Claims

1. A compound represented by general formula (I) or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

B-L-K (I);

L is selected from -Ak1-Cy1-Ak2-Cy2-Ak3-Cy3-Ak4-Cy4-Ak5-;

Ak1, and Ak5 are each independently selected from CH_2, or a bond;

Ak2, Ak3 and Ak4 are each independently selected from O or a bond;

Cy1, Cy2, Cy3 and Cy4 are each independently selected from a bond, 4- to 7-membered mono-heterocyclic ring, 5- to 10-membered fused heterocyclic ring, 6- to 12-membered spiro-heterocyclic ring, 7- to 10-membered bridged-heterocyclic ring, 4- to 7-membered monocycloalkyl, 5- to 10-membered fused cycloalkyl, 6- to 12-membered spiro cycloalkyl, 7- to 10-membered bridged cycloalkyl or 6- to 10-membered aryl, wherein the aryl, cycloalkyl, mono-heterocyclic ring, fused heterocyclic ring, spiro-heterocyclic ring or bridged-heterocyclic ring is optionally further substituted with 0 to 4 substituents selected from H, F, Cl, Br, I, OH, NH_2, oxo, C_{1-4} alkyl or C_{1-4} alkoxy, and the mono-heterocyclic ring, fused heterocyclic ring, spiro-heterocyclic ring or bridged-heterocyclic ring contains 1 to 4 heteroatoms selected from O,S or N;

Cy1, Cy2, Cy3 and Cy4 cannot all be a bond;

when Ak2, Ak3, or Ak4 is O, they cannot be directly connected to B;

when Ak1, Ak2, Ak3, Ak4 or Ak5 is not a bond, they cannot be directly connected to one another;

when 3 of Cy1, Cy2, Cy3 and Cy4 are a bond, at least one of Ak1, and Ak5 is selected from CH_2 and is connected to B;

when 4 or more of Ak1, Cy1, Ak2, Cy2, Ak3, Cy3, Ak4, Cy4 and Ak5 are not a bond, at least one of Cy1, Cy2, Cy3 and Cy4 is not piperidyl, piperazinyl, pyrimidinyl or pyridyl;

B is selected from B1-W1-B2-B3-B4-;

B1 is selected from phenyl, wherein the phenyl is optionally further substituted with 0 to 4 R^{b1};

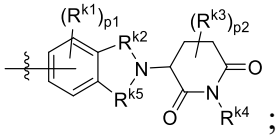
W1 is selected from -O-, or -S-;

B2 is selected from phenyl, wherein the phenyl is optionally further substituted with 0 to 4 R^{b2};

B3 is selected from substituted or unsubstituted imidazopyrimidine, pyrazolopyrimidine, imidazopyrazine, pyrazolopyrazine, imidazotetrahydropyrimidine, or pyrazolotetrahydropyrimidine which, when substituted, is optionally further substituted with 0 to 4 R^{b3};

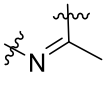
B4 is selected from substituted or unsubstituted azacyclopentyl, piperidine or piperazine, wherein the azacyclopentyl, piperidine or piperazine is optionally further substituted with 0 to 4 R^{b4};

R^{b1}, R^{b2}, R^{b3} or R^{b4} is each independently selected from H, F, Cl, Br, I, OH, NH_2, CN, $CONH_2$, C_{1-4} alkyl or C_{1-4} alkoxy, wherein the alkyl and alkoxy are optionally further substituted with 0 to 4 substituents selected from H, F, Cl, Br, I, OH, NH_2, CN, $CONH_2$, C_{1-4} alkyl or C_{1-4} alkoxy;

K is selected from ;

R^{k2} is selected from CH_2, C=O, S=O, or SO_2;

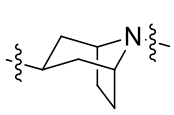
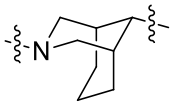
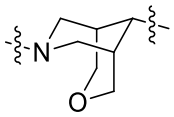
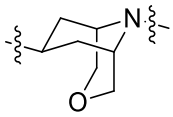
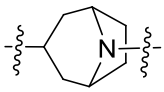
R^{k1}, R^{k3} or R^{k4} is each independently selected from H, F, Cl, Br, I, OH, NH_2, CN, C_{1-4} alkyl or C_{1-4} alkoxy;

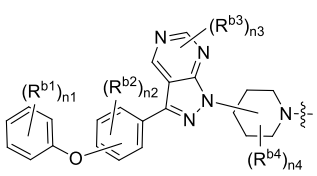
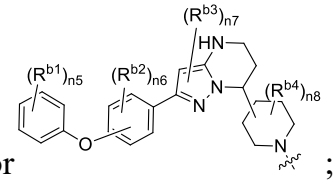
R^{k5} is selected from C=O or ; and p1 or p2 is each independently selected from 0, 1, 2, 3 or 4.

2. The compound according to claim 1, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

Cy1, Cy2, Cy3 and Cy4 are each independently selected from one of the following substituted or unsubstituted groups: a bond, phenyl, naphthyl, cyclobutyl, cyclopentyl, cyclohexyl, cyclobutyl-fused-cyclobutyl, cyclobutyl-fused-cyclopentyl, cyclobutyl-fused-cyclohexyl, cyclopentyl-fused-cyclopentyl, cyclopentyl-fused-cyclohexyl, cyclohexyl-fused-cyclohexyl,

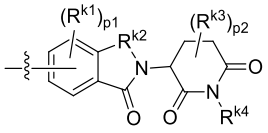
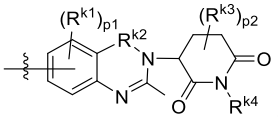
cyclopropyl-fused-cyclobutyl, cyclopropyl-fused-cyclopentyl, cyclopropyl-fused-cyclohexyl, cyclobutyl-spiro-cyclobutyl, cyclobutyl-spiro-cyclopentyl, cyclobutyl-spiro-cyclohexyl, cyclopentyl-spiro-cyclopentyl, cyclopentyl-spiro-cyclohexyl, cyclohexyl-spiro-cyclohexyl, cyclopropyl-spiro-cyclobutyl, cyclopropyl-spiro-cyclopentyl, cyclopropyl-spiro-cyclohexyl, azetidinyl, azacyclopentyl, piperidyl, morpholinyl, piperazinyl, pyrrolyl, pyrazolyl, imidazolyl, thiazolyl, pyridyl, pyridazinyl, pyrimidinyl, pyrazinyl, triazolyl, tetrazolyl, cyclopropyl-fused-azetidinyl, cyclopropyl-fused-azacyclopentyl, cyclopropyl-fused-azacyclohexyl, cyclopropyl-fused-piperidyl, cyclobutyl-fused-azetidinyl, cyclobutyl-fused-azacyclopentyl, cyclobutyl-fused-azacyclohexyl, cyclobutyl-fused-piperidyl, cyclopentyl-fused-azetidinyl, cyclopentyl-fused-azacyclopentyl, cyclopentyl-fused-azacyclohexyl, cyclopentyl-fused-piperidyl, cyclohexyl-fused-azetidinyl, cyclohexyl-fused-azacyclopentyl, cyclohexyl-fused-azacyclohexyl, cyclohexyl-fused-piperidyl, azetidinyl-fused-azetidinyl, azetidinyl-fused-azacyclopentyl, azetidinyl-fused-azacyclohexyl, azetidinyl-fused-piperidyl, azacyclopentyl-fused-azetidinyl, azacyclopentyl-fused-azacyclopentyl, azacyclopentyl-fused-azacyclohexyl, azacyclopentyl-fused-piperidyl, azacyclohexyl-fused-azetidinyl, azacyclohexyl-fused-azacyclopentyl, azacyclohexyl-fused-azacyclohexyl, azacyclohexyl-fused-piperidyl, cyclobutyl-spiro-azetidinyl, cyclobutyl-spiro-azacyclopentyl, cyclobutyl-spiro-azacyclohexyl, cyclopentyl-spiro-azetidinyl, cyclopentyl-spiro-azacyclopentyl, cyclopentyl-spiro-azacyclohexyl, cyclohexyl-spiro-azetidinyl, cyclohexyl-spiro-azacyclopentyl, cyclohexyl-spiro-azacyclohexyl, azetidinyl-spiro-azetidinyl, azetidinyl-spiro-azacyclopentyl, azetidinyl-spiro-azacyclohexyl, azacyclopentyl-spiro-azetidinyl, azacyclopentyl-spiro-azacyclopentyl, azacyclopentyl-spiro-azacyclohexyl, azacyclohexyl-spiro-azetidinyl, azacyclohexyl-spiro-azacyclopentyl, azacyclohexyl-spiro-azacyclohexyl,

cyclobutyl-spiro-piperidyl, cyclopentyl-spiro-piperidyl, cyclohexyl-spiro-piperidyl, azetidinyl-spiro-piperidyl, azacyclopentyl-spiro-piperidyl, azacyclohexyl-spiro-piperidyl, , , , , , which, when substituted, are optionally further substituted with 0 to 4 substituents selected from H, F, Cl, Br, I, OH, NH_2, oxo, C_{1-4} alkyl or C_{1-4} alkoxy;

B is selected from , or ;

R^{b1}, R^{b2}, R^{b3} or R^{b4} is each independently selected from H, F, Cl, Br, I, OH, NH_2, CN, $CONH_2$, methyl or methoxy, wherein the methyl or methoxy is optionally further substituted with 0 to 4 substituents selected from H, F, Cl, Br or I;

n1, n2, n3, n4, n5, n6, n7, and n8 are each independently selected from 0, 1, 2, 3 or 4;

