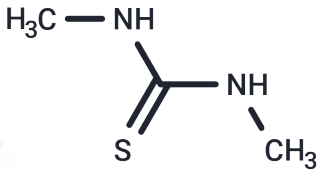
Data Sheet (Cat.No.T40615)

TargetMol

N,N'-Dimethylthiourea

Chemical Properties



CAS No. : 534-13-4

Formula: C3H8N2S

Molecular Weight: 104.17

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	N,N'-Dimethylthiourea (DMTU) (DMTU), isolated from Allii Sativi Bulbus, is an orally active scavenger of hydroxyl radical (OH) and blocks OH production by activated neutrophils in vitro. N,N'-Dimethylthiourea protects against water-immersion restraint stress (WIRS)-induced gastric mucosal lesions in rats by exerting its antioxidant action including OH scavenging and anