



上海源叶生物科技有限公司
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产品名称: 米托蒽醌甲磺酸盐

产品别名: Mitoquinone mesylate; MitoQ mesylate; MitoQ10 mesylate

生物活性:				
Description	Mitoquinone mesylate is a TPP-based, mitochondrially targeted antioxidant in order to protect against oxidative damage[1].			
In Vitro	Mitoquinone (MitoQ) is a mitochondria-targeted antioxidant. The optimal doses for Mitoquinone (MitoQ) and DecylTPP treatment are selected from dose-response experiments during 4-h cold storage (CS). The potential protective benefits of Mitoquinone treatment against CS injury are tested initially using MitoSOX Red, a mitochondrial-targeted fluorescent dye that measures mitochondrial superoxide generation. Normal rat kidney (NRK) cells exposed to CS result in a ~2-fold increase in fluorescence due to mitochondrial superoxide compared with untreated cells. Mitoquinone offers significant protection against CS-induced mitochondrial superoxide generation; whereas the control compound DecylTPP does not offer any protection. Mitoquinone treatment markedly decreases mitochondrial superoxide generation, whereas kidneys treated with DecylTPP have comparable levels of mitochondrial superoxide to kidneys exposed to CS alone[1].			
In Vivo	Mitoquinone (MitoQ) treatment significantly reduces pancreatic oedema and neutrophil infiltration. MitoQ dose-dependently increases serum amylase with an approximate doubling at the higher dose. MitoQ treatment nearly doubles lung MPO activity induced by Caerulein with a significant increase of serum IL-6 levels also evident at 10 mg/kg (dose 1)[2].			
Solvent&Solubility	In Vitro: DMSO : 50 mg/mL (73.66 mM; Need ultrasonic) H ₂ O : < 0.1 mg/mL (insoluble)			
		Solvent Mass Concentration	1 mg	5 mg
	Preparing	1 mM	1.4732 mL	7.3658 mL
	Stock Solutions	5 mM	0.2946 mL	1.4732 mL
		10 mM	0.1473 mL	0.7366 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 (3.68 mM); Clear solution 此方案可获得 ≥ 2.5 mg/mL (3.68 mM, 饱和度未知) 的澄清溶液。				



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	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 $\rightarrow$ 90% (20% SBE-β-CD in saline) Solubility: 2.5 mg/mL (3.68 mM); Suspended solution; Need ultrasonic 此方案可获得 2.5 mg/mL (3.68 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: 2.5 mg/mL (3.68 mM); Precipitated solution; Need ultrasonic 此方案可获得 2.5 mg/mL (3.68 mM) 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]. Mitchell T, et al. The mitochondria-targeted antioxidant mitoquinone protects against cold storage injury of renaltubular cells and rat kidneys. J Pharmacol Exp Ther. 2011 Mar;336(3):682-92. [2]. Huang W, et al. Effects of the mitochondria-targeted antioxidant mitoquinone in murine acute pancreatitis. Mediators Inflamm. 2015;2015:901780.
实验参考:	
Cell Assay	Normal rat kidney proximal tubular cells (NRK-52E) are maintained in six-well 100 or 150-mm, or 150-mm plates in a humidified incubator gassed with 5% CO₂ and 95% air at 37°C in DMEM containing 5% fetal calf serum (FCS). Cells are grown to 60% confluence and divided into four treatment groups: 1) untreated (Untx), 2) CS, 3) CS+Mitoquinone (MitoQ), and 4) CS+DecylITPP. Untreated cells remained at 37°C in DMEM containing 5% FCS (group 1). CS is initiated by washing cells with cold PBS twice and storing them in UW/Viaspan solution alone (4 h at 4°C) (group 2), CS+Mitoquinone (1 μM) (group 3), or CS+DecylITPP (1 μM) (group 4). In separate experiments, cells are exposed to CS plus RW by replacing UW solution alone or UW solution containing Mitoquinone or DecylITPP with DMEM containing 5% FCS overnight (18 h at 37°C)[1].
Animal Administration	Mice[2] Male CD1 mice (30-35 g) or C57BL/6J mice (20-25 g) are used. Seven intraperitoneal injections of a supramaximal dose (50 μg/kg) of Caerulein, a CCK-8 analogue, are given on an hourly basis to induce hyperstimulation acute pancreatitis (CER-AP). Control mice receive equal volumes of PBS injection. In the Mitoquinone treatment groups, Mitoquinone at 10 mg/kg (dose 1) or 25 mg/kg (dose 2) is given at the first and third injections of Caerulein. Similarly, dTPP at 9.6 mg/kg (dose 1) or 24 mg/kg (dose 2) is given for the dTPP treatment group. Mitoquinone and dTPP are at the same molar concentration at doses 1 and 2. Mice are sacrificed at 12 h after the first Caerulein injection to collect samples. Bile acid-induced AP is achieved by retrograde infusion of TLCS into the pancreatic duct (TLCS-AP). After induction of anesthesia, TLCS applied using a mini infusion pump at a speed of 5 μL/min for 10 minutes. Successful infusion of TLCS into pancreas is demonstrated by a diffuse light blue colour (methylene blue) appearing in the pancreatic head. Control mice receive sham surgery without TLCS infusion. In the treatment groups, Mitoquinone (10 mg/kg) or dTPP



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	(9.6 mg/kg) is given at 1 h and 3 h after TLCS infusion. Mice are sacrificed at 24 h after the TLCS infusion or sham surgery.
References	[1]. Mitchell T, et al. The mitochondria-targeted antioxidant mitoquinone protects against cold storage injury of renaltubular cells and rat kidneys. J Pharmacol Exp Ther. 2011 Mar;336(3):682-92. [2]. Huang W, et al. Effects of the mitochondria-targeted antioxidant mitoquinone in murine acute pancreatitis. Mediators Inflamm. 2015;2015:901780.



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