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产品名称：4-Amino-1-tert-butyl-3-(1’-naphthylmethyl)pyrazolo[3,4-d]pyrimidine
产品别名：1-NM-PP1；PP1 Analog II

生物活性：

Description	1-NM-PP1, a cell-permeable PP1 analog, is a potent Src family kinases inhibitor with IC50s of 4.3 nM and 3.2 nM for v-Src-as1 and c-Fyn-as1, respectively[1][2].
IC_{50} & Target	IC50: 4.3 nM (v-Src-as1), 3.2 nM (c-Fyn-as1), 28 μM (v-Src), 1 μM (c-Fyn), 3.4 μM (c-Abl), 29 μM (CDK2), 24 μM (CAMKII), 120 nM (cAbl-as2), 5 nM (CDK2-as1), 8 nM (CAMKII-as1)[2]
In Vitro	Cdk7 from *Cdk7$^{as/as}$* or *Cdk7$^{+/+}$* cells is immunoprecipitated and tested its kinase activity towards both a Pol II CTD-containing fusion protein (GST-CTD) and human Cdk2. Cdk7 recovered from the mutant, but not the wild-type, cells is inhibited by 1-NM-PP1 (1-NMPP1), with an IC_{50} of ~50 nM with either substrate. Replacement of wild-type Cdk7 with *Cdk7$^{as/as}$* also rendered growth of HCT116 cells sensitive to 1-NM-PP1. In the absence of 1-NM-PP1, the wild-type and*Cdk7$^{as/as}$* cells had population doubling times of ~17.9 and ~20.2 h, respectively, with similar cell-cycle distributions in asynchronous culture, indicating minimal impairment of Cdk7 function by the F91G mutation per se. The homozygous *Cdk7$^{as/as}$* cells are sensitive to 1-NM-PP1, however, with an IC_{50} ~100 nM measured by cell viability (MTT) assays performed after 96 h of 1-NM-PP1 exposure. In contrast, wild-type HCT116 cells are resistant to 10 μM 1-NM-PP1. Addition of 10 μM 1-NM-PP1 retards G1/S progression by the mutant but not the wild-type cells. When added simultaneously with serum to the *Cdk7$^{as/as}$* cells, 1-NM-PP1 prevents any progression into S phase in the next 15 h. After 24 h, there is evidence of progression into S-phase by a fraction of *Cdk7$^{as/as}$* cells released from serum starvation directly into medium containing 1-NM-PP1, while a fraction remained in G1. The addition of 1-NM-PP1 3 h or 6 h after serum addition delays S-phase entry by ~7 h or by ~3 h, respectively[3].
Solvent&Solubility	***In Vitro:*** **DMSO : 27.5 mg/mL (82.98 mM;** Need ultrasonic and warming)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.0174 mL	15.0871 mL	30.1741 mL
5 mM	0.6035 mL	3.0174 mL	6.0348 mL
10 mM	0.3017 mL	1.5087 mL	3.0174 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 In Vitro 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

	1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline Solubility: ≥ 2.5 mg/mL (7.54 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (7.54 mM，饱和度未知) 的澄清溶液。 以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。 2.请依序添加每种溶剂： 10% DMSO →90% corn oil Solubility: ≥ 2.5 mg/mL (7.54 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (7.54 mM，饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。 以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。
References	[1]. Bishop A C, et al. Generation of Monospecific Nanomolar Tyrosine Kinase Inhibitors via a Chemical Genetic Approach. Journal of the American Chemical Society, 1999, 121(4):627-631. [2]. Bishop AC, et al. A chemical switch for inhibitor-sensitive alleles of any protein kinase. Nature. 2000 Sep 21;407(6802):395-401. [3]. Larochelle S, et al. Requirements for Cdk7 in the assembly of Cdk1/cyclin B and activation of Cdk2 revealed by chemical genetics in human cells. Mol Cell. 2007 Mar 23;25(6):839-50.

实验参考：

Cell Assay	Wild-type or Cdk7$^{as/as}$ HCT116 cells are synchronized by incubation in serum-free medium for 48 h and released into medium containing 10% fetal calf serum. Synchronization with thymidine or nocodazole, and analysis of cell-cycle distribution by flow cytometry, are performed. Cell viability is measured by MTT assay[3].
Kinase Assay	Immunoblotting and immunoprecipitation, and kinase assays of immune complexes, are carried out. To measure Cdk1/cyclin B assembly, extracts (200 μg total protein) from cells in mitosis or G2 are pre-incubated with 2 μM 1-NM-PP1 or DMSO, then added 500 ng purified cyclin B1, amino-terminally tagged with hexahistidine and the Myc epitope, and an ATP-regenerating system. Where indicated, incubations are supplemented with 400 ng purified Csk1 or 600 ng wild-type or analog-sensitive, T-loop-phosphorylated Cdk7/cyclin H/Mat1 complex. After 90 min at room temperature, Myc-cyclin B and associated proteins are immunoprecipitated with anti-Myc antibodies and immune complexes are subjected to immunoblotting, with anti-Myc and anti-Cdk1 antibodies, and tested for histone H1 kinase activity[3].
References	[1]. Bishop A C, et al. Generation of Monospecific Nanomolar Tyrosine Kinase Inhibitors via a Chemical Genetic Approach. Journal of the American Chemical Society, 1999, 121(4):627-631. [2]. Bishop AC, et al. A chemical switch for inhibitor-sensitive alleles of any protein kinase. Nature. 2000 Sep 21;407(6802):395-401. [3]. Larochelle S, et al. Requirements for Cdk7 in the assembly of Cdk1/cyclin B and activation of Cdk2 revealed by chemical genetics in human cells. Mol Cell. 2007 Mar 23;25(6):839-50.