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产品名称: 对称 N,N-二甲基精氨酸
产品别名: SDMA; Symmetric dimethylarginine;
NG,NG'-Dimethyl-L-arginine

生物活性:				
Description	SDMA (Symmetric dimethylarginine) is an endogenous inhibitor of nitric oxide (NO) synthase activity.			
IC ₅₀ & Target	Human Endogenous Metabolite			
In Vitro	SDMA is the structural isomer of the cardiovascular risk marker asymmetric dimethylarginine, as an endogenous marker of renal function. SDMA does not directly inhibit NOS but is a competitor of arginine transport. SDMA is primarily eliminated by renal excretion and is a promising endogenous marker of glomerular filtration rate[1]. SDMA inhibits dose dependently the NO synthesis in intact endothelial cells, whereas it has no effect on protein expression of NOS[1]. SDMA is involved in the inflammatory process of chronic kidney disease, activating NF-κB and resulting in enhanced expression of IL-6 and TNF-α[2].			
In Vivo	SDMA is highly stable in serum and plasma, and the assay demonstrates excellent analytical performance. In unaffected dogs, SDMA remains unchanged whereas in affected dogs, SDMA increases during disease progression, correlating strongly with an increase in sCr and decrease in GFR[3]. Chronic SDMA infusion leads to a significant increase of SDMA levels in mice, but the GFR did not change at 4 weeks. No histological changes are observed, particularly no effect on fibrosis or endothelial nitric oxide synthase expression. There is neither an effect of SDMA on systolic blood pressure nor on ejection fraction[4].			
Solvent&Solubility	In Vitro: DMSO : 50 mg/mL (247.22 mM; ultrasonic and adjust pH to 3 with 1M HCl)			
	Preparing Stock Solutions	Solvent Concentration	Mass Concentration	
		1 mM	4.9444 mL	24.7219 mL
		5 mM	0.9889 mL	4.9444 mL
		10 mM	0.4944 mL	2.4722 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 (12.36 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (12.36 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。			



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	<p>2.请依序添加每种溶剂: 10% DMSO→ 90% (20% SBE-β-CD in saline)</p> <p>Solubility: ≥ 2.5 mg/mL (12.36 mM); Clear solution</p> <p>此方案可获得 ≥ 2.5 mg/mL (12.36 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 生理盐水溶液中, 混合均匀。</p> <p>3.请依序添加每种溶剂: 10% DMSO →90% corn oil</p> <p>Solubility: 2.5 mg/mL (12.36 mM); Suspended solution; Need ultrasonic</p> <p>此方案可获得 2.5 mg/mL (12.36 mM)的均匀悬浊液, 悬浊液可用于口服和腹腔注射。</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>
References	<p>[1]. Bode-B?ger SM,et al. Symmetrical dimethylarginine: a new combined parameter for renal function and extent ofcoronary artery disease.</p> <p>[2]. Schepers E, et al. Symmetric dimethylarginine as a proinflammatory agent in chronic kidney disease.Clin J Am Soc Nephrol. 2011 Oct;6(10):2374-83.</p> <p>[3]. Nabity MB, et al. Symmetric Dimethylarginine Assay Validation, Stability, and Evaluation as a Marker for the EarlyDetection of Chronic Kidney Disease in Dogs. J Vet Intern Med. 2015 Jul-Aug;29(4):1036-44.</p> <p>[4]. Veldink H, et al. Effects of chronic SDMA infusion on glomerular filtration rate, blood pressure, myocardial function and renal histology in C57BL6/J mice. Nephrol Dial Transplant. 2013 Jun;28(6):1434-9.</p>
实验参考:	
Cell Assay	<p>SDMA stock solution is prepared in 0.9% NaCl and diluted in the cell culture medium or in heparinized whole blood resulting in a maximal uremic concentration of 6.1 μM SDMA. Whole blood is incubated with saline (control) or different doses of ADMA (0.6, 3.6, and 36 μM) or SDMA (1.5, 3.1, and 6.1 μM) for 2 hours in a humidified atmosphere of 5% CO₂ in air at 37°C. Cells are finally stained for intracellular TNF-α or IL-6. Samples are analyzed with a flow cytometer[2].</p>
Animal Administration	<p>Mice: Eight-week-old male C57Bl/6 mice receives vehicle-controlled infusion of SDMA (250 μmol/kg/days) for 28 days using osmotic minipumps (n=24/group). Glomerular filtration rate, cardiac function and blood pressure are monitored. Blood samples for SDMA determination are obtained at baseline, 2 and 4 weeks. Mice are euthanized at 4 weeks to obtain tissue for renal histology[4].</p>
References	<p>[1]. Bode-B?ger SM,et al. Symmetrical dimethylarginine: a new combined parameter for renal function and extent ofcoronary artery disease.</p> <p>[2]. Schepers E, et al. Symmetric dimethylarginine as a proinflammatory agent in chronic kidney disease.Clin J Am Soc Nephrol. 2011 Oct;6(10):2374-83.</p> <p>[3]. Nabity MB, et al. Symmetric Dimethylarginine Assay Validation, Stability, and Evaluation as a Marker for the EarlyDetection of Chronic Kidney Disease in Dogs. J Vet Intern Med. 2015 Jul-Aug;29(4):1036-44.</p> <p>[4]. Veldink H, et al. Effects of chronic SDMA infusion on glomerular filtration rate, blood pressure, myocardial function and renal histology in C57BL6/J mice. Nephrol Dial Transplant. 2013 Jun;28(6):1434-9.</p>