

产品名称：二甲基草酰甘氨酸
 产品别名：**DMOG**； **Dimethyloxallyl Glycine**

生物活性:				
Description	DMOG (Dimethyloxallyl Glycine) is a cell-permeable and competitive inhibitor of HIF-1 α prolyl hydroxylase (HIF-PH).			
IC ₅₀ & Target	HIF-1 α prolyl hydroxylase[1]			
In Vitro	DMOG efficiently suppresses hydroxyproline synthesis in intact cells, but shows only weakly active in the microsomal system[1]. DMOG reduces FGF-2-induced proliferation and cyclin A expression by inhibiting prolyl hydroxylase activity in HPASMC[3].			
In Vivo	DMOG inhibits endogenous HIF inactivation, and induces angiogenesis in ischaemic skeletal muscles of mice[2]. Up-regulation of hypoxia-inducible factor-1 α by DMOG enhances the cardioprotective effects of ischemic postconditioning in hyperlipidemic rats[4].			
Solvent&Solubility	In Vitro: DMSO : ≥ 50 mg/mL (285.49 mM) H₂O : 50 mg/mL (285.49 mM; Need ultrasonic) * "≥" means soluble, but saturation unknown.			
	Preparing Stock Solutions	Solvent \ Mass Concentration	1 mg	5 mg
		1 mM	5.7097 mL	28.5486 mL
		5 mM	1.1419 mL	5.7097 mL
		10 mM	0.5710 mL	2.8549 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: 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 (14.27 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (14.27 mM, 饱和度未知) 的澄清溶液。 以 1 mL 工作液为例，取 100 μ L 25.0 mg/mL 的澄清 DMSO 储备液加到 400 μ L PEG300 中，混合均匀； 向上述体系中加入 50 μ L Tween-80，混合均匀；然后继续加入 450 μ L 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 (14.27 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (14.27 mM, 饱和度未知) 的澄清溶液。 以 1 mL 工作液为例，取 100 μ L 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μ L 20% 的 SBE- β -CD 生理盐水水溶液中，混合均匀。			

	3.请依序添加每种溶剂： 10% DMSO →90% corn oil Solubility: 2.5 mg/mL (14.27 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (14.27 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]. Baader E, et al. Inhibition of prolyl 4-hydroxylase by oxalyl amino acid derivatives in vitro, in isolated microsomes and in embryonic chicken tissues. <i>Biochem J.</i> 1994 Jun 1;300 (Pt 2):525-30. [2]. Milkiewicz M, et al. Inhibition of endogenous HIF inactivation induces angiogenesis in ischaemic skeletal muscles of mice. <i>J Physiol.</i> 2004 Oct 1;560(Pt 1):21-6. [3]. Schultz K, et al. Prolyl hydroxylase 2 deficiency limits proliferation of vascular smooth muscle cells by hypoxia-inducible factor-1{alpha}-dependent mechanisms. <i>Am J Physiol Lung Cell Mol Physiol.</i> 2009 Jun;296(6):L921-7. [4]. Li X, et al. Up-regulation of hypoxia-inducible factor-1α enhanced the cardioprotective effects of ischemic postconditioning in hyperlipidemic rats. <i>Acta Biochim Biophys Sin (Shanghai).</i> 2014 Feb;46(2):112-8.
实验参考:	
Cell Assay	To analyze DNA synthesis as an index of cellular proliferation, VSMC are plated in 48-well plates (5,000 per square centimeter) in growth medium, incubated overnight, and serum-deprived (1% FCS) for 24 h. Replicate wells are then stored at -70°C for baseline (day 0) cell counts, and fresh medium with or without growth factors is added to the remaining wells, which are incubated 72-96 h in 20 or 5% O₂. Days 0 and 3 or 4 cell counts are determined by lysing cells in a buffer containing a fluorescent dye, which has minimal fluorescence by itself but fluoresces when bound to DNA or RNA. Absolute cell numbers are calculated by comparing the fluorescence of specimens with that of a standard curve similarly prepared using a known number of cells. [3]
Animal Administration	Two groups of mice (C57Bl6) are subjected to unilateral femoral artery ligation under fluothane inhalation anaesthesia (2% in O₂). One group (n=11) receives dimethyloxallylglycine (DMOG) i.p. (8 mg in 0.5 mL saline) on days 1, 3, 5, 7 and 9 while the animals in the other group are injected with sterile saline (0.5 mL) at the same intervals (n=6). A third group is treated with DMOG without ligation (n=4) and four unoperated mice serve as controls. After 11 days mice are terminally anaesthetized and the extensor digitorum longus (EDL) and tibialis anterior (TA) muscles excised. [2]
References	[1]. Baader E, et al. Inhibition of prolyl 4-hydroxylase by oxalyl amino acid derivatives in vitro, in isolated microsomes and in embryonic chicken tissues. <i>Biochem J.</i> 1994 Jun 1;300 (Pt 2):525-30. [2]. Milkiewicz M, et al. Inhibition of endogenous HIF inactivation induces angiogenesis in ischaemic skeletal muscles of mice. <i>J Physiol.</i> 2004 Oct 1;560(Pt 1):21-6. [3]. Schultz K, et al. Prolyl hydroxylase 2 deficiency limits proliferation of vascular smooth muscle cells by hypoxia-inducible factor-1{alpha}-dependent mechanisms. <i>Am J Physiol Lung Cell Mol Physiol.</i> 2009 Jun;296(6):L921-7. [4]. Li X, et al. Up-regulation of hypoxia-inducible factor-1α enhanced the cardioprotective effects of ischemic postconditioning in hyperlipidemic rats. <i>Acta Biochim Biophys Sin (Shanghai).</i> 2014 Feb;46(2):112-8.