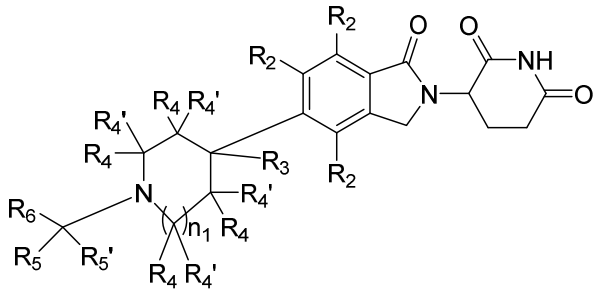
What is claimed is:

1. A compound represented by a structure of formula I:



(I)

or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof,

wherein:

R_2 is independently selected from the group consisting of hydrogen, amino, cyano, halo, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl;

R_3 is independently selected from the group consisting of hydrogen, amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl, or

R_3 and R_4, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_3 and R_2, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, wherein said cycloalkyl, heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_4 and R_4' are independently selected from the group consisting of hydrogen, hydroxyl, amino, amido, carbonyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_1\text{-}C_6)$hydroxyalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, $(C_2\text{-}C_6)$alkenyl, and $(C_2\text{-}C_6)$alkynyl; wherein said alkyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups, or

R_4 and R_4' together with the same carbon atom to which they are attached form a spiro $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

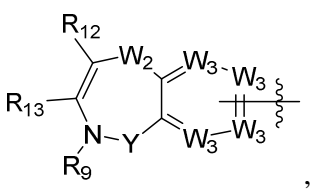
R_4 and R_4', when on different carbon atoms, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_4 and R_4', when on adjacent atoms, together with the atoms to which they are attached form a (C_6-C_{10})aryl or a 5- or 6-membered heteroaryl; wherein said cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_5 and R_5' are independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_2-C_6)alkenyl, (C_2-C_6)alkynyl, (C_1-C_6)haloalkyl, (C_1-C_6)hydroxyalkyl, (C_3-C_7)cycloalkyl, 4- to 7-membered heterocycloalkyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_6 is optionally substituted aryl or heteroaryl, or an R_7-substituted aryl or a R_7-substituted heteroaryl; wherein said R_7-substituted aryl or R_7-substituted heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

or R_6 is: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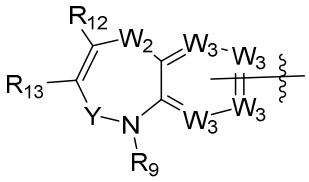
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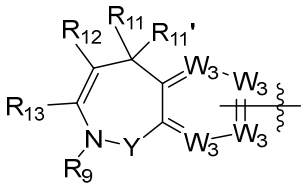
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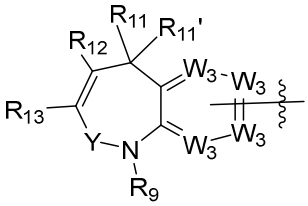
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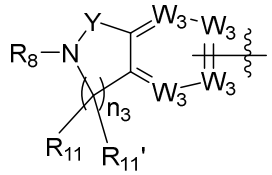
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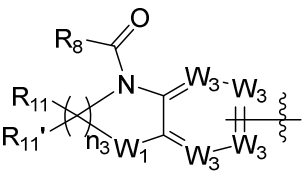
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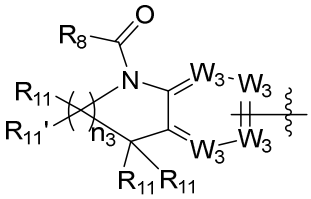
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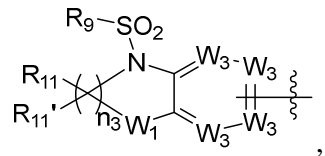
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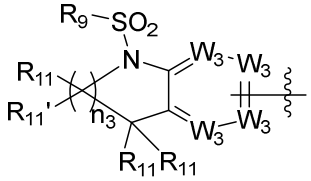
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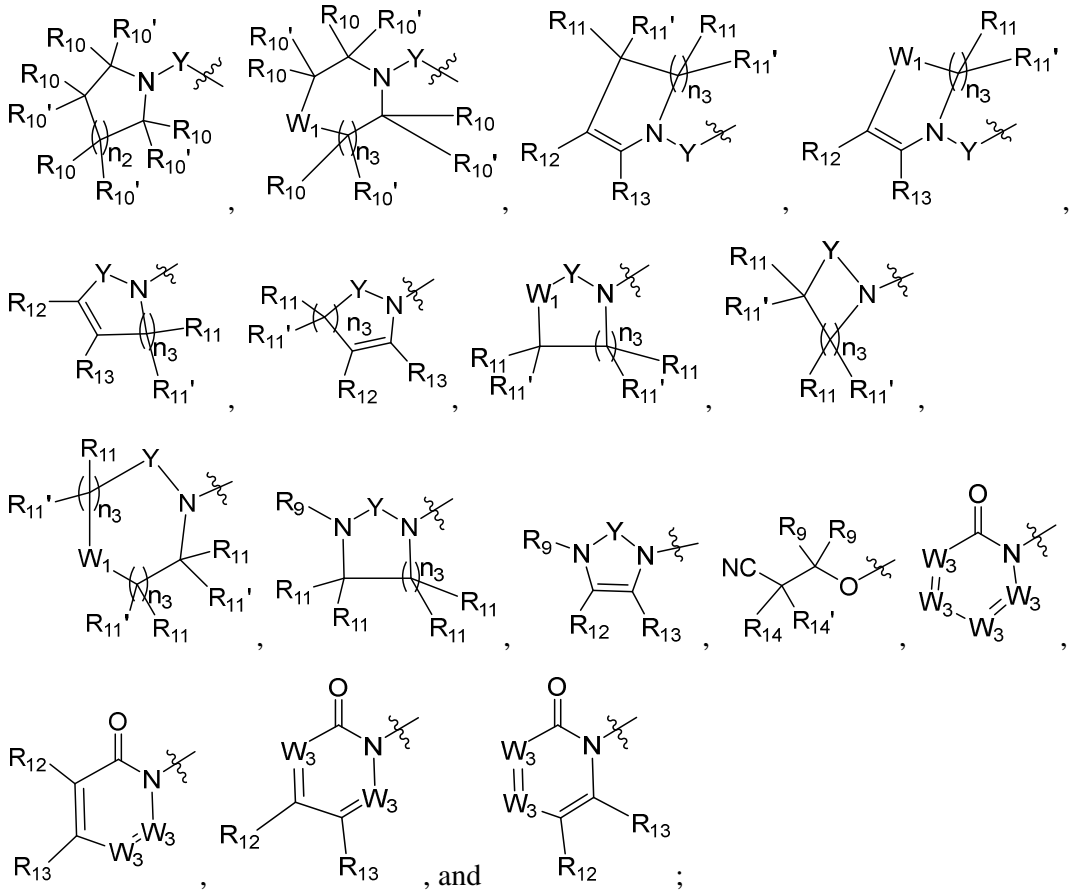
provided that when R_6 is optionally substituted aryl or heteroaryl, at least one of R_4 or R_4' is independently selected from the group consisting of alkynyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkynyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_7 is selected from the group consisting of -C(O)NR_8R_9, -SO_2NR_8R_9, -S(O)(=NH)R_9, -OR_8, -N(R_8R_9), -N(R_9)C(O)R_8, -N(R_9)SO_2R_9, -N(R_9)C(O)N(R_9)$_2$, -P(O)(R_9)$_2$, -N(R_9)S(O)$_2$N(R_9)$_2$,



R_8 is selected from the group consisting of $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_9 is independently selected from the group consisting of hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{10} and R_{10}' are independently selected from the group consisting of hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, halo, cyano, $-N(R_9)_2$, $-OR_9$, $(C_1\text{-}C_6)$alkoxy, $(C_1\text{-}C_6)$haloalkoxy, $(C_2\text{-}C_6)$alkenyl, and $(C_2\text{-}C_6)$alkynyl, provided at least one R_{10} and one R_{10}' when attached to the same carbon atom form a spiro 4- to 7-membered heterocycle or a 3- to 7-membered carbocycle, or when attached to different carbon atoms, form a

heterocycle or carbocycle, and wherein said alkyl, heterocycle, or carbocycle is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{11} and R_{11}' is independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_3-C_7)cycloalkyl, 4- to 7-membered heterocycloalkyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl, halo, cyano, -N(R_9)$_2$, -OR_9, (C_1-C_6)alkoxy, (C_1-C_6)haloalkoxy, (C_2-C_6)alkenyl, and (C_2-C_6)alkynyl*; wherein* said alkyl, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups; or

R_{11} and R_{11}' together with the same carbon atom to which they are attached form a spiro (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_{11} and R_{11}', when on different carbon atoms, together with the atoms to which they are attached form a (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; wherein said cycloalkyl, or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{12} and R_{13}, together with the carbon atoms to which they are attached form a (C_6-C_{10})aryl, or a monocyclic or bicyclic 5- to 10-membered heteroaryl, wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{14} and $R_{14'}$, together with the same carbon atom to which they are attached form a spiro 4- to 7-membered heterocycloalkyl, or a (C_3-C_7)cycloalkyl; wherein said cycloalkyl or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{15} is independently selected from the group consisting of alkyl, alkenyl, alkynyl, halo, haloalkyl, cycloalkyl, heterocycloalkyl, hydroxy, alkoxy, cycloalkoxy, heterocycloalkoxy, haloalkoxy, aryloxy, heteroaryloxy, aralkyloxy, alkyenyloxy, alkynyloxy, amino, alkylamino, cycloalkylamino, heterocycloalkylamino, arylamino, heteroarylamino, aralkylamino, N-alkyl-N-arylamino, N-alkyl-N-heteroarylamino, N-alkyl-N-aralkylamino, hydroxyalkyl, aminoalkyl, alkylthio, haloalkylthio, alkylsulfonyl, haloalkylsulfonyl, cycloalkylsulfonyl, heterocycloalkylsulfonyl, arylsulfonyl, heteroarylsulfonyl, aminosulfonyl, alkylaminosulfonyl, cycloalkylaminosulfonyl, heterocycloalkylaminosulfonyl, arylaminosulfonyl, heteroarylaminosulfonyl, N-alkyl-N-arylaminosulfonyl, N-alkyl-N-heteroarylaminosulfonyl, formyl, alkylcarbonyl, haloalkylcarbonyl, alkenylcarbonyl,

alkynylcarbonyl, carboxy, alkoxycarbonyl, alkylcarbonyloxy, amino, alkylsulfonylamino, haloalkylsulfonylamino, cycloalkylsulfonylamino, heterocycloalkylsulfonylamino, arylsulfonylamino, heteroarylsulfonylamino, aralkylsulfonylamino, alkylcarbonylamino, haloalkylcarbonylamino, cycloalkylcarbonylamino, heterocycloalkylcarbonylamino, arylcarbonylamino, heteroarylcarbonylamino, aralkylsulfonylamino, aminocarbonyl, alkylaminocarbonyl, cycloalkylaminocarbonyl, heterocycloalkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, N-alkyl-N-arylaminocarbonyl, N-alkyl-N-heteroarylaminocarbonyl, cyano, nitro, azido, phosphinyl, phosphoryl including phosphine oxide and phosphonate, cyclic acetal, 4- to 7-membered heterocycloalkyl which contains at least one nitrogen atom and is linked via the nitrogen atom, aryl, heteroaryl, and where two adjacent R_{15} taken together with the respective atoms to which each is bonded form an aryl, or a heteroaryl, or a 5- to 8-membered cycloalkyl or 5- to 8-membered heterocycloalkyl;

W_1 is selected from the group consisting of -O-, -S- and -NR_9-;

W_2 is selected from the group consisting of -O-, -S-, -SO_2-, -C(O)- and -NR_9-;

W_3 is selected from the group consisting of nitrogen, CR_{11}, and a carbon atom that is the point of attachment;

Y is selected from the group consisting of -SO_2- and -C(O)-

n_1 is 0, 1 or 2

n_2 is 0, 1, 2 or 3; and

n_3 is independently 1, 2 or 3.

2. The compound of claim 1, or a pharmaceutically acceptable salt or stereoisomer thereof, wherein:

R_2 is hydrogen, halo or (C_1-C_6)alkyl;

R_3 is independently selected from the group consisting of hydrogen, halogen, (C_1-C_6)alkyl and (C_1-C_6)haloalkyl;

R_4 and R_4' are independently selected from the group consisting of hydrogen, amido, halogen, (C_1-C_6)alkyl, (C_6-C_{10})aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl and (C_2-C_6)alkynyl; wherein said alkyl, alkynyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups, or

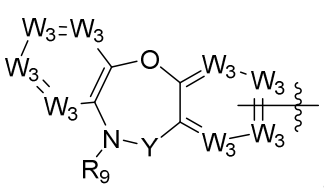
R_4 and R_4' together with the same carbon atom to which they are attached form a spiro (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_4 and R_4', when on different carbon atoms, together with the atoms to which they are attached form a (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; wherein said cycloalkyl or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_5 and R_5' are independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl and (C_1-C_6)hydroxyalkyl; wherein said alkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_6 is optionally substituted aryl or heteroaryl, or R_6 is a R_7-substituted aryl or a R_7-substituted heteroaryl; wherein said R_7-substituted aryl or R_7-substituted heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

or R_6 is: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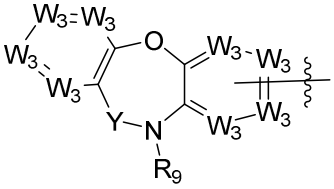
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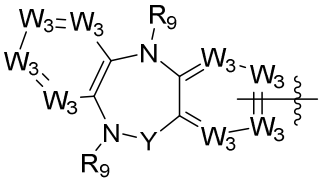
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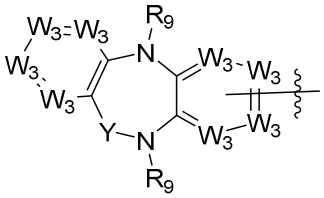
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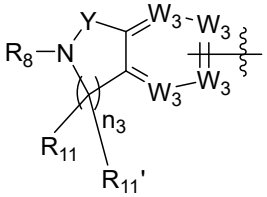
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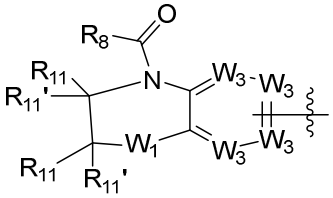
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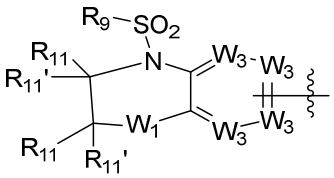
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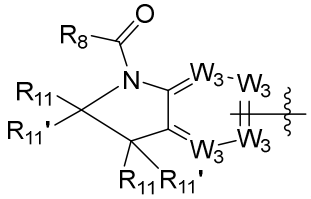
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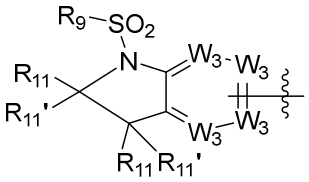
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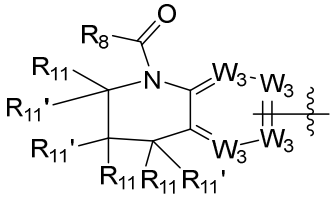
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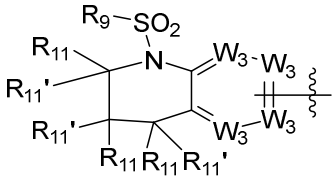
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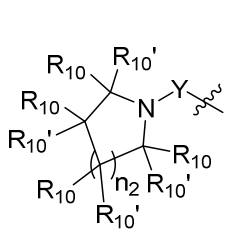
provided that when R_6 is optionally substituted aryl or heteroaryl, at least one of R_4 or R_4' is independently selected from the group consisting of alkynyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkynyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_7 is selected from the group consisting of -C(O)NR_8R_9, -SO_2NR_8R_9, -S(O)(=NH)R_9, -OR_8, -N(R_8R_9), -N(R_9)C(O)R_8, -N(R_9)SO_2R_9, -N(R_9)C(O)N(R_9)$_2$, -P(O)(R_9)$_2$, -N(R_9)S(O)$_2$N(R_9)$_2$,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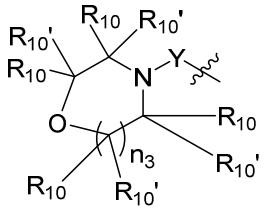
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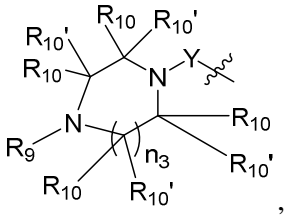
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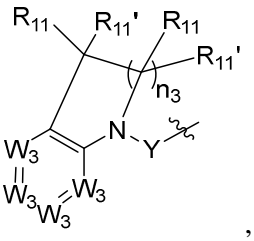
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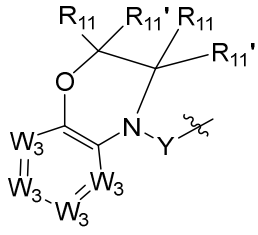
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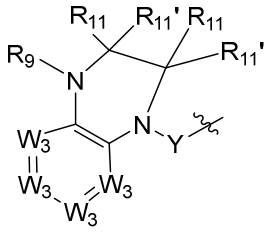
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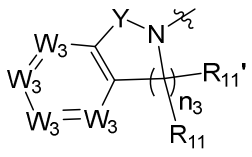
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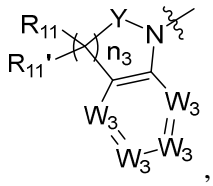
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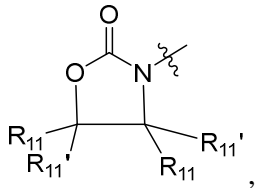
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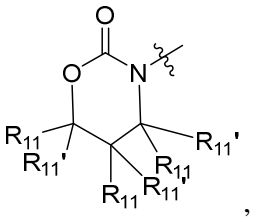
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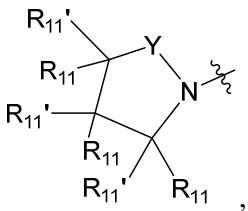
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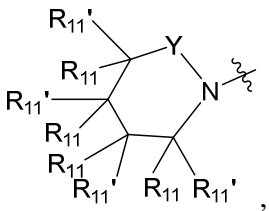
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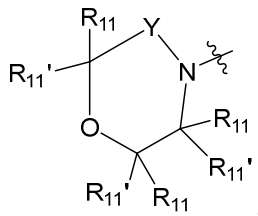
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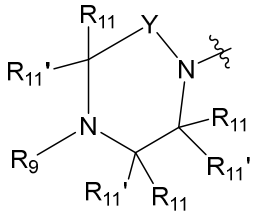
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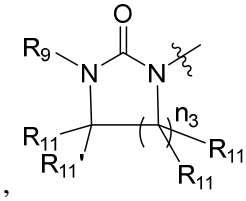
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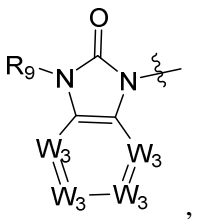
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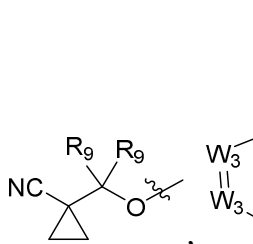
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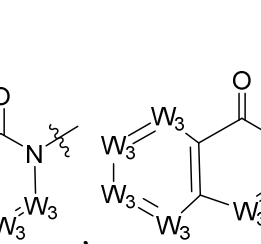
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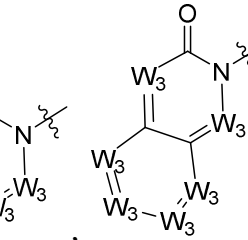
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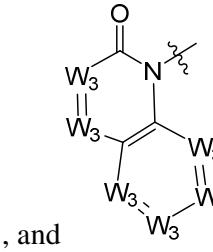
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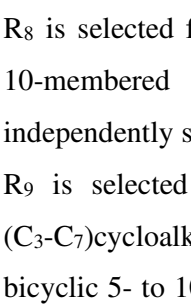
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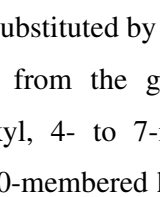
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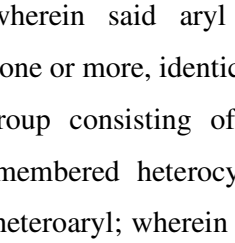
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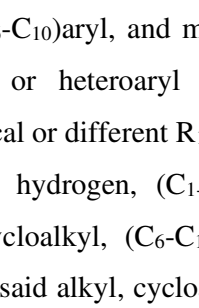
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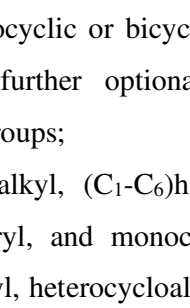

; and

R_8 is selected from the group consisting of (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_9 is selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_3-C_7)cycloalkyl, 4- to 7-membered heterocycloalkyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl

or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{10} and R_{10}' are independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_6-C_{10})aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl and halo, provided at least one R_{10} and one R_{10}' when attached to the same carbon atom forms a spiro 4- to 7-membered heterocycle or a 3- to 7-membered carbocycle, or when attached to different carbon atoms, forms a 4- to 7-membered heterocycle or a 3- to 7-membered carbocycle, wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{11} and R_{11}' is independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_6-C_{10})aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, and halo*; wherein* said alkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups; or

R_{11} and R_{11}' together with the same carbon atom to which they are attached form a spiro (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; or

R_{11} and R_{11}', when on different carbon atoms, together with the atoms to which they are attached form a (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; wherein said cycloalkyl, or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{12} and R_{13}, together with the carbon atoms they are attached to form a (C_6-C_{10})aryl or a monocyclic or bicyclic 5- to 10-membered heteroaryl, wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{14} and $R_{14'}$, together with the same carbon atom they are attached to form a spiro 4- to 7-membered heterocycloalkyl, or a (C_3-C_7)cycloalkyl; wherein said cycloalkyl or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

W_1 is selected from the group consisting of -O-, -S- and -NR_9-;

W_2 is selected from the group consisting of -O-, -S- and -NR_9-;

W_3 is selected from the group consisting of nitrogen, CR_{11}, and a carbon atom that is the point of attachment;

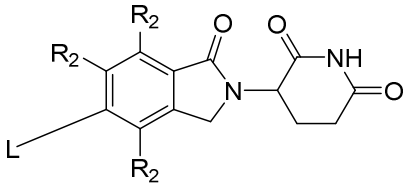
Y is selected from the group consisting of -SO_2-and -C(O)-;

n_1 is 0, 1 or 2;

n_2 is 0, 1, 2 or 3; and

n_3 is independently 1, 2 or 3.

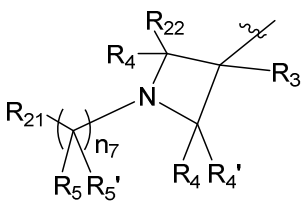
3. A compound represented by a structure of formula II:


(II),

or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof,

wherein:

L is selected from the group consisting of: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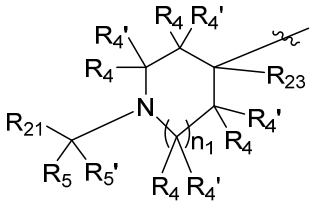
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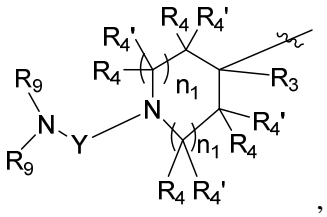
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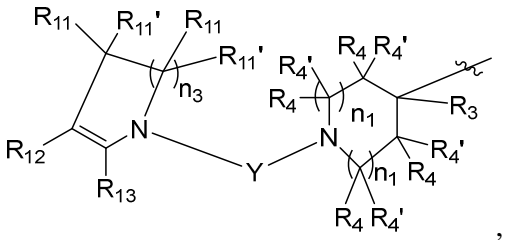
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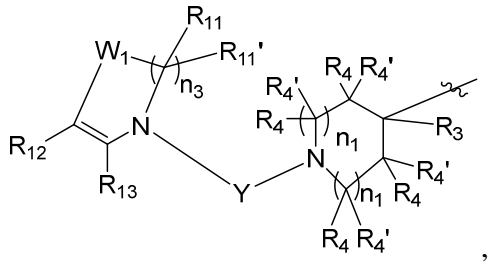
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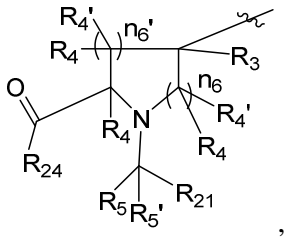
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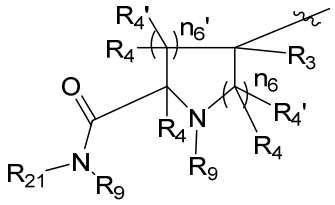
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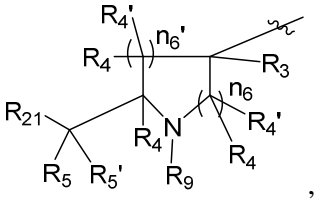
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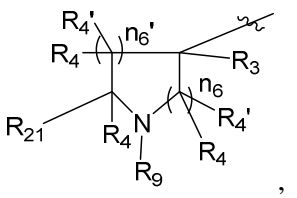
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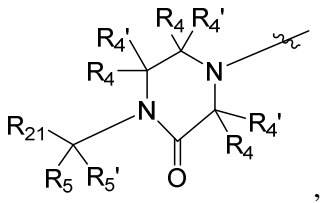
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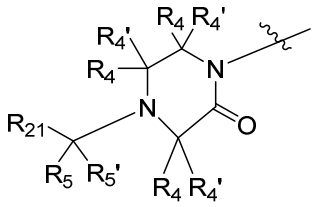
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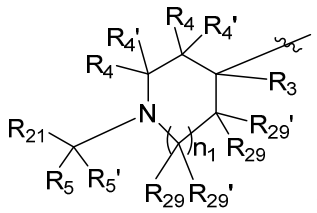


;

R_2 is independently selected from the group consisting of hydrogen, amino, cyano, halo, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl;

R_3 is independently selected from the group consisting of hydrogen, amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl, or

R_3 and R_4, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7- membered heterocycloalkyl group, or

R_3 and R_2, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7- membered heterocycloalkyl group, wherein said cycloalkyl, heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_4 and R_4' are independently selected from the group consisting of hydrogen, hydroxyl, amino, amido, carbonyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_1\text{-}C_6)$hydroxyalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, $(C_2\text{-}C_6)$alkenyl, and $(C_2\text{-}C_6)$alkynyl; wherein said alkyl, alkynyl, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups, or

R_4 and R_4' together with the same carbon atom to which they are attached form a spiro $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_4 and R_4', when on different carbon atoms, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

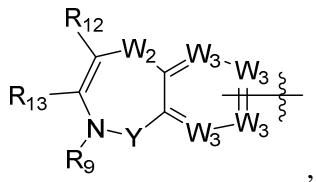
R_4 and R_4', when on adjacent atoms, together with the atoms to which they are attached form a $(C_6\text{-}C_{10})$aryl or a 5- or 6-membered heteroaryl; wherein said cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_5 and R_5' are independently selected from the group consisting of hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_1\text{-}C_6)$haloalkyl, $(C_1\text{-}C_6)$hydroxyalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered

heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_6 is optionally substituted aryl or heteroaryl, or wherein R_6 is a R_7-substituted aryl or a R_7-substituted heteroaryl; wherein said R_7-substituted aryl or R_7-substituted heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

or R_6 is:



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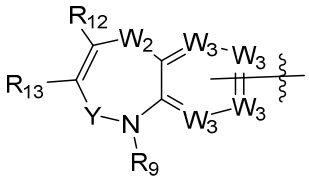

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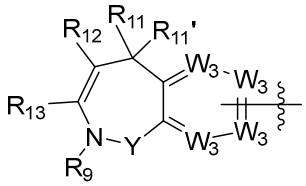

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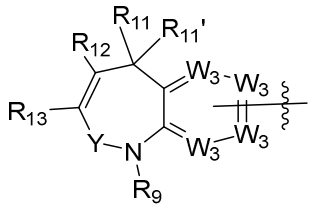

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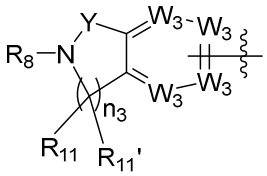

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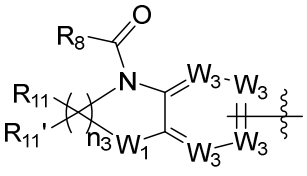

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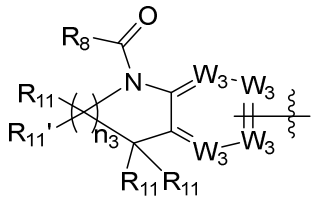

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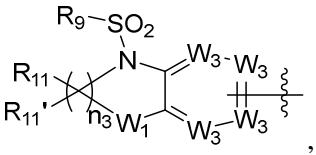

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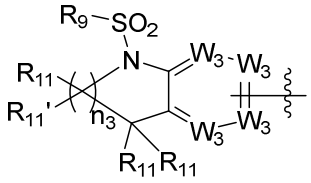

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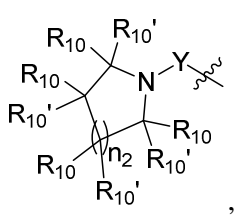
provided that when R_6 is optionally substituted aryl or heteroaryl, at least one of R_4 or R_4' is independently selected from the group consisting of alkynyl, (C_6-C_{10})aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkynyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_7 is selected from the group consisting of -$C(O)NR_8R_9$, -$SO_2NR_8R_9$, -$S(O)(=NH)R_9$, -OR_8, -$N(R_8R_9)$, -$N(R_9)C(O)R_8$, -$N(R_9)SO_2R_9$, -$N(R_9)C(O)N(R_9)_2$, -$P(O)(R_9)_2$, -$N(R_9)S(O)_2N(R_9)_2$,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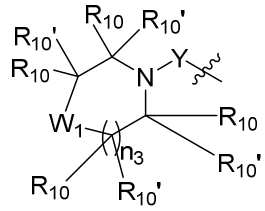
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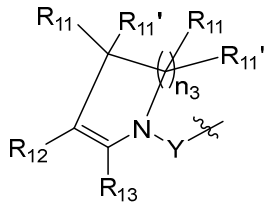
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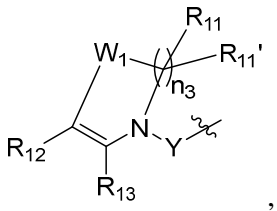
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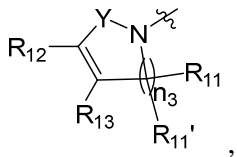
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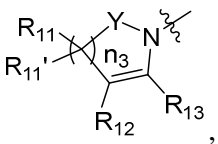
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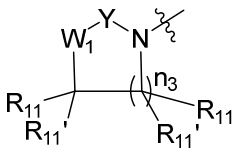
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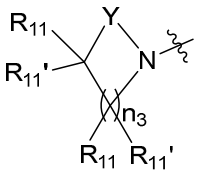
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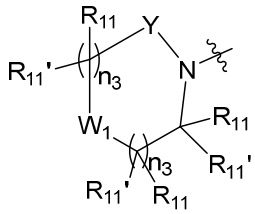
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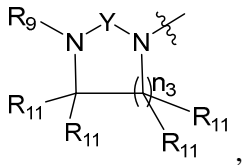
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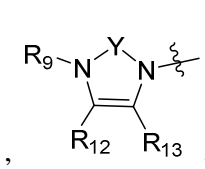
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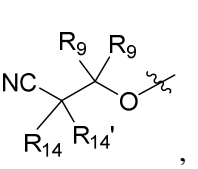
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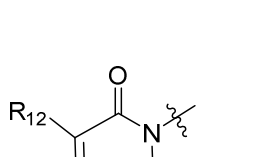
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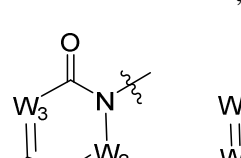
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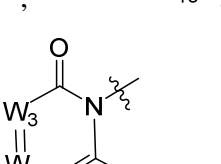
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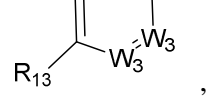
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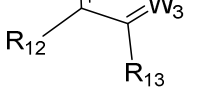
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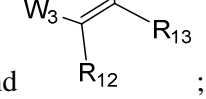

;

R_8 is selected from the group consisting of $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_9 is independently selected from the group consisting of hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{10} and R_{10}' are independently selected from the group consisting of hydrogen, $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl, halo, cyano, $-N(R_9)_2$, $-OR_9$, $(C_1\text{-}C_6)$alkoxy, $(C_1\text{-}C_6)$haloalkoxy, $(C_2\text{-}C_6)$alkenyl, and $(C_2\text{-}C_6)$alkynyl, provided at least one R_{10} and one R_{10}' when attached to the same carbon atom form a spiro 4- to 7-membered heterocycle or a 3-7 membered carbocycle, or when attached to different carbon atoms, form a heterocycle

or carbocycle, and wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{11} and R_{11}' is independently selected from the group consisting of hydrogen, (C_1-C_6)alkyl, (C_1-C_6)haloalkyl, (C_3-C_7)cycloalkyl, 4- to 7-membered heterocycloalkyl, (C_6-C_{10})aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, halo, cyano, -N(R_9)$_2$, -OR_9, (C_1-C_6)alkoxy, (C_1-C_6)haloalkoxy, (C_2-C_6)alkenyl, and (C_2-C_6)alkynyl*; wherein* said alkyl, cycloalkyl, heterocycloalkyl, aryl, or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups; or

R_{11} and R_{11}' together with the same carbon atom to which they are attached form a spiro (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_{11} and R_{11}', when on different carbon atoms, together with the atoms to which they are attached form a (C_3-C_7)cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; wherein said cycloalkyl, or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{12} and R_{13}, together with the carbon atoms to which they are attached form a (C_6-C_{10})aryl, or a monocyclic or bicyclic 5- to 10-membered heteroaryl, wherein said aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{14} and $R_{14'}$, together with the same carbon atom to which they are attached form a spiro 4- to 7-membered heterocycloalkyl, or a (C_3-C_7)cycloalkyl; wherein said cycloalkyl or heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{15} is independently selected from the group consisting of alkyl, alkenyl, alkynyl, halo, haloalkyl, cycloalkyl, heterocycloalkyl, hydroxy, alkoxy, cycloalkoxy, heterocycloalkoxy, haloalkoxy, aryloxy, heteroaryloxy, aralkyloxy, alkyenyloxy, alkynyloxy, amino, alkylamino, cycloalkylamino, heterocycloalkylamino, arylamino, heteroarylamino, aralkylamino, N-alkyl-N-arylamino, N-alkyl-N-heteroarylamino, N-alkyl-N-aralkylamino, hydroxyalkyl, aminoalkyl, alkylthio, haloalkylthio, alkylsulfonyl, haloalkylsulfonyl, cycloalkylsulfonyl, heterocycloalkylsulfonyl, arylsulfonyl, heteroarylsulfonyl, aminosulfonyl, alkylaminosulfonyl, cycloalkylaminosulfonyl, heterocycloalkylaminosulfonyl, arylaminosulfonyl, heteroarylaminosulfonyl, N-alkyl-N-arylaminosulfonyl, N-alkyl-N-heteroarylaminosulfonyl, formyl, alkylcarbonyl, haloalkylcarbonyl, alkenylcarbonyl,

alkynylcarbonyl, carboxy, alkoxycarbonyl, alkylcarbonyloxy, amino, alkylsulfonylamino, haloalkylsulfonylamino, cycloalkylsulfonylamino, heterocycloalkylsulfonylamino, arylsulfonylamino, heteroarylsulfonylamino, aralkylsulfonylamino, alkylcarbonylamino, haloalkylcarbonylamino, cycloalkylcarbonylamino, heterocycloalkylcarbonylamino, arylcarbonylamino, heteroarylcarbonylamino, aralkylsulfonylamino, aminocarbonyl, alkylaminocarbonyl, cycloalkylaminocarbonyl, heterocycloalkylaminocarbonyl, arylaminocarbonyl, heteroarylaminocarbonyl, N-alkyl-N-arylaminocarbonyl, N-alkyl-N-heteroarylaminocarbonyl, cyano, nitro, azido, phosphinyl, phosphoryl including phosphine oxide and phosphonate, cyclic acetal, 4- to 7-membered heterocycloalkyl which contains at least one nitrogen atom and is linked via the nitrogen atom, aryl, heteroaryl, and where two adjacent R_{15} taken together with the respective atoms to which each is bonded form an aryl, or a heteroaryl, or a 5- to 8-membered cycloalkyl or 5- to 8-membered heterocycloalkyl;

R_{21} is selected from the group consisting of R_6, a $(C_6\text{-}C_{10})$aryl, and a monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is optionally and independently substituted by one or more, identical or different R_{25} groups;

R_{22} is selected from the group consisting alkyl, haloalkyl, $(C_3\text{-}C_7)$cycloalkyl, 4- to 7- membered heterocycloalkyl, $(C_6\text{-}C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{23} is selected from the group consisting amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl and $(C_1\text{-}C_6)$haloalkyl, or

R_{23} and R_4, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, or

R_{23} and R_2, together with the atoms to which they are attached form a $(C_3\text{-}C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group, wherein said cycloalkyl, heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{24} is selected from the group consisting of $-N(R_9)_2$, and 4- to 7-membered heterocyclylalkyl, wherein said heterocyclylalkyl contains at least one nitrogen atom and is linked via the nitrogen atom;

R_{25} is independently selected from the group consisting of $(C_1\text{-}C_6)$alkyl, $(C_2\text{-}C_6)$alkenyl, $(C_2\text{-}C_6)$alkynyl, $(C_1\text{-}C_6)$alkoxy, $(C_1\text{-}C_6)$haloalkyl, $(C_1\text{-}C_6)$haloalkoxy, $-C(O)R_{26}$, $-(CH_2)_{0\text{-}}$

$_3$C(O)OR$_{26}$, -C(O)NR$_{26}$R$_{27}$, -NR$_{26}$C(O)R$_{27}$, -NR$_{26}$C(O)OR$_{27}$, -S(O)pNR$_{26}$R$_{27}$, -S(O)pR$_{28}$, (C$_1$-C$_6$)hydroxyalkyl, halogen, -OH, -O(CH$_2$)$_{1-3}$CN, -(CH$_2$)$_{1-3}$CN, -(CR$_{29}$R$_{29}$')CN, -NH$_2$, CN, -O(CH$_2$)$_{0-3}$(C$_6$-C$_{10}$)aryl, adamantyl, -O(CH$_2$)$_{0-3}$-5- or 6-membered heteroaryl comprising 1 to 3 heteroatoms selected from O, N, and S, (C$_6$-C$_{10}$)aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, (C$_3$-C$_7$)cycloalkyl, and 4- to 7-membered heterocycloalkyl, wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R$_{15}$ groups, or

wherein two R$_{25}$ groups when on adjacent atoms, together with the atoms to which they are attached form an aryl or a 5- or 6-membered heteroaryl, optionally substituted with one or more R$_{15}$ groups, or

wherein two R$_{25}$ groups together with the atoms to which they are attached form a (C$_5$-C$_7$) cycloalkyl ring, or a 5- to 7-membered heterocycloalkyl ring, optionally substituted with one or more R$_{15}$;

R$_{26}$ and R$_{27}$ are independently selected from the group consisting of hydrogen and alkyl;

R$_{28}$ is selected from the group consisting of (C$_1$-C$_6$)alkyl, (C$_1$-C$_6$)haloalkyl, (C$_3$-C$_7$)cycloalkyl, 4- to 7-membered heterocycloalkyl, (C$_6$-C$_{10}$)aryl and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl is further optionally and independently substituted by one or more, identical or different R$_{15}$ groups;

R$_{29}$ and R$_{29}$' are independently selected from the group consisting of R$_4$, provided at least one R$_{29}$ and R$_{29}$' together with the same carbon atom to which they are attached form a spiro (C$_3$-C$_7$)cycloalkyl, or

R$_{29}$ and R$_{29}$', when on adjacent carbon atoms, together with the atoms to which they are attached form a (C$_3$-C$_7$)cycloalkyl; wherein said cycloalkyl is further optionally and independently substituted by one or more, identical or different R$_{15}$ groups;

W$_1$ is selected from the group consisting of -O-, -S- and -NR$_9$-;

W$_2$ is selected from the group consisting of -O-, -S-, -SO$_2$-, -C(O)- and -NR$_9$-;

W$_3$ is selected from the group consisting of nitrogen, CR$_{11}$, and a carbon atom that is the point of attachment;

Y is selected from the group consisting of -SO$_2$- and -C(O)-;

n$_1$ is independently 0, 1 or 2;

n$_2$ is 0, 1, 2 or 3;

n_3 is independently 1, 2 or 3;

n_6 and n_6' are independently 0, 1, 2, 3, 4 or 5, provided that n_6 and n_6' cannot both be 0;

n_7 is 1 or 2; and

p is 0, 1 or 2.

4. The compound of claim 3, or a pharmaceutically acceptable salt or stereoisomer thereof,

wherein:

R_2 is hydrogen, halo or $(C_1$-$C_6)$alkyl;

R_3 is independently selected from the group consisting of hydrogen, halogen, $(C_1$-$C_6)$alkyl and $(C_1$-$C_6)$haloalkyl;

R_4 and R_4' are independently selected from the group consisting of hydrogen, amido, halogen, $(C_1$-$C_6)$alkyl, $(C_6$-$C_{10})$aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl and $(C_2$-$C_6)$alkynyl; wherein said alkyl, alkynyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups; or

R_4 and R_4' together with the same carbon atom to which they are attached form a spiro $(C_3$-$C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; or

R_4 and R_4', when on different carbon atoms, together with the atoms to which they are attached form a $(C_3$-$C_7)$cycloalkyl group or a 4- to 7-membered heterocycloalkyl group; wherein said cycloalkyl, heterocycloalkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_5 and R_5' are independently selected from the group consisting of hydrogen, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$haloalkyl and $(C_1$-$C_6)$hydroxyalkyl; wherein said alkyl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_9 is selected from the group consisting of hydrogen, $(C_1$-$C_6)$alkyl, $(C_1$-$C_6)$haloalkyl, $(C_3$-$C_7)$cycloalkyl, 4- to 7-membered heterocycloalkyl, $(C_6$-$C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl, heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{21} is selected from the group consisting of R_6, $(C_6$-$C_{10})$aryl, and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is optionally and independently substituted by one or more, identical or different R_{25} group;

R_{22} is selected from the group consisting of alkyl, $(C_6\text{-}C_{10})$aryl and monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said alkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{23} is selected from the group consisting of halogen, $(C_1\text{-}C_6)$alkyl and $(C_1\text{-}C_6)$haloalkyl;

R_{24} is selected from the group consisting of $-N(R_9)_2$ and 4- to 12-membered heterocyclylalkyl, wherein said heterocyclylalkyl contains at least one nitrogen atom and is linked via the nitrogen atom;

R_{25} is independently selected from the group consisting of $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$alkoxy, $(C_1\text{-}C_6)$haloalkyl, $(C_1\text{-}C_6)$haloalkoxy, $-C(O)NR_{26}R_{27}$, $-NR_{26}C(O)R_{27}$, $-S(O)pNR_{26}R_{27}$, $-S(O)pR_{28}$, halogen, $-O(CH_2)_{1\text{-}3}CN$, $-NH_2$, CN, $-(CR_{29}R_{29}')CN$, $-O(CH_2)_{0\text{-}3}$-5- or 6-membered heteroaryl comprising 1 to 3 heteroatoms selected from O, N, and S, $(C_6\text{-}C_{10})$aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, $(C_3\text{-}C_7)$cycloalkyl, and 4- to 7-membered heterocycloalkyl, wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more, identical or different R_{15} groups; or

two R_{25} groups when on adjacent atoms, together with the atoms to which they are attached form an aryl, or a 5- or 6-membered heteroaryl, optionally substituted with one or more R_{15} groups or

two R_{25} groups together with the atoms to which they are attached form a $(C_5\text{-}C_7)$cycloalkyl or a 5- to 7-membered heterocycloalkyl optionally substituted with one or more R_{15} groups;

R_{26} and R_{27} are independently selected from the group consisting of hydrogen and alkyl;

R_{28} is selected from the group consisting of $(C_1\text{-}C_6)$alkyl, $(C_1\text{-}C_6)$haloalkyl, $(C_3\text{-}C_7)$cycloalkyl and $(C_6\text{-}C_{10})$aryl; wherein said alkyl, cycloalkyl or aryl is further optionally and independently substituted by one or more, identical or different R_{15} groups;

R_{29} and R_{29}' are independently selected from the group consisting of R_4, provided at least one R_{29} and one R_{29}' together with the same carbon atom to which they are attached form a spiro $(C_3\text{-}C_5)$cycloalkyl; or

R_{29} and R_{29}', when on adjacent carbon atoms, together with the atoms to which they are attached form a $(C_3\text{-}C_5)$cycloalkyl that is further optionally and independently substituted by one or more, identical or different R_{15} groups;

n_1 is independently 0, 1 or 2;

n_6 and n_6' are independently 0, 1, 2, 3, 4 or 5, provided n_6 and n_6' cannot both be 0;

n_7 is 1 or 2;

p is 0, 1 or 2; and

W_1 is selected from the group consisting of -O- and -NR_9-.

5. The compound of any one of claims 1-4, wherein n_1 is 1.

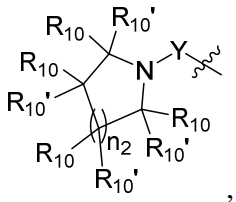
6. The compound of any one of claims 1-5, wherein n_2 is 0, 1 or 2.

7. The compound of any one of claims 1-6, wherein n_3 is 1 or 2.

8. The compound of any one of claims 3-4, wherein p is 2.

9. The compound of claim 1, wherein R_5 and R_5' are independently hydrogen or methyl.

10. The compound of claim 1, wherein R_6 is a R_7-substituted aryl or a R_7-substituted heteroaryl; wherein said R_7 substituted aryl or R_7-substituted heteroaryl is further optionally and independently substituted by one or more identical or different R_{15} groups.

11. The compound of claim 10, wherein R_7 is -$C(O)NR_8R_9$, -$SO_2NR_8R_9$, -OR_8, -$N(R_8R_9)$, -$N(R_9)C(O)R_8$, -$N(R_9)SO_2R_9$, -$N(R_9)C(O)N(R_9)_2$, -$P(O)(R_9)_2$, 

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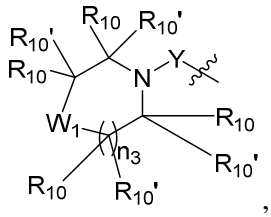
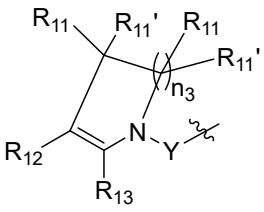
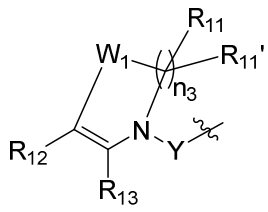
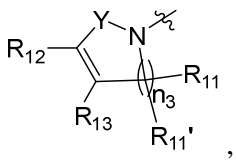


, 

, 

, 

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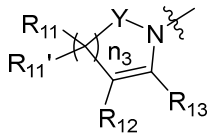
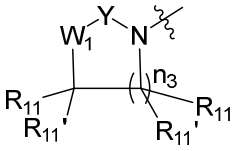
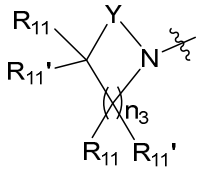
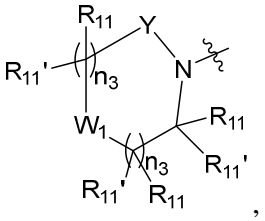
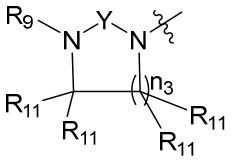
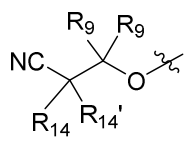
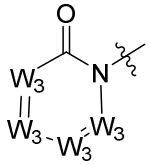
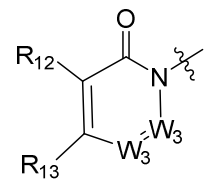
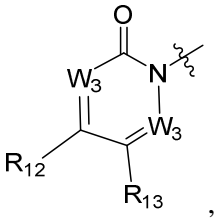
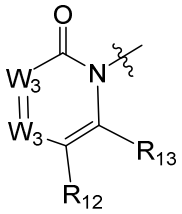
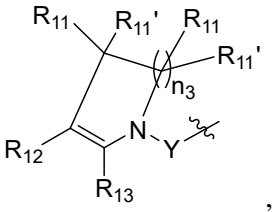
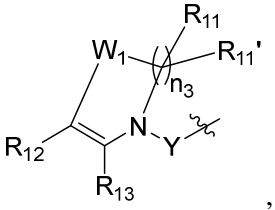
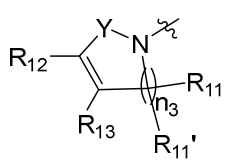
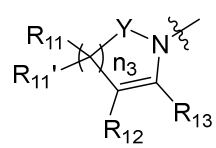
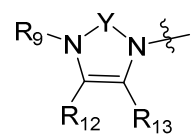
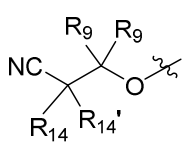
 ,  ,  ,  ,

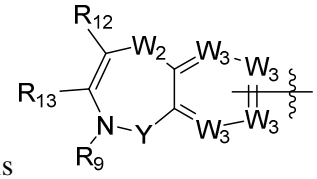
 ,  ,  ,  ,  ,

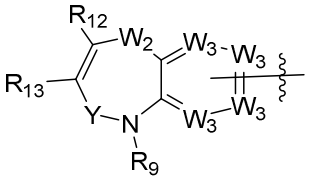
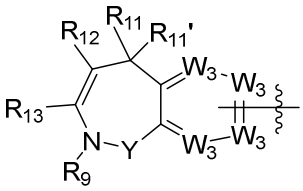
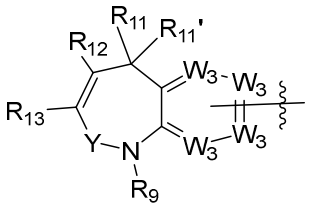
 , or  .

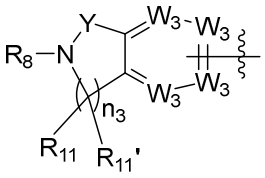
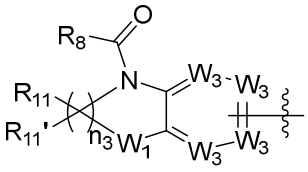
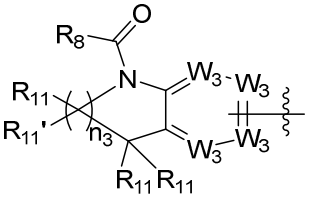
12. The compound of claim 11, wherein R_7 is $-C(O)NR_8R_9$, $-SO_2NR_8R_9$, $-OR_8$, $-N(R_8R_9)$, $-N(R_9)C(O)R_8$, $-N(R_9)SO_2R_9$, $-N(R_9)C(O)N(R_9)_2$,  ,

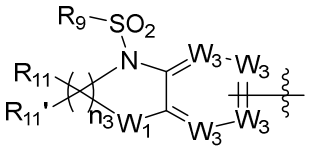
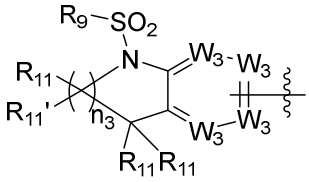
 ,  ,  ,  , or

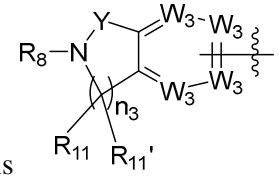
 .

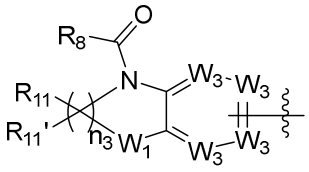
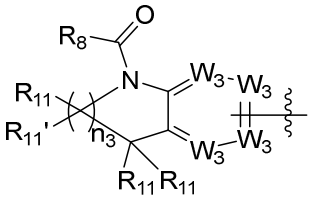
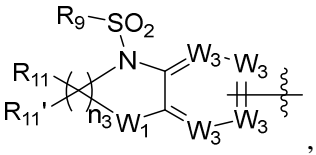
13. The compound of claim 1, wherein R_6 is  ,

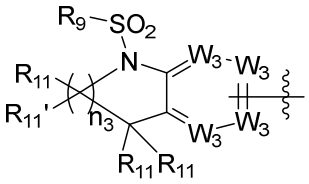
 ,  ,  ,

 ,  ,  ,

 , or  .

14. The compound of claim 13, wherein R_6 is  ,

 ,  ,  , or

 .

15. The compound of claim 1, wherein R_3 is independently selected from the group consisting of amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl.

16. The compound of claim 3, wherein R_3 is independently selected from the group consisting of amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl.

17. The compound of claim 3, wherein R_{23} is selected from the group consisting amino, hydroxyl, cyano, halogen, $(C_1\text{-}C_6)$alkyl, and $(C_1\text{-}C_6)$haloalkyl.

18. The compound of any one of claims 12, 14 and 15, wherein

R_2 is hydrogen,

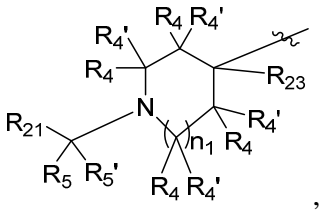
R_3 is hydrogen or hydroxyl,

R_4 and R_4' are each hydrogen, halo, or $(C_1\text{-}C_6)$alkyl,

R_5 and R_5' are each hydrogen, and

n_1 is 1.

19. The compound of claim 17, wherein L is



,

R_2 is hydrogen,

R_4 and R_4' are each hydrogen, halo, or $(C_1\text{-}C_6)$alkyl, and

R_5 and R_5' are each hydrogen.

20. The compound of claim 19, wherein

R_{23} is hydroxyl, and

n_1 is 1 or 2.

21. The compound of claim 20, wherein

R_{21} is a substituted C_6-aryl, provided said aryl is substituted with at least two R_{25}, and provided two of the R_{25}, when on adjacent atoms, form a 5- or 6-membered heteroaryl that is substituted

with at least one (C_6-C_{10})aryl, or monocyclic or bicyclic 5- to 10-membered heteroaryl that is optionally and independently substituted with one or more R_{15}, or

R_{21} is a substituted 5- or 6-membered heteroaryl, provided said heteroaryl is substituted with at least two R_{25}, and provided that two of the R_{25}, when on adjacent atoms, form a C_6-aryl or 5- or 6-membered heteroaryl that is substituted with at least one (C_6-C_{10})aryl or monocyclic or bicyclic 5- to 10-membered heteroaryl that is optionally and independently substituted with one or more R_{15}; and

n_1 is 1.

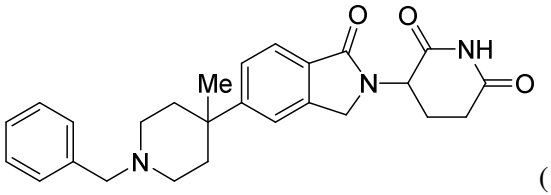
22. The compound of claim 20, wherein

R_{21} is a (C_6-C_{10})aryl or a monocyclic or bicyclic 5- to 10-membered heteroaryl; wherein said aryl or heteroaryl is optionally and independently substituted by one or more identical or different R_{25} groups;

R_{25} is independently selected from the group consisting of (C_1-C_6)alkyl, (C_1-C_6)alkoxy, (C_1-C_6)haloalkyl, (C_1-C_6)haloalkoxy, halogen, CN, -O(CH_2)(C_6-C_{10})aryl, -O(CH_2)-5- or 6-membered heteroaryl comprising 1 to 3 heteroatoms selected from O, N, and S, (C_6-C_{10})aryl, monocyclic or bicyclic 5- to 10-membered heteroaryl, (C_3-C_7)cycloalkyl, and 4- to 7-membered heterocycloalkyl, wherein said alkyl, cycloalkyl, heterocycloalkyl, aryl or heteroaryl is further optionally and independently substituted by one or more identical or different R_{15} groups; and

n_1 is 1.

23. A compound selected from the group consisting of:



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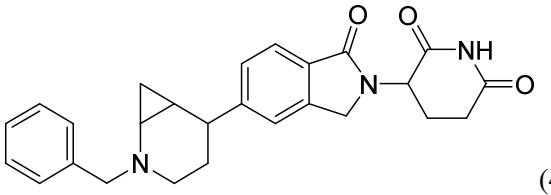

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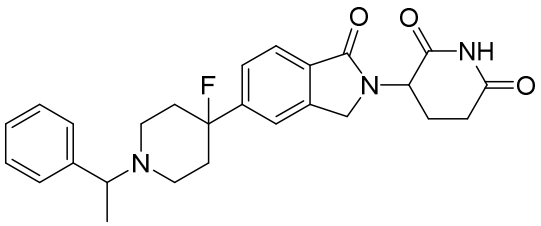

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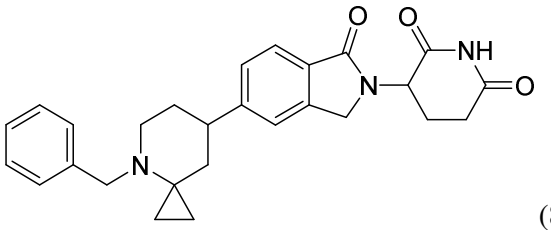

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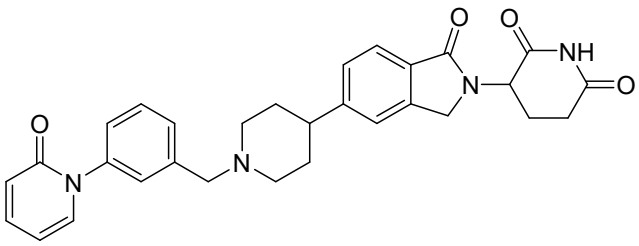

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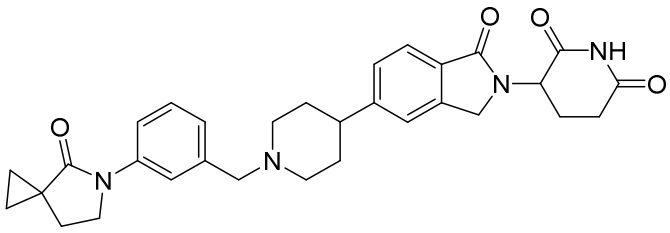

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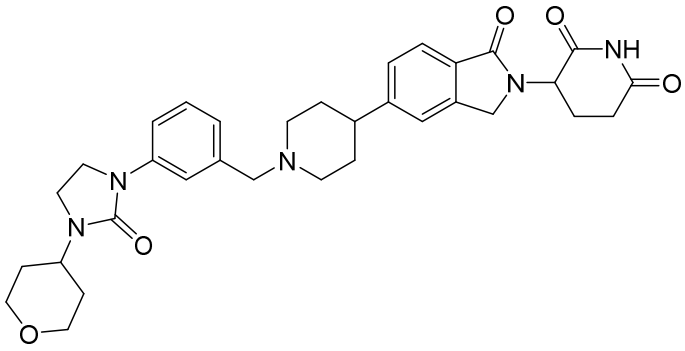

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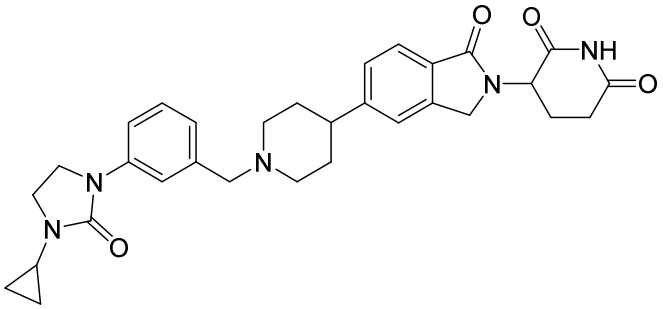

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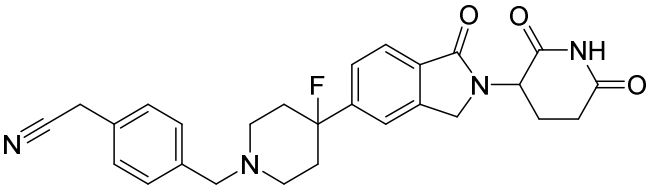

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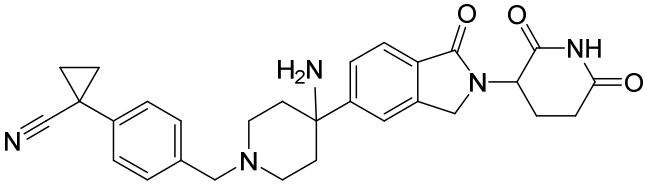

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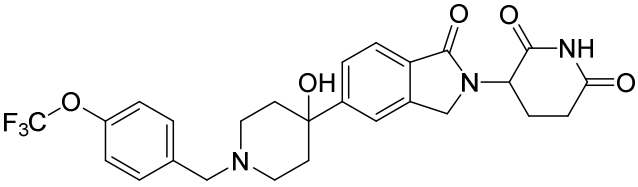

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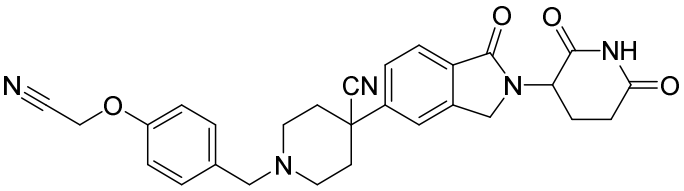

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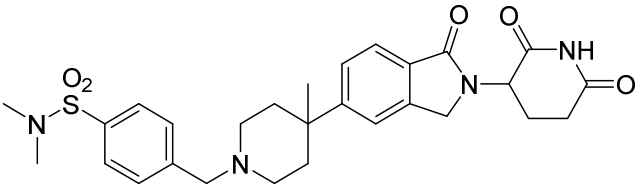

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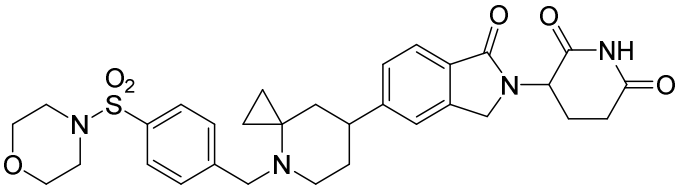

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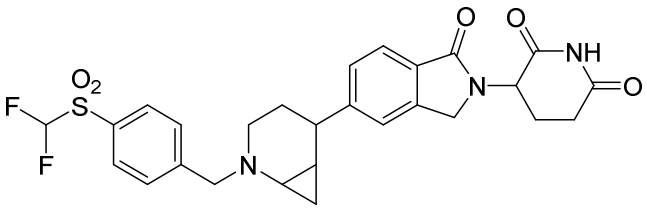

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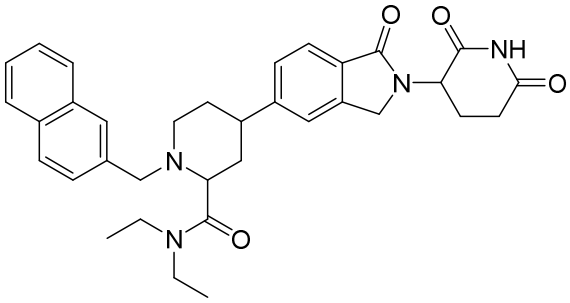

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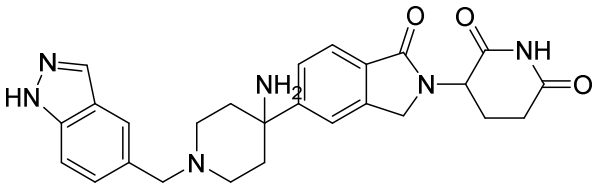

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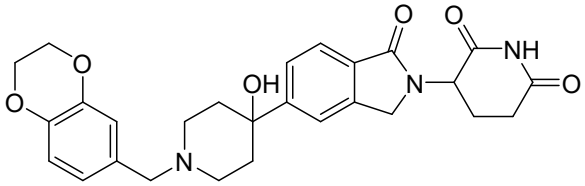

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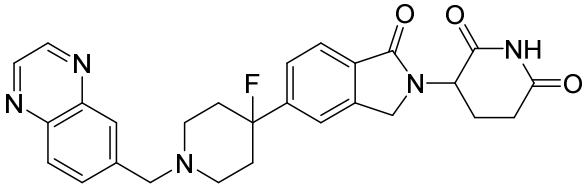

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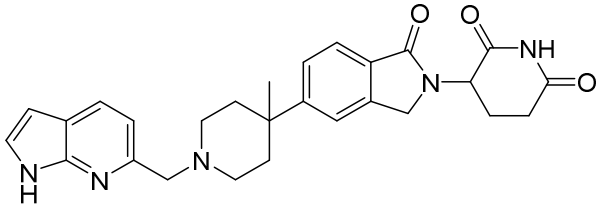

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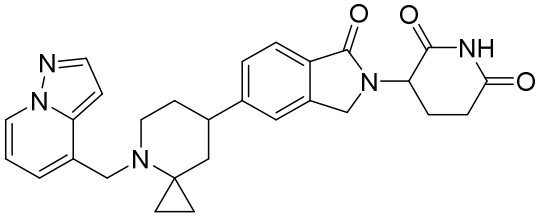

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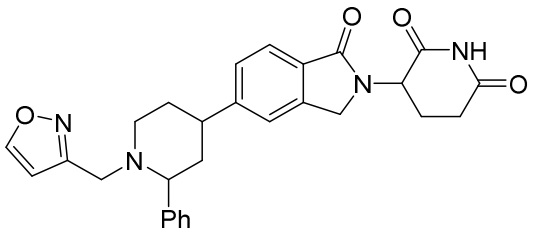

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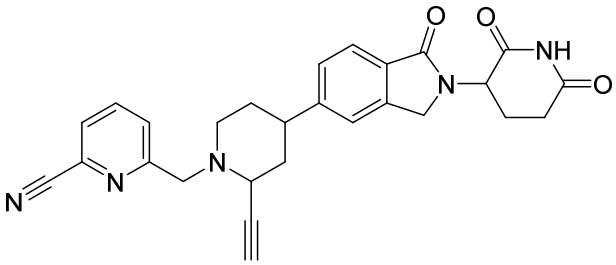

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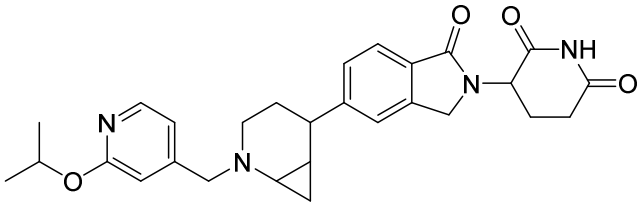

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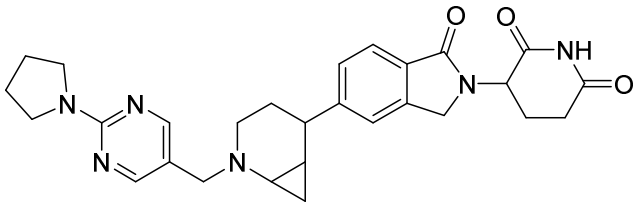

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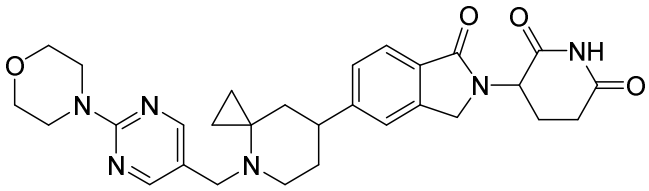

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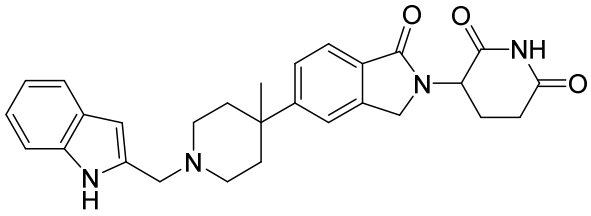

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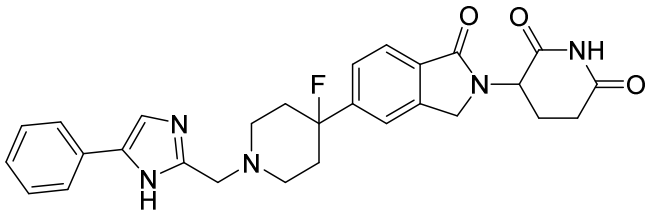

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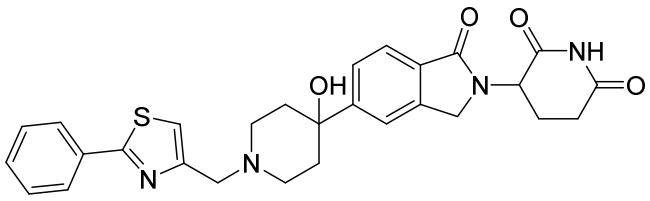

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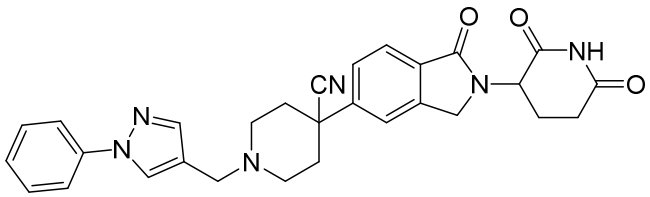

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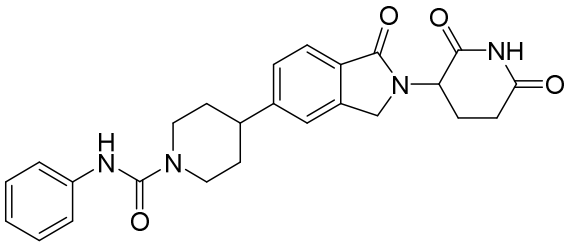

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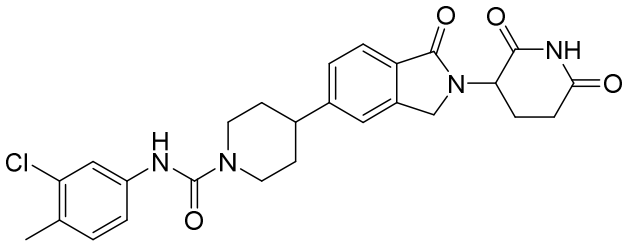

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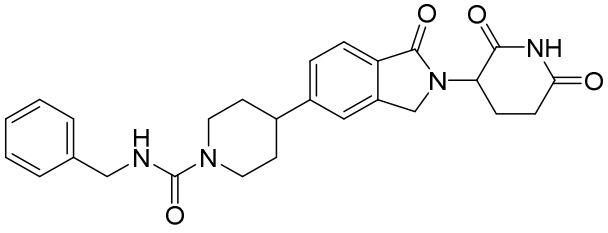

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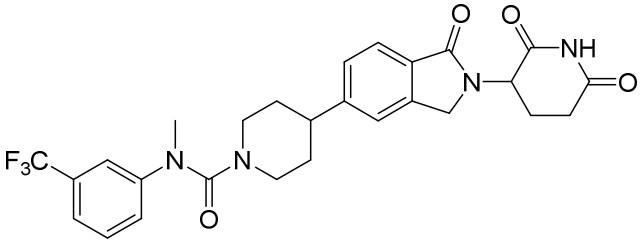

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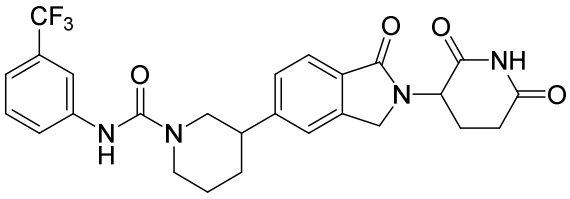

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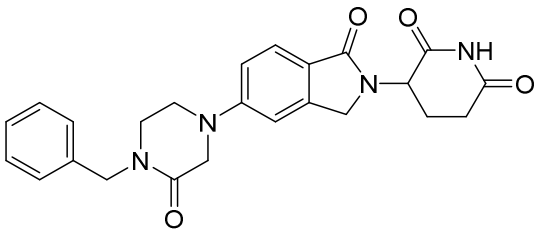

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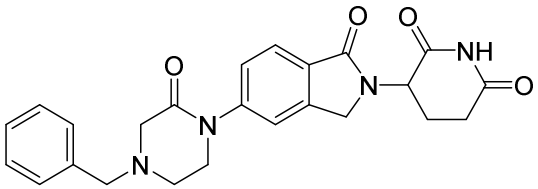

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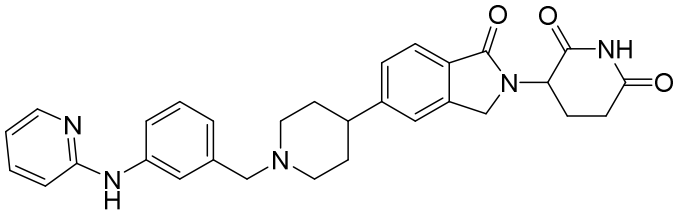

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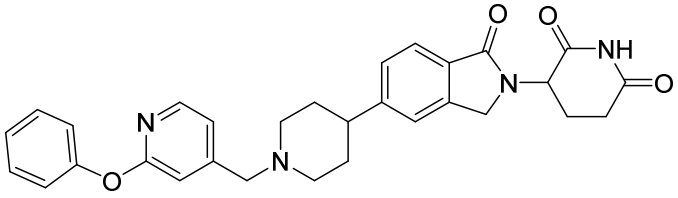

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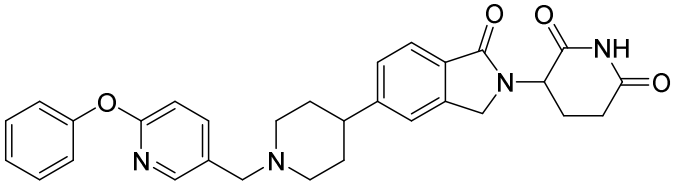

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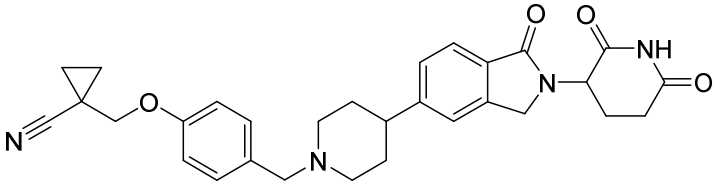

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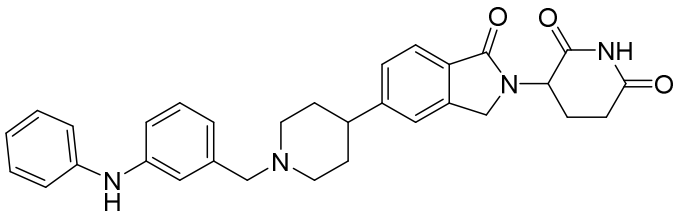

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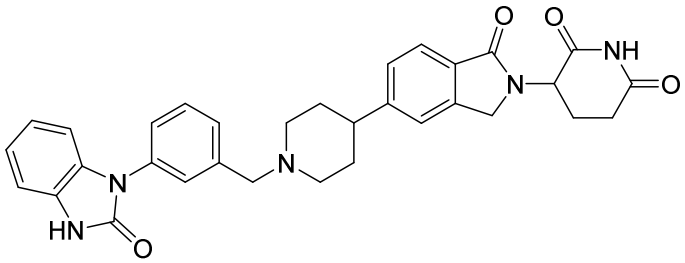

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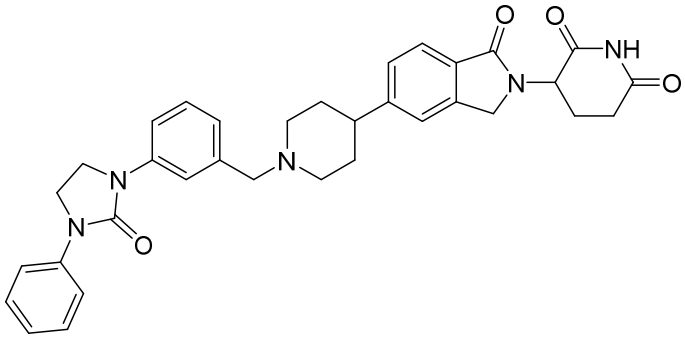

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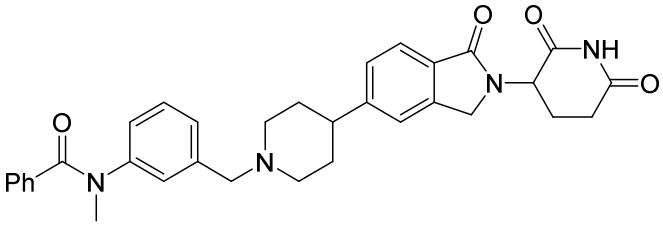

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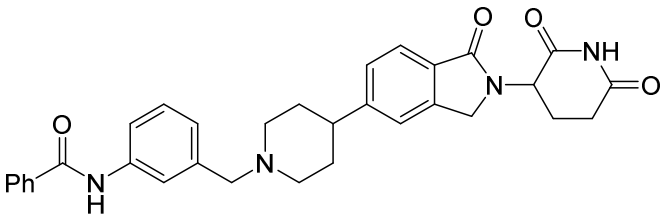

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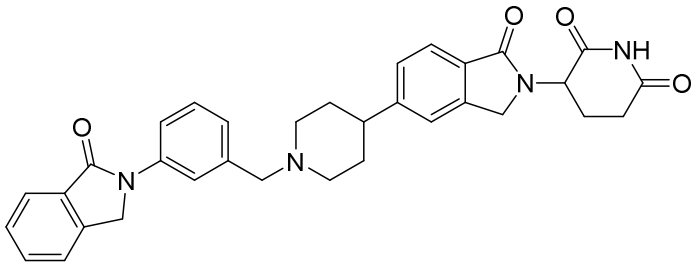

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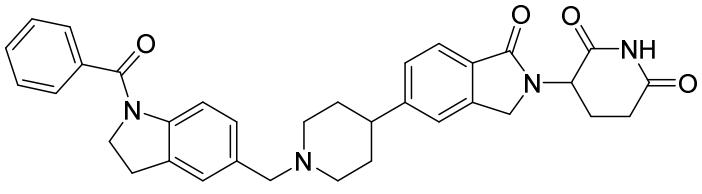

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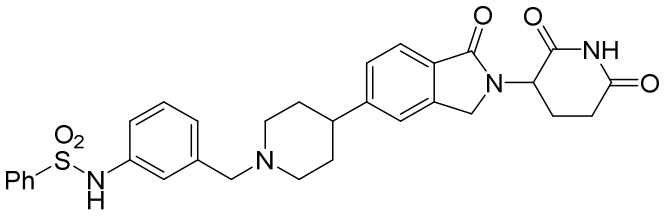

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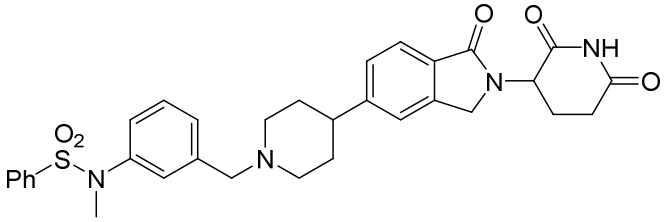

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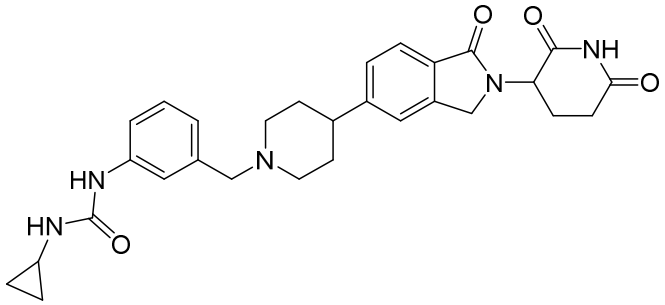

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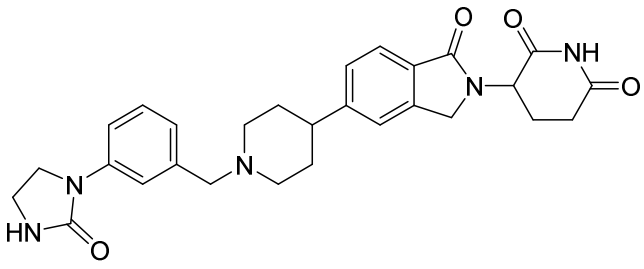

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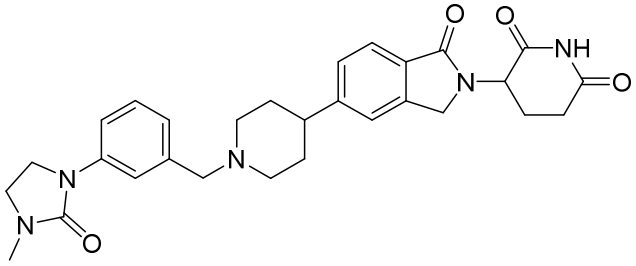

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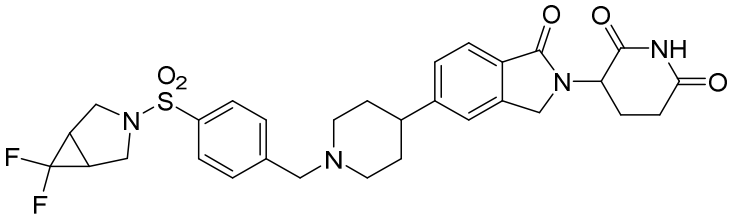

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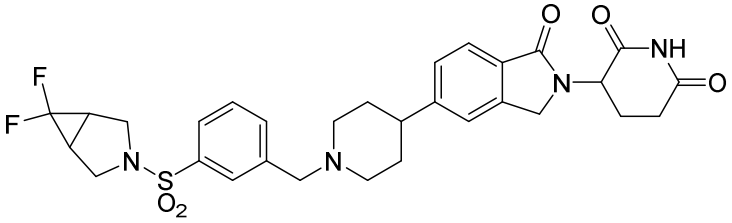

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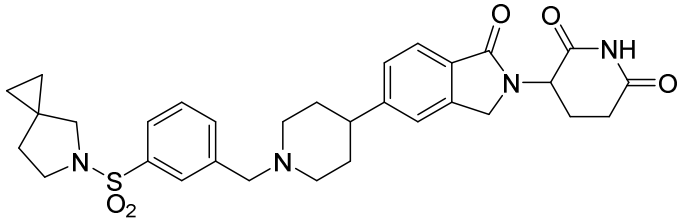

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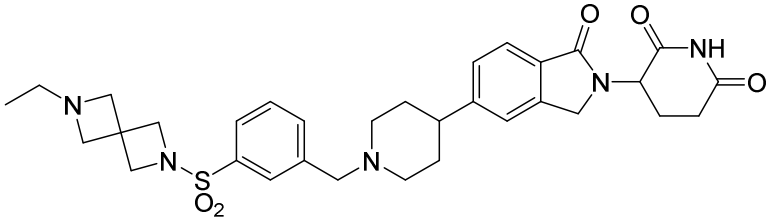

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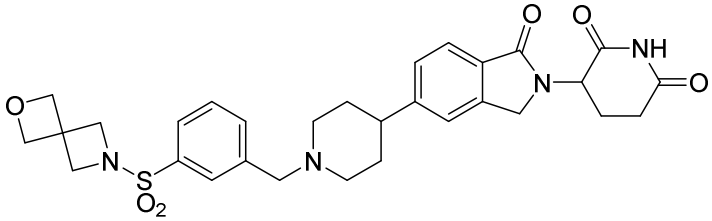

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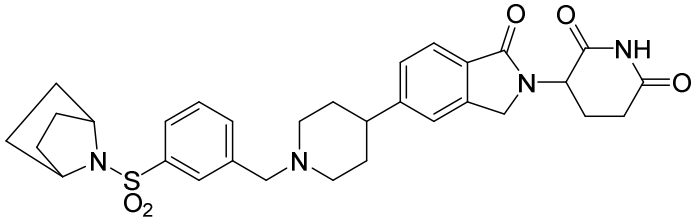

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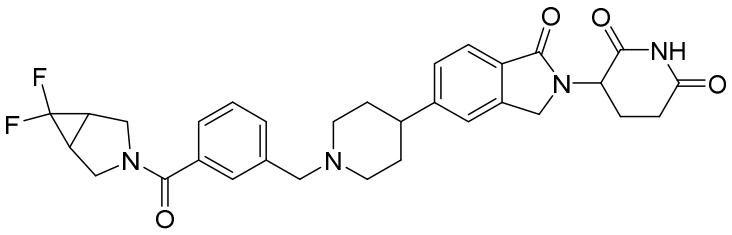

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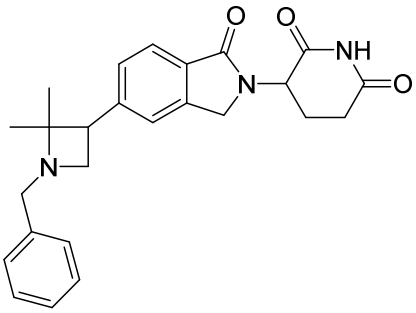

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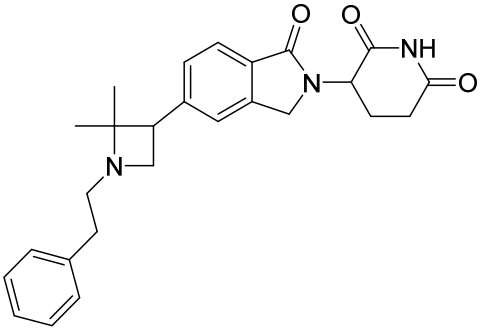

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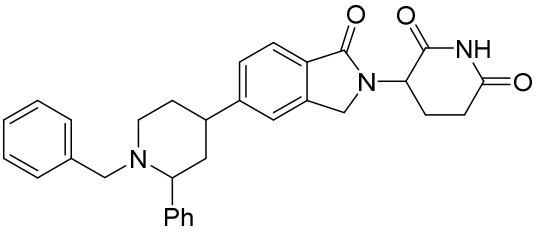

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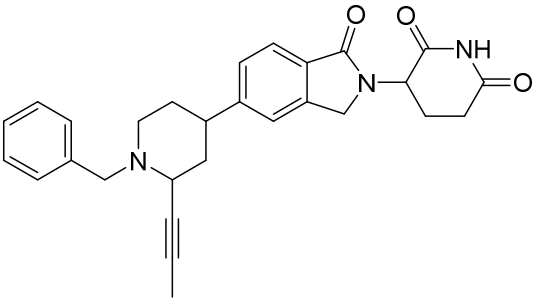

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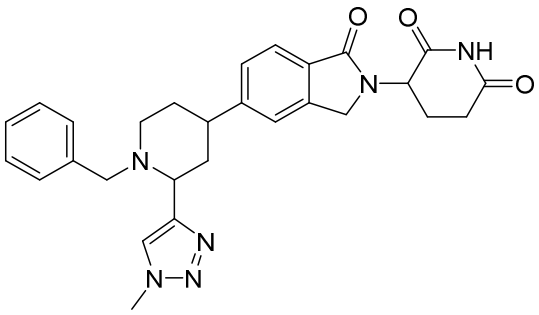

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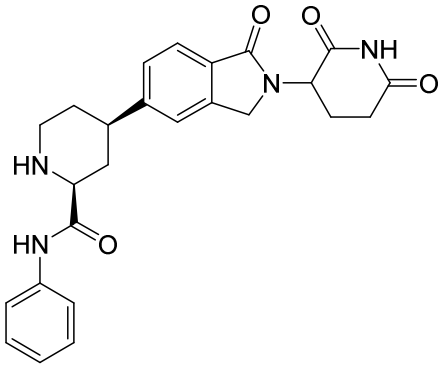

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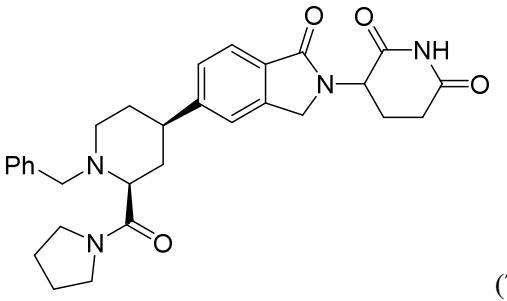

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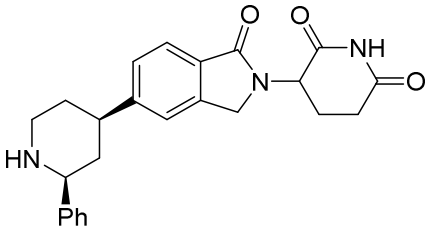

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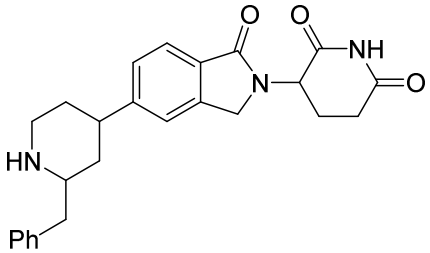

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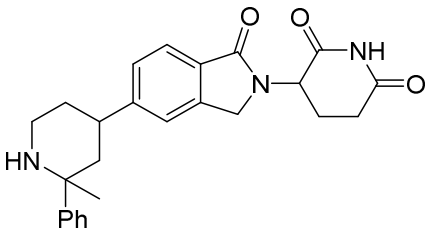

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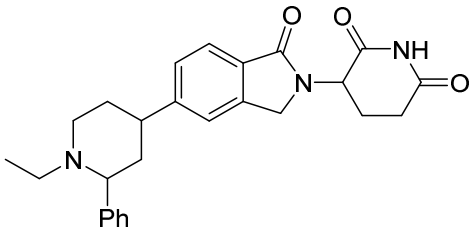

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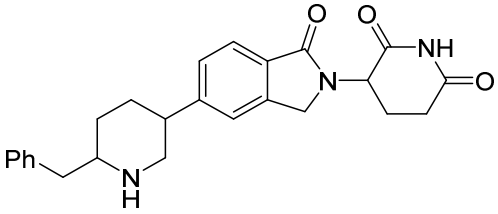

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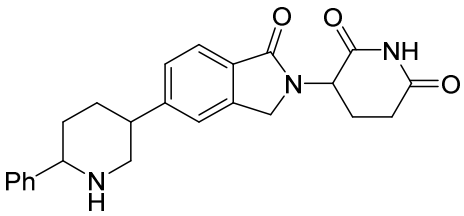

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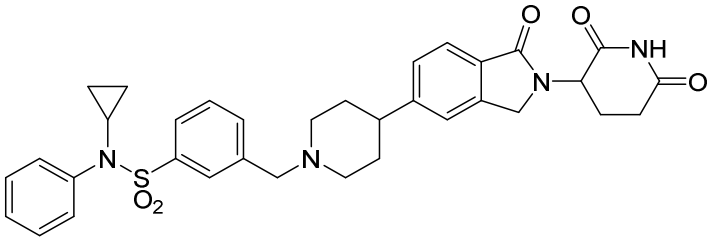

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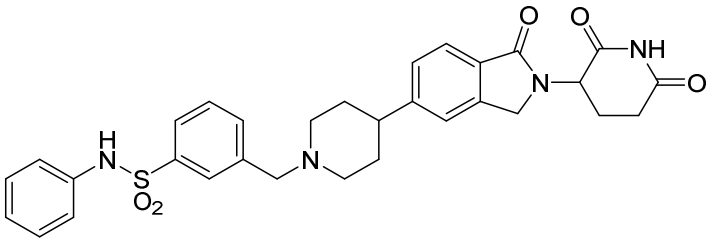

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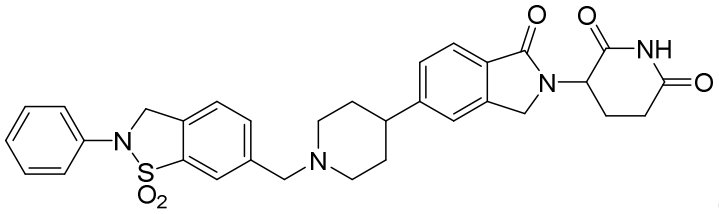

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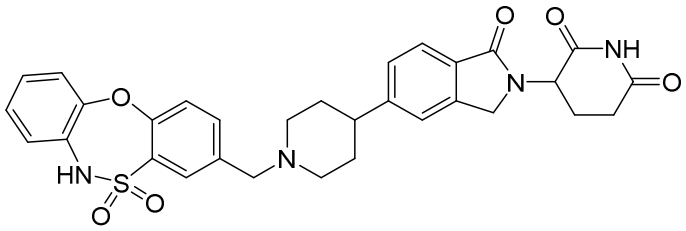

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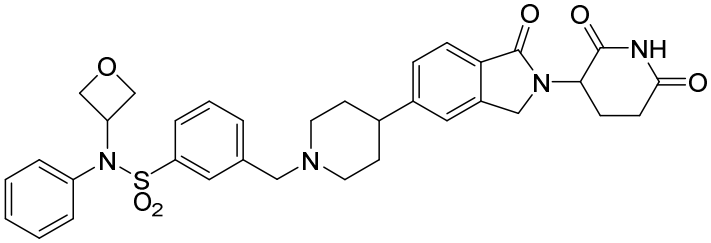

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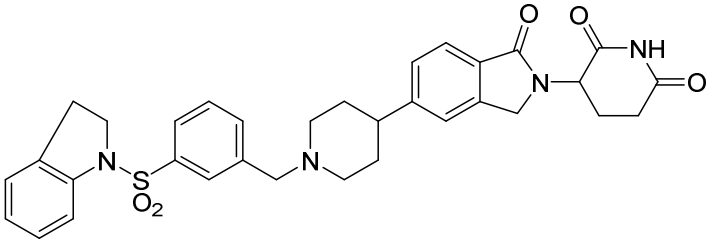

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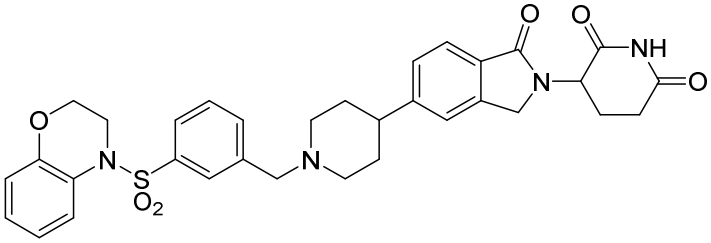

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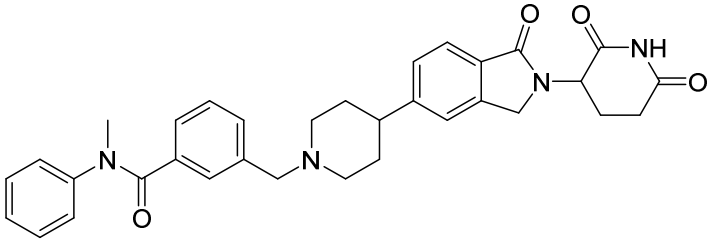

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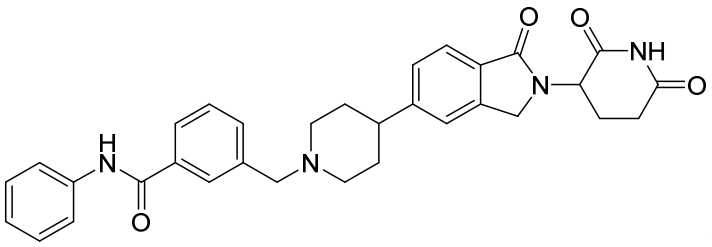

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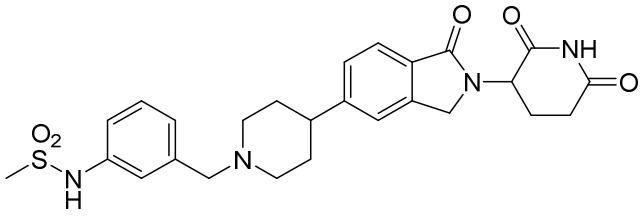

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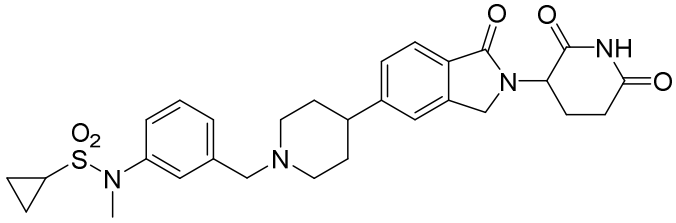

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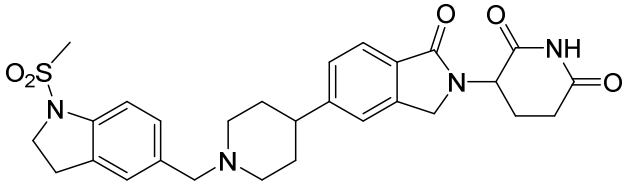

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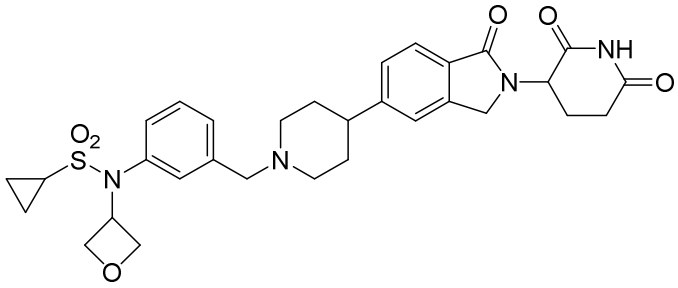

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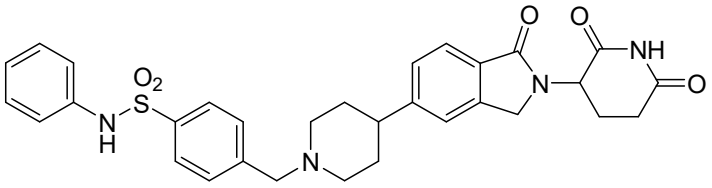

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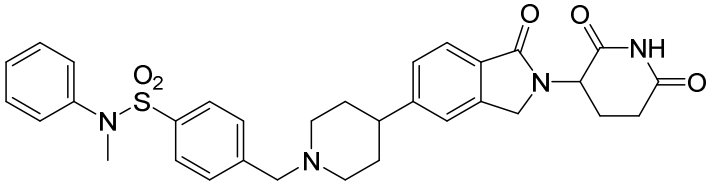

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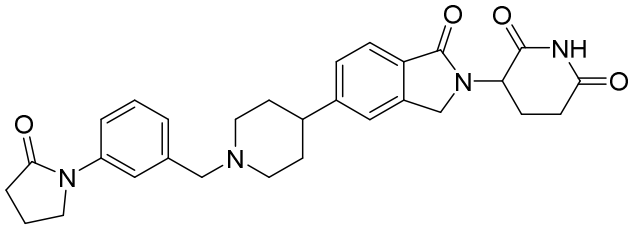

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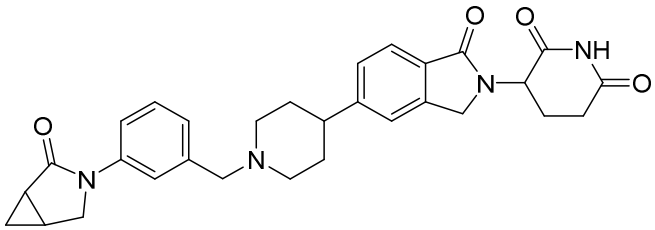

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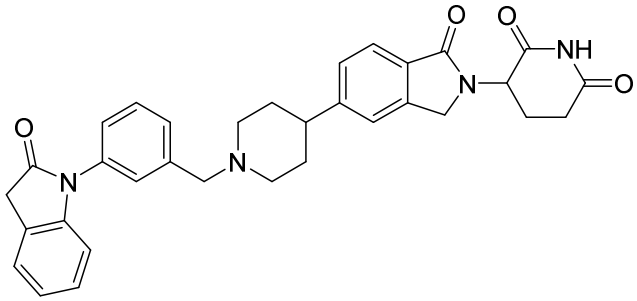

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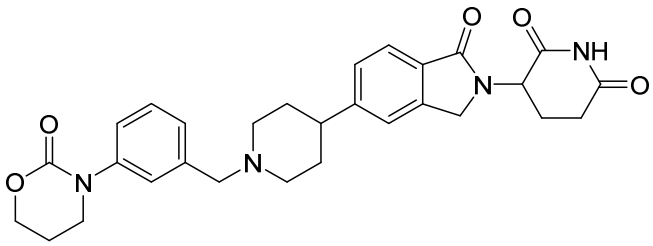

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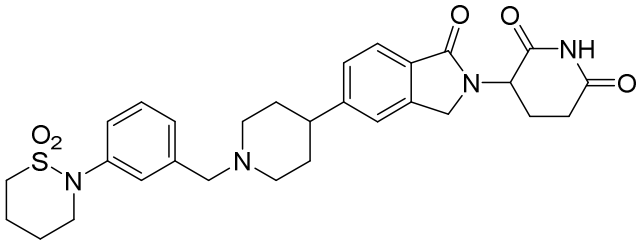

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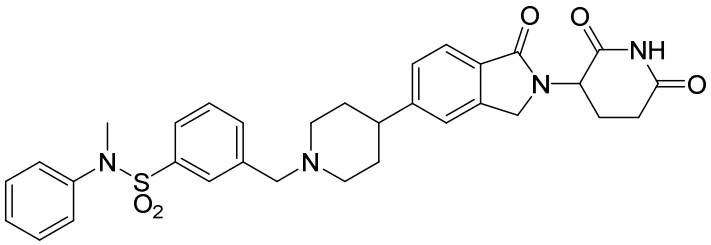

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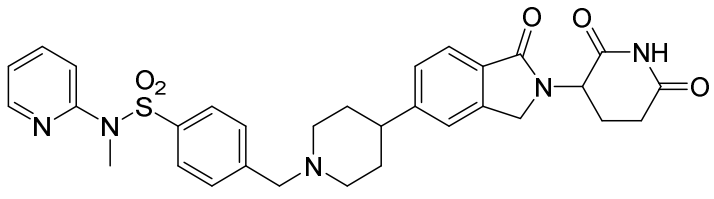

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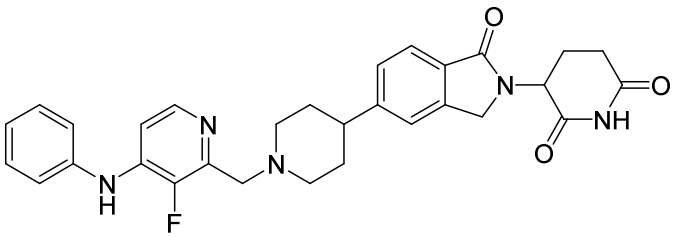

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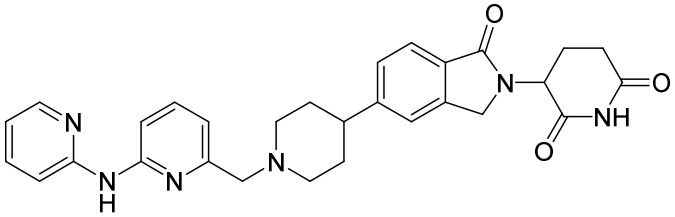

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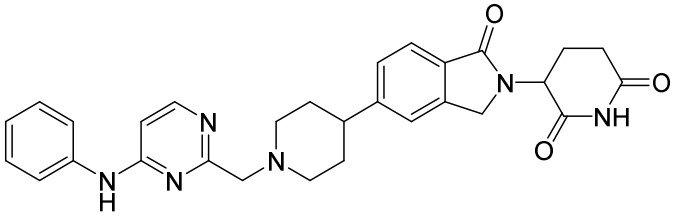

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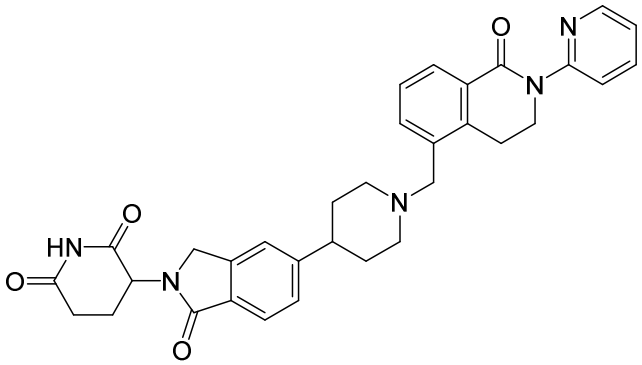

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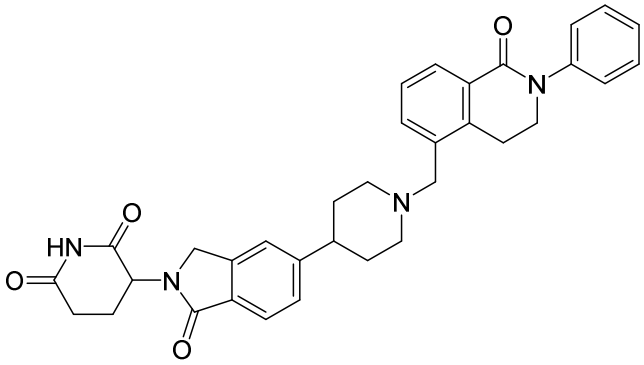

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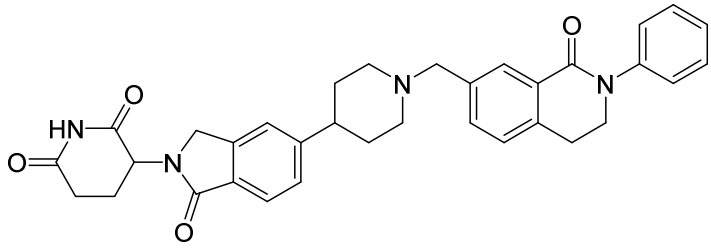

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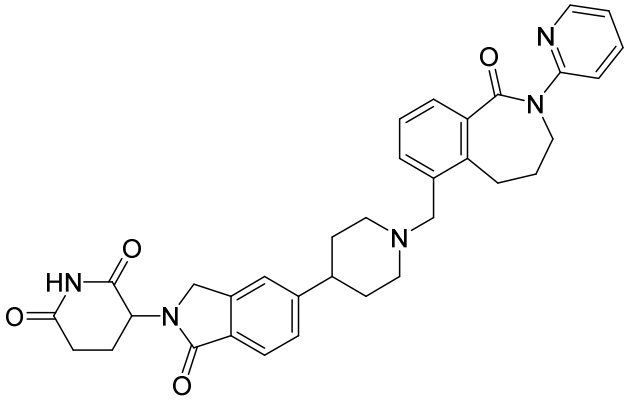

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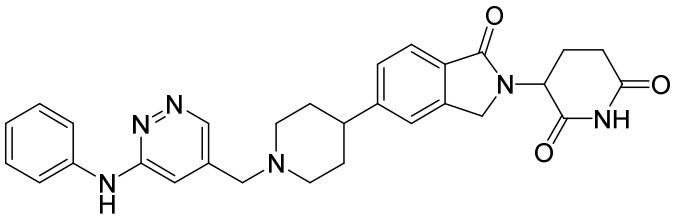

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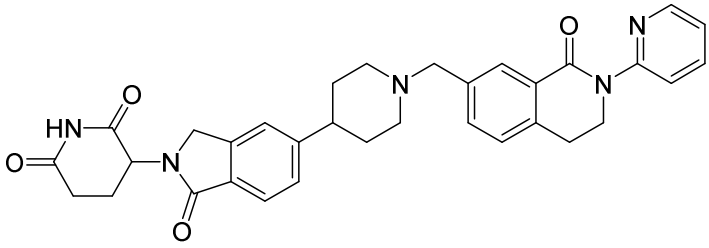

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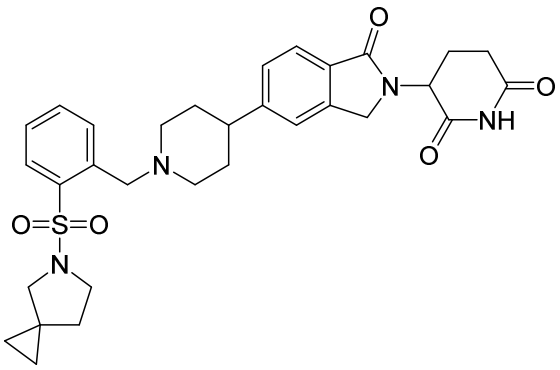

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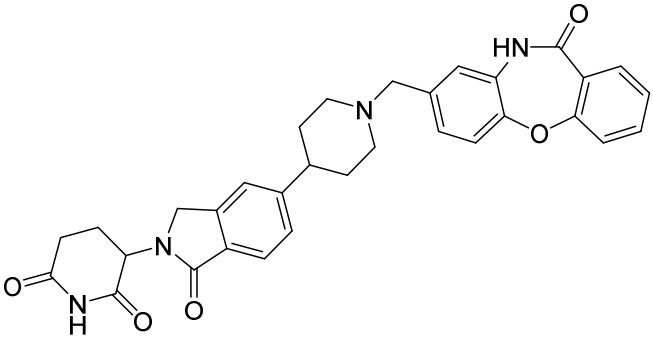

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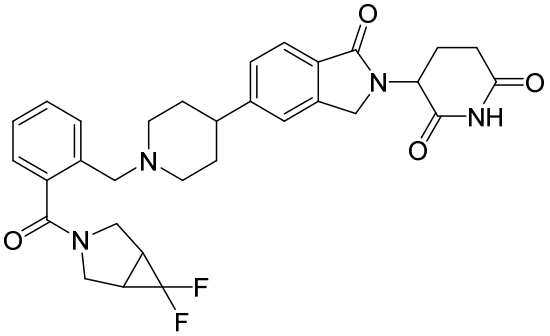

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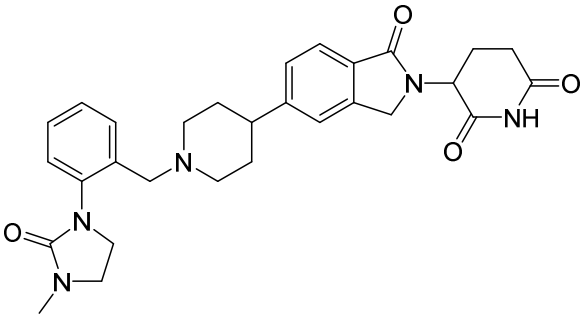

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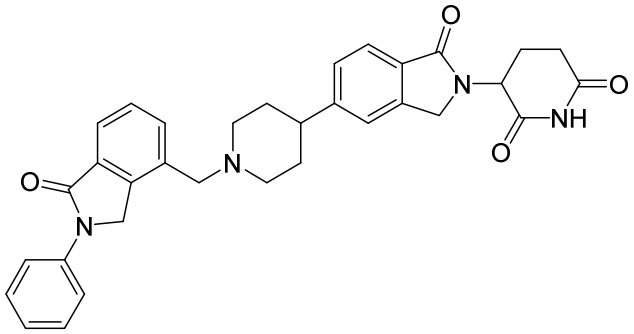

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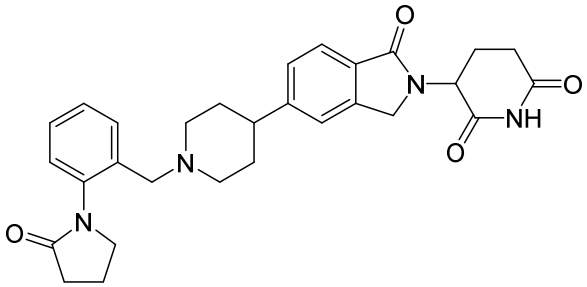

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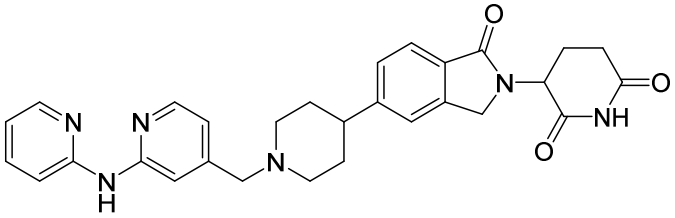

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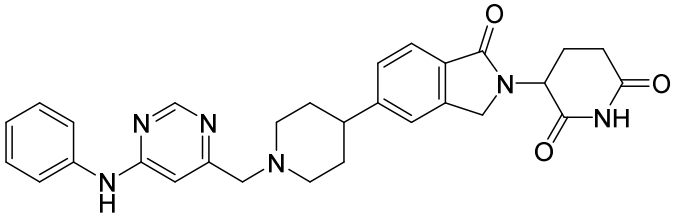

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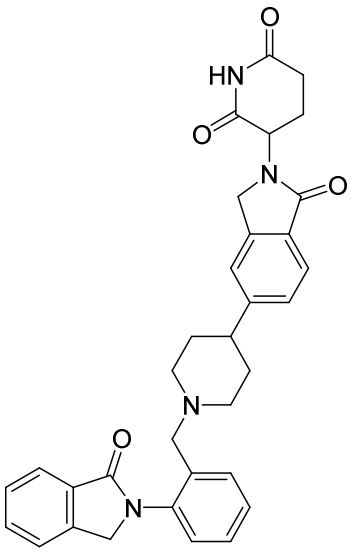

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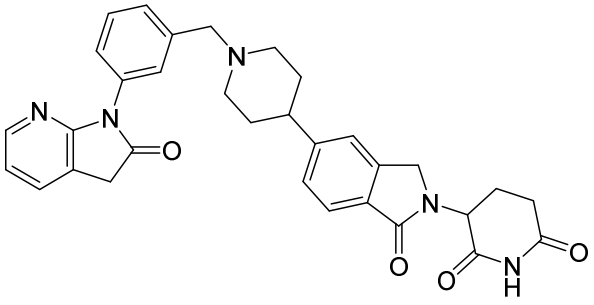

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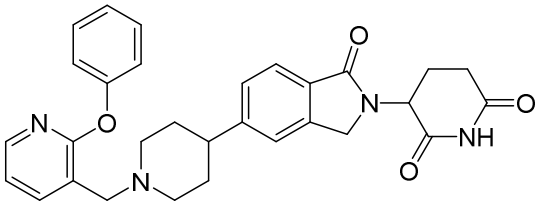

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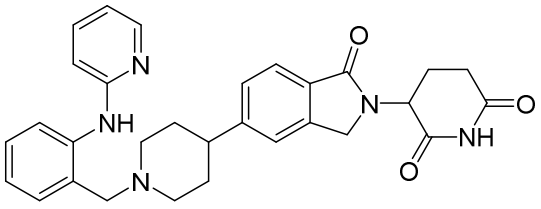

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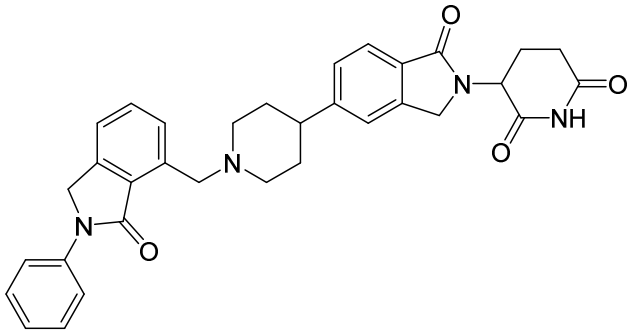

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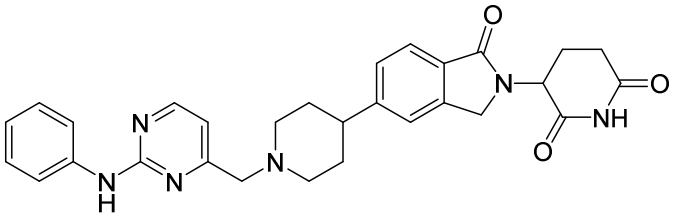

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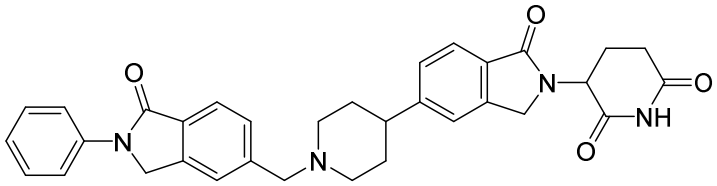

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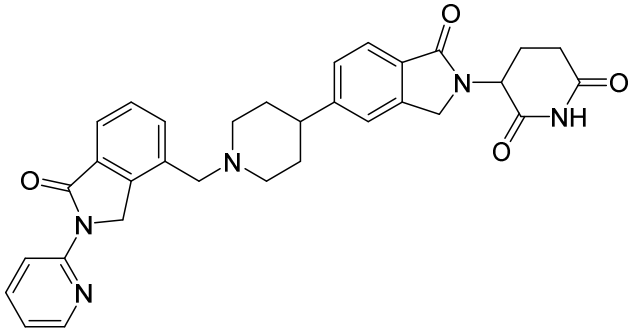

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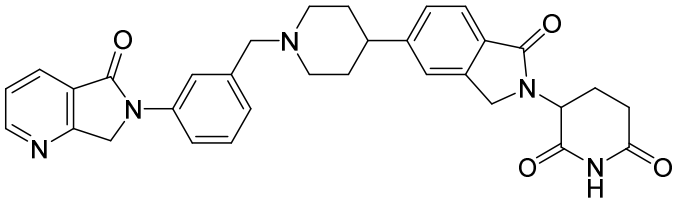

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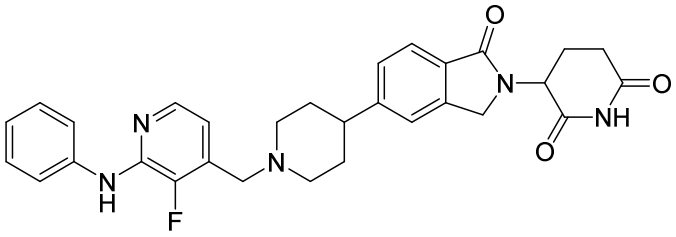

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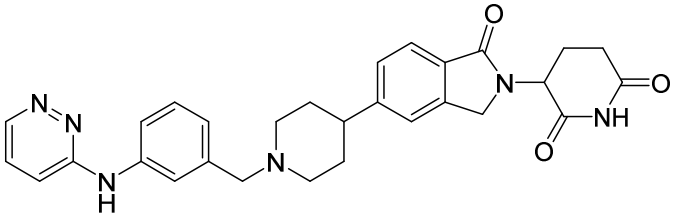

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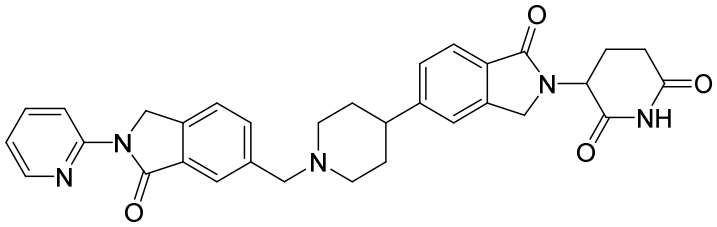

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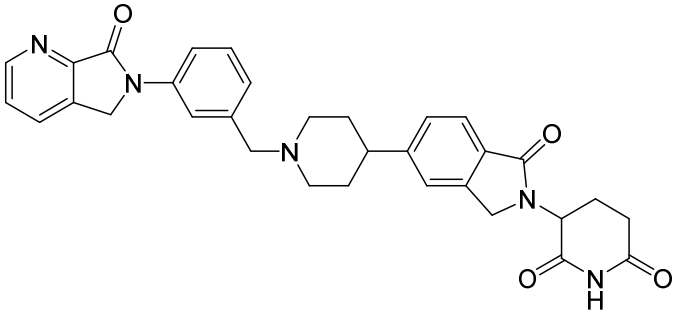

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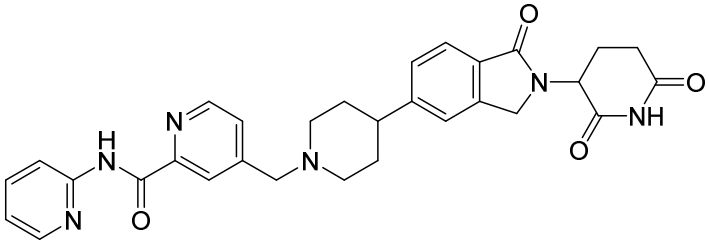

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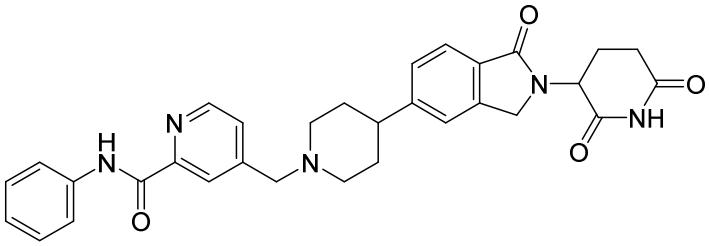

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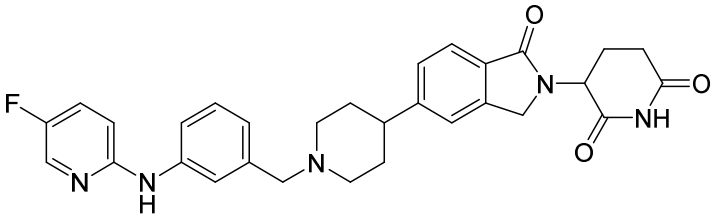

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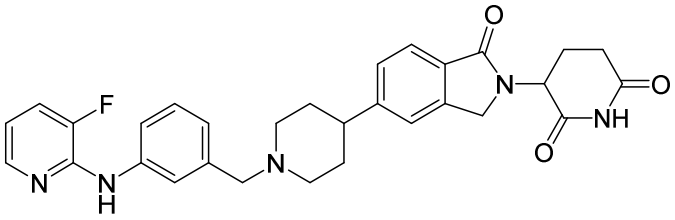

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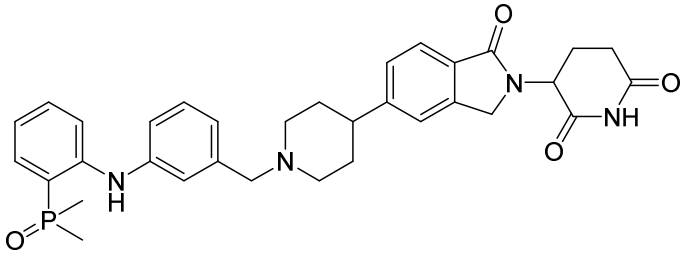

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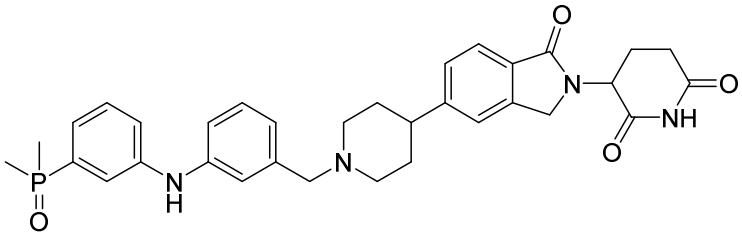

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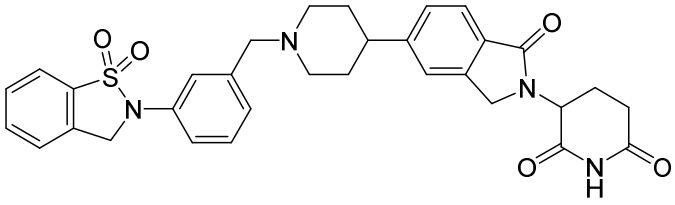

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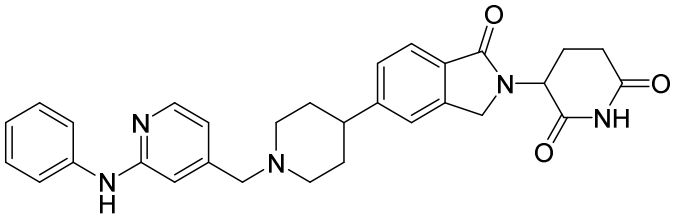

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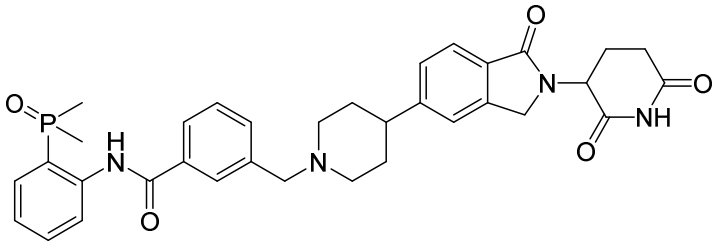

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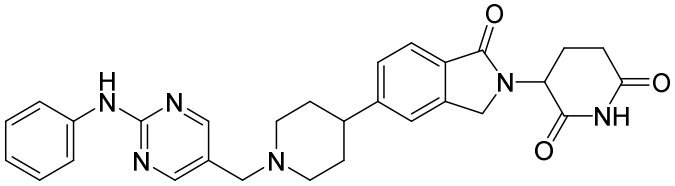

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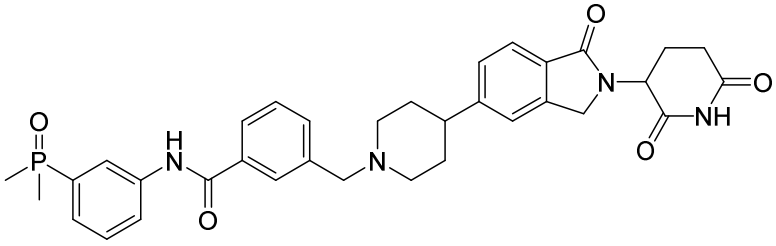

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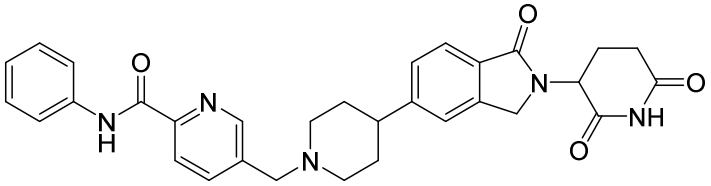

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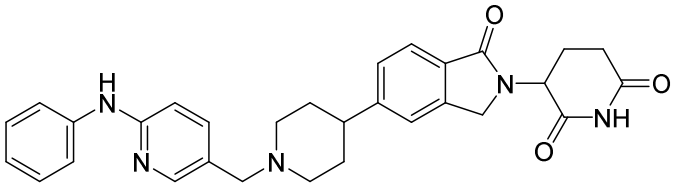

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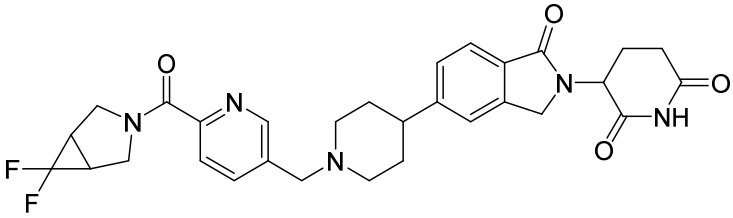

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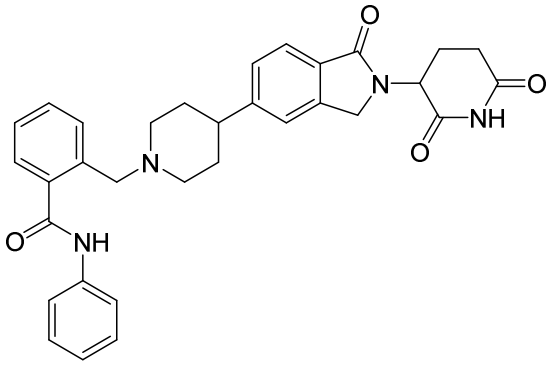

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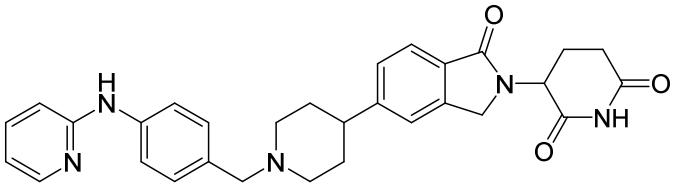

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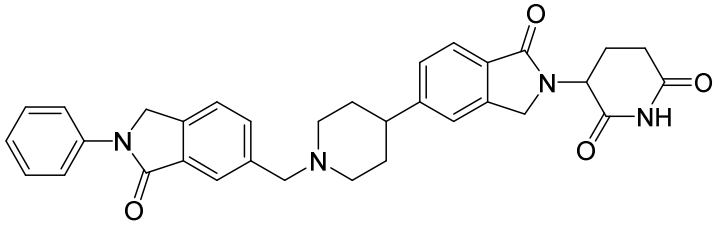

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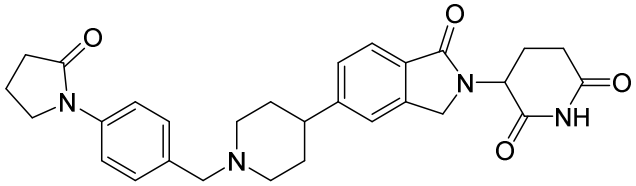

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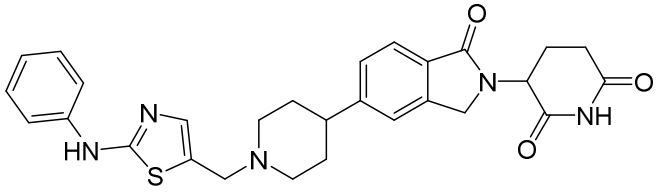

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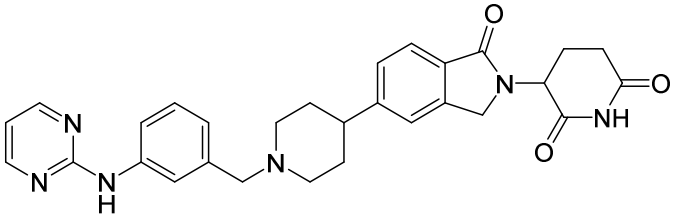

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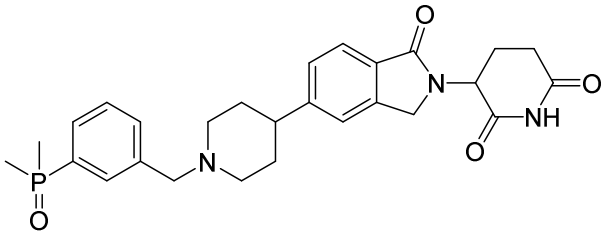

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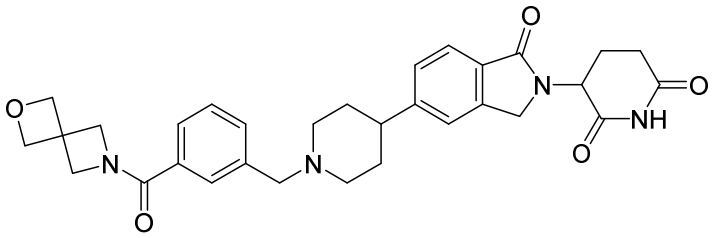

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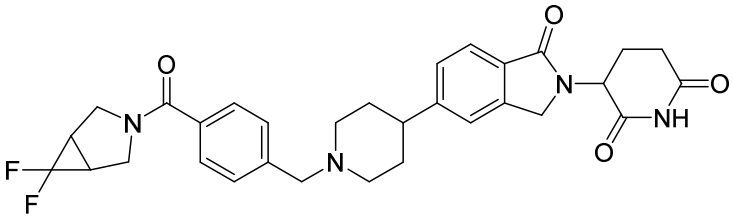

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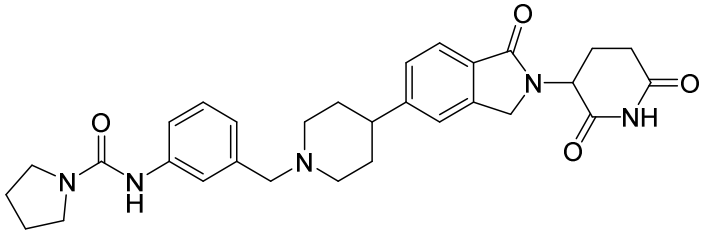

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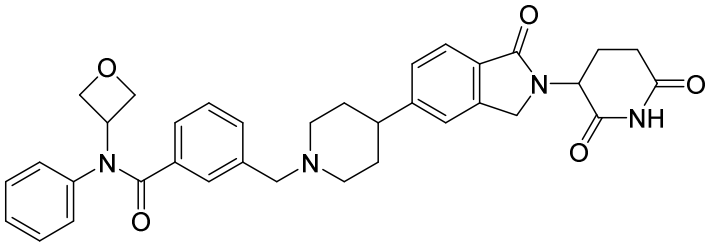

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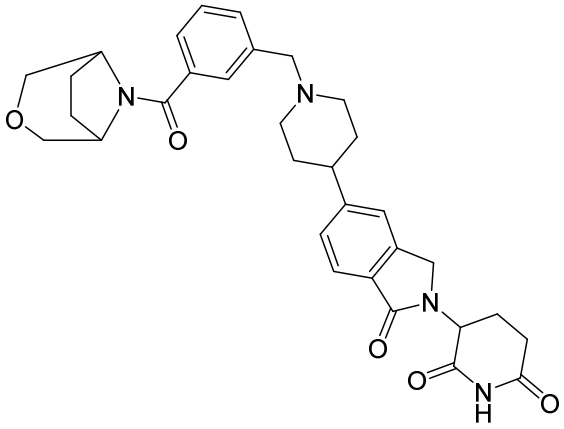

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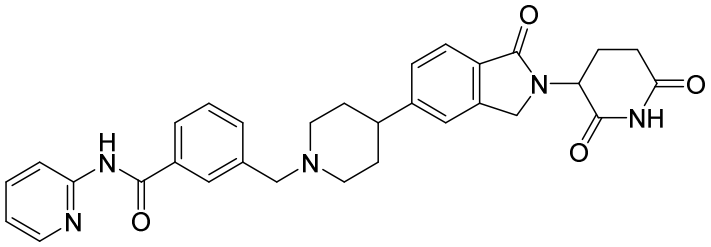

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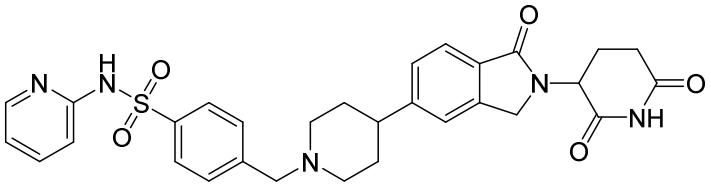

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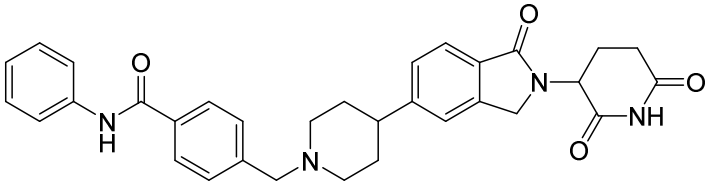

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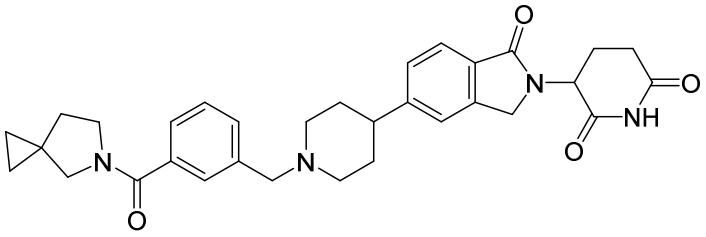

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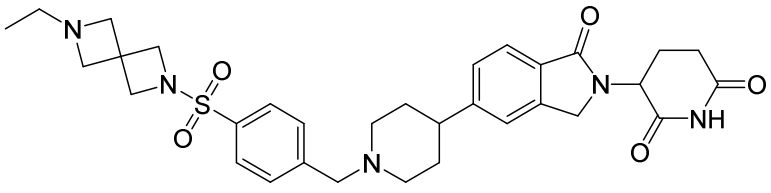

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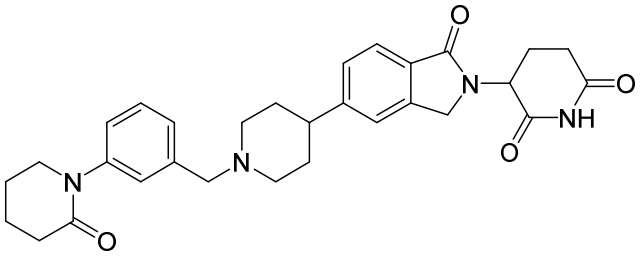

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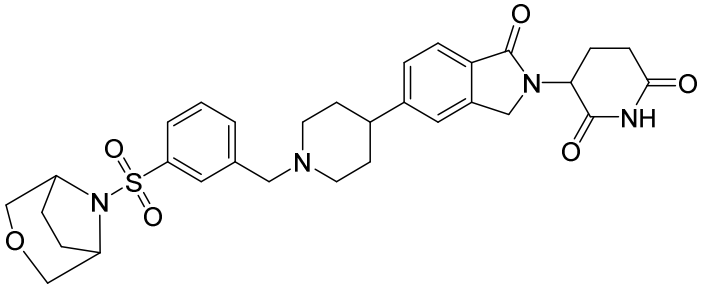

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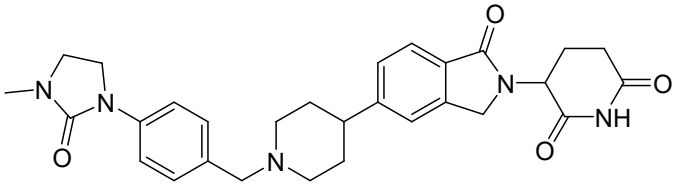

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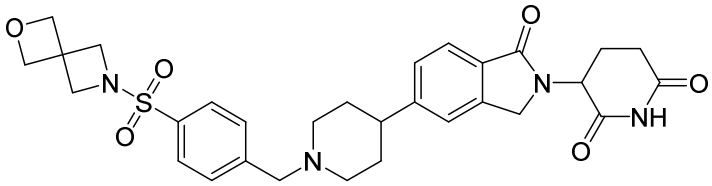

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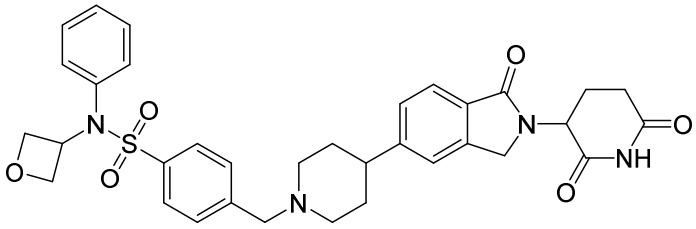

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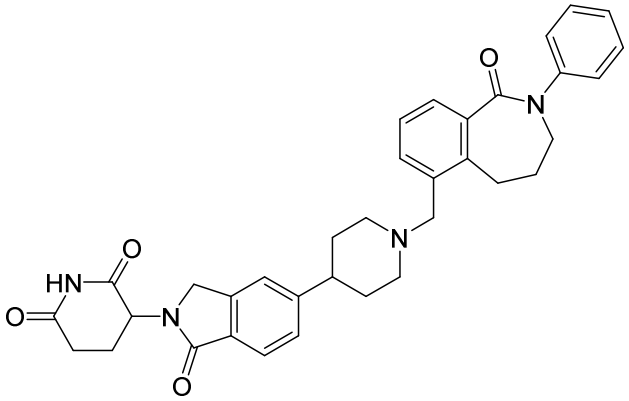

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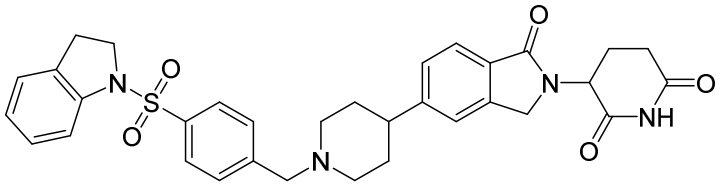

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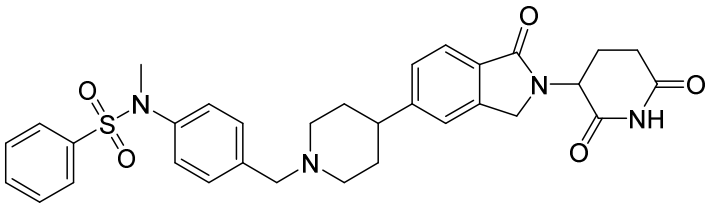

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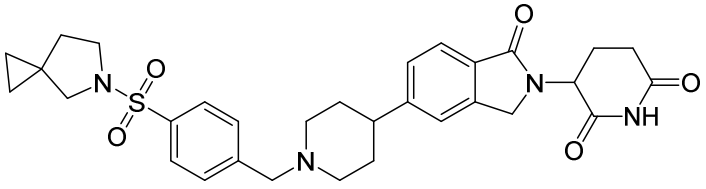

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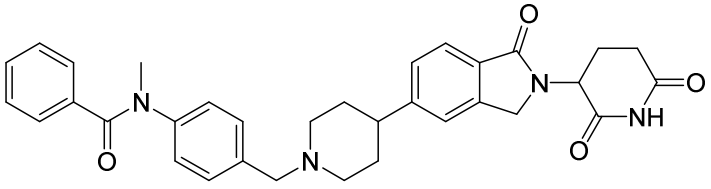

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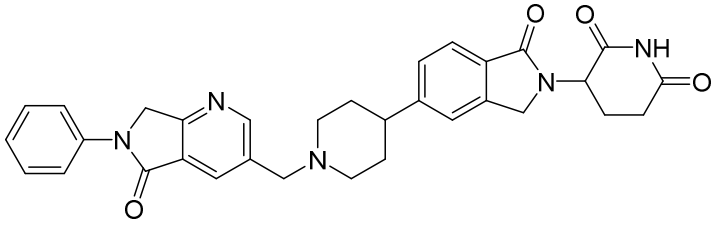

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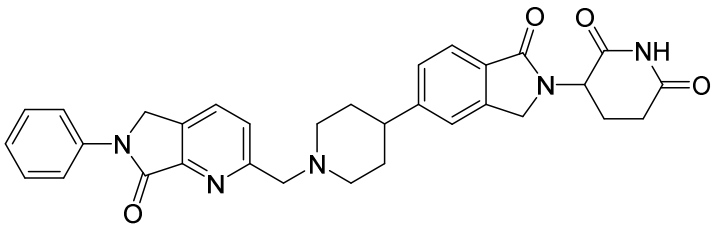

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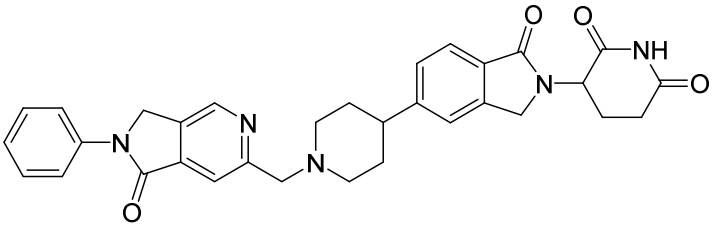

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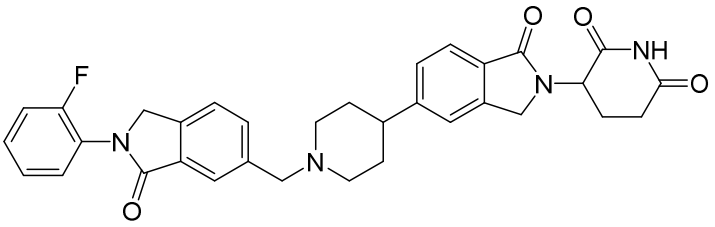

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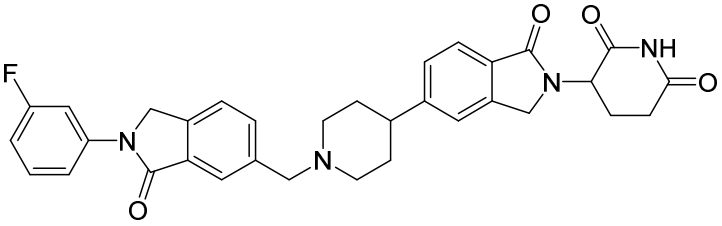

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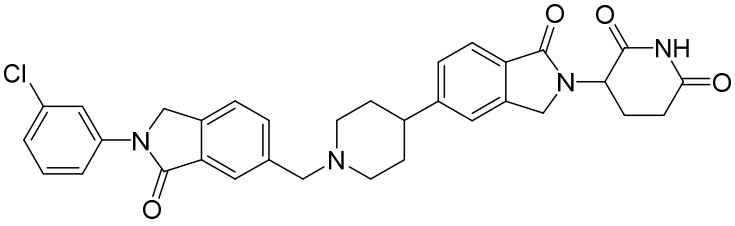

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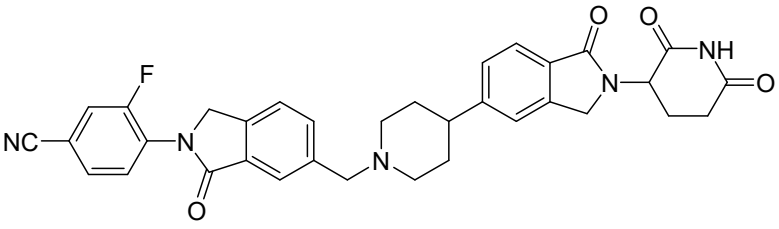

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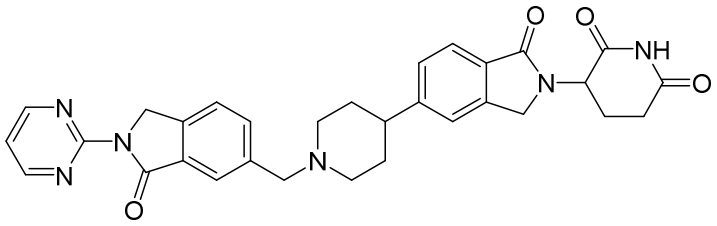

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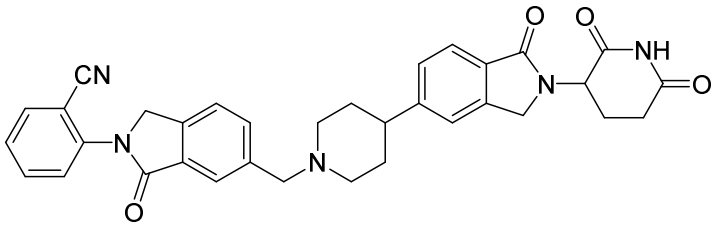

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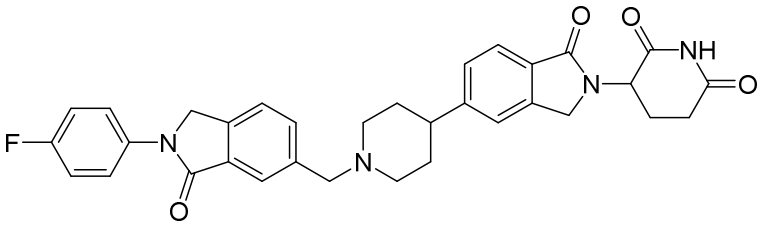

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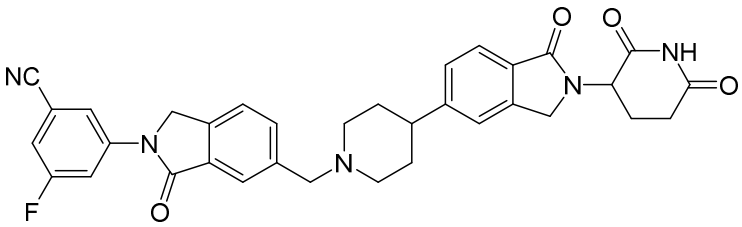

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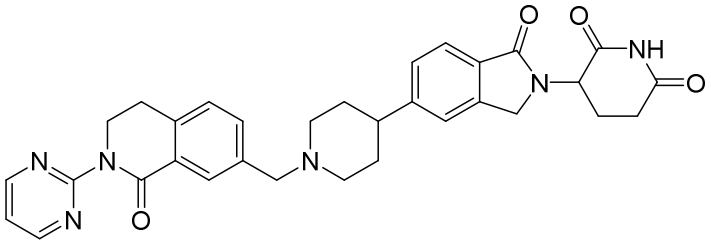

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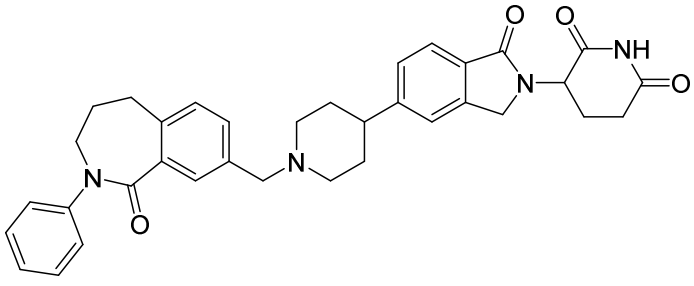

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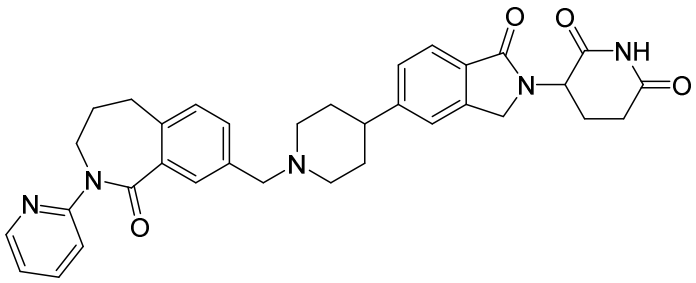

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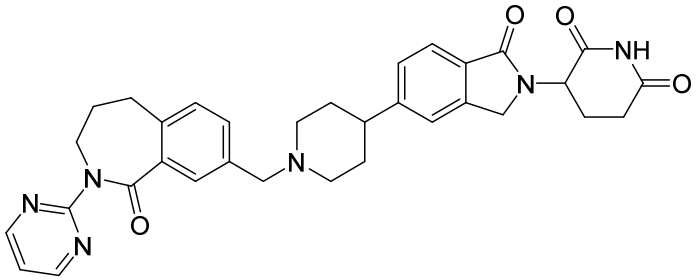

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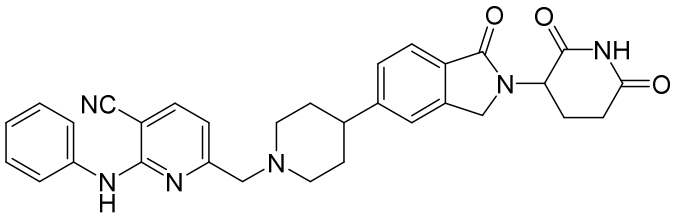

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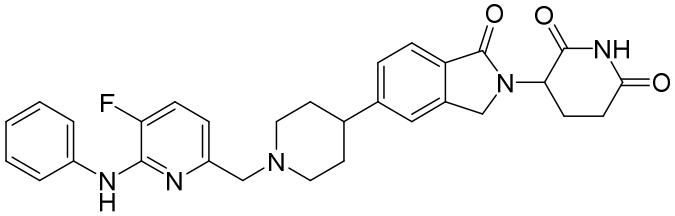

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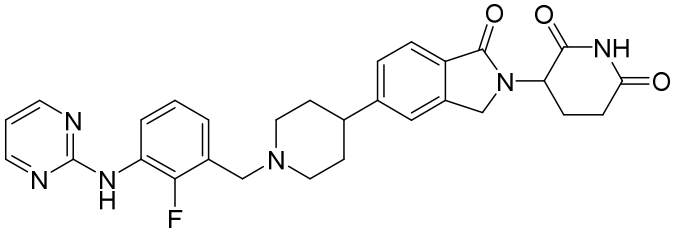

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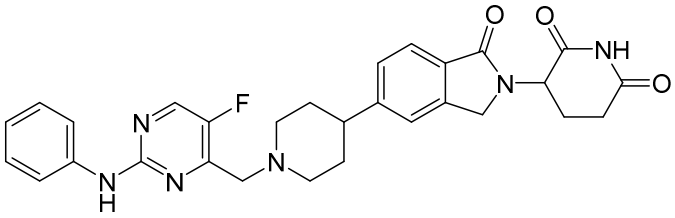

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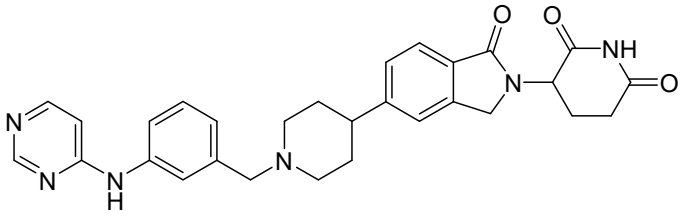

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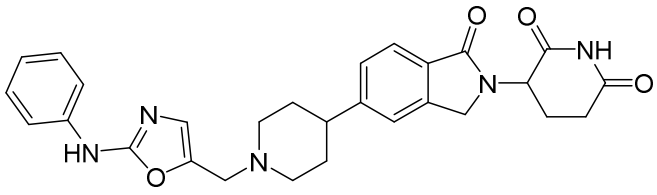

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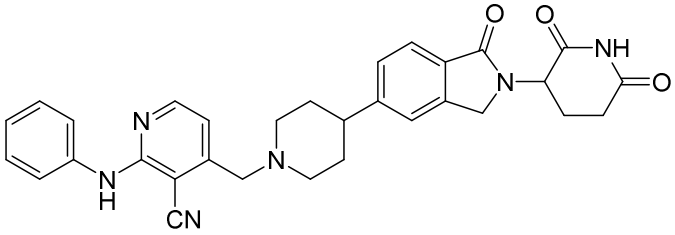

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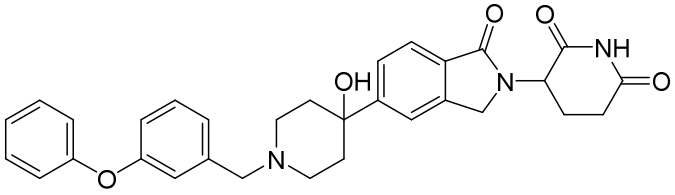

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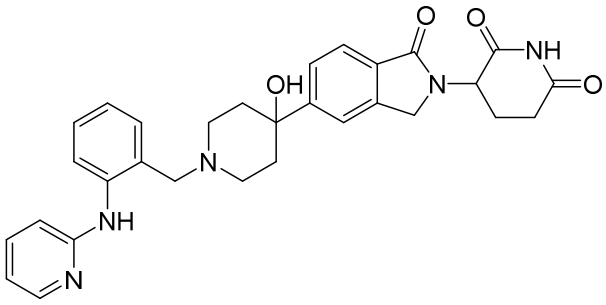

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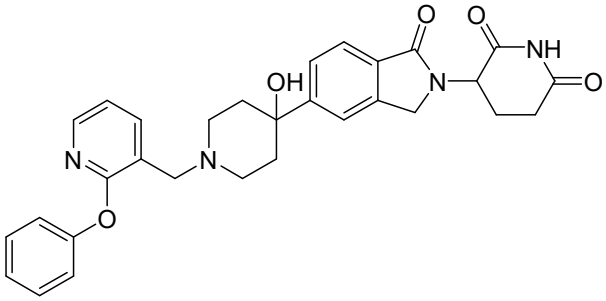

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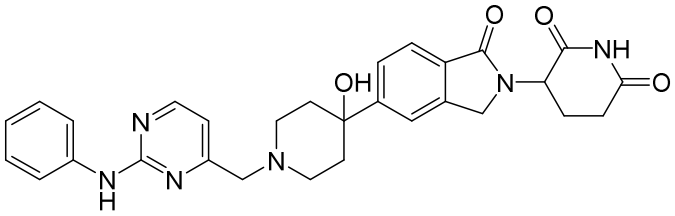

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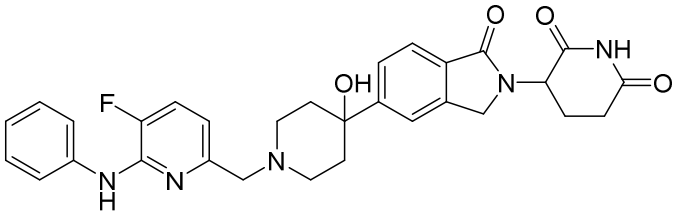

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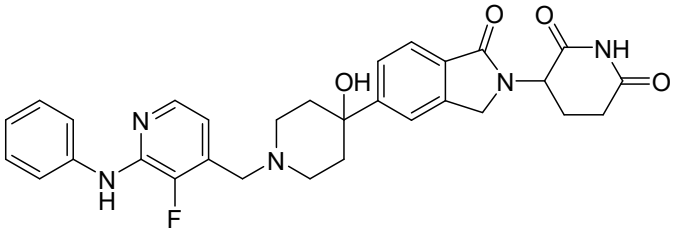

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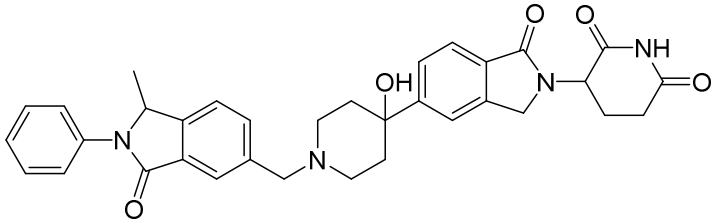

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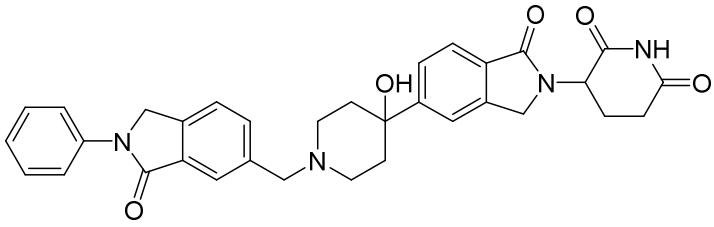

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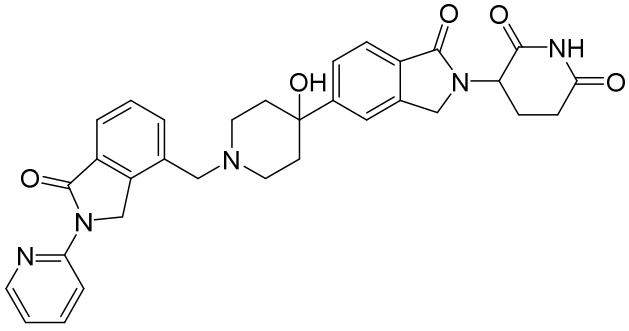

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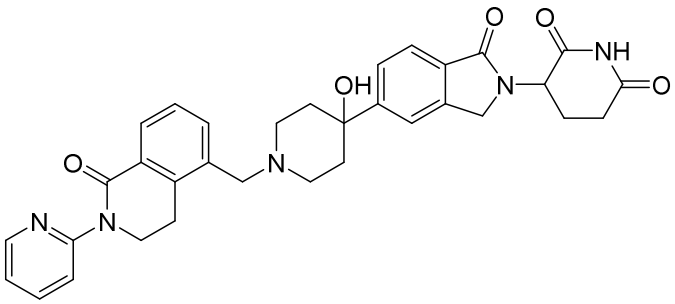

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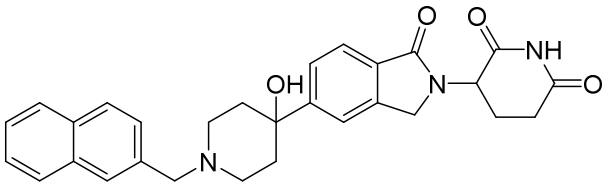

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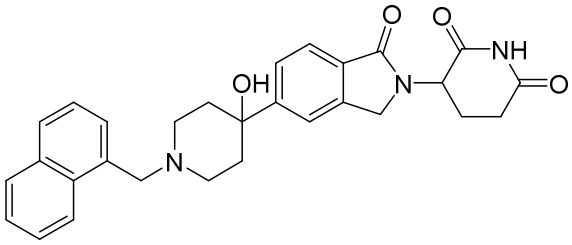

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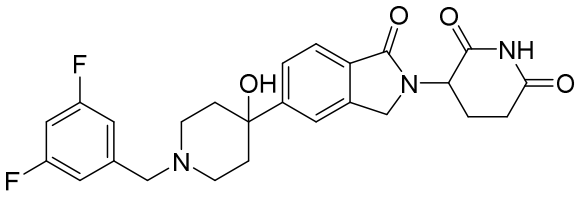

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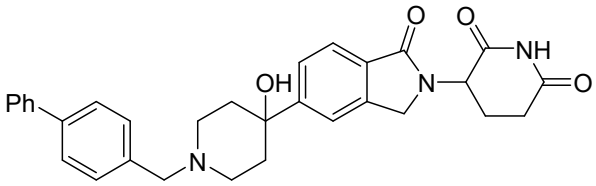

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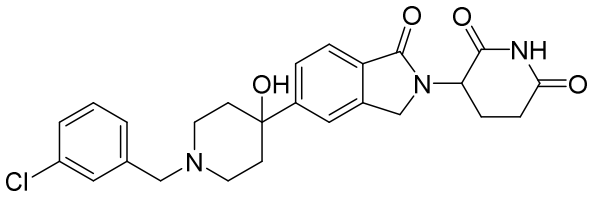

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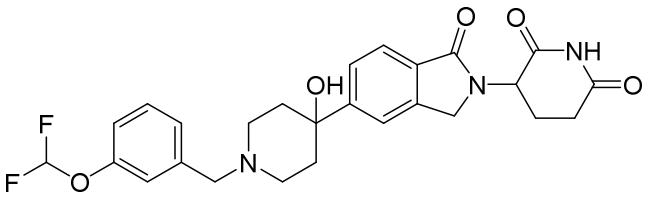

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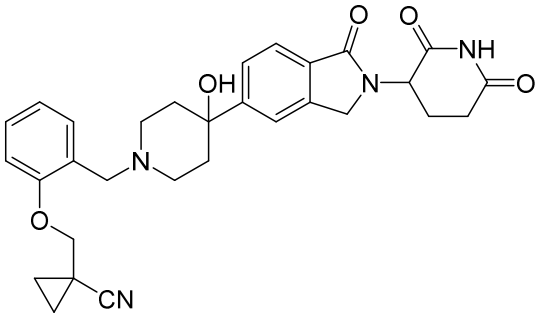

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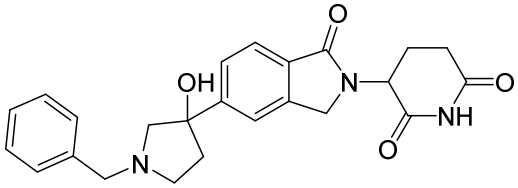

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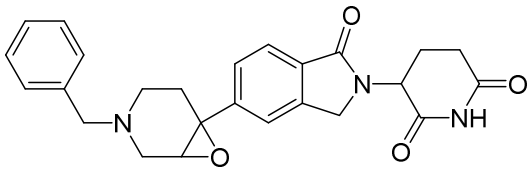

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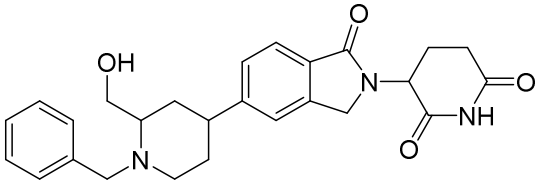

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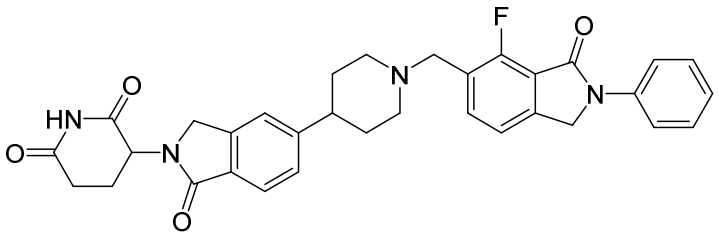

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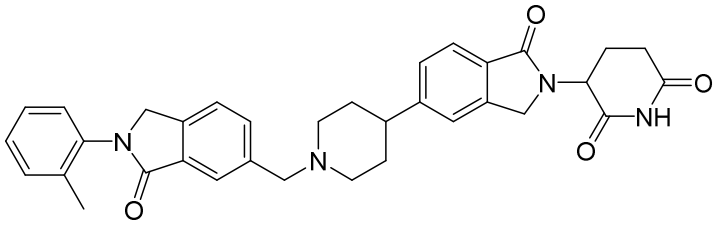

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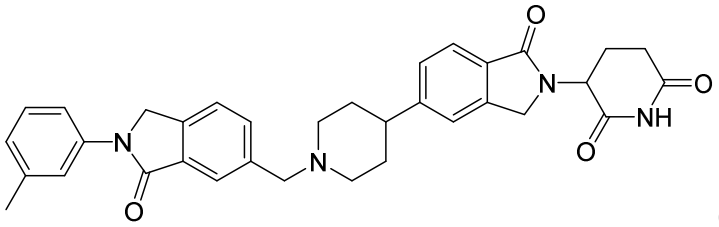

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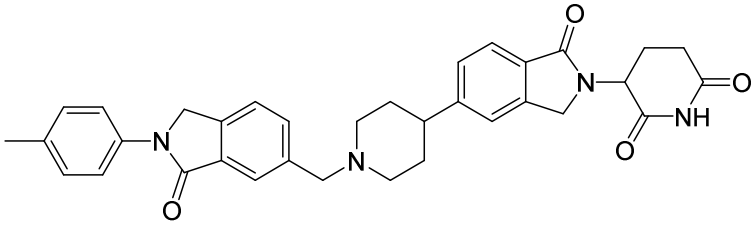

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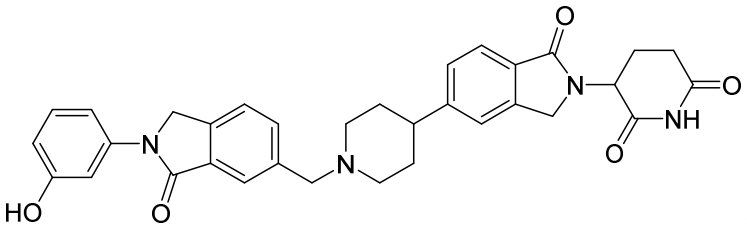

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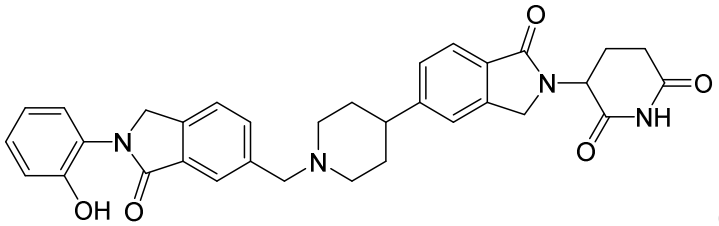

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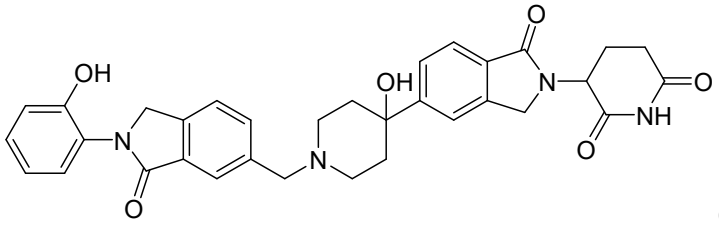

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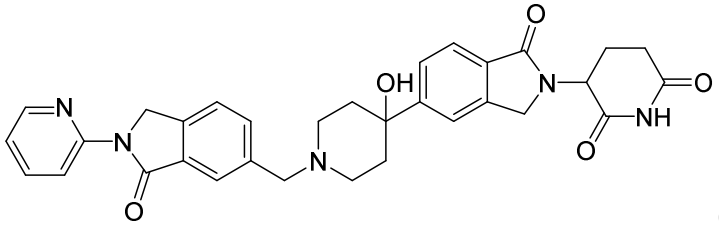

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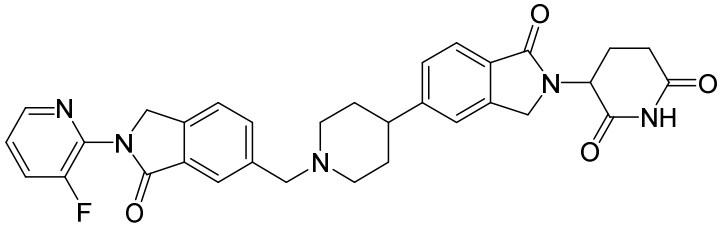

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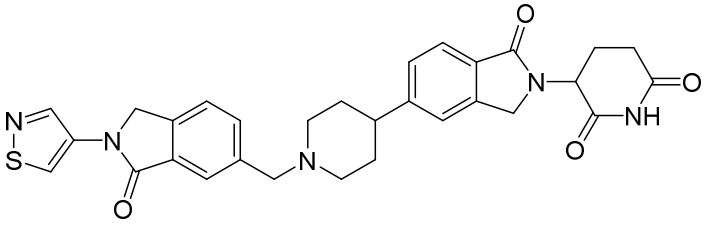

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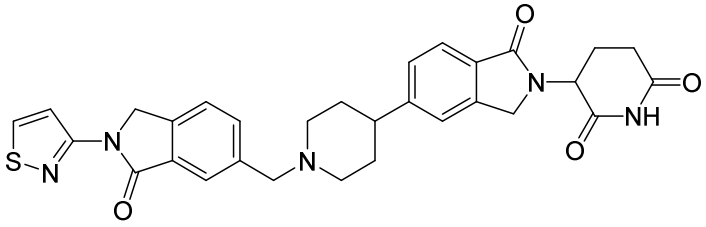

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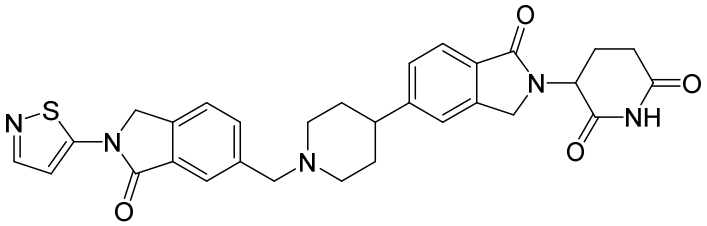

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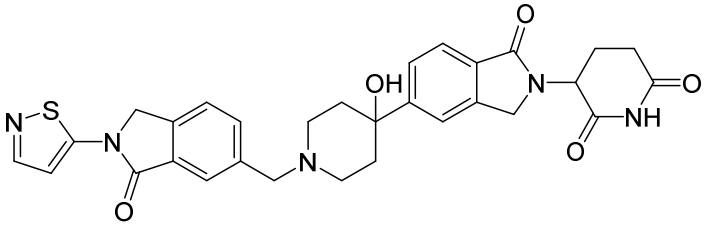

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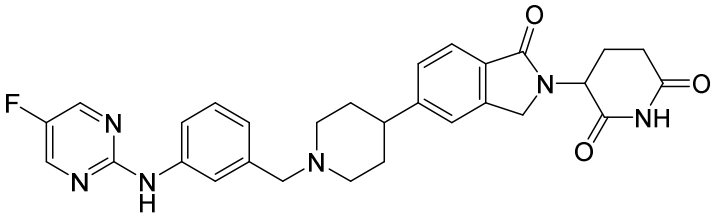

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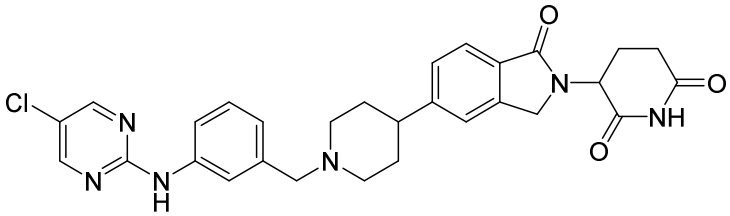

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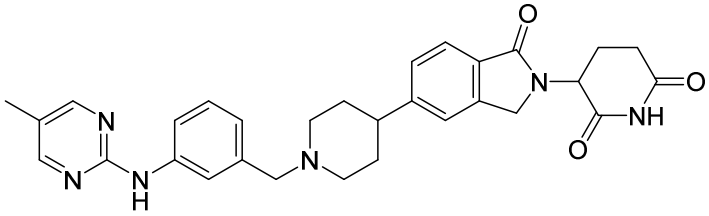

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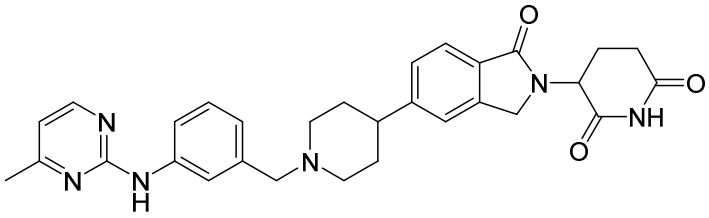

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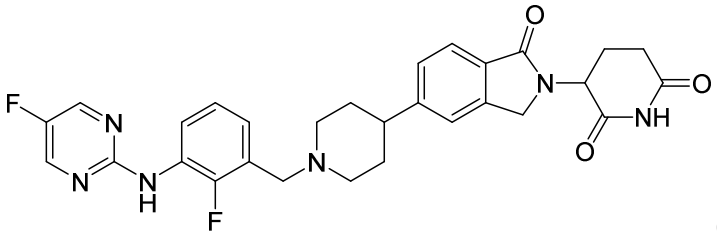

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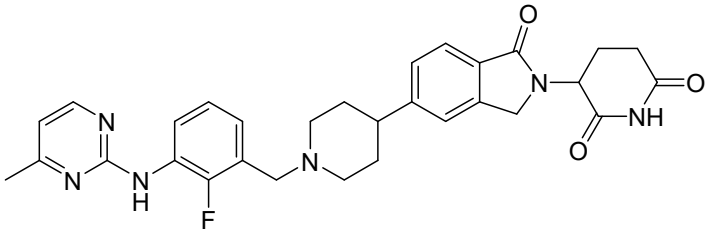

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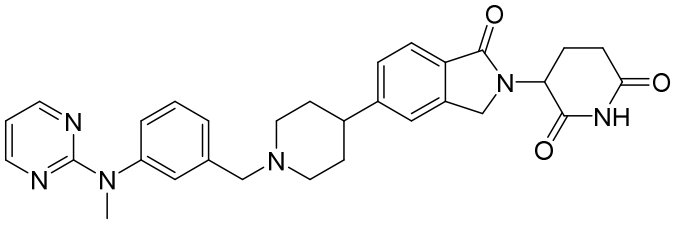

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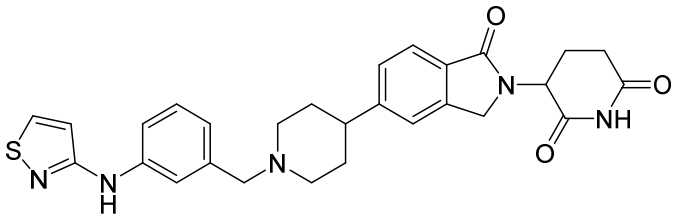

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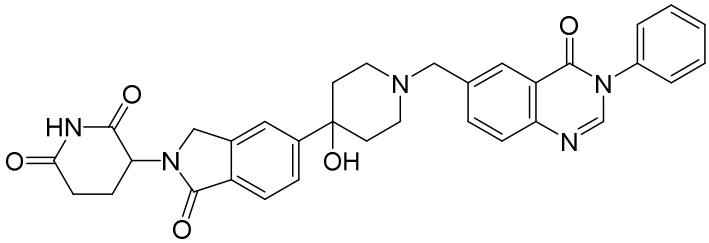

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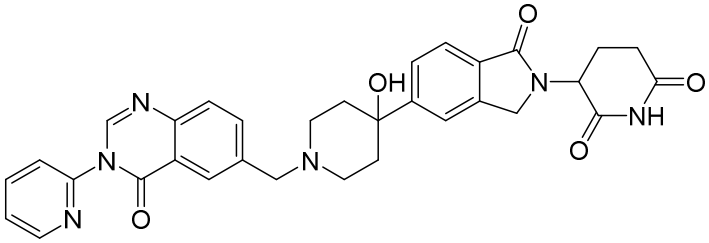

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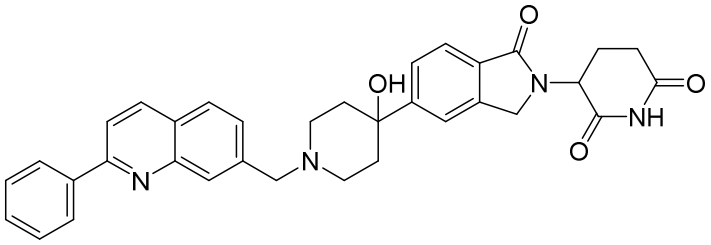

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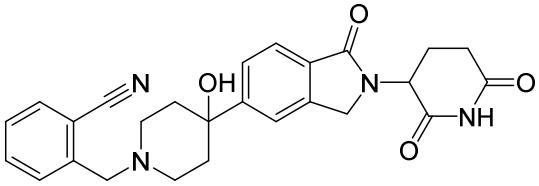

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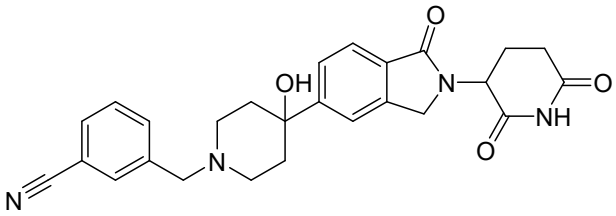

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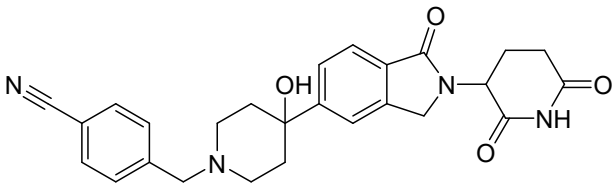

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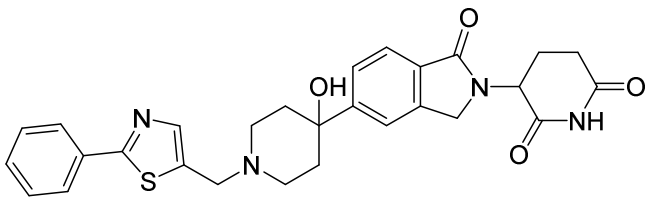

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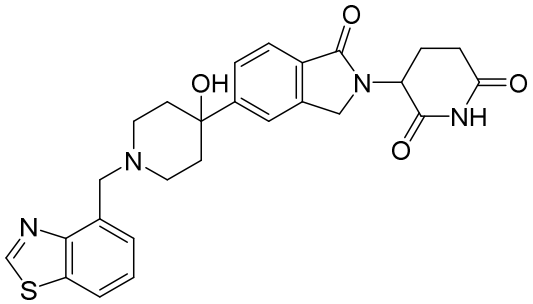

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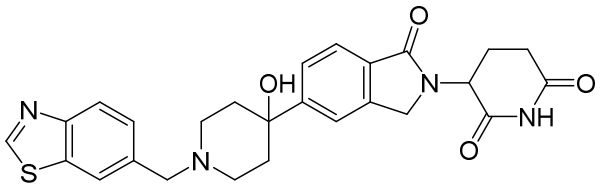

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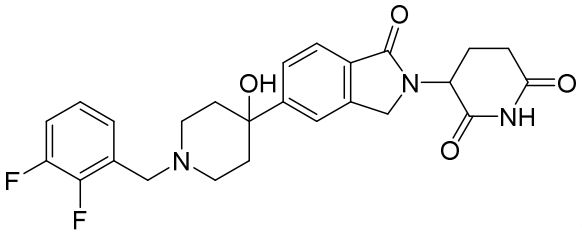

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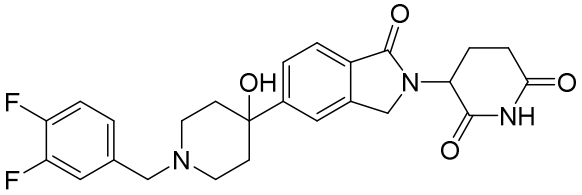

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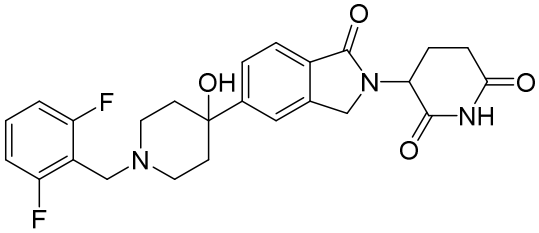

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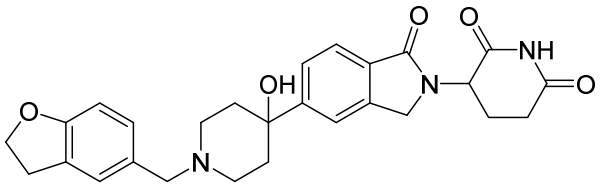

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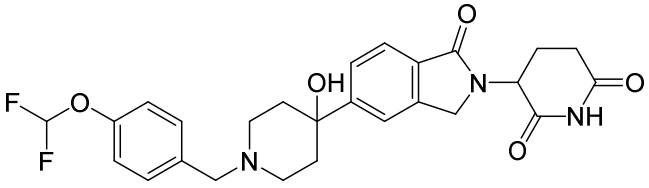

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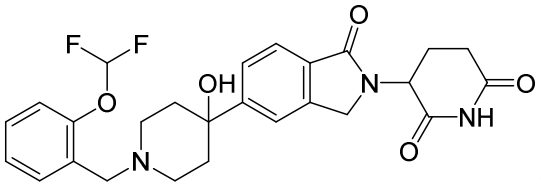

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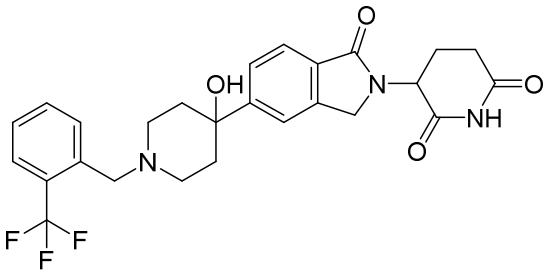

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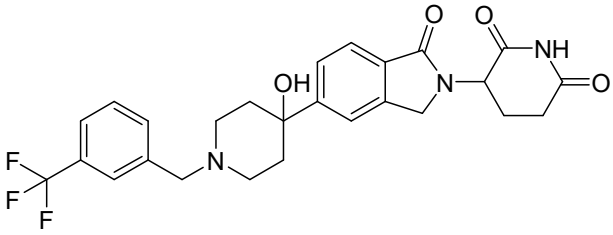

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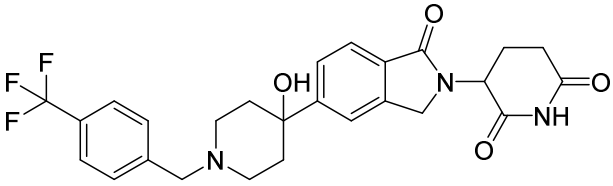

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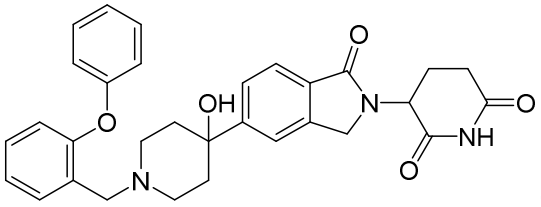

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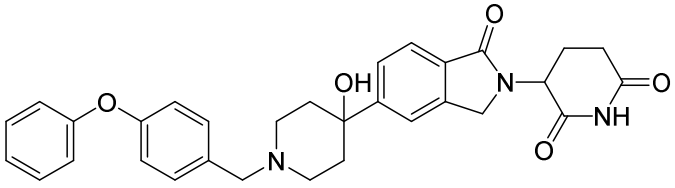

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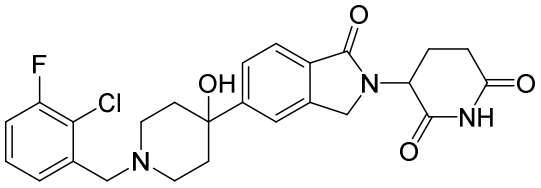
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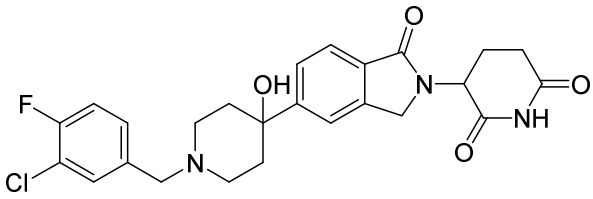
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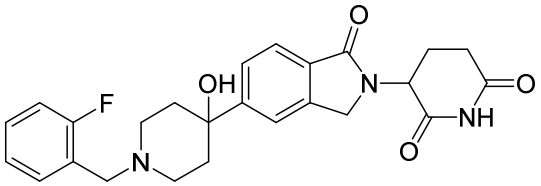
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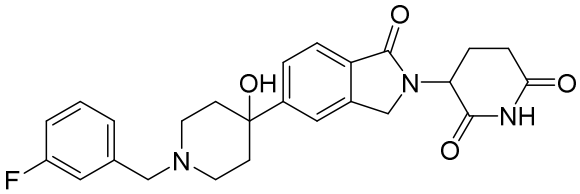
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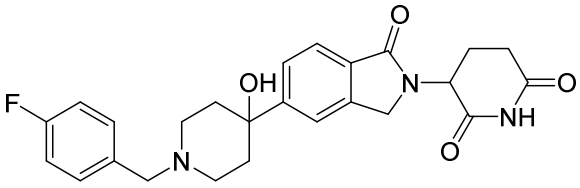
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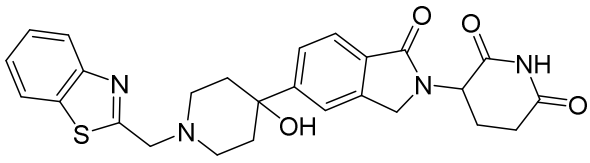
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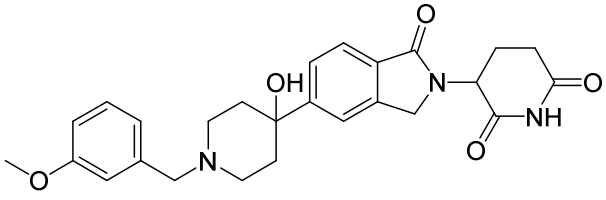
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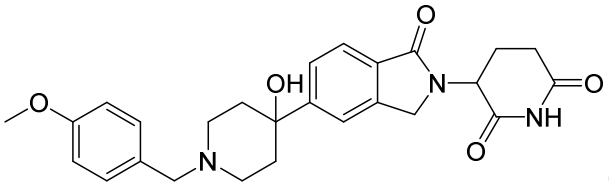

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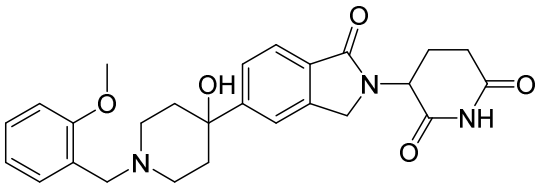

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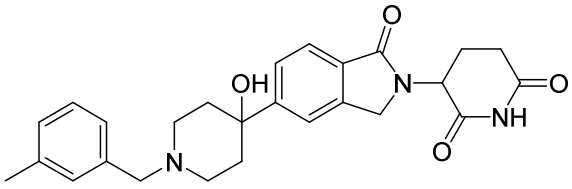

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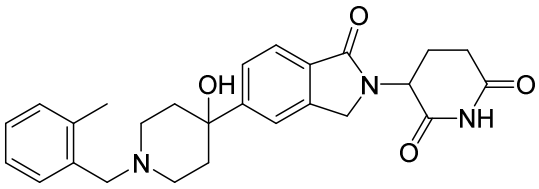

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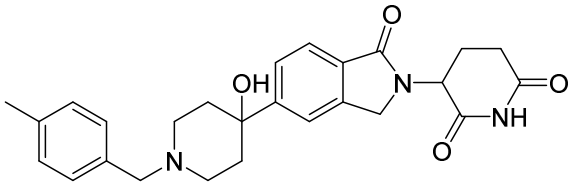

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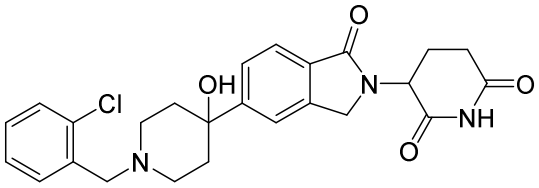

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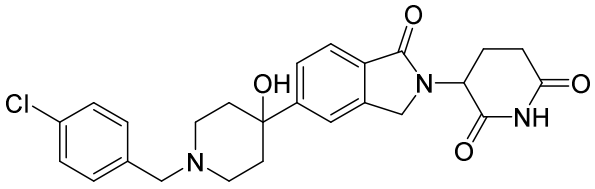

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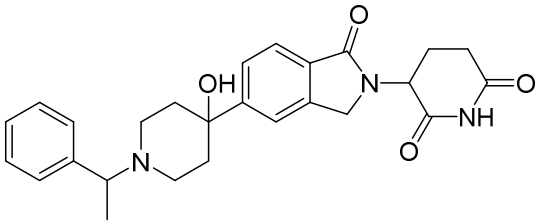

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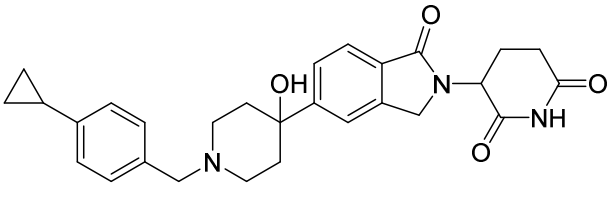

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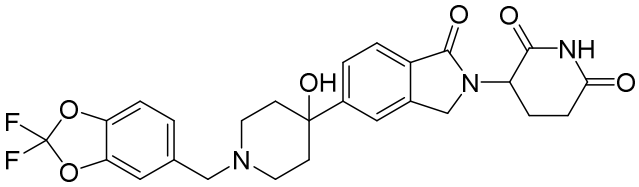

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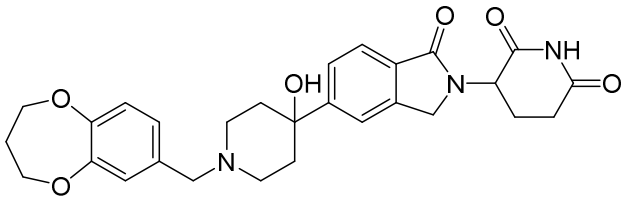

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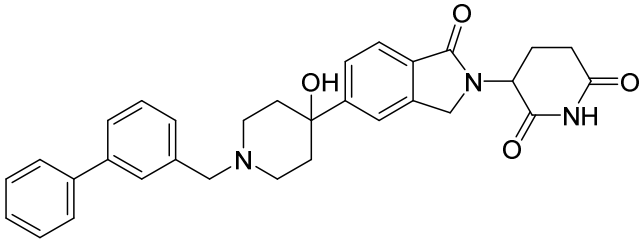

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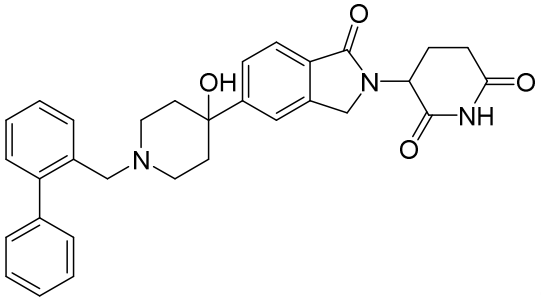

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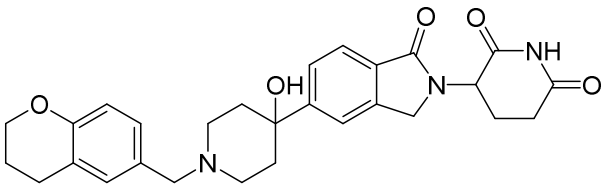

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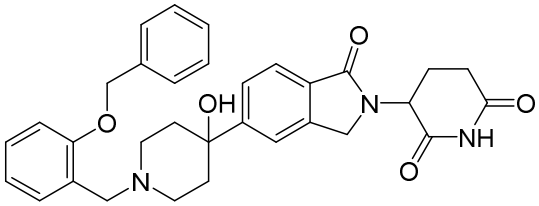

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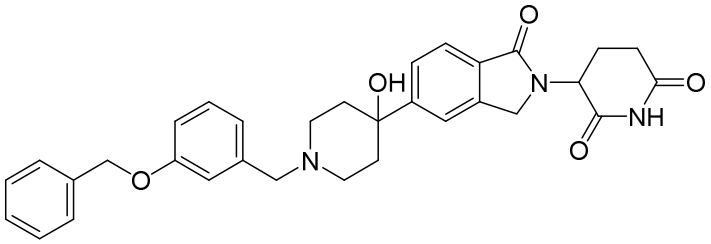

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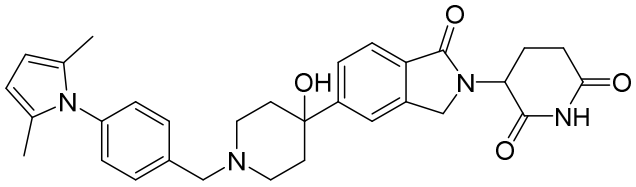

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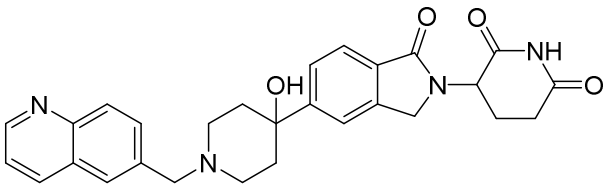

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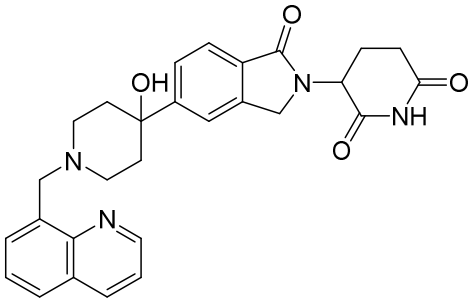

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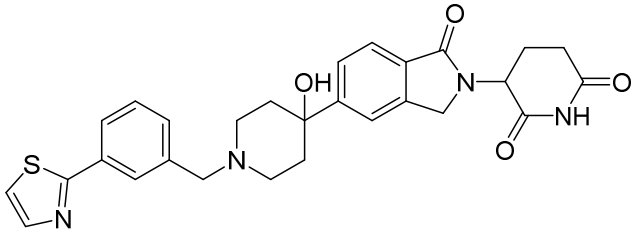

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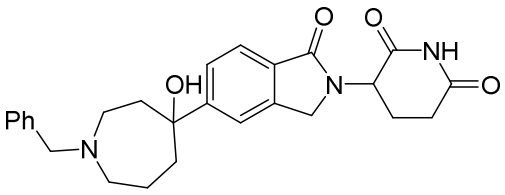

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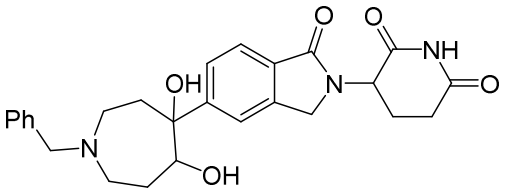

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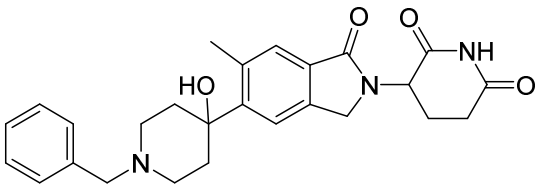

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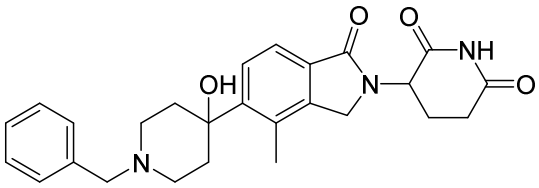

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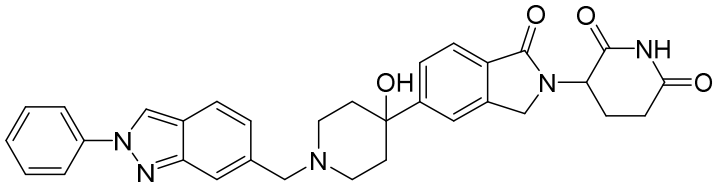

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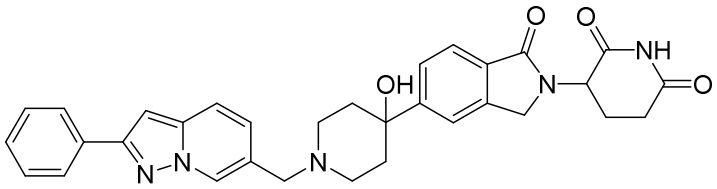

(287), or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof.

24. The compound of any one of claims 1-23, which is in the form of a pharmaceutically acceptable salt.

25. A pharmaceutical composition, comprising a therapeutically effective amount of the compound or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof of any one of claims 1-23, and a pharmaceutically acceptable carrier.

26. The pharmaceutical composition of claim 25, wherein the compound is in the form of a co-crystal.

27. Use of the compound or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof of any one of claims 1-23 in the manufacture of a medicament for the treatment of ~~A method of treating~~ a disease or disorder that is associated with IKZF2 (Helios) and would benefit from IKZF2 degradation~~, comprising administering to~~

~~a subject in need thereof a therapeutically effective amount of the compound or a pharmaceutically acceptable salt, hydrate, solvate, prodrug, stereoisomer, or tautomer thereof of any one of claims 1-23~~.

28. The ~~method~~ use of claim 27, wherein the disease or disorder is cancer.

29. The ~~method~~ use of claim 28, wherein the cancer is T cell leukemia or T cell lymphoma.

30. The ~~method~~ use of claim 28, wherein the cancer is Hodgkin's lymphoma or non-Hodgkin's lymphoma.

31. The use~~method~~ of claim 28, wherein the cancer is myeloid leukemia.

32. The ~~method~~ use of claim 28, wherein the cancer is non-small cell lung cancer (NSCLC).

33. The use~~method~~ of claim 28, wherein the cancer is melanoma.

34. The use~~method~~ of claim 28, wherein the cancer is triple-negative breast cancer (TNBC).

35. The use~~method~~ of claim 28, wherein the cancer is nasopharyngeal cancer (NPC).

36. The use~~method~~ of claim 28, wherein the cancer is microsatellite stable colorectal cancer (mssCRC).

37. The use~~method~~ of claim 28, wherein the cancer is thymoma.

38. The use~~method~~ of claim 28, wherein the cancer is carcinoid.

39. The use~~method~~ of claim 28, wherein the cancer is gastrointestinal stromal tumor (GIST)