

产品名称: **Mdivi-1**

产品别名: **Mdivi-1**

生物活性:

Description	Mdivi-1 is a selective dynamin-related protein 1 (Drp1) inhibitor. Mdivi-1 is a mitochondrial division/mitophagy inhibitor.				
In Vitro	Mdivi-1 inhibits Dnm1 GTPase activity in a dose-dependent manner, with an estimated EC ₅₀ of 1-10 μM. Mdivi-1 increases the apparent K _{0.5} for GTP, lowers the apparent V _{max} for GTP hydrolysis, and causes an increase in the Hill coefficient observed for GTP in the Dnm1 GTP hydrolysis reaction[1]. Cells treated with mdivi-1 display decreased cytochrome c release and a reduced rate of phosphatidylserine exposure on their surface following apoptosis induction, consistent with an inhibition of apoptosis and with previous studies using other strategies to compromise DRP1 activity[2]. Mdivi-1 results in apoptotic cell death in ischemic retina[3].				
In Vivo	The mitochondrial division DRP, Dnm1, is the target of mdivi-1 in vivo. Mdivi-1 quantitatively blocks GMPPCP- dependent Dnm1 self-assembly in a concentration range similar to its effects on mitochondrial division in vivo[1]. Mdivi-1 (50 mg/kg, i.p.) significantly decreases GFAP protein expression in the normal mouse retina[3].				
Solvent&Solubility	In Vitro: DMSO : ≥ 32 mg/mL (90.60 mM) H₂O : < 0.1 mg/mL (insoluble) * "≥" means soluble, but saturation unknown.				
	Preparing Stock Solutions	Solvent Mass Concentration	1 mg	5 mg	10 mg
		1 mM	2.8311 mL	14.1555 mL	28.3110 mL
		5 mM	0.5662 mL	2.8311 mL	5.6622 mL
		10 mM	0.2831 mL	1.4155 mL	2.8311 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 (7.08 mM); Clear solution				
	此方案可获得 ≥ 2.5 mg/mL (7.08 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% (20% SBE-β-CD in saline)					
Solubility: 2.5 mg/mL (7.08 mM); Suspended solution; Need ultrasonic					

	此方案可获得 2.5 mg/mL (7.08 mM)的均匀悬浊液，悬浊液可用于口服和腹腔注射。 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 生理盐水溶液中，混合均匀。 3.请依序添加每种溶剂： 10% DMSO $\rightarrow$90% corn oil Solubility: $\geq$ 2.5 mg/mL (7.08 mM); Clear solution 此方案可获得 $\geq$ 2.5 mg/mL (7.08 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]. Cassidy-Stone A, et al. Chemical inhibition of the mitochondrial division dynamin reveals its role in Bax/Bak-dependent mitochondrial outer membrane permeabilization. <i>Dev Cell</i>. 2008 Feb;14(2):193-204. [2]. Tanaka A, et al. A chemical inhibitor of DRP1 uncouples mitochondrial fission and apoptosis. <i>Mol Cell</i>. 2008 Feb 29;29(4):409-10. [3]. Park SW, et al. A selective inhibitor of drp1, mdivi-1, increases retinal ganglion cell survival in acute ischemic mouse retina. <i>Invest Ophthalmol Vis Sci</i>. 2011 Apr 27;52(5):2837-43.
实验参考：	
Cell Assay	YPGlycerol plates are topped with 10 mL YPGlycerol containing 1% low melt agar and 75 μ M mdivi-1, and cells are spotted 12 hours later using a 48 well pinning device. After pinning cells, plates are incubated at 24°C or 37°C and imaged using an Eagle Eye II imaging system. [1]
Kinase Assay	All GTPase assay reactions are started in a 200 μ L volume, of which 150 μ L is placed into the well of a 96-well plate. Depletion of NADH, as monitored by reading the A340 of the reaction, is measured every 20 s for a total of 40 min using a SpectraMAX 250 96-well plate reader. Spectrophotometric data are transferred to Excel and the measured steady state depletion of NADH over time is converted to protein activity. [1]
References	[1]. Cassidy-Stone A, et al. Chemical inhibition of the mitochondrial division dynamin reveals its role in Bax/Bak-dependent mitochondrial outer membrane permeabilization. <i>Dev Cell</i>. 2008 Feb;14(2):193-204. [2]. Tanaka A, et al. A chemical inhibitor of DRP1 uncouples mitochondrial fission and apoptosis. <i>Mol Cell</i>. 2008 Feb 29;29(4):409-10. [3]. Park SW, et al. A selective inhibitor of drp1, mdivi-1, increases retinal ganglion cell survival in acute ischemic mouse retina. <i>Invest Ophthalmol Vis Sci</i>. 2011 Apr 27;52(5):2837-43.