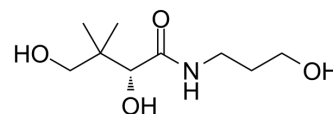


D-Panthenol

Cat. No.:	HY-B1391		
CAS No.:	81-13-0		
Molecular Formula:	C ₉ H ₁₉ NO ₄		
Molecular Weight:	205.25		
Target:	Endogenous Metabolite		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Pure form	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

Ethanol : 110 mg/mL (535.93 mM; Need ultrasonic)
 DMSO : 33 mg/mL (160.78 mM; Need ultrasonic and warming)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.8721 mL	24.3605 mL	48.7211 mL
	5 mM	0.9744 mL	4.8721 mL	9.7442 mL
	10 mM	0.4872 mL	2.4361 mL	4.8721 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: ≥ 2.08 mg/mL (10.13 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: ≥ 2.08 mg/mL (10.13 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 2.08 mg/mL (10.13 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

D-Panthenol is the biologically-active alcohol of pantothenic acid, which leads to an elevation in the amount of coenzyme A in the cell. D-panthenol exhibits nephroprotective effect in AKI, promotes tissue repair and regeneration.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

D-panthenol exhibits neuroprotective activity against tBHP (0-100 μM) and FESO₄ (0.5 mM) induced oxidation in

mitochondria through inhibiting lipid peroxidation, thereby improves mitochondrial metabolism, reverses redox potential of the glutathione system and decreases the level of S-glutathionylated proteins^[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

D-panthenol (200 mg/kg, i.p. for 7 days) enhances tolerance of kidney tissues against oxidative damage through limited lipid peroxidation and SOD activity in Rhabdomyolysis-Induced AKI in Wistar mice^[2].

D-panthenol (200 mg/kg, i.p. for 7 days) exhibits nephroprotective effect through inhibiting inflammatory processes with decreased MPO activity and leukocyte infiltration in Rhabdomyolysis-Induced AKI in Wistar mice^[2].

D-panthenol (4 mg as a spray, twice a day for 14 days) promotes wound healing through retaining the environment moisture, promoting tissue repair and regeneration in streptozotocin-induced diabetes mellitus C57BL/6 mice and db/db mice^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Rhabdomyolysis-Induced AKI in Wistar mice ^[2]
Dosage:	200 mg/kg
Administration:	intraperitoneal injection, 7 days
Result:	Reduced leukocytes infiltration and MPO activity in kidney.
Animal Model:	streptozotocin-induced DM C57BL/6 mice and db/db (T2D) mice ^[3]
Dosage:	4 mg/kg
Administration:	as a spray, twice a day for 14 days
Result:	Induced leukocyte prevalence, promoted clearance of necrotic debris from the wound. Induced collagen production from day 10.

REFERENCES

- [1]. Semenovich DS, et al., Protective Effect of D-Panthenol in Rhabdomyolysis-Induced Acute Kidney Injury. *Int J Mol Sci.* 2022 Oct 14;23(20):12273.
- [2]. Iinova E, et al., Cerium-Containing N-Acetyl-6-Aminohexanoic Acid Formulation Accelerates Wound Reparation in Diabetic Animals. *Biomolecules.* 2021 Jun 3;11(6):834.
- [3]. Semenovich DS, et al., Effects of Panthenol and N-Acetylcysteine on Changes in the Redox State of Brain Mitochondria under Oxidative Stress In Vitro. *Antioxidants (Basel).* 2021 Oct 27;10(11):1699.
- [4]. Oguz A, et al. Topical N-acetylcysteine improves wound healing comparable to dexpanthenol: an experimental study. *Int Surg.* 2015 Apr;100(4):656-61.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA