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# 产品名称：SU9516
# 产品别名：SU9516

## 生物活性：

**Description**

SU9516 is a potent CDK2 inhibitor, with an $IC_{50}$ of 22 nM, and also shows inhibitory effects on CDK1 and CDK4, with $IC_{50}$s of 40, 200 nM, respectively.

**$IC_{50}$ & Target**

| CDK2 | CDK1 | CDK4 | PDGFr |
|---|---|---|---|
| 22 nM ($IC_{50}$) | 40 nM ($IC_{50}$) | 200 nM ($IC_{50}$) | 18000 nM ($IC_{50}$) |

**In Vitro**

SU9516 shows slight activities against PKC, p38, PDGFr and EGFR, with IC50 of >10, >10, 18, and >100 μM. SU9516 (5 μM) decreases cdk2-specific Phosphorylation of pRB and inhibits cell cycle progression in RKO cells. SU9516 (5 μM) also induces apoptosis in RKO and SW480 Cells[1]. SU9516 (5 μM) results in enhanced pRb/E2F complex formation in HT-29 cells. SU9516 enhances presence of E2F species in multiprotein complexes[2]. SU9516 (5 μM) rapidly induces cytochrome crelease, Bax mitochondrial translocation, and apoptosis in association with pronounced down-regulation of the antiapoptotic protein Mcl-1. SU9516 causes down-regulation of Mcl-1 mRNA levels in human leukemia cells. Furthermore, SU9516 treatment results in a marked increase in reactive oxygen species production[3].

**Solvent&Solubility**

***In Vitro:***

**DMSO : ≥ 100 mg/mL (414.51 mM)**

**$H_2O$ : < 0.1 mg/mL** (insoluble)

* "≥" means soluble, but saturation unknown.

**Preparing Stock Solutions**

| Solvent / Mass / Concentration | 1 mg | 5 mg | 10 mg |
|---|---|---|---|
| 1 mM | 4.1451 mL | 20.7254 mL | 41.4508 mL |
| 5 mM | 0.8290 mL | 4.1451 mL | 8.2902 mL |
| 10 mM | 0.4145 mL | 2.0725 mL | 4.1451 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: ≥ 3.25 mg/mL (13.47 mM); Clear solution

此方案可获得 ≥ 3.25 mg/mL (13.47 mM，饱和度未知) 的澄清溶液。

以 1 mL 工作液为例，取 100 μL 32.5 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<br>Solubility: ≥ 3.25 mg/mL (13.47 mM); Clear solution<br>此方案可获得 ≥ 3.25 mg/mL (13.47 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。<br>以 1 mL 工作液为例，取 100 μL 32.5 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。 |
| **References** | [1]. Lane ME, et al. A novel cdk2-selective inhibitor, SU9516, induces apoptosis in colon carcinoma cells. Cancer Res. 2001 Aug 15;61(16):6170-7.<br>[2]. Yu B, et al. SU9516, a cyclin-dependent kinase 2 inhibitor, promotes accumulation of high molecular weight E2F complexes in human colon carcinoma cells. Biochem Pharmacol. 2002 Oct 1;64(7):1091-100.<br>[3]. Gao N, et al. The three-substituted indolinone cyclin-dependent kinase 2 inhibitor 3-[1-(3H-imidazol-4-yl)-meth-(Z)-ylidene]-5-methoxy-1,3-dihydro-indol-2-one (SU9516) kills human leukemia cells via down-regulation of Mcl-1 through a transcriptional mechanism. Mol Pharmacol. 2006 Aug;70(2):645-55. |
| **实验参考：** | |
| **Cell Assay** | RKO cells and SW480 cells are seeded in replicates (n = 6) in 96-well plates at $1\times10^4$ cells/well and allowed to attach overnight. SU9516 is added in concentrations from 0.05 μM to 50.00 μM for 24 h, the cells are then washed twice with PBS, and cells are replenished with complete media. The cells are fixed at 0, 4, and 7 days post-drug removal and assayed for protein levels using a modified SRB cytotoxicity assay. The cells are fixed in 10% trichloroacetic acid for 1 h, washed in distilled $H_2O$, and stained in 0.4% SRB/acetic acid for 30 min. The cells are then washed in 0.1% acetic acid, solubilized in 10 mM Tris (pH 9), and analyzed on a Bio-Rad 360 microplate reader at 595 nm. All experiments are repeated at least three times. [1] |
| **Kinase Assay** | Kinase assays are performed in 96-well polypropylene plates. Each reaction contains 2 μg of histone H1 at a final concentration of 10 μM [-$^{33}$P]ATP (0.2 μCi/well), 10 mM $MgCl_2$,1mM DTT, 0.01% Triton X-100, and 10% glycerol in a 40 μL volume. The reaction is initiated with the addition of 20 μL enzyme (6 ng cdk2/well resulting in a final concentration of 1.6 nM), which is previously diluted 1:50-1:200 in the same buffer, and allowed to proceed for 1 h at room temperature. Reaction is stopped by the addition of 0.01 mL 10% phosphoric acid, and 25 μL of reaction mixture is transferred to P30 phosphocellulose filter mat paper. The filter mat is washed three times with 1.0% phosphoric acid, air dried, and then counted for radioactivity in a liquid scintillation counter. [1] |
| **References** | [1]. Lane ME, et al. A novel cdk2-selective inhibitor, SU9516, induces apoptosis in colon carcinoma cells. Cancer Res. 2001 Aug 15;61(16):6170-7.<br>[2]. Yu B, et al. SU9516, a cyclin-dependent kinase 2 inhibitor, promotes accumulation of high molecular weight E2F complexes in human colon carcinoma cells. Biochem Pharmacol. 2002 Oct 1;64(7):1091-100.<br>[3]. Gao N, et al. The three-substituted indolinone cyclin-dependent kinase 2 inhibitor 3-[1-(3H-imidazol-4-yl)-meth-(Z)-ylidene]-5-methoxy-1,3-dihydro-indol-2-one (SU9516) kills human leukemia cells via down-regulation of Mcl-1 through a transcriptional mechanism. Mol Pharmacol. 2006 Aug;70(2):645-55. |