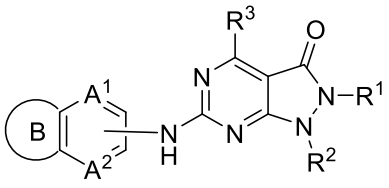
CLAIMS

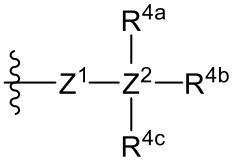
1. A compound of Formula (I), or a pharmaceutically acceptable salt thereof, having the structure:


(I)

wherein:

R^1 is selected from the group consisting of an optionally substituted C_{1-4} alkyl, an optionally substituted C_{2-4} alkenyl, an optionally substituted C_{2-4} alkynyl, an optionally substituted C_{3-6} cycloalkyl and an optionally substituted C_{3-6} cycloalkyl(C_{1-4} alkyl), wherein when substituted, the C_{1-4} alkyl, the C_{2-4} alkenyl and the C_{2-4} alkynyl are independently substituted with one or more substituents selected from the group consisting of halogen, C_{1-4} alkoxy, C_{1-4} haloalkyl, C_{1-4} haloalkoxy, cyano, amino, mono-C_{1-4} alkyl amine and di-C_{1-4} alkyl amine, and wherein the ring(s) of the C_{3-6} cycloalkyl and the C_{3-6} cycloalkyl(C_{1-4} alkyl) are independently substituted with one or more substituents selected from the group consisting of halogen, C_{1-4} alkyl, C_{1-4} alkoxy, C_{1-4} haloalkyl, C_{1-4} haloalkoxy, cyano, amino, mono-C_{1-4} alkyl amine and di-C_{1-4} alkyl amine;

R^2 is an optionally substituted aryl or an optionally substituted heteroaryl, wherein when the aryl or the heteroaryl are substituted, the aryl and the heteroaryl are independently substituted with one or more substituents selected from the group consisting of an unsubstituted C_{1-4} alkyl


and ;

R^3 is hydrogen or an unsubstituted C_{1-4} alkyl;

A^1 is CR^{6A} or N;

A^2 is CR^{6B} or N;

Z^1 is a single bond, -C(=O)- or an optionally substituted C_{1-6} alkylene group, wherein one or two more methylene groups constituting the optionally substituted C_{1-6} alkylene group are independently optionally replaced by an oxygen atom or carbonyl group, and wherein when the

C_{1-6} alkylene group is substituted, one or more methylene group are independently substituted with an unsubstituted C_{1-6} alkyl group;

Z^2 is N or C, and when Z^2 is N, then R^{4c} is absent;

R^{4a} and R^{4b} are independently selected from the group consisting of hydrogen, halogen, cyano, hydroxy, an unsubstituted C_{1-6} alkyl, an unsubstituted hydroxy(C_{1-6} alkyl), an unsubstituted alkoxy(C_{1-6} alkyl), an unsubstituted C_{2-7} acyl, an unsubstituted -C-carboxy having 2-7 carbons, an unsubstituted -C-amido and an unsubstituted C_{1-7} alkylsulfonyl; or

R^{4a} and R^{4b} together form an optionally substituted C_{1-6} alkylene, wherein one or two more methylene groups constituting the C_{1-6} alkylene group are independently optionally replaced by an oxygen atom, a sulfur atom, a sulfinyl group, a sulfonyl group, a carbonyl group or–(NR^5)-, and wherein when the C_{1-6} alkylene group is substituted, one or more methylene group are independently substituted with a substituent selected from the group consisting of halogen and an unsubstituted C_{1-6} alkyl; or

R^{4a} and R^{4b} together with Z^2 form an unsubstituted monocyclic C_{3-6} cycloalkyl and an unsubstituted 4-, 5-, or 6-membered heterocyclyl;

R^{4c} is selected from the group consisting of halogen, hydroxy, an unsubstituted C_{1-6} alkyl and an unsubstituted hydroxy(C_{1-6} alkyl);

R^5 is hydrogen, an unsubstituted C_{1-6} alkyl or an unsubstituted C_{1-6} haloalkyl;

R^{6A} and R^{6B} are independently hydrogen, halogen or an unsubstituted C_{1-4} alkyl; and

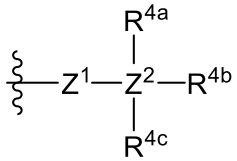
Ring B is an optionally substituted monocyclic C_{5-7} cycloalkyl, an optionally substituted 5-7 membered monocyclic heterocyclyl or an optionally substituted 7-10 membered bicyclic heterocyclyl, wherein when Ring B is substituted, Ring B is substituted with one or more substituents selected from the group consisting of halogen, an optionally substituted C_{1-6} alkyl, an optionally substituted C_{1-6} haloalkyl, an optionally substituted C_{3-6} cycloalkyl, an optionally substituted aryl, an optionally substituted heteroaryl, an optionally substituted heterocyclyl, an optionally substituted aryl(C_{1-6} alkyl), an optionally substituted heteroaryl(C_{1-6} alkyl), an optionally substituted heterocyclyl(C_{1-6} alkyl), an optionally substituted acyl, an optionally substituted –hydroxy(C_{1-6} alkyl), an optionally substituted –C-amido, an optionally substituted –C-amido(C_{1-6} alkyl), an optionally substituted –N-amido, an optionally substituted –N-amido(C_{1-6} alkyl), an optionally substituted mono-substituted amine, an optionally substituted di-

substituted amine, an optionally substituted mono-substituted amine(C_{1-6} alkyl), an optionally substituted di-substituted amine(C_{1-6} alkyl) and an optionally substituted sulfonyl.

2. The compound of Claim 1, wherein R^1 is an optionally substituted C_{2-4} alkenyl.

3. The compound of Claim 1, wherein R^1 is an optionally substituted C_{1-4} alkyl, an optionally substituted C_{2-4} alkynyl, an optionally substituted C_{3-6} cycloalkyl or an optionally substituted C_{3-6} cycloalkyl(C_{1-4} alkyl).

4. The compound of Claim 1, wherein R^2 is an optionally substituted heteroaryl.

5. The compound of Claim 4, wherein R^2 is substituted with 

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6. The compound of Claim 5, wherein Z^1 is a single bond and Z^2 is C.

7. The compound of Claim 6, wherein R^{4a} and R^{4b} are independently selected from the group consisting of hydrogen, halogen, cyano, hydroxy, an unsubstituted C_{1-6} alkyl, an unsubstituted hydroxy(C_{1-6} alkyl), an unsubstituted alkoxy(C_{1-6} alkyl), an unsubstituted C_{2-7} acyl, an unsubstituted -C-carboxy having 2-7 carbons, an unsubstituted -C-amido and an unsubstituted C_{1-7} alkylsulfonyl.

8. The compound of Claim 7, wherein R^{4a} and R^{4b} are independently hydroxy or an unsubstituted C_{1-6} alkyl.

9. The compound of Claim 7, wherein R^{4c} is an unsubstituted C_{1-6} alkyl.

10. The compound of Claim 1, wherein R^3 is hydrogen.

11. The compound of Claim 1, wherein A^1 is CR^{6A}; and A^2 is CR^{6B}.

12. The compound of Claim 11, wherein R^{6A} is hydrogen; and R^{6B} is hydrogen.

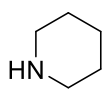
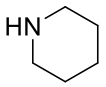
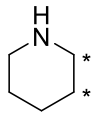
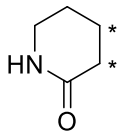
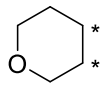
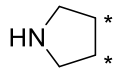
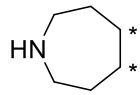
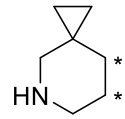
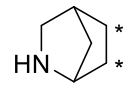
13. The compound Claim 1, wherein A^1 is N; and A^2 is CR^{6B}; or A^1 is CR^{6A}; and A^2 is N.

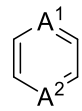
14. The compound of Claim 13, wherein R^{6A} is hydrogen; and R^{6B} is hydrogen.

15. The compound Claim 1, wherein Ring B is an optionally substituted monocyclic C_{5-7} cycloalkyl.

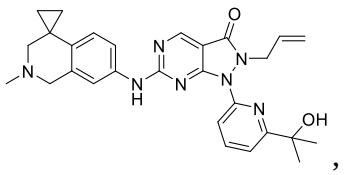
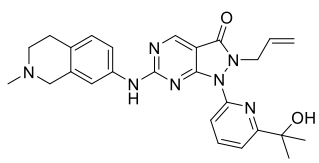
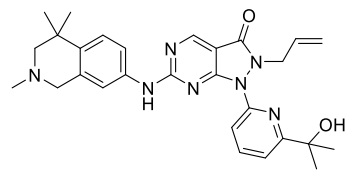
16. The compound of Claim 1, wherein Ring B is an optionally substituted 5-7 membered monocyclic heterocyclyl or an optionally substituted 7-10 membered bicyclic heterocyclyl.

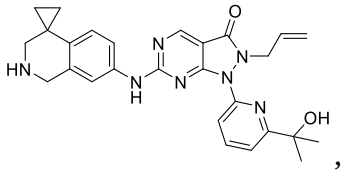
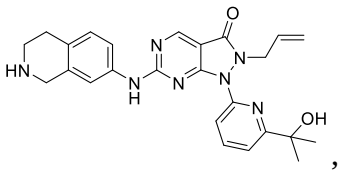
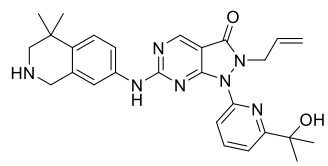
17. The compound of Claim 16, wherein Ring B is selected from the group consisting of:

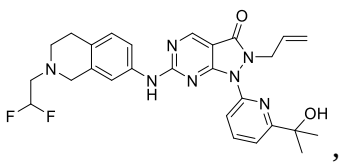
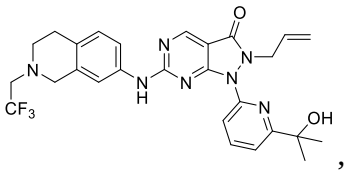
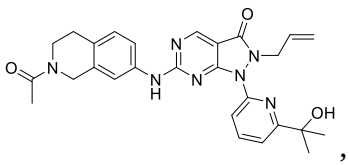
 ,  ,  ,  ,  ,  ,  ,  and  ,

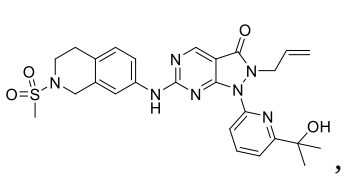
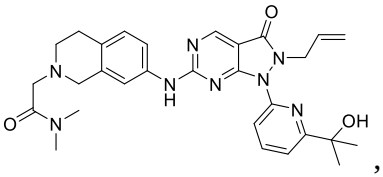
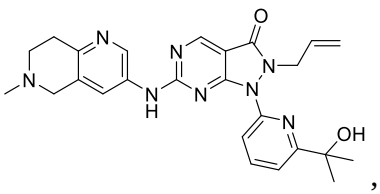
wherein the asterisks indicate the points of attachment to ring  , wherein each ring can be optionally substituted at a ring carbon, and wherein each ring can be optionally substituted at a ring nitrogen.

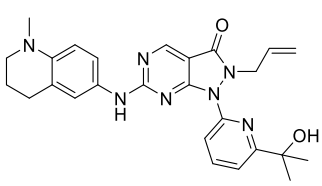
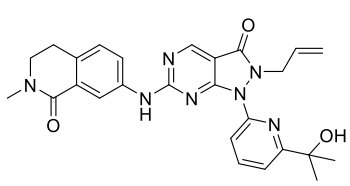
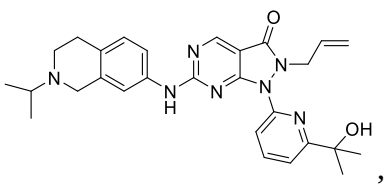
18. The compound of Claim 1, wherein the compound is selected from the group consisting of:

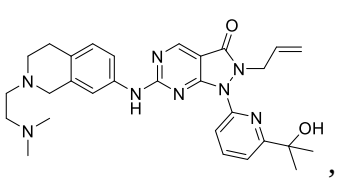
 ,  ,  ,

 ,  ,  ,

 ,  ,  ,

 ,  ,  ,

 ,  ,  ,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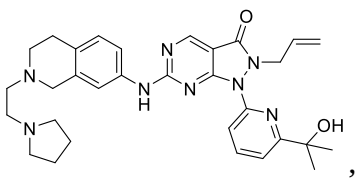
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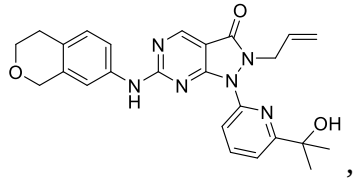
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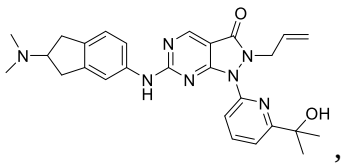
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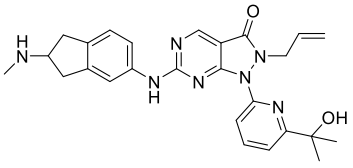
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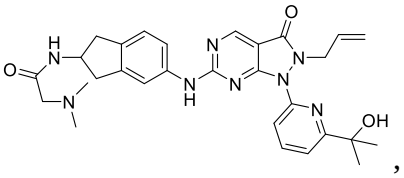
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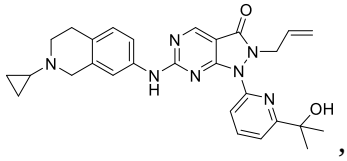
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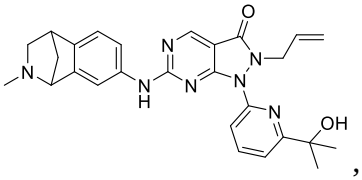
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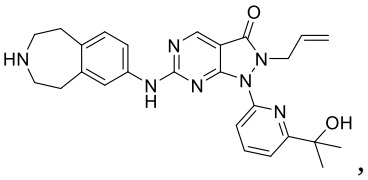
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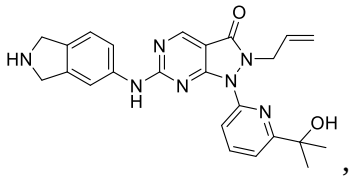
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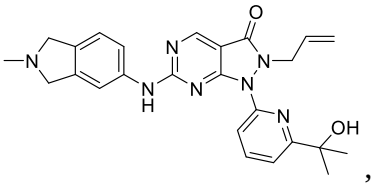
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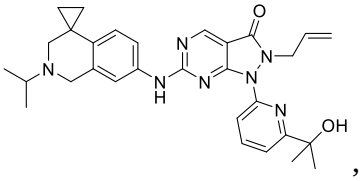
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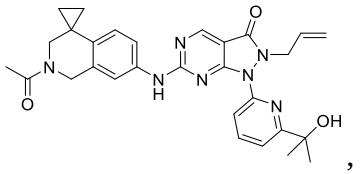
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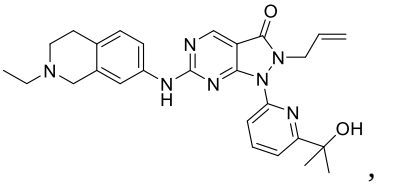
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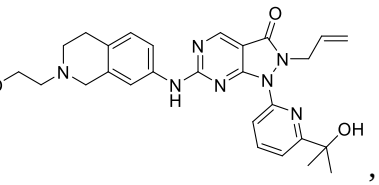
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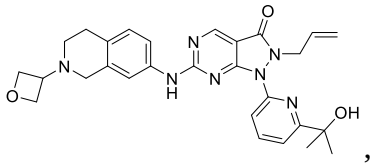
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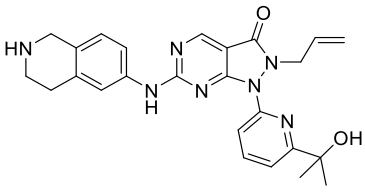
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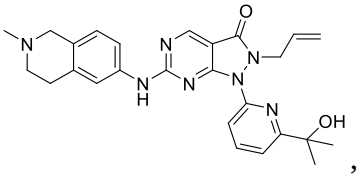
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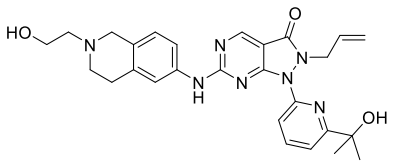
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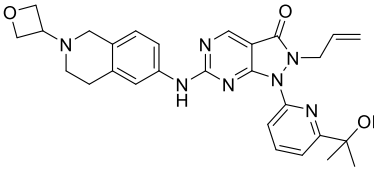
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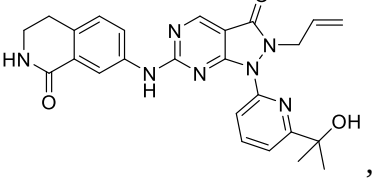
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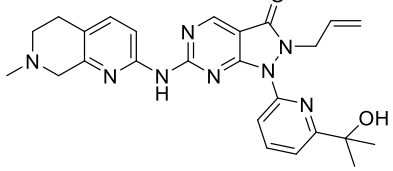
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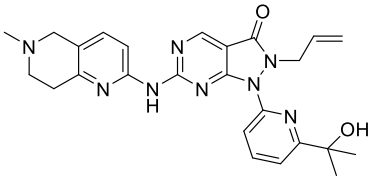
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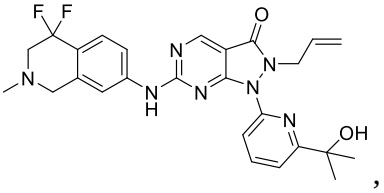
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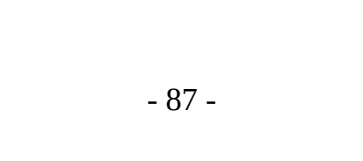
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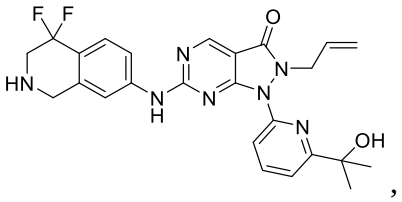
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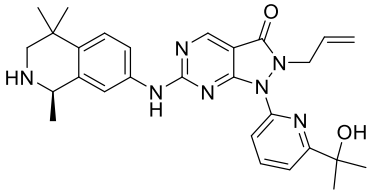
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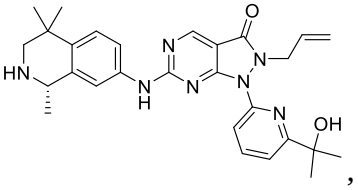
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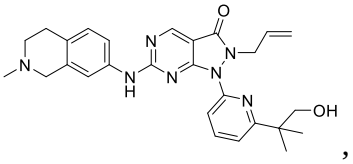
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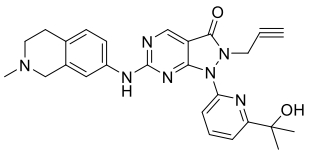
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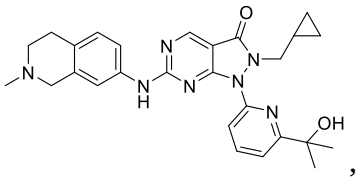
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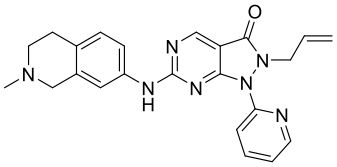
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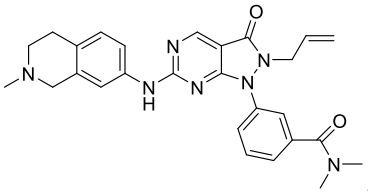
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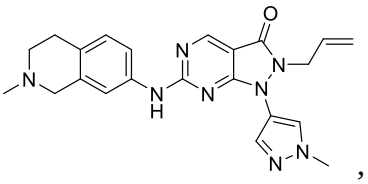
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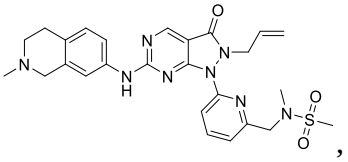
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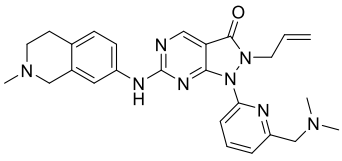
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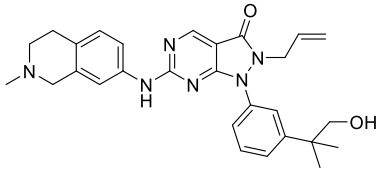
, or a pharmaceutically acceptable salt of any of the foregoing.

19. A pharmaceutical composition comprising an effective amount of the compound of Claim 1, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier, diluent, excipient or combination thereof.

20. Use of a compound of Claim 1, or a pharmaceutically acceptable salt thereof, in the preparation for a medicament for ameliorating or treating a cancer, wherein the cancer is selected from a brain cancer, a cervicocerebral cancer, an esophageal cancer, a thyroid cancer, a small cell cancer, a non-small cell cancer, a breast cancer, a lung cancer , a stomach cancer, a gallbladder/bile duct cancer, a liver cancer, a pancreatic cancer, a colon cancer, a rectal cancer, an ovarian cancer, a choriocarcinoma, an uterus body cancer, an uterocervical cancer, a renal pelvis/ureter cancer, a bladder cancer, a prostate cancer, a penis cancer, a testicular cancer, a fetal cancer, Wilms' cancer, a skin cancer, malignant melanoma, a neuroblastoma, an osteosarcoma, an Ewing's tumor, a soft part sarcoma, an acute leukemia, a chronic lymphatic leukemia, a chronic myelocytic leukemia, polycythemia vera, a malignant lymphoma, multiple myeloma, a Hodgkin's lymphoma, and a non-Hodgkin’s lymphoma.

21. Use of a compound of Claim 1, or a pharmaceutically acceptable salt thereof, in the preparation for a medicament for inhibiting replication of a malignant growth or a tumor, wherein the malignant growth or tumor is due to a cancer selected from a brain cancer, a cervicocerebral cancer, an esophageal cancer, a thyroid cancer, a small cell cancer, a non-small cell cancer, a breast cancer, a lung cancer , a stomach cancer, a gallbladder/bile duct cancer, a liver cancer, a pancreatic cancer, a colon cancer, a rectal cancer, an ovarian cancer, a choriocarcinoma, an uterus body cancer, an uterocervical cancer, a renal pelvis/ureter cancer, a bladder cancer, a prostate cancer, a penis cancer, a testicular cancer, a fetal cancer, Wilms' cancer, a skin cancer, malignant melanoma, a neuroblastoma, an osteosarcoma, an Ewing's tumor, a soft part sarcoma, an acute leukemia, a chronic lymphatic leukemia, a chronic myelocytic leukemia, polycythemia vera, a malignant lymphoma, multiple myeloma, a Hodgkin's lymphoma, and a non-Hodgkin’s lymphoma.

22. Use of a compound of Claim 1, or a pharmaceutically acceptable salt thereof, in the preparation for a medicament for inhibiting the activity of WEE1 of a cancer cell, wherein the cancer cell is from a cancer selected from a brain cancer, a cervicocerebral cancer, an esophageal cancer, a thyroid cancer, a small cell cancer, a non-small cell cancer, a breast cancer, a lung cancer , a stomach cancer, a gallbladder/bile duct cancer, a liver cancer, a pancreatic cancer, a colon cancer, a rectal cancer, an ovarian cancer, a choriocarcinoma, an uterus body cancer, an uterocervical cancer, a renal pelvis/ureter cancer, a bladder cancer, a prostate cancer, a penis cancer, a testicular cancer, a fetal cancer, Wilms' cancer, a skin cancer, malignant melanoma, a neuroblastoma, an osteosarcoma, an Ewing's tumor, a soft part sarcoma, an acute leukemia, a chronic lymphatic leukemia, a chronic myelocytic leukemia, polycythemia vera, a malignant lymphoma, multiple myeloma, a Hodgkin's lymphoma, and a non-Hodgkin’s lymphoma.