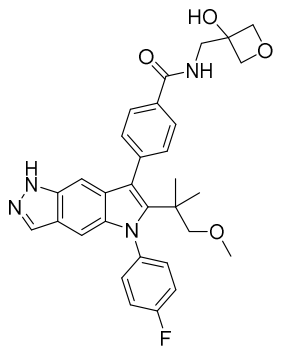
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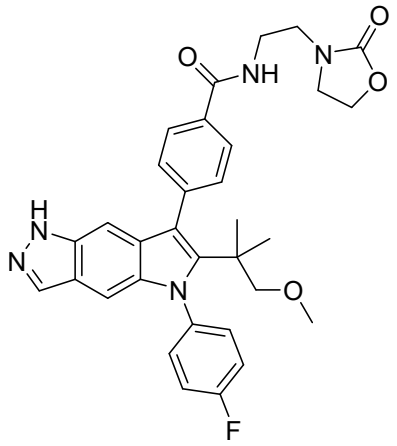
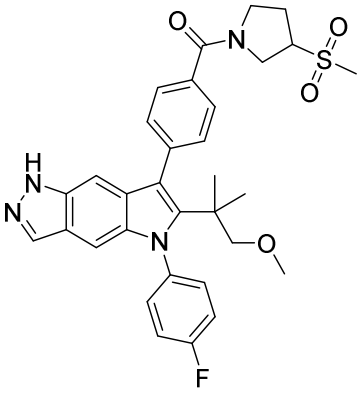
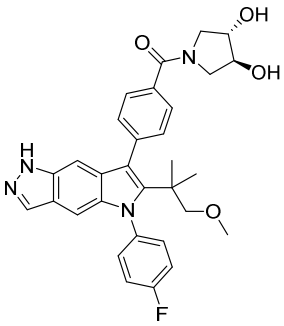
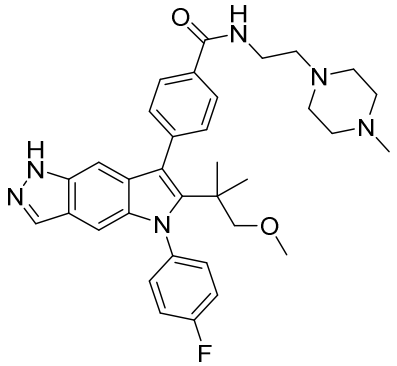
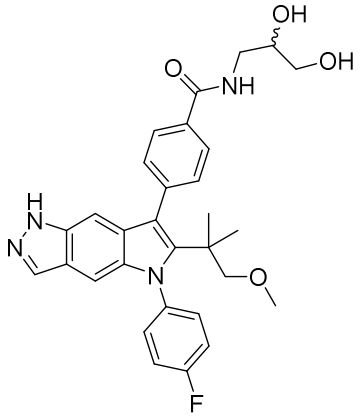
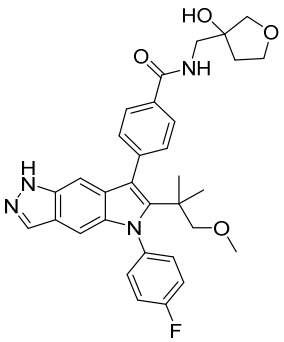
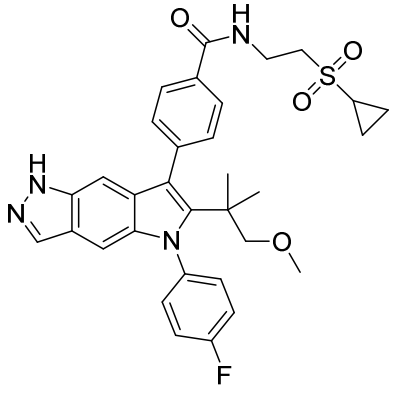
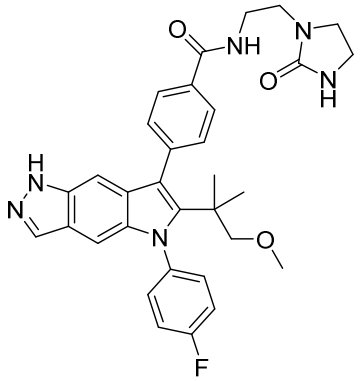
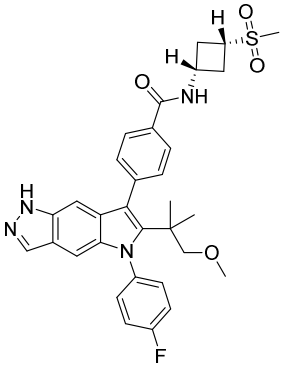
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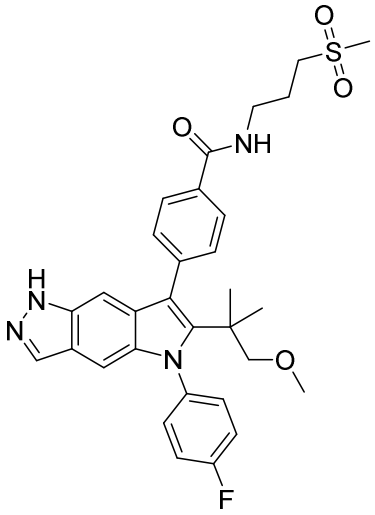
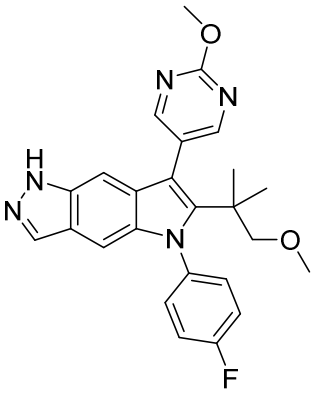
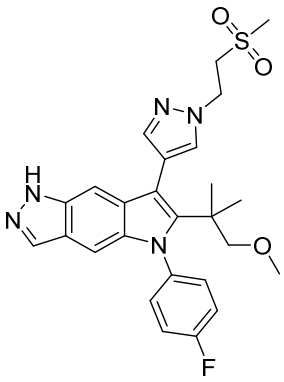
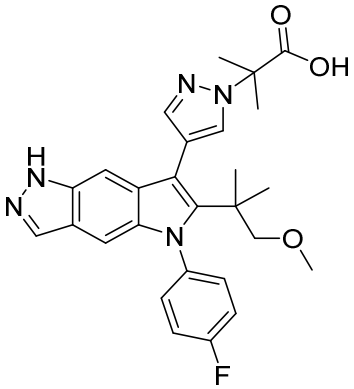
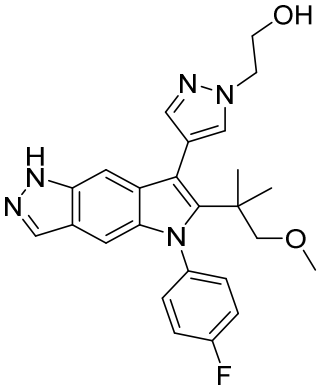
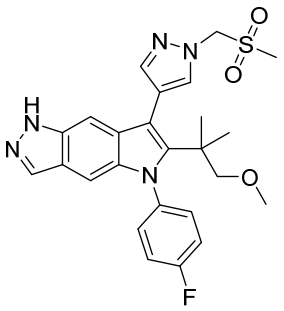
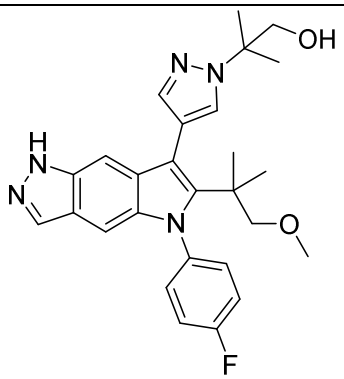
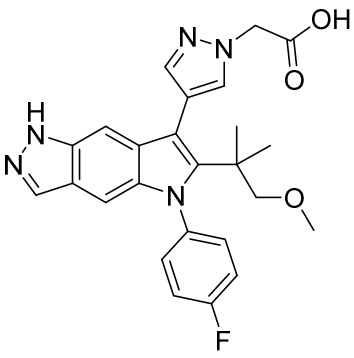
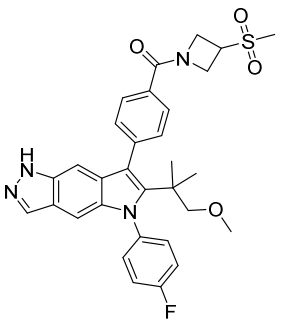
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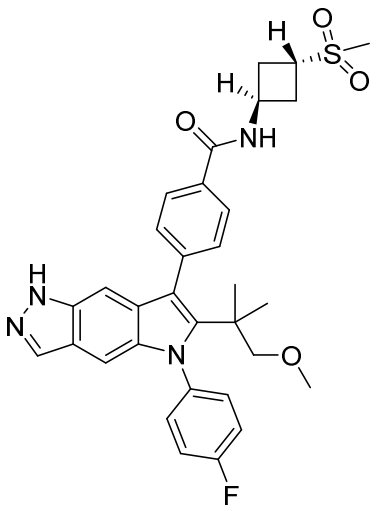
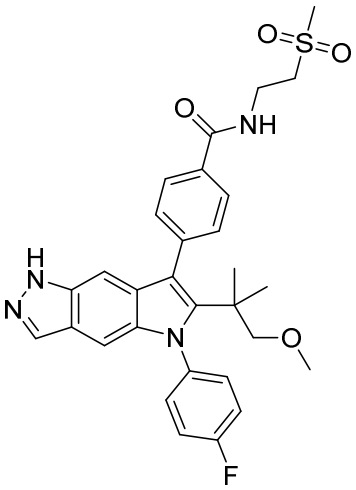
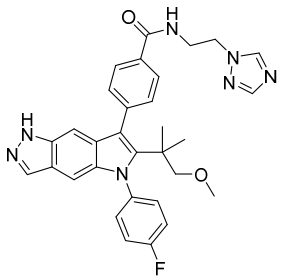
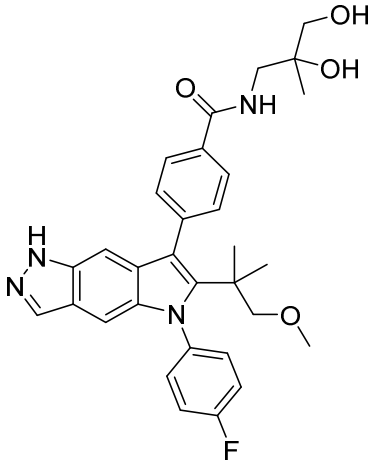
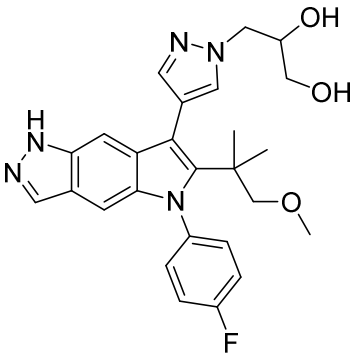
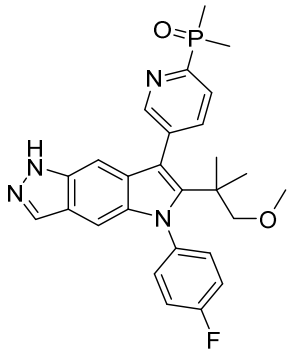
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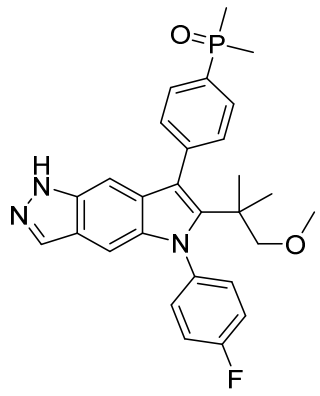
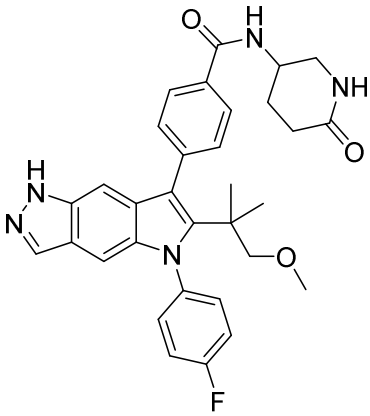
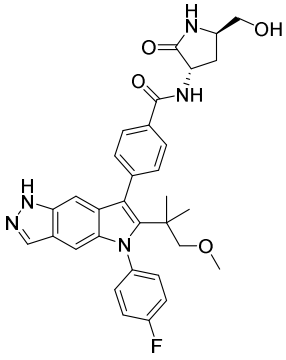
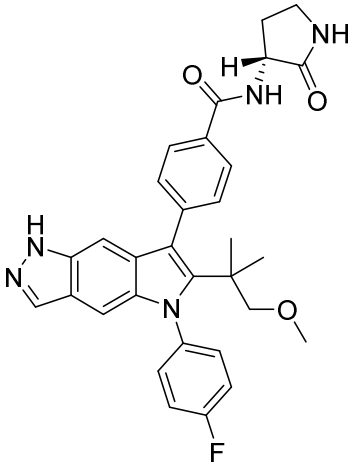
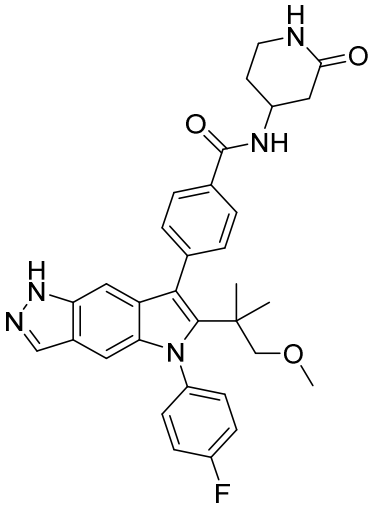
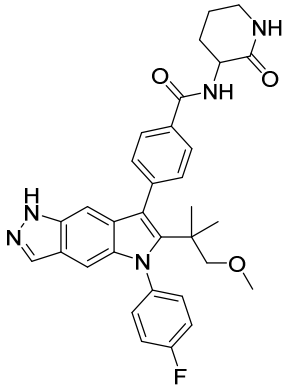
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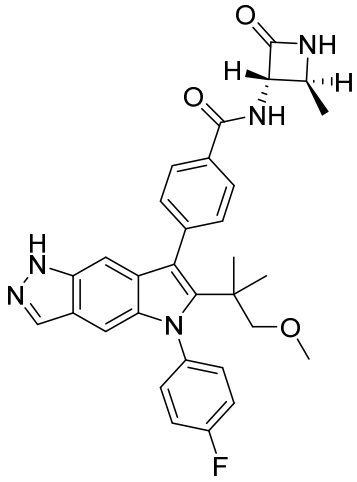
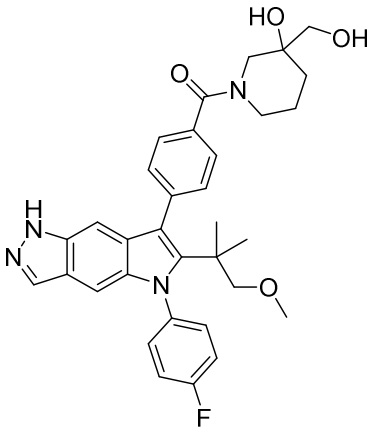
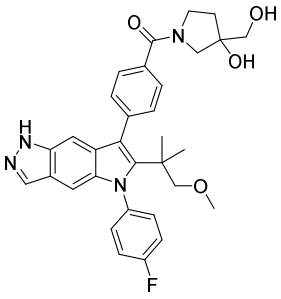
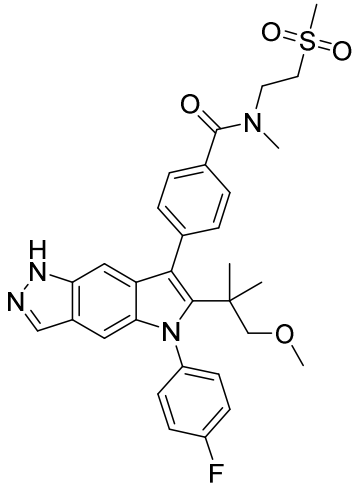
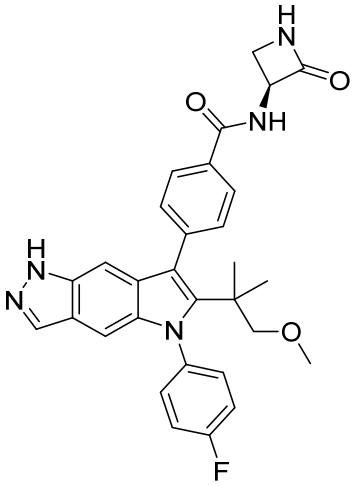
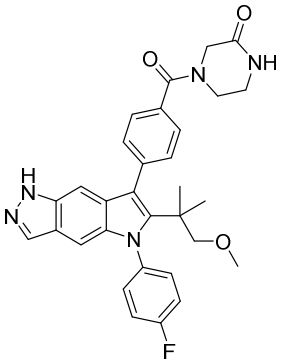
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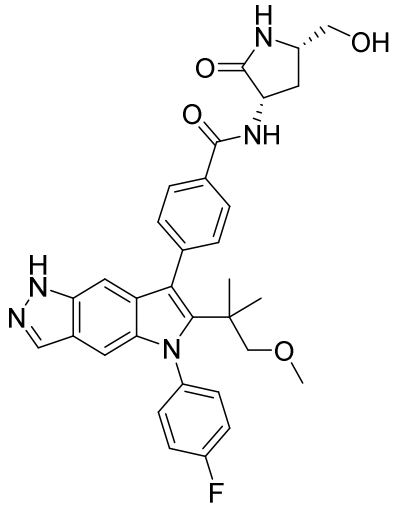
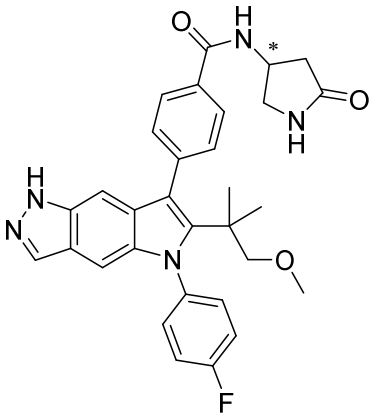
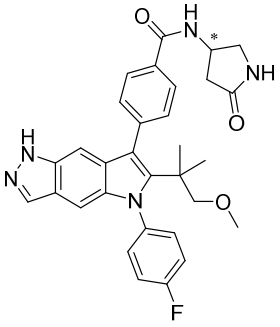
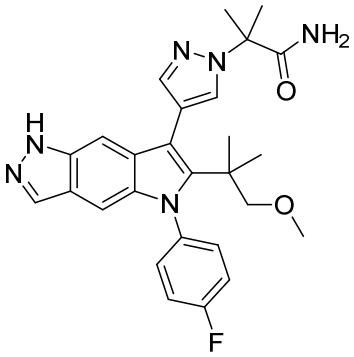
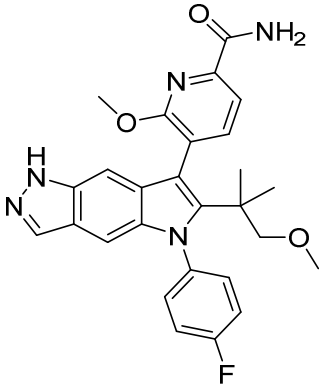
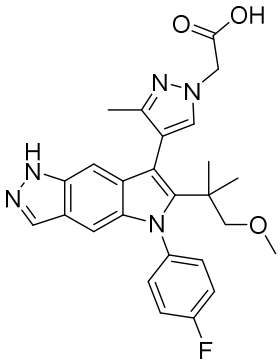
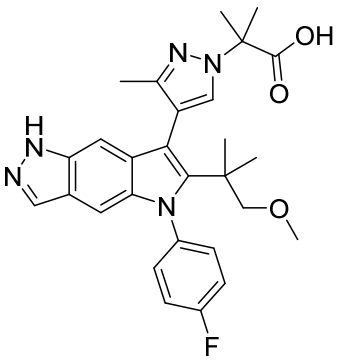
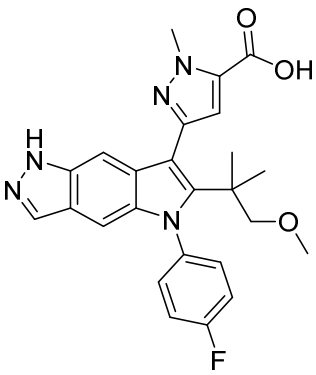
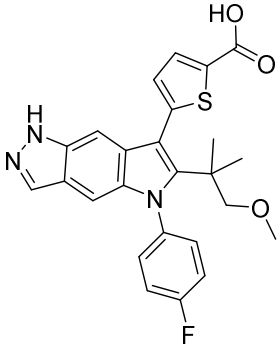
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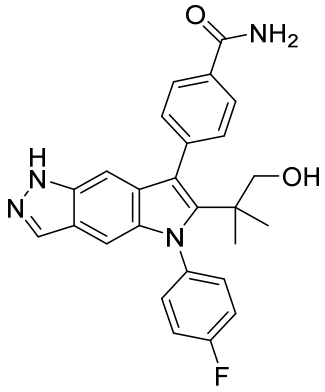
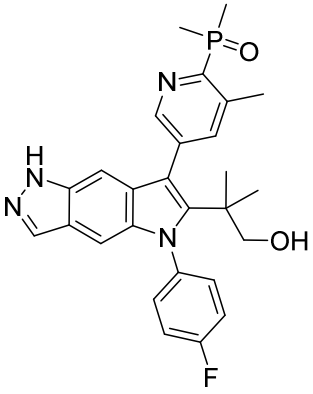
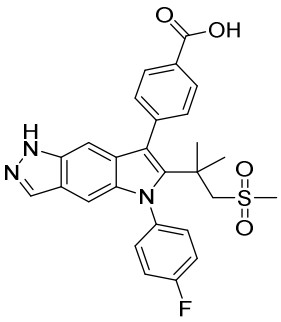
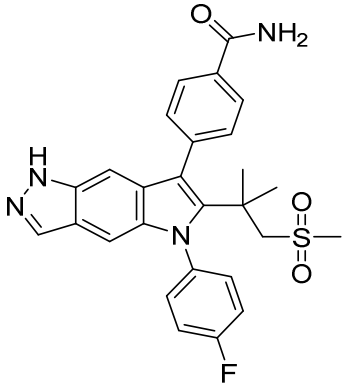
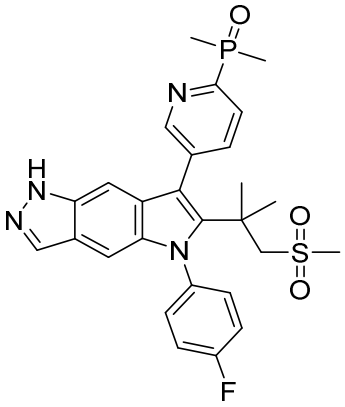
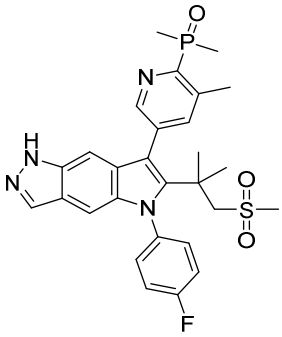
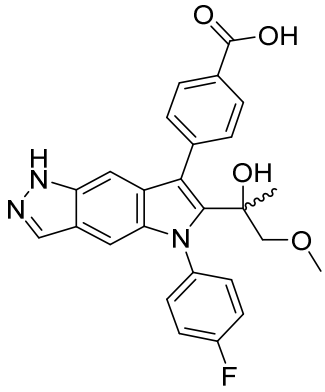
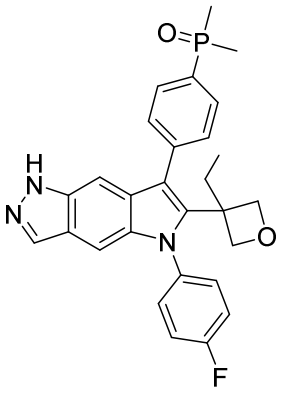
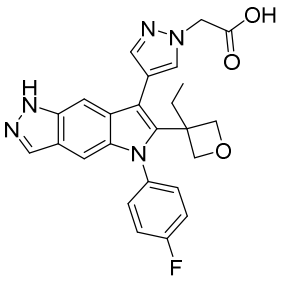
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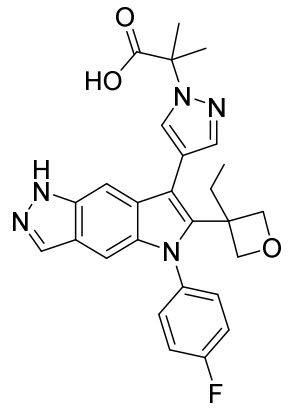
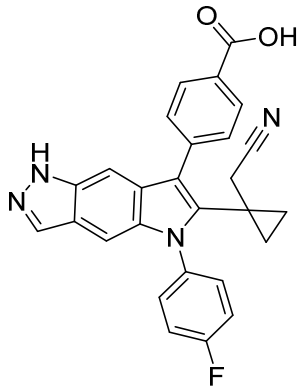
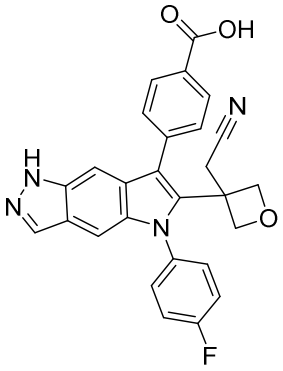
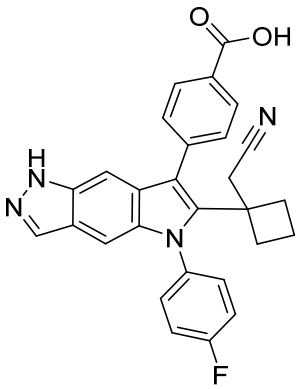
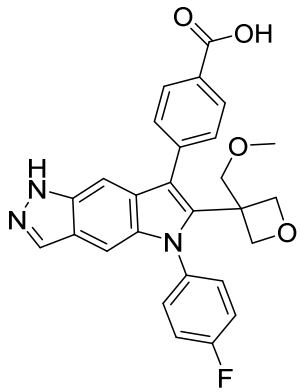
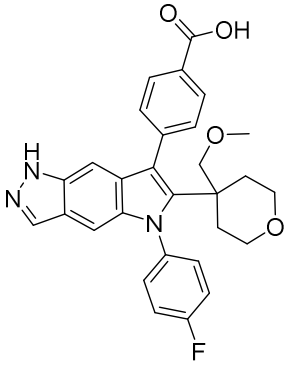
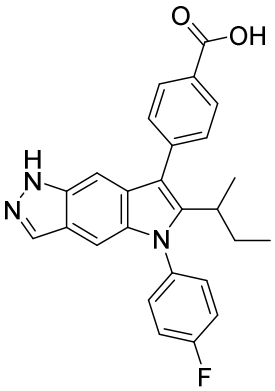
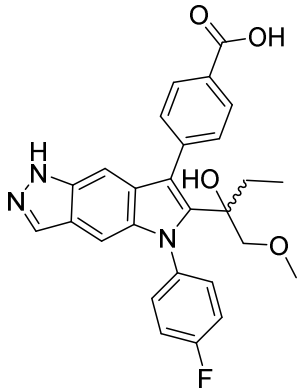
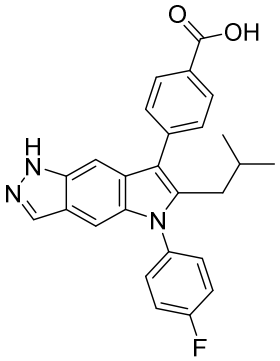
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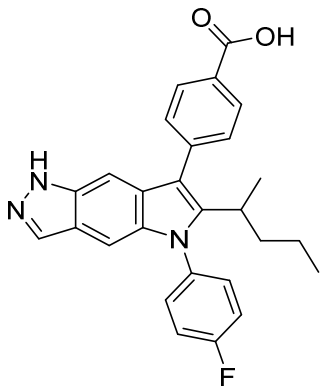
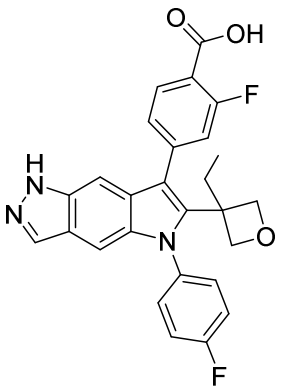
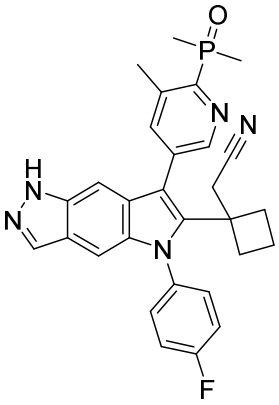
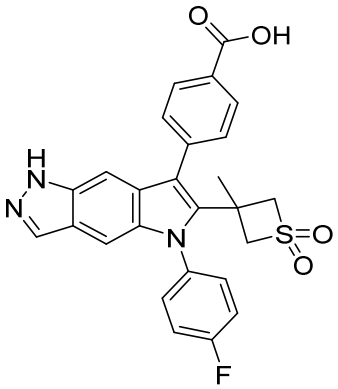
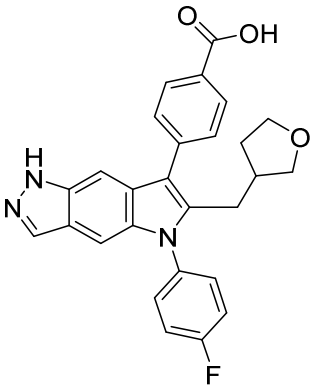
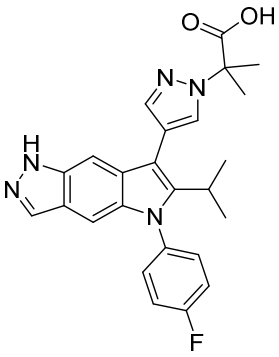
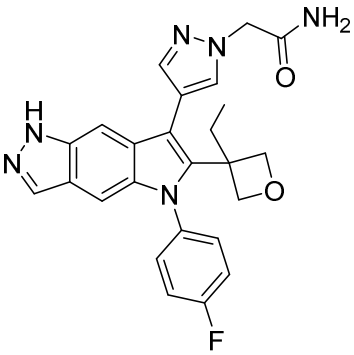
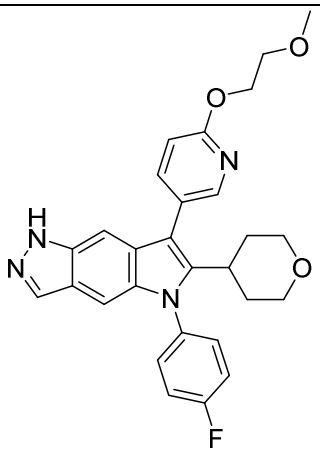
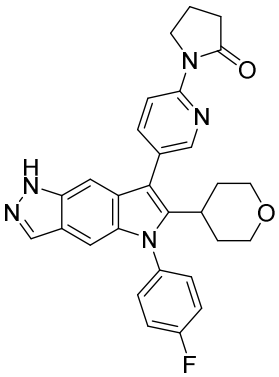
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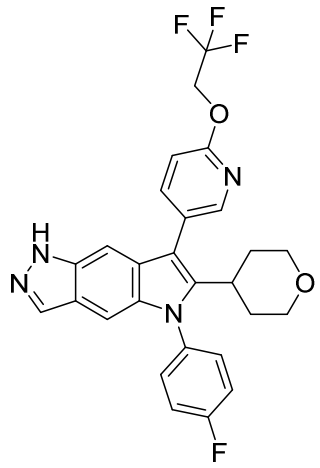
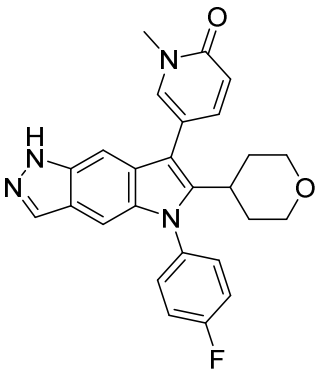
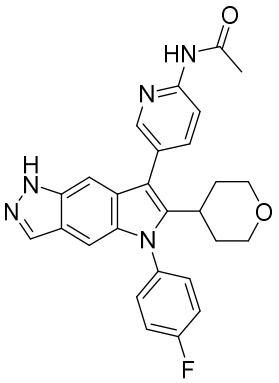
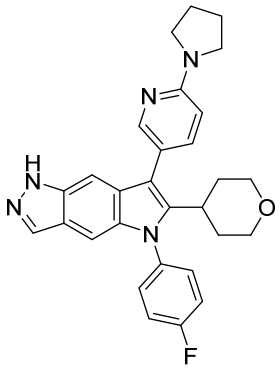
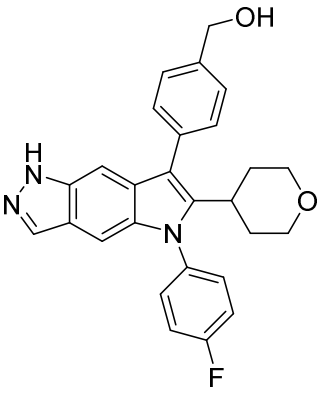
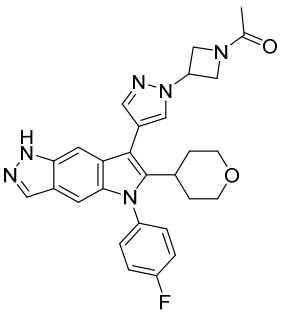
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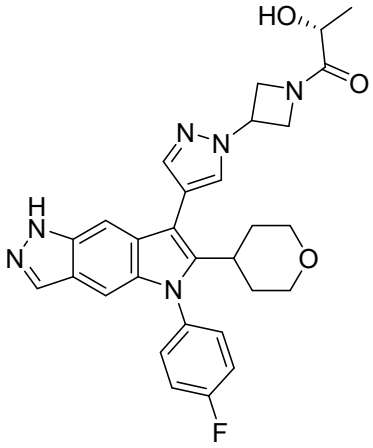
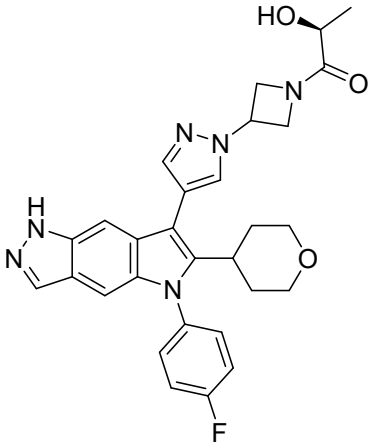
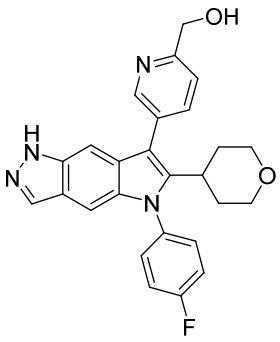
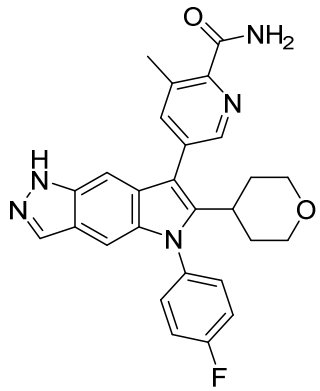
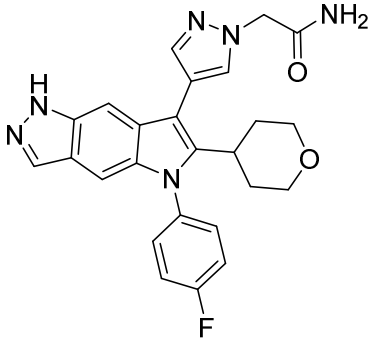
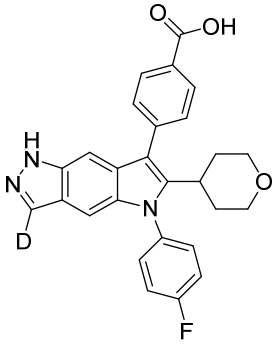
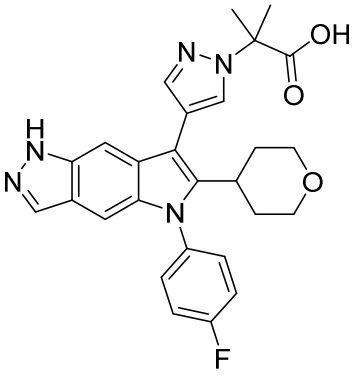
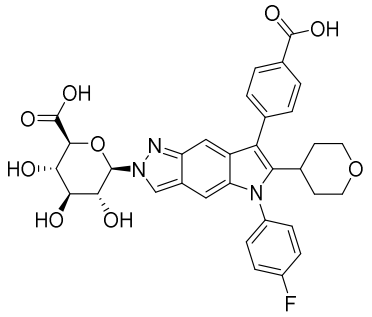
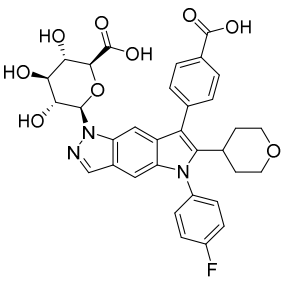
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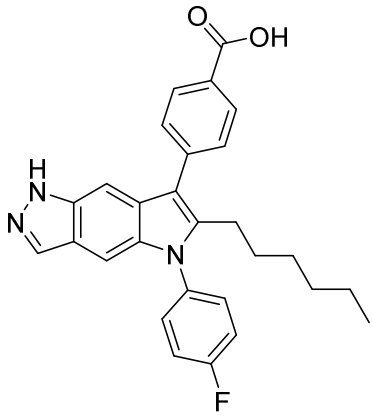
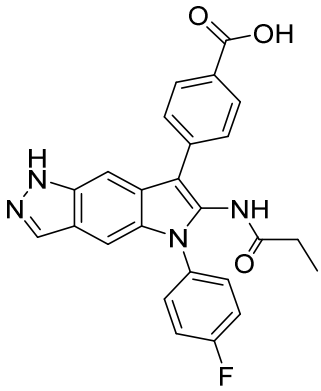
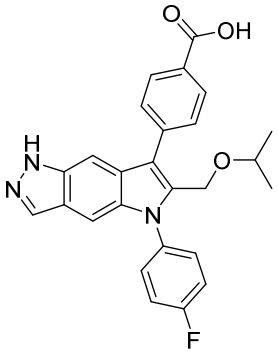
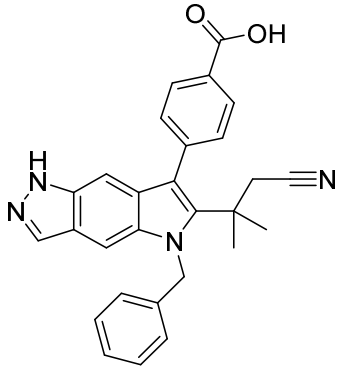
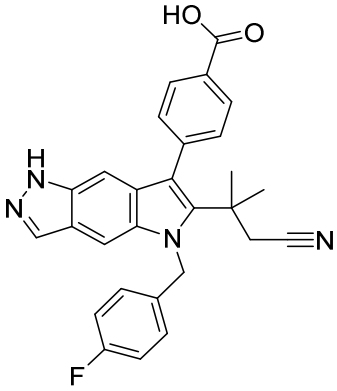
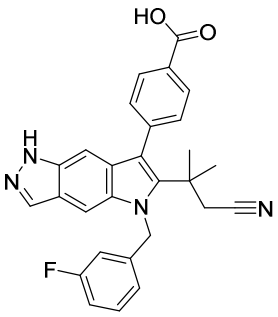
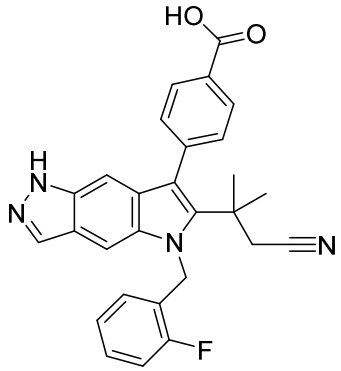
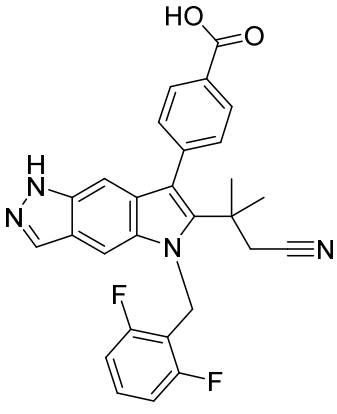
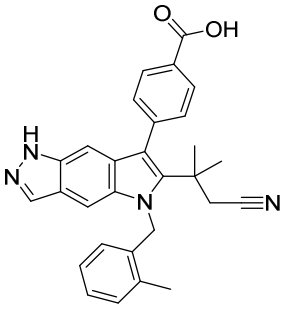
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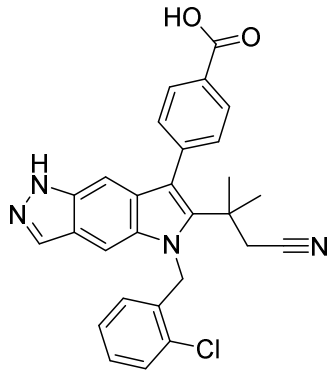
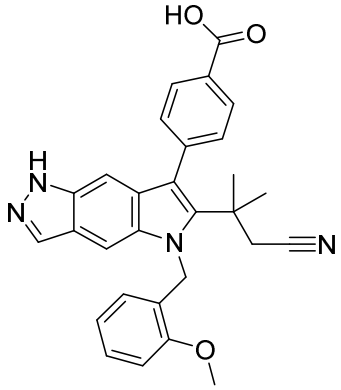
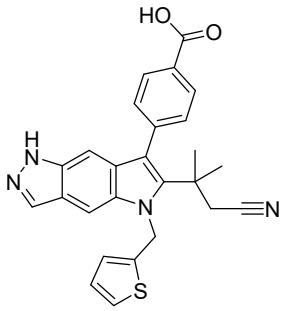
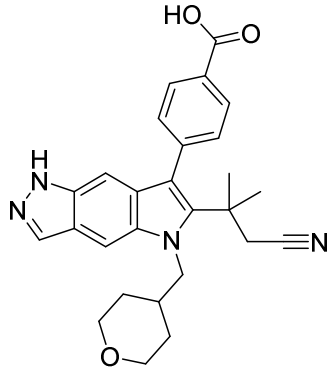
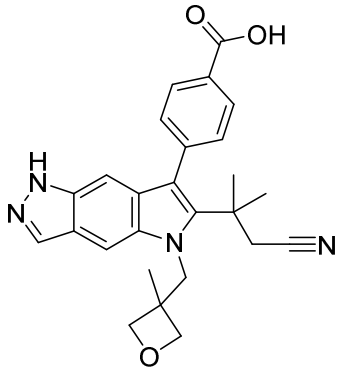
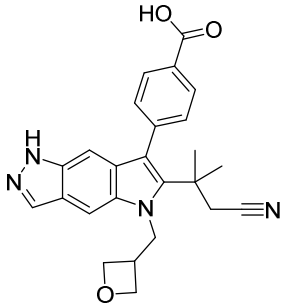
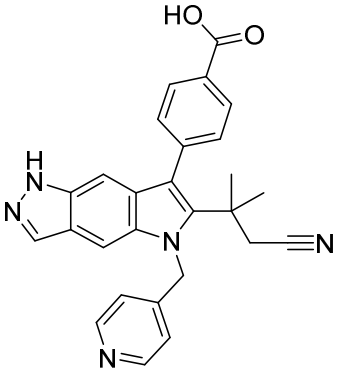
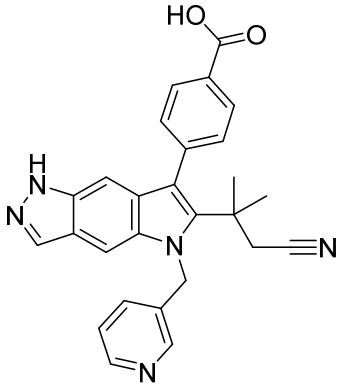
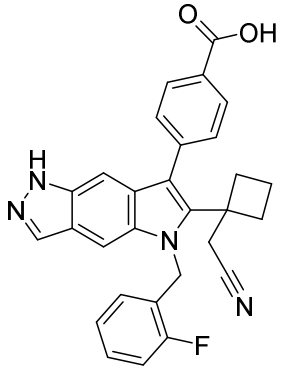
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268	**269**	**270**
		

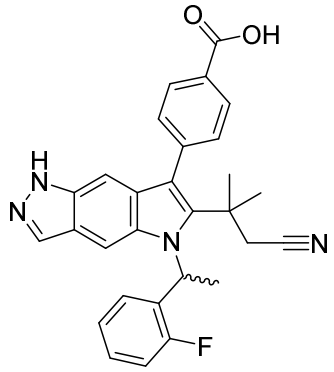
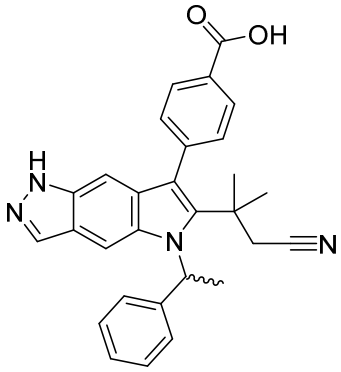
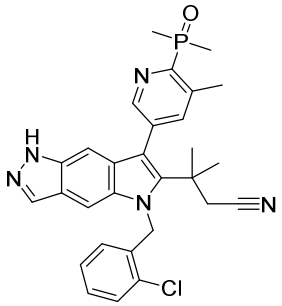
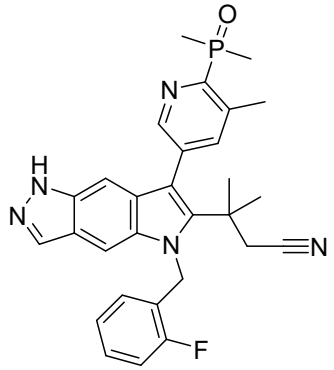
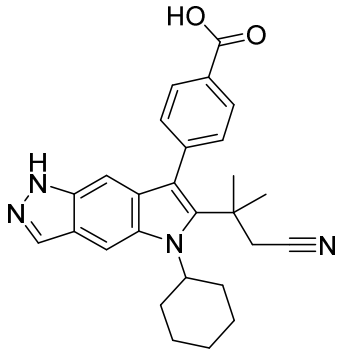
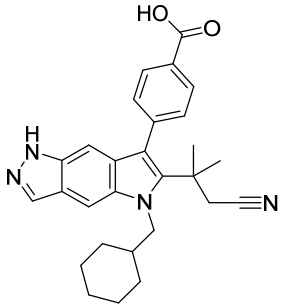
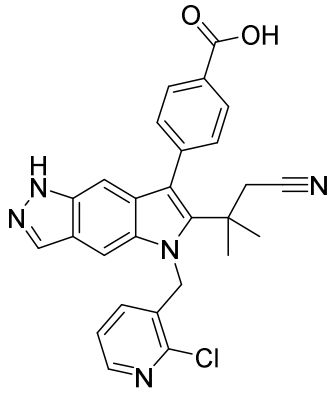
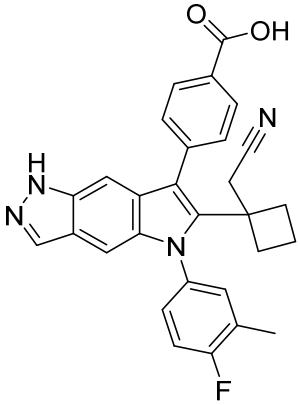
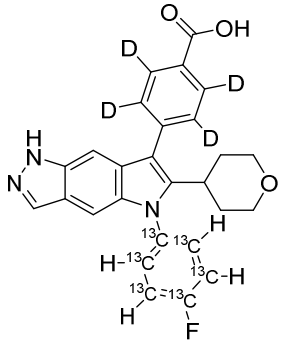
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277	**278**	**279**
		

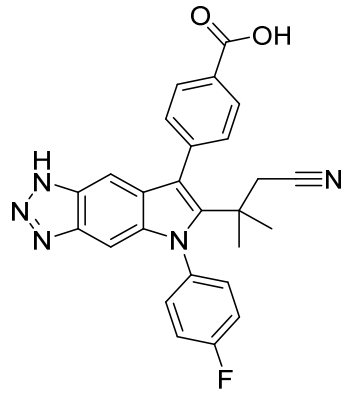
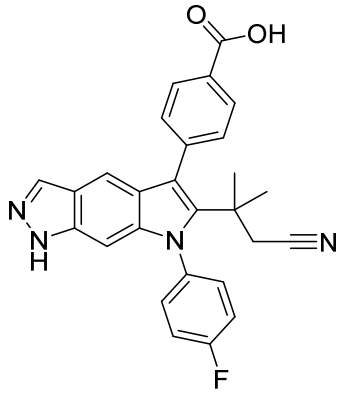
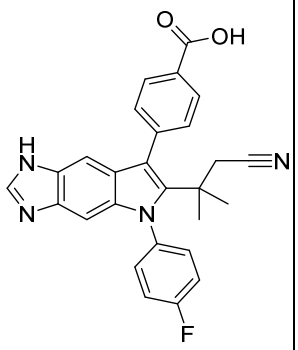
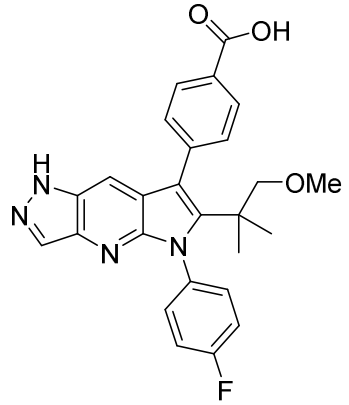
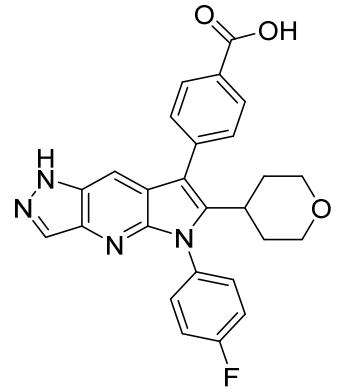
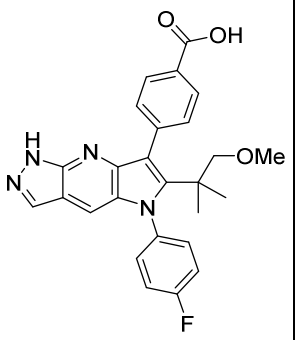
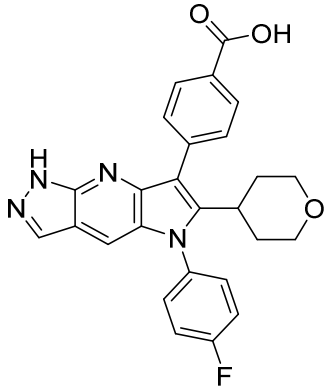
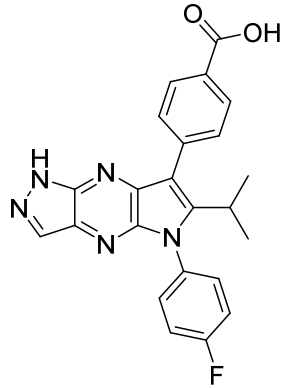
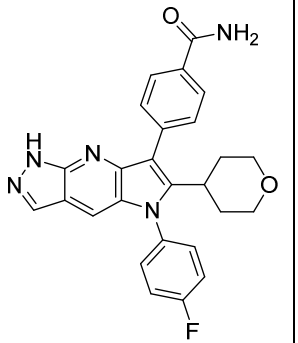
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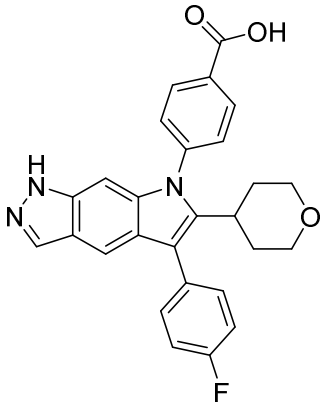
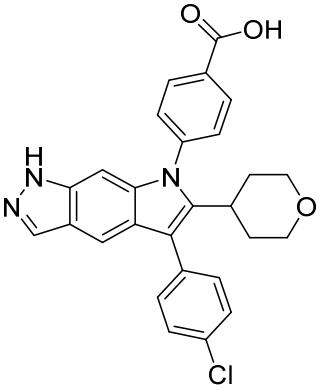
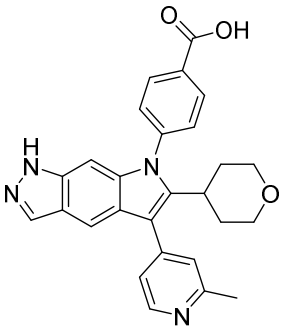
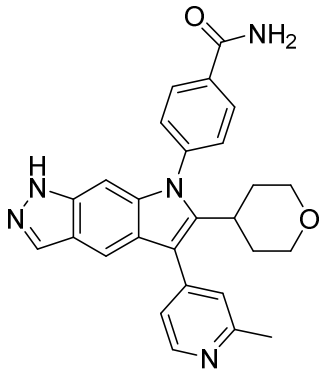
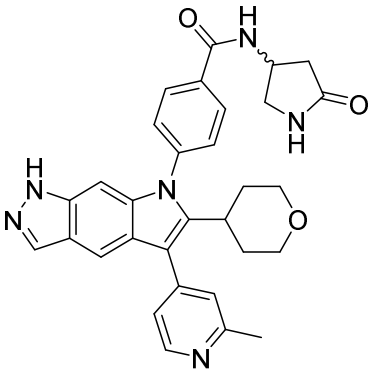
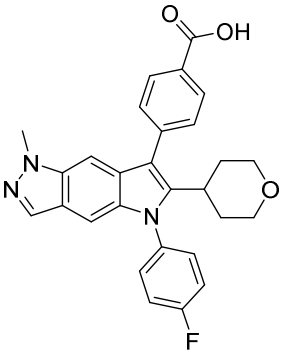
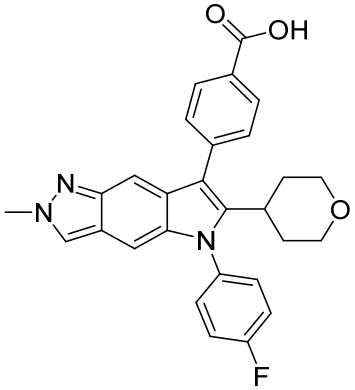
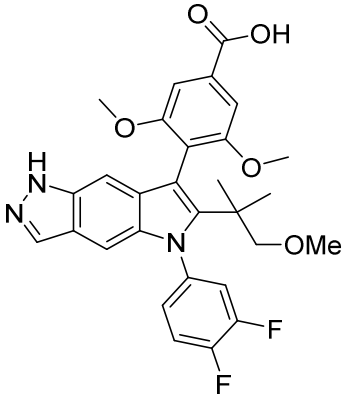
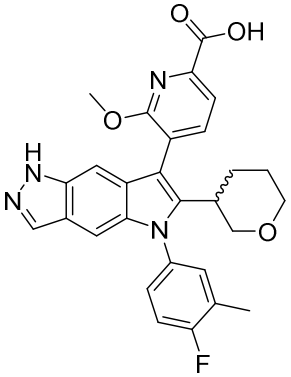
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289	**290**	**291**
		
292	**293**	**294**
		

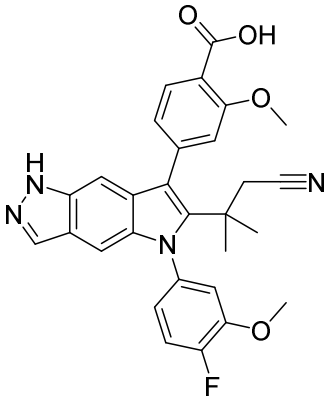
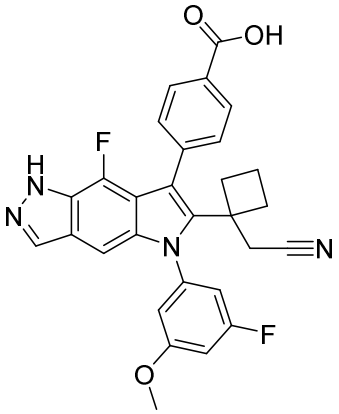
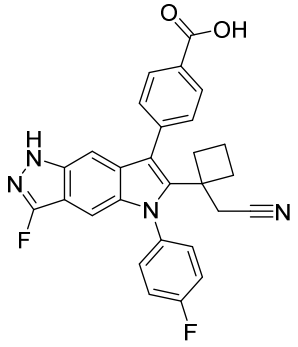
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298	**299**	**300**
		
301	**302**	**303**
		

304	305	306
		
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310	**311**	**312**
		

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319	**320**	**321**
		

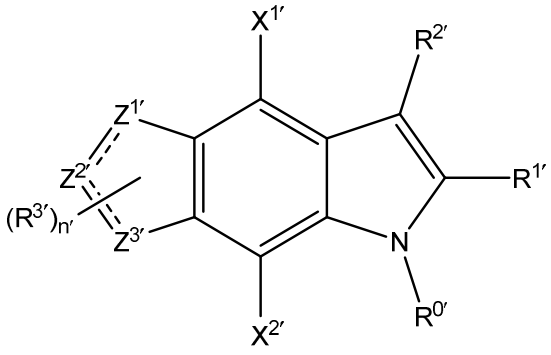
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325	**326**	**327**
		
328	**329**	**330**
		

331	332	333
		
334	**335**	**336**
		
337	**338**	**339**
		

340	341	342
		

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

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 $\mathbf{R^{A'}}$ 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 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 nitrogen, and the other is chosen from carbon and nitrogen, wherein the valences of carbon and nitrogen are completed with hydrogen atoms.

12. A pharmaceutical composition comprising the compound, tautomer, salt, or deuterated derivative according to any one of claims 1 to 11 and a pharmaceutically acceptable carrier.

13. A compound chosen from the compounds, tautomers, pharmaceutically acceptable salts, and deuterated derivatives according to any one of claims 1 to 11, or the pharmaceutical composition according to claim 12, for use in the treatment of alpha-1 antitrypsin deficiency in a patient in need thereof.

14. The compound or pharmaceutical composition according to claim 13, wherein the patient with alpha-1 antitrypsin deficiency has a Z mutation in alpha-1 antitrypsin.

15. The compound or pharmaceutical composition according to claim 13, wherein the patient with alpha-1 antitrypsin deficiency has an SZ mutation in alpha-1 antitrypsin.

16. The compound or pharmaceutical composition according to claim 14, wherein the patient with alpha-1 antitrypsin deficiency is homozygous for Z-mutations in alpha-1 antitrypsin.