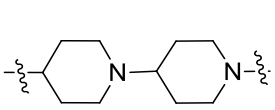
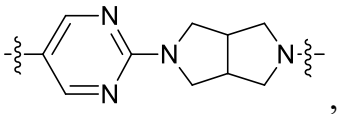
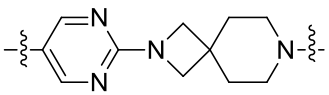
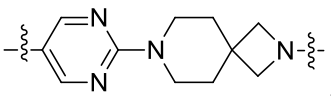
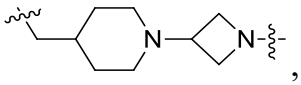
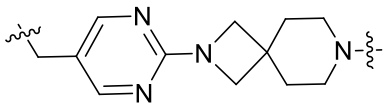
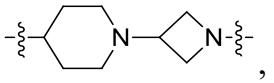
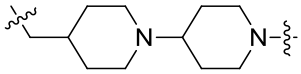
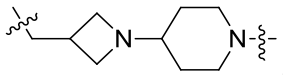
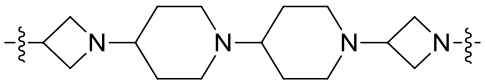
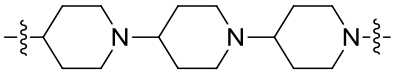
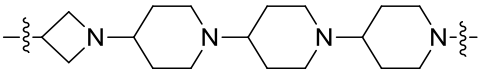
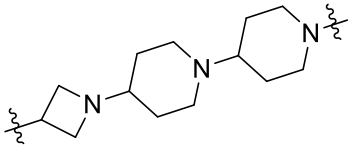
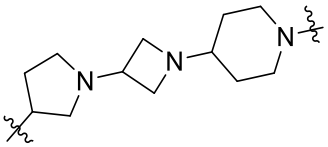
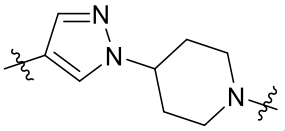
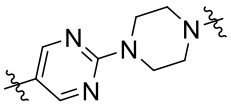
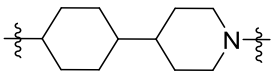
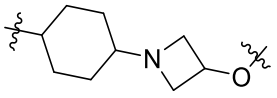
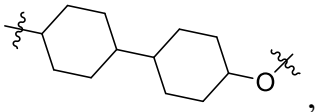
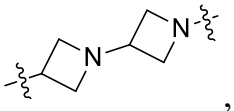
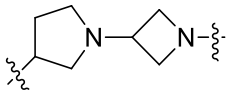
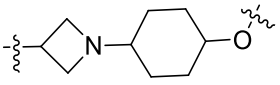
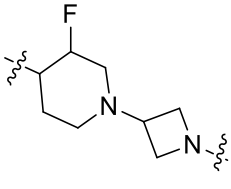
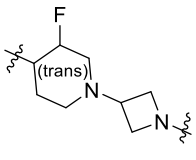
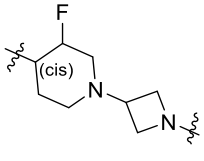
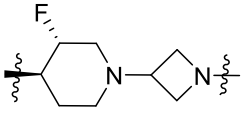
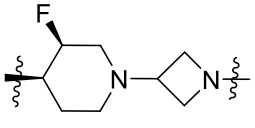
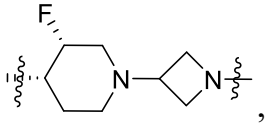
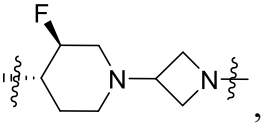
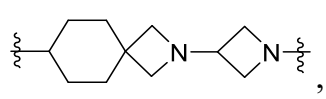
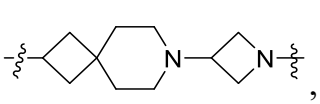
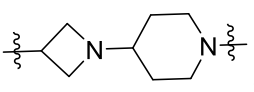
K is selected from  or ;

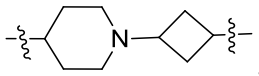
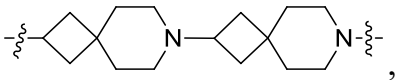
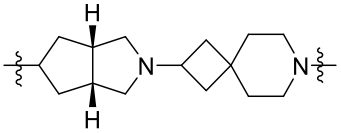
R^{k2} is selected from CH_2 or C=O;

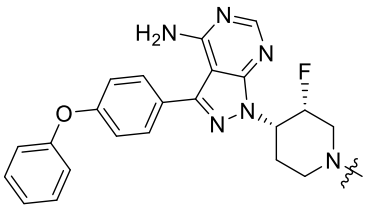
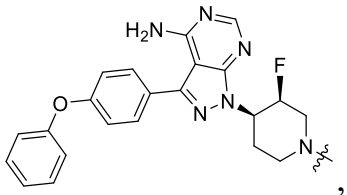
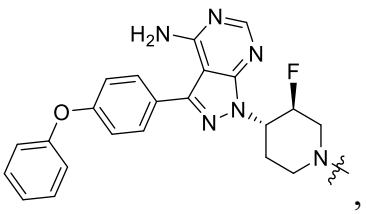
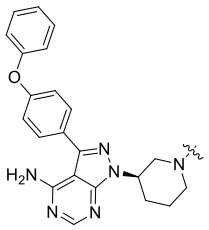
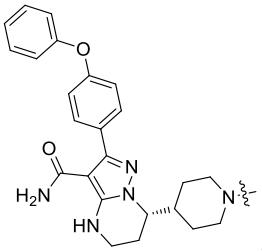
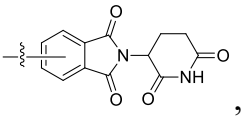
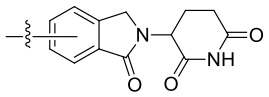
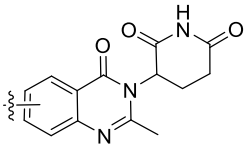
R^{k1}, R^{k3} or R^{k4} is each independently selected from H, F, Cl, Br, I, OH or NH_2; and

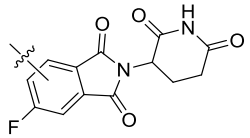
p1 or p2 is each independently selected from 0, 1 or 2.

3. The compound according to claim 2, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

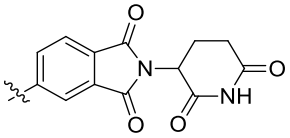
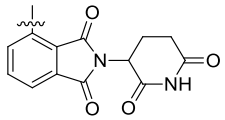
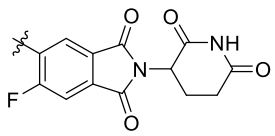
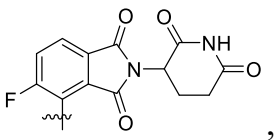
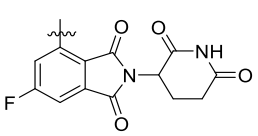
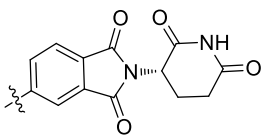
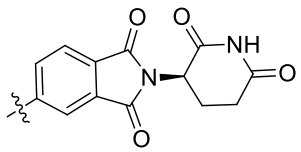
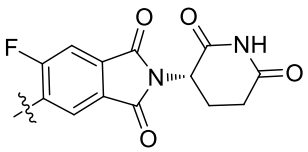
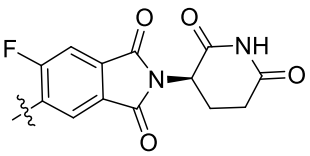
L is selected from , , , , , , , , , , , , , , , , , , , , or L can be selected from , , , , , , , , , , , or ;

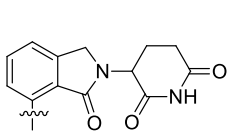
or L can be selected from , , ,

, , , , or ; K is selected from ,  or ;

or K can be selected from .

4. The compound according to claim 3, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

K is selected from , , , , , , , , ,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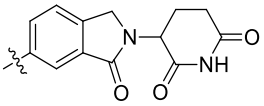
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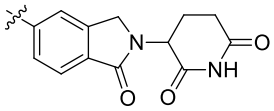
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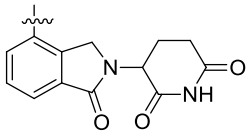
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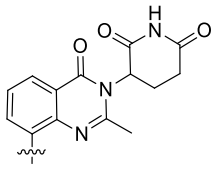
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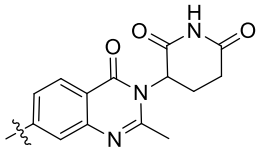
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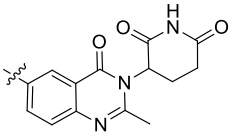
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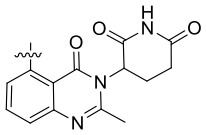
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5. The compound according to claim 3, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

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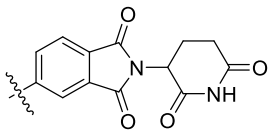
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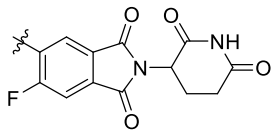
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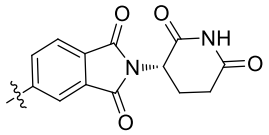
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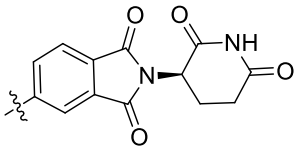
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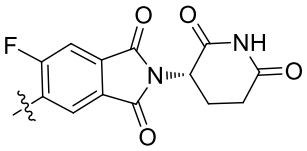
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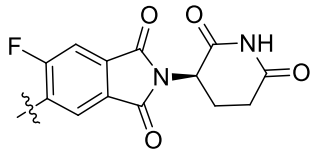
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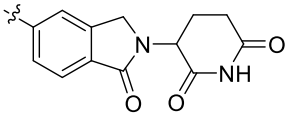
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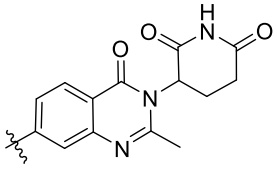
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6. The compound according to claim 3, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

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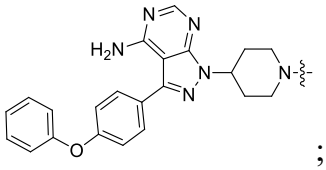
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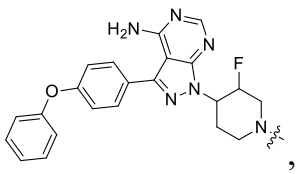
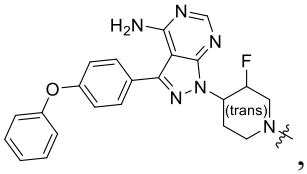
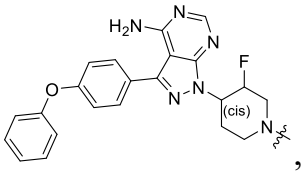
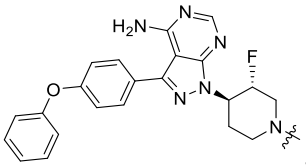
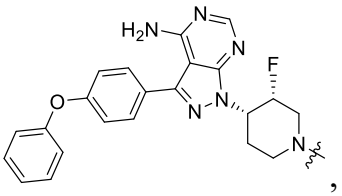
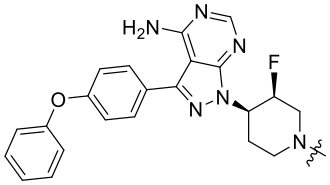
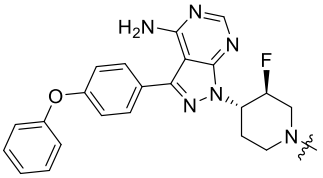
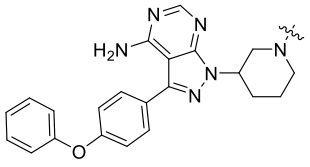
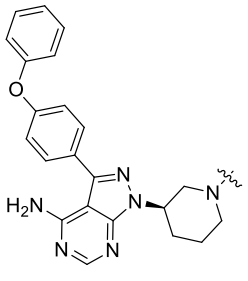
or B can be selected from , , , , ,  or .

7. The compound according to claim 3, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

B is selected from

;

or B can be selected from .

8. The compound according to claim 3, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

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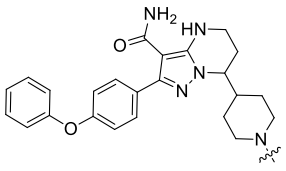
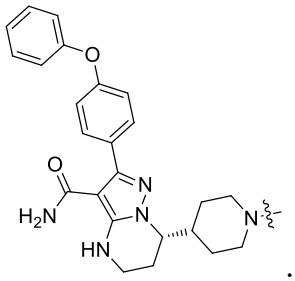
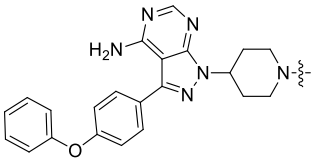
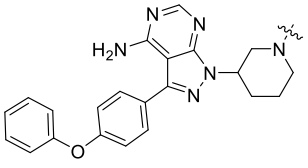
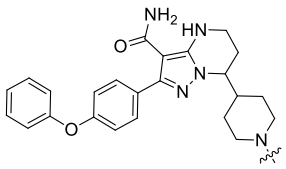
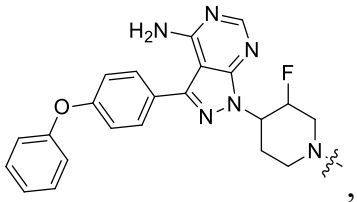
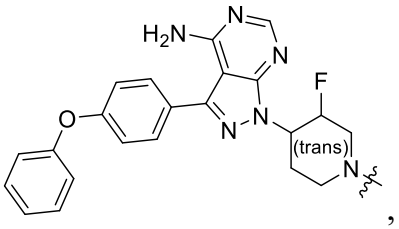
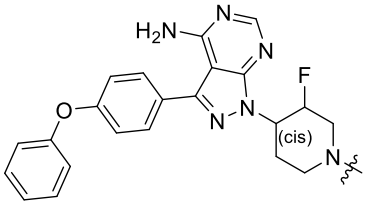
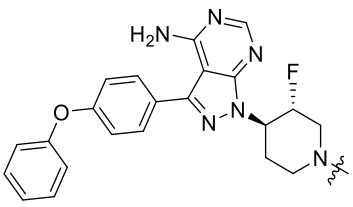
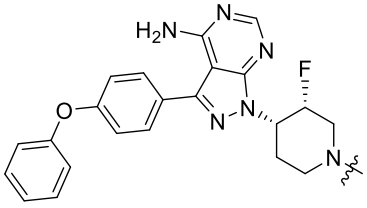
;

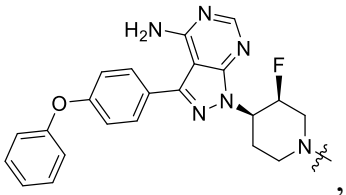
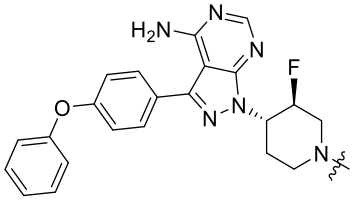
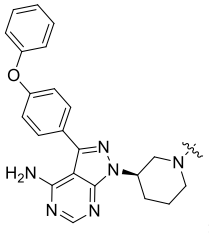
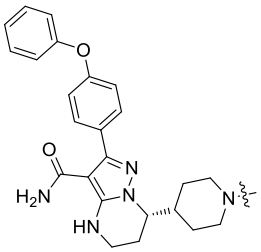
or B can be selected from .

9. The compound according to claim 1, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein the compound is selected from a compound represented by general formula (Ia) or (Ib),

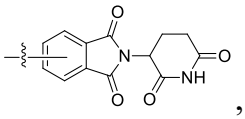
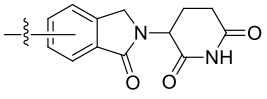
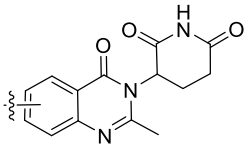
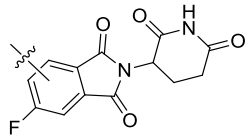
B-Cy1-Cy2-K (Ia)

B-Cy1-Cy2-Cy3-K (Ib)

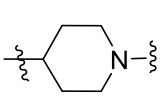
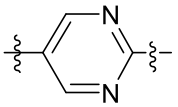
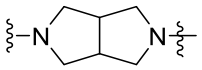
B is selected from , ,  or , , , , ,

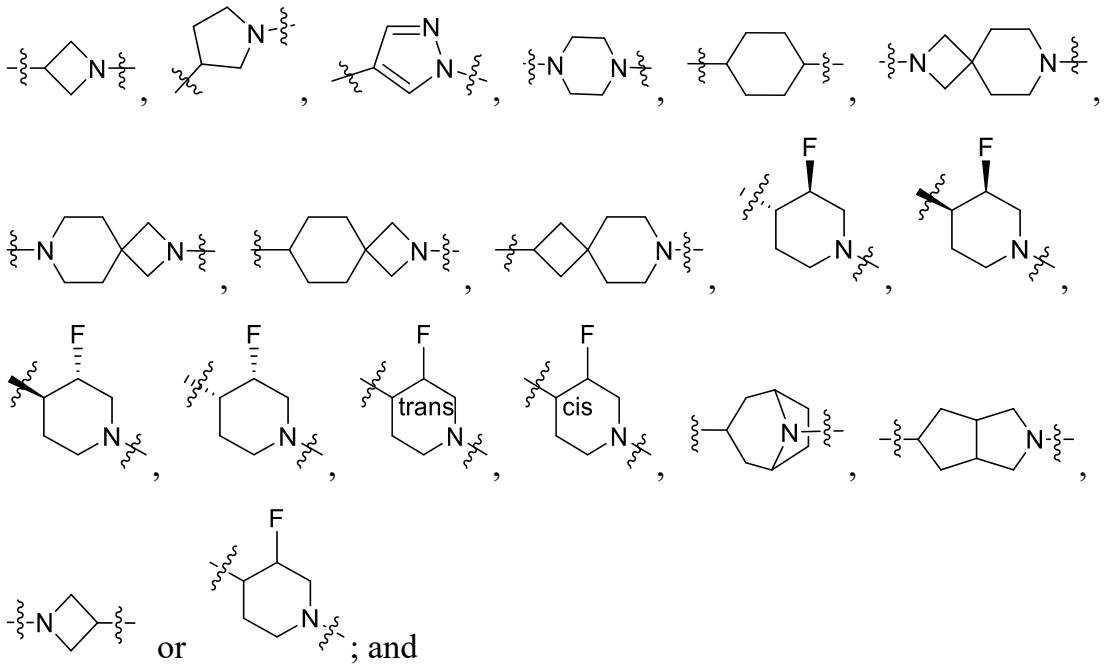
, , , or ;

Cy1, Cy2, and Cy3 are each independently selected from one of the following substituted or unsubstituted groups: 4- to 6-membered nitrogen-containing mono-heterocyclic ring, 5- to 10-membered nitrogen-containing fused heterocyclic ring, 6- to 10-membered nitrogen-containing spiro-heterocyclic ring, 4- to 6-membered monocycloalkyl or phenyl, wherein the phenyl, cycloalkyl, mono-heterocyclic ring, fused heterocyclic ring or spiro-heterocyclic ring is optionally further substituted with 0 to 4 substituents selected from H, F, Cl, Br, I, OH, NH_2, oxo, C_{1-4} alkyl or C_{1-4} alkoxy, and the mono-heterocyclic ring, fused heterocyclic ring or spiro-heterocyclic ring contains 1 to 4 heteroatoms selected from O, S or N; and

K is selected from , ,  or .

10. The compound according to claim 9, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein

Cy1, Cy2, and Cy3 are each independently selected from one of the following substituted or unsubstituted groups: , , ,



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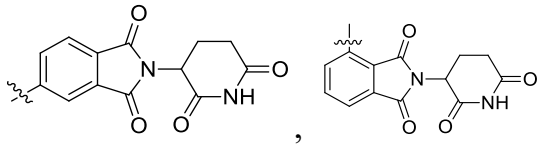
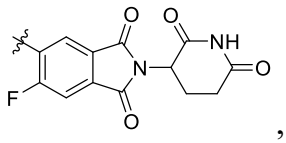
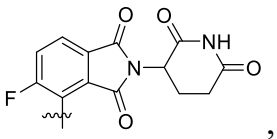
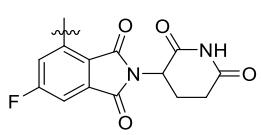
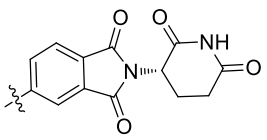
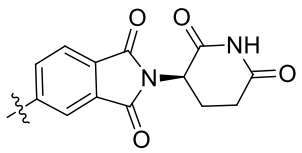
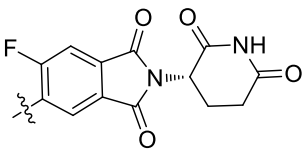
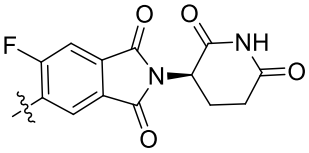
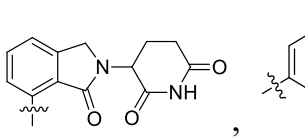
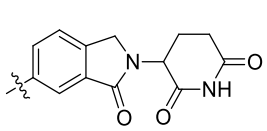
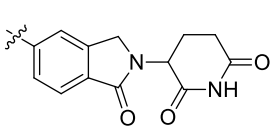
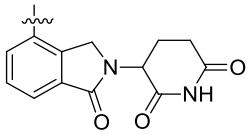
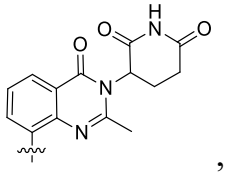
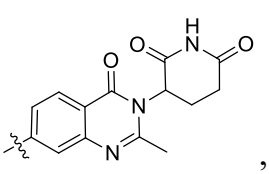
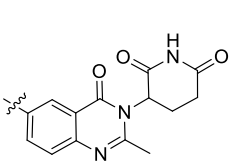
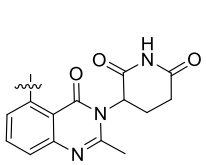
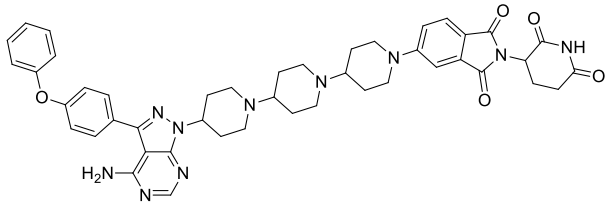
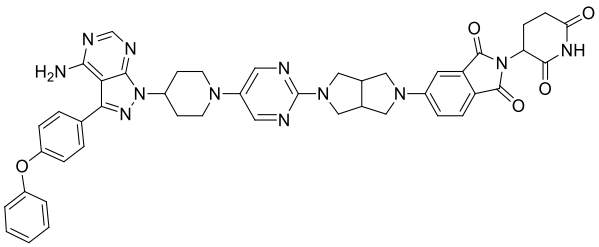
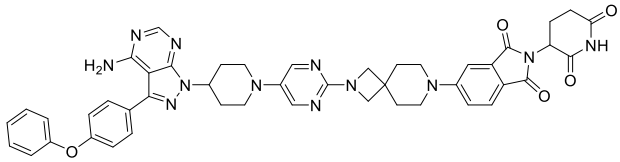
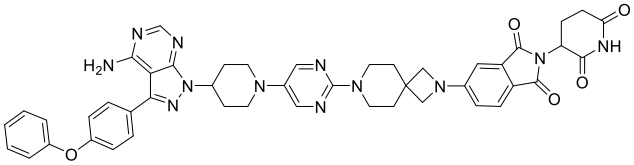
K is selected from , , , , , , , , , , , , , , , , or .

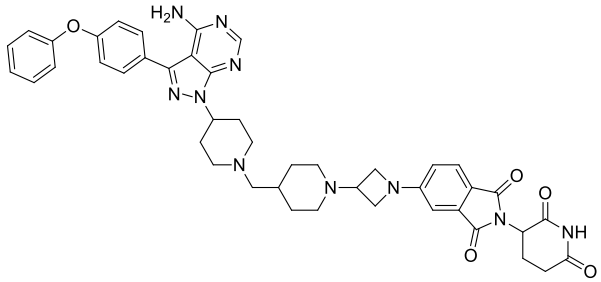
11. A compound or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein the compound is of the structure selected from one of:

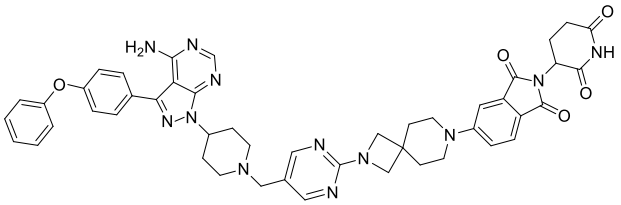


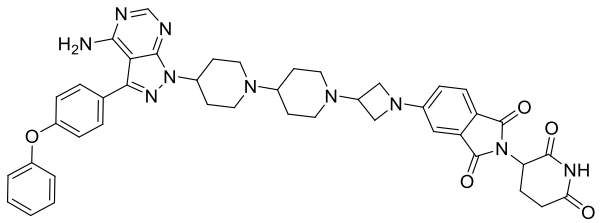


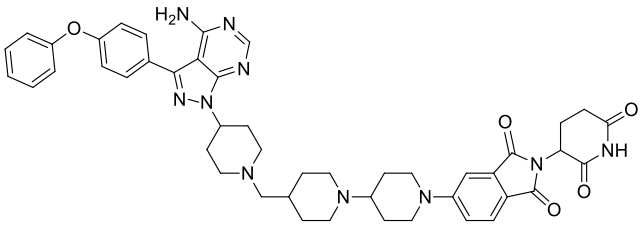


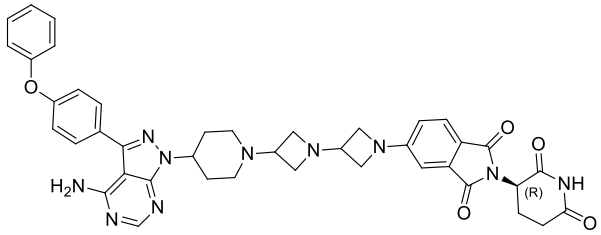


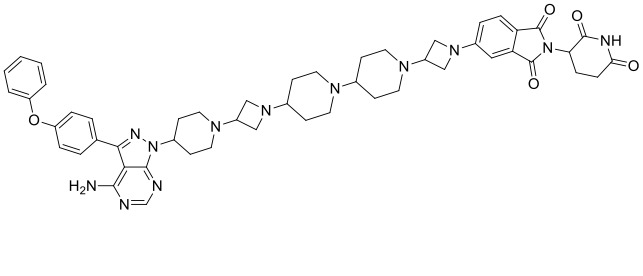


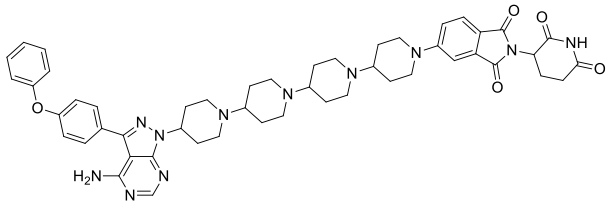


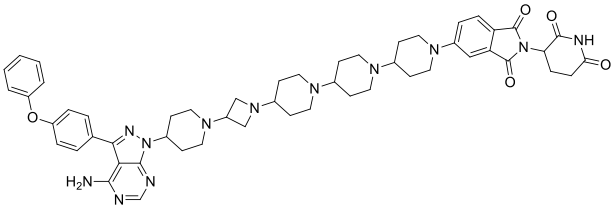


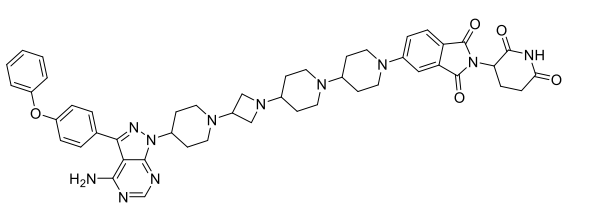


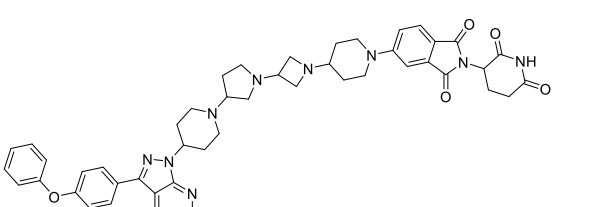


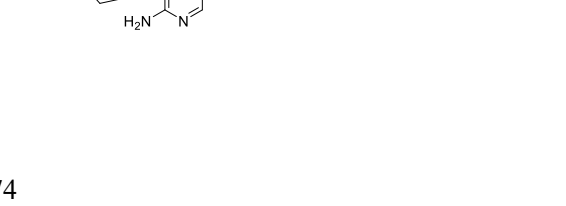


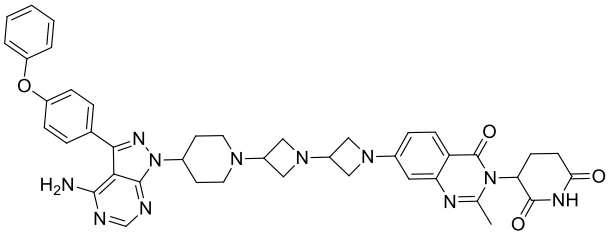


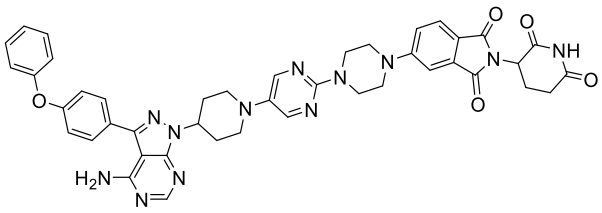


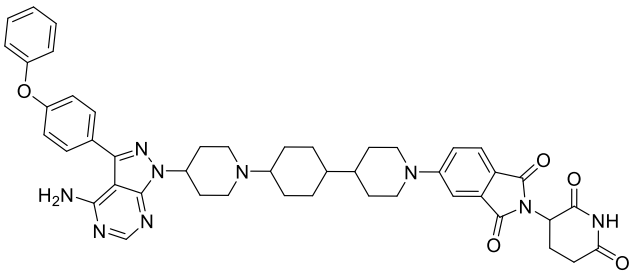


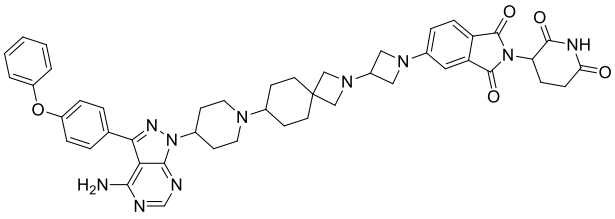


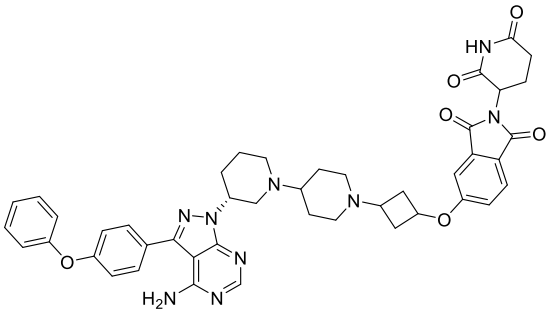


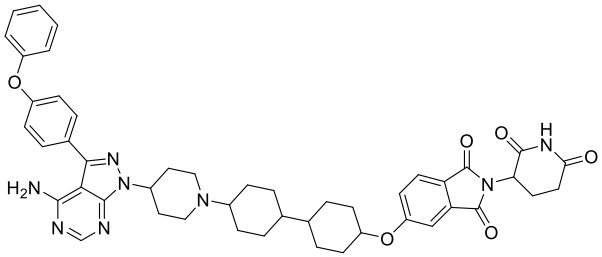


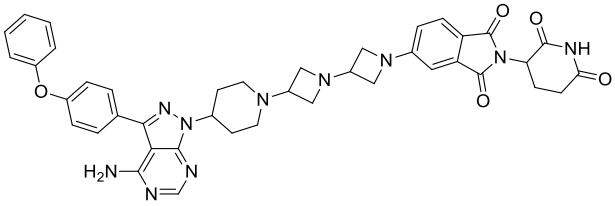


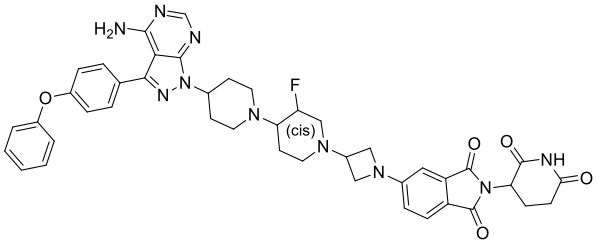


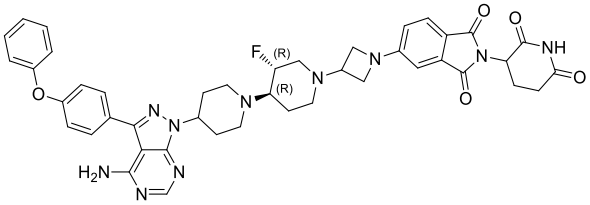


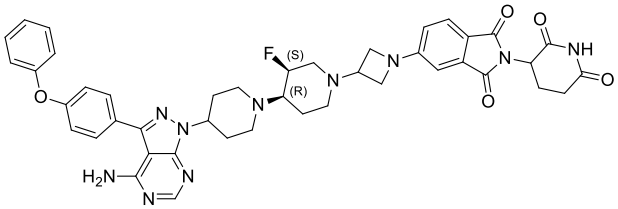


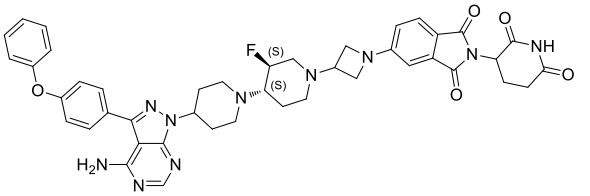


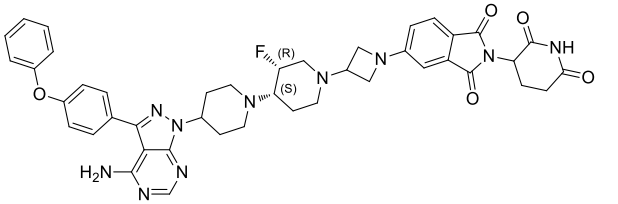


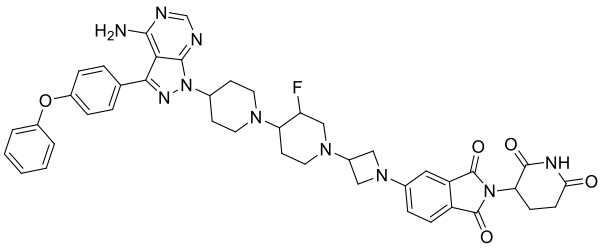


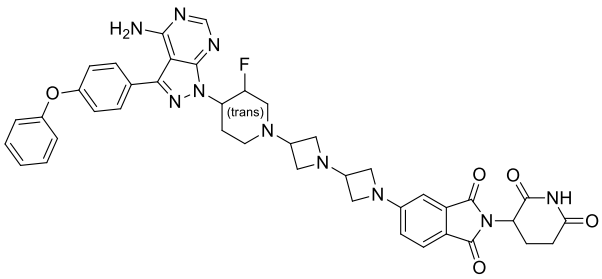


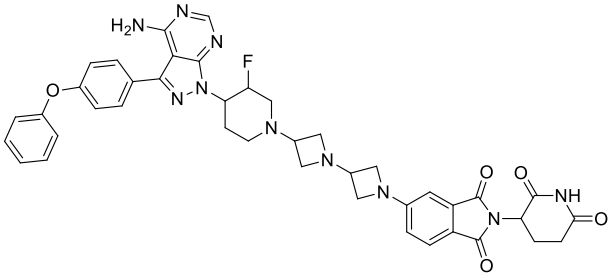


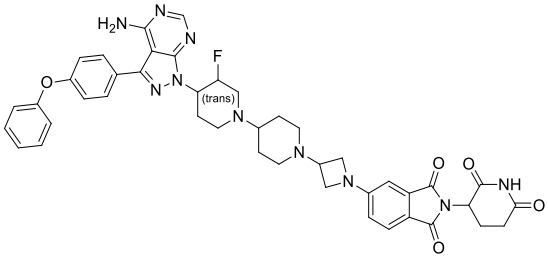


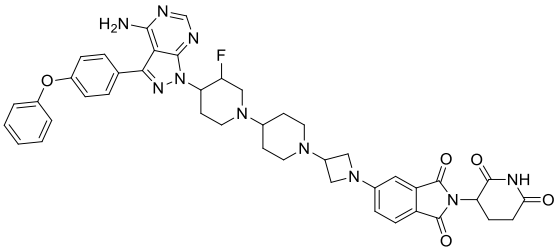


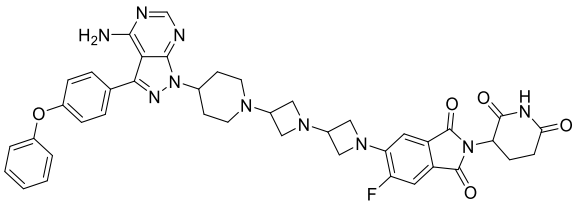


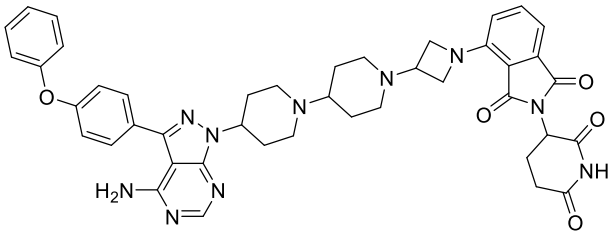


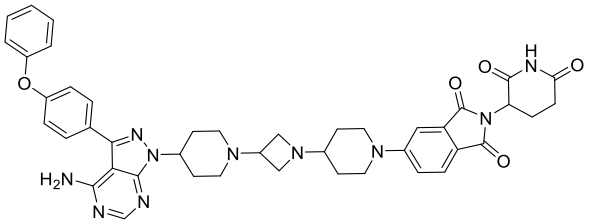


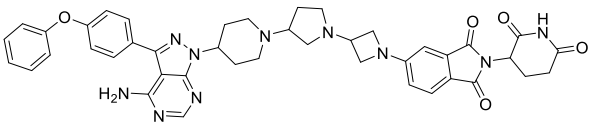


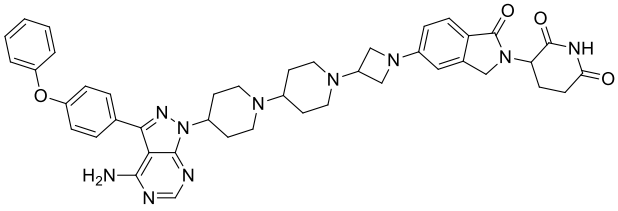


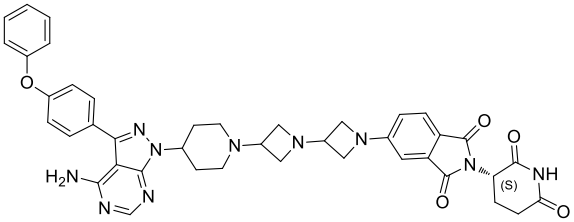


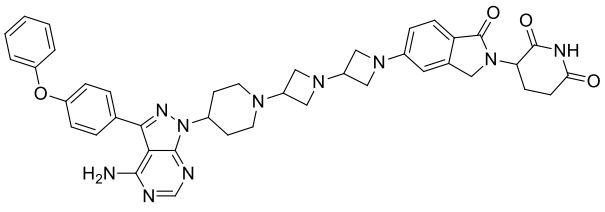


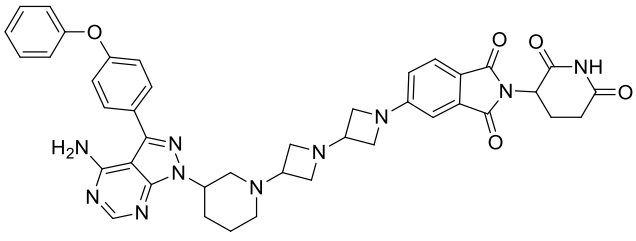


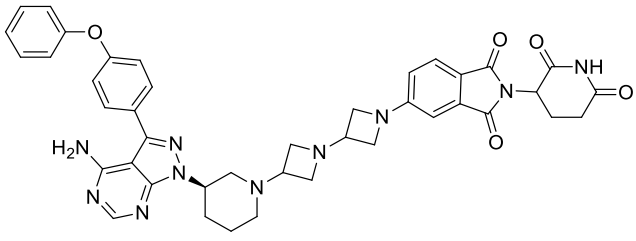


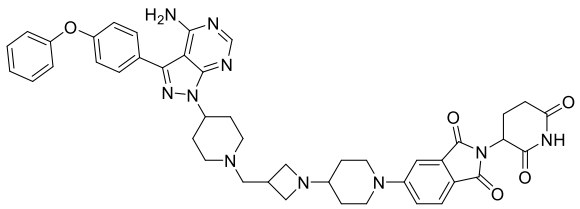


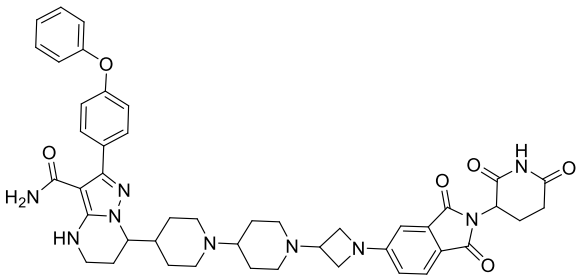


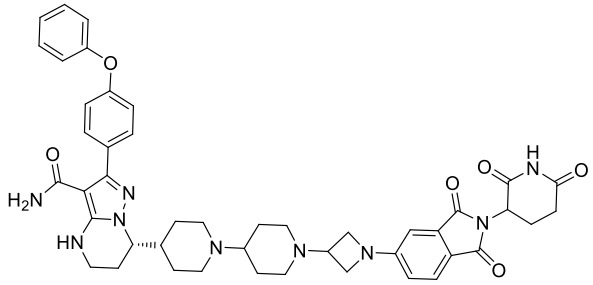


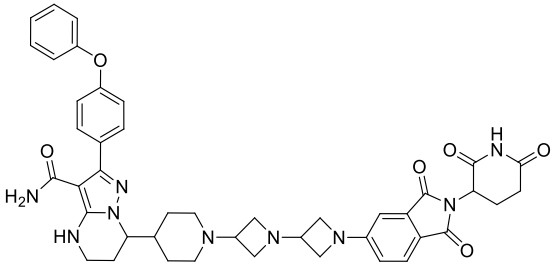


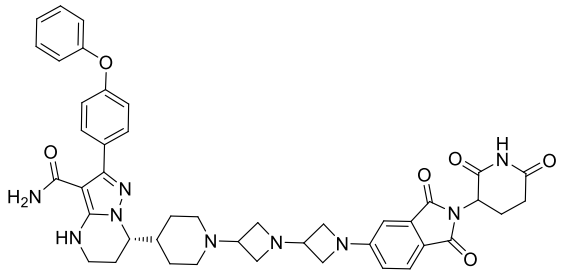


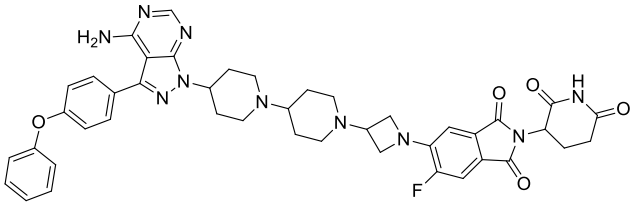


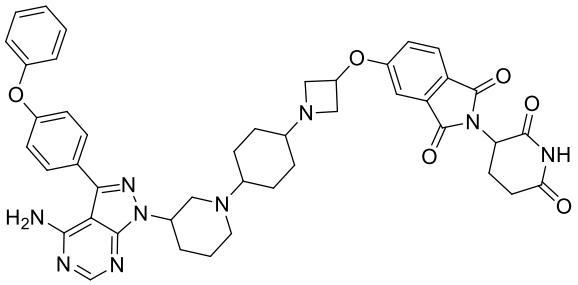


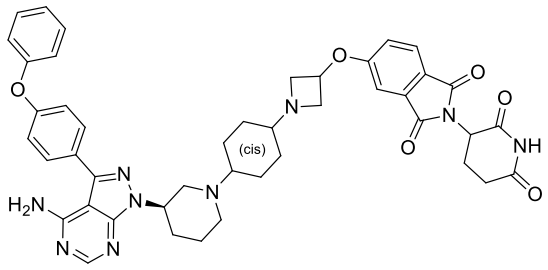








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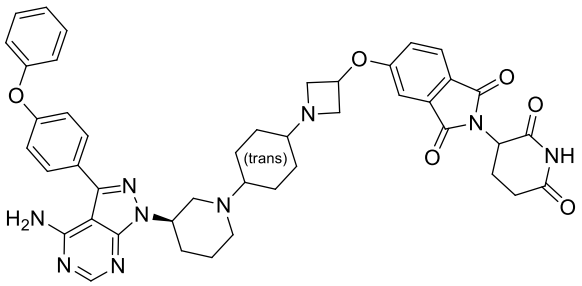
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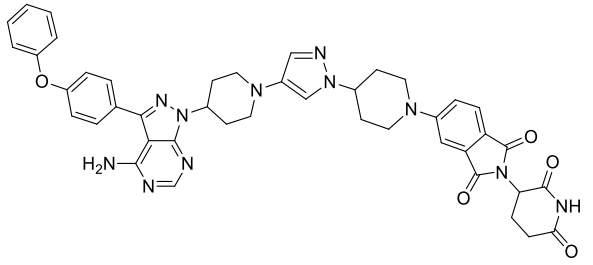

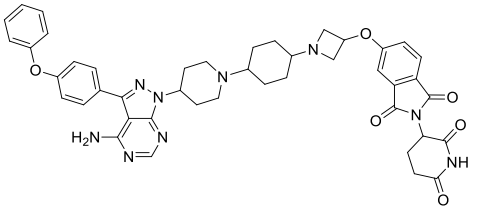

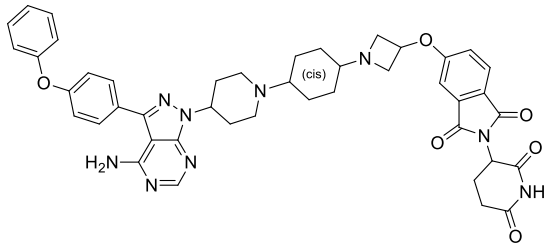

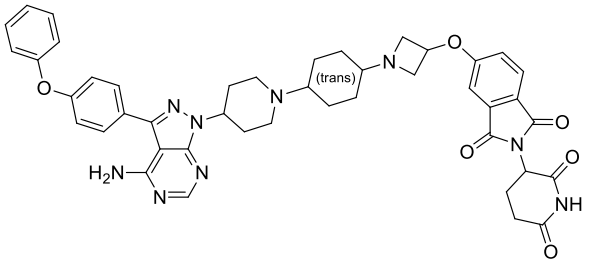

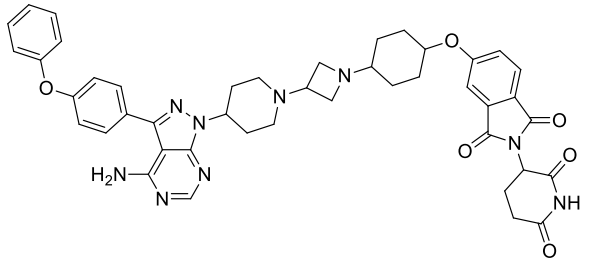

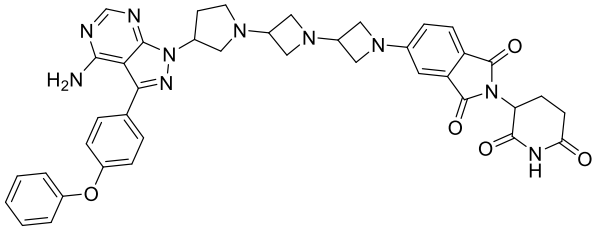

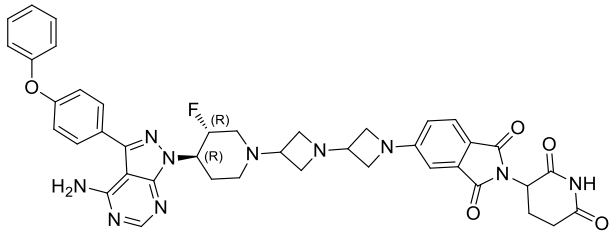

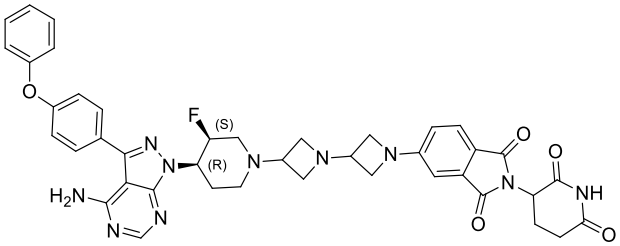

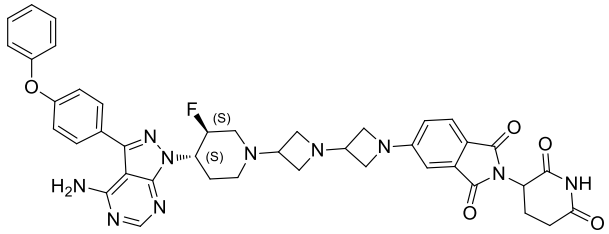

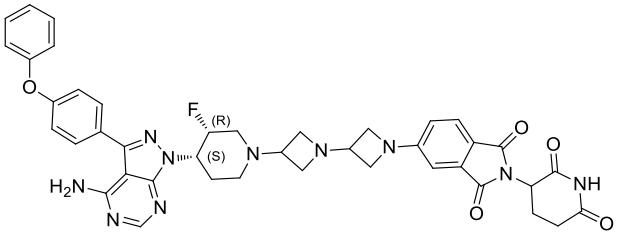

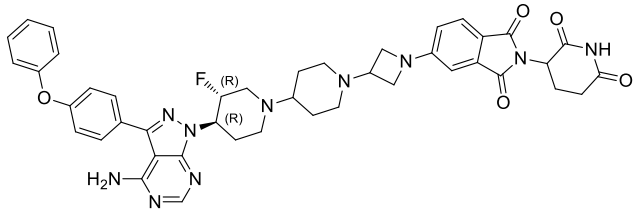

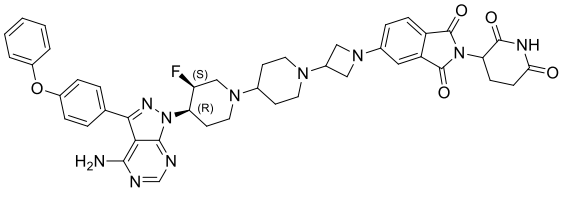

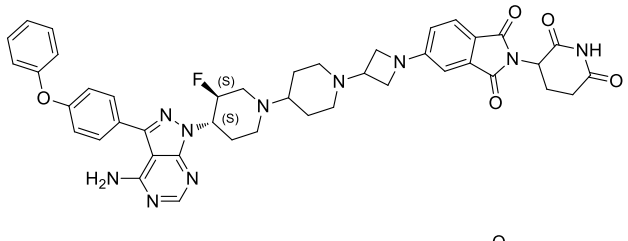

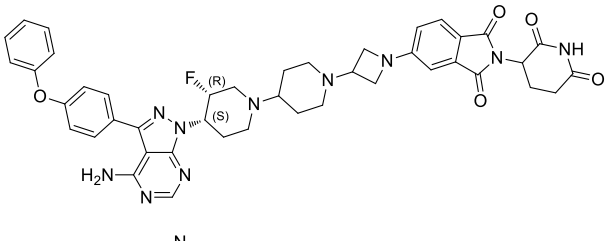

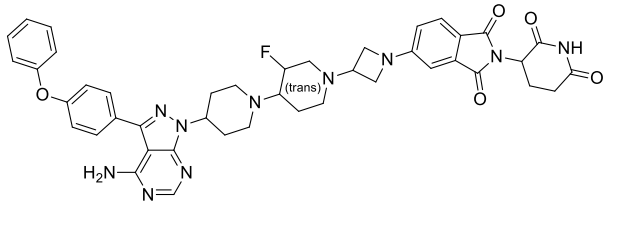

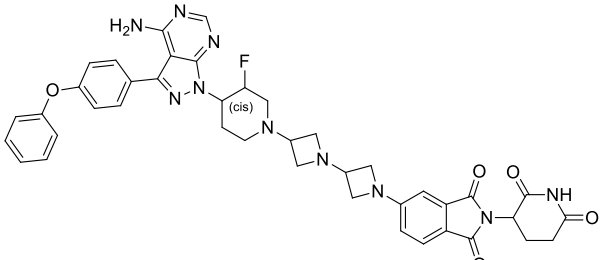



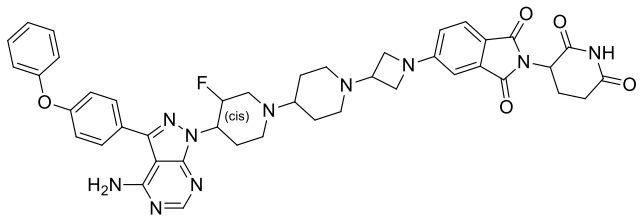

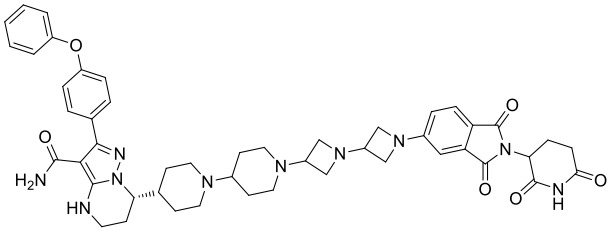

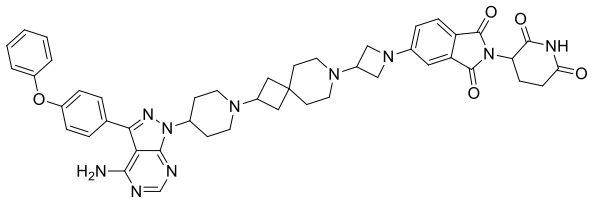

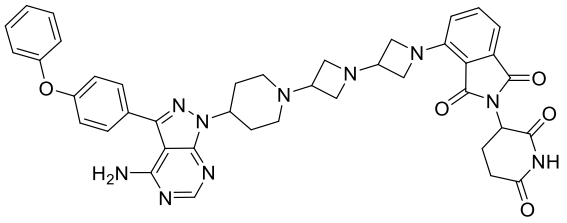

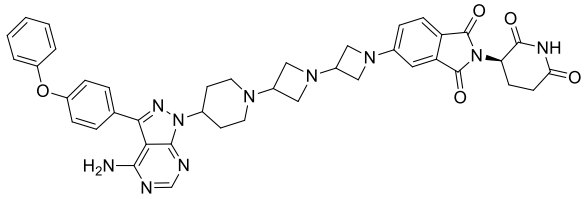

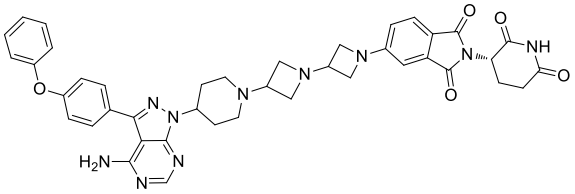

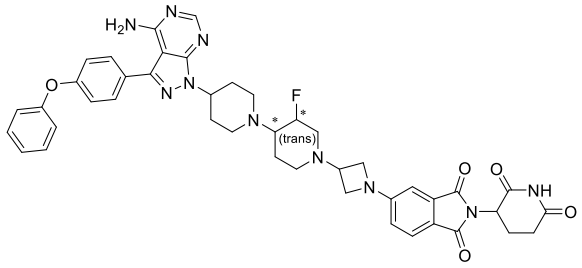

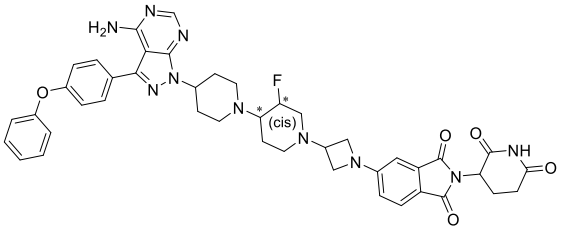

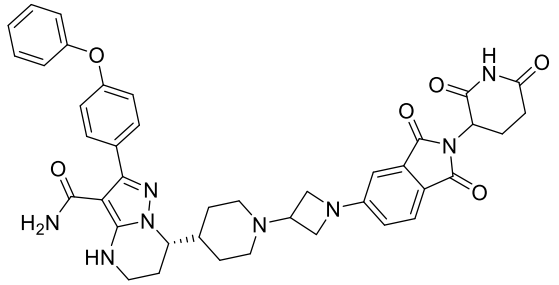

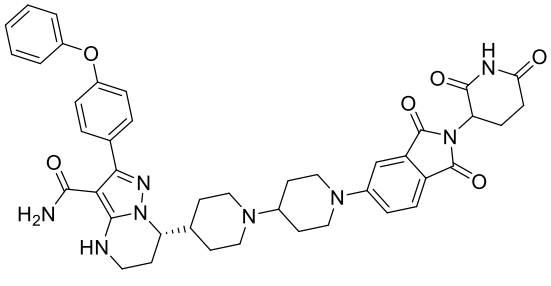

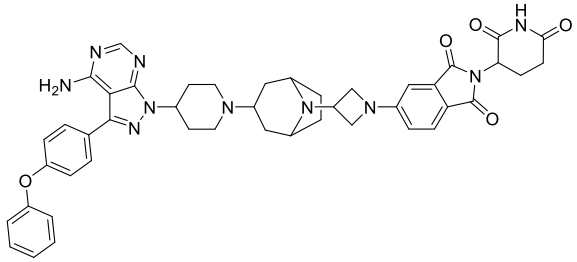

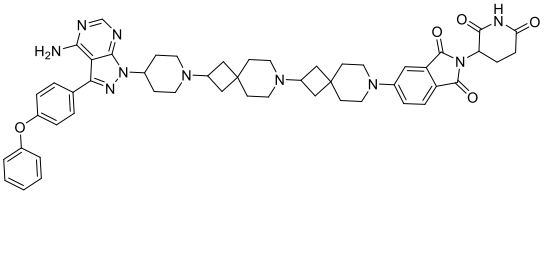

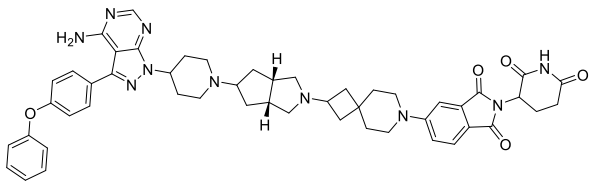

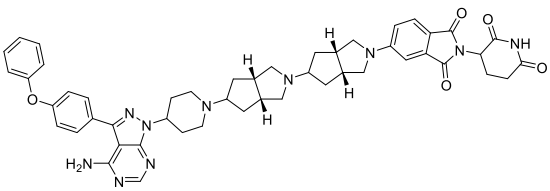



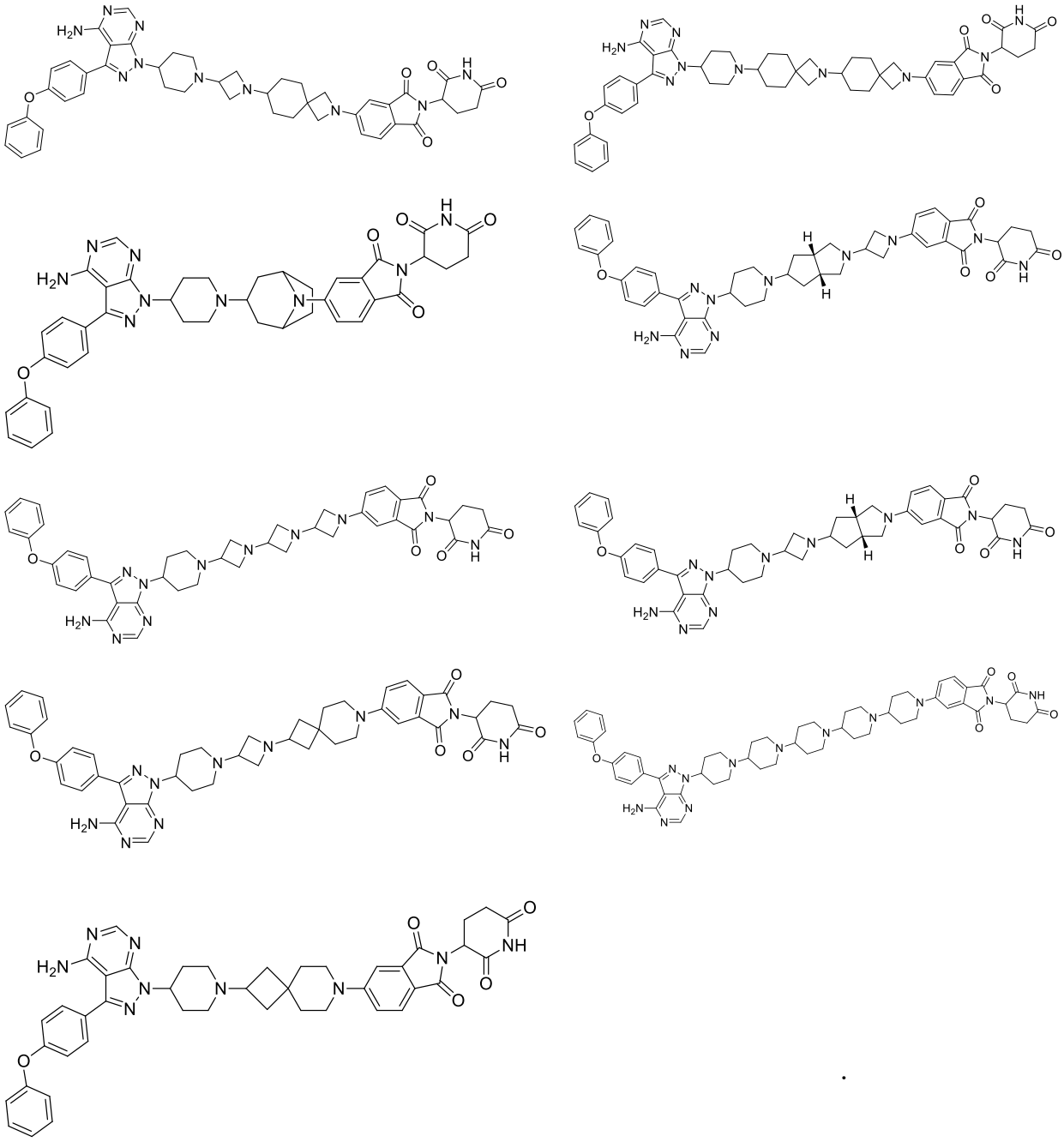

12. The compound according to any one of claims 1 to 11, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, wherein the salt is selected from trifluoroacetate.

13. A pharmaceutical composition, comprising the compound according to any one of claims 1 to 12, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof, and a pharmaceutically acceptable carrier.

14. Use of the compound according to any one of claims 1 to 12, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof in the manufacture of a medicament for treating diseases selected from tumors or autoimmune diseases.

15. Use of the compound according to any one of claims 1 to 12, or a stereoisomer, a solvate, a pharmaceutically acceptable salt or a co-crystal thereof in the manufacture of a medicament for treating diseases selected from tumors or autoimmune diseases.

16. Use according to claim 14 or 15, wherein the tumor is selected from non-Hodgkin's lymphoma, chronic lymphocytic leukemia, mantle cell lymphoma, or B cell lymphoma; and the autoimmune disease is selected from rheumatoid arthritis or psoriasis.