

产品别名: **Seliciclib**

Description	Seliciclib (Roscovitine) is an orally bioavailable and selective CDKs inhibitor with IC ₅₀ s of 0.2 μM, 0.65 μM, and 0.7 μM for CDK5, Cdc2, and CDK2, respectively.					
IC₅₀ & Target	cdc2/cyclin B	cdk2/cyclin A	Cdk2/cyclin E2	CDK5/p35	GST-erk1	erk1
	0.65 μM (IC ₅₀)	0.7 μM (IC ₅₀)	0.7 μM (IC ₅₀)	0.16 μM (IC ₅₀)	30 μM (IC ₅₀)	34 μM (IC ₅₀)
	erk2	IR tyrosine kinase				
	14 μM (IC ₅₀)	70 μM (IC ₅₀)				
In Vitro	Seliciclib (Roscovitine) displays high efficiency and high selectivity towards some cyclin-dependent kinases. The kinase specificity of Seliciclib is investigated with 25 highly purified kinases (including protein kinase A, G and C isoforms, myosin light-chain kinase, casein kinase 2, IR tyrosine kinase, c-src, v-abl). Most kinases are not significantly inhibited by Seliciclib (Roscovitine). Cdc2, Cdk2, and Cdk5 only are substantially inhibited (IC ₅₀ values of 0.65, 0.7, and 0.2 μM, respectively). Cdk4k and Cdk6 are very poorly inhibited by Seliciclib (Roscovitine) (IC ₅₀ >100 μM). Extracellular regulated kinases erk1 and erk2 are inhibited with an IC ₅₀ of 34 μM and 14 μM, respectively. Seliciclib (Roscovitine) inhibits the proliferation of mammalian cell lines with an average IC ₅₀ of 16 μM[1]. Seliciclib decreases the level of CDK5 and p35 with upregulation of E-cadherin, but downregulation of Vimentin and Collagen IV. Moreover, Seliciclib (Roscovitine) inhibits the ability of high glucose cultured NRK52E cells to migrate and invade[2].					
In Vivo	Compare with normal controls, Seliciclib (Roscovitine) downregulates phosphorylated ERK1/2 and PPARγ with concomitant increase in E-cadherin, but decrease in Vimentin and Collagen IV. Correspondingly, Seliciclib decreases renal tubulointerstitial fibrosis of diabetic rats. Seliciclib (Roscovitine) is effective in decreasing tubulointerstitial fibrosis via the ERK1/2/PPARγ pathway in diabetic rats[2]. Seliciclib (Roscovitine) (16.5 mg/kg) significantly reduces the rate of tumor growth and increases survival of treated mice. Strikingly, Seliciclib (Roscovitine) treatment leads to complete tumor disappearance in one mouse (25%); moreover, no tumor regrowth in this mouse is found 5 months after completion of the treatment. Mouse weights do not differ significantly between mice treated with Seliciclib and control mice, and behavioral differences between the two groups are also negligible. These results suggest that Seliciclib can be used effectively as a selective tumor growth inhibitor in HPV+ head and neck cancer[3].					
In Vitro: DMSO : ≥ 100 mg/mL (282.13 mM) * "≥" means soluble, but saturation unknown.						
Preparing Stock Solutions		Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		2.8213 mL	14.1064 mL	28.2127 mL
		5 mM		0.5643 mL	2.8213 mL	5.6425 mL
10 mM		0.2821 mL	1.4106 mL	2.8213 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℃，6 months；-20℃，1 month。 -80℃ 储存时，请在 6 个月内使用，-20℃ 储存时，请在 1 个月内使用。						
In Vivo:						

<p>Solvent&Solubility</p>	<p>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：</p> <p>——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</p> <p>1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline Solubility: ≥ 2.5 mg/mL (7.05 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (7.05 mM, 饱和度未知) 的澄清溶液。</p> <p>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。</p> <p>2.请依序添加每种溶剂： 10% DMSO→ 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (7.05 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (7.05 mM, 饱和度未知) 的澄清溶液。</p> <p>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 20% 的 SBE-β-CD 生理盐水水溶液中，混合均匀。</p> <p>3.请依序添加每种溶剂： 10% DMSO →90% corn oil Solubility: ≥ 2.5 mg/mL (7.05 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (7.05 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。</p> <p>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。</p>
<p>References</p>	<p>[1]. Meijer L, et al. Biochemical and cellular effects of roscovitine, a potent and selective inhibitor of the cyclin-dependent kinases cdc2, cdk2 and cdk5. Eur J Biochem. 1997 Jan 15;243(1-2):527-36.</p> <p>[2]. Bai X, et al. CDK5 promotes renal tubulointerstitial fibrosis in diabetic nephropathy via erk1/2/ppary pathway. Oncotarget. 2016 Apr 27.</p> <p>[3]. Gary C, et al. Selective antitumor activity of roscovitine in head and neck cancer. Oncotarget. 2016 May 23.</p>
<p>实验参考：</p>	
<p>Cell Assay</p>	<p>Rat kidney tubular epithelial cells (NRK52E) are used. CDK5 inhibitor Seliciclib (Roscovitine) (Ros.; 10 μM) and activator p35 (15 μM), PPARγ agonist BRL 49653 (Ros.; 50 nM), and ERK1/2 inhibitor U0126 (50 nM) are used to treat NRK52E cells. Cells in each group are treated for 72 hours and then harvested for further analyses[2].</p>
<p>Animal Administration</p>	<p>Rats[2]</p> <p>Male Sprague Dawley rats (6-8 weeks of age) are given intraperitoneally a single injection of either Streptozotocin (65 mg/kg) diluted in 0.1 M citrate buffer pH 4.5 (diabetic) or citrate buffer (non-diabetic). Plasma glucose concentrations are determined using the glucose oxidase method on a glucose analyzer three days after the injection. Rats with a glucose level over 16.7 mM are considered diabetic and thus included in the study. Plasma glucose level is measured once every week. To investigate the effect of CDK5 inhibition on renal tubulointerstitial fibrosis, Seliciclib (25 mg/kg) is injected peritoneally to diabetic rats every day till sacrifice. DMSO is included as controls.</p> <p>Mice[3]</p> <p>Exponentially growing UMSCC47 cells are injected subcutaneously into the sacral area of female</p>

	<p>NUDE mice. Each mouse is inoculated with 2×10^5 cells in 50% matrigel and 50% PBS at a volume of 100 μL. After tumors reach a measurable size, the mice are given 16.5 mg/kg doses of intraperitoneal Seliciclib or vehicle injections. Body weight, tumor growth, and general behavior are monitored. Tumor volumes are measured every 3 days. Mice are sacrificed when the tumor exceeded a size of 0.5cm³.</p>
References	<p>[1]. <u>Meijer L, et al. Biochemical and cellular effects of roscovitine, a potent and selective inhibitor of the cyclin-dependent kinases cdc2, cdk2 and cdk5. Eur J Biochem. 1997 Jan 15;243(1-2):527-36.</u></p> <p>[2]. <u>Bai X, et al. CDK5 promotes renal tubulointerstitial fibrosis in diabetic nephropathy via erk1/2/ppary pathway. Oncotarget. 2016 Apr 27.</u></p> <p>[3]. <u>Gary C, et al. Selective antitumor activity of roscovitine in head and neck cancer. Oncotarget. 2016 May 23.</u></p>



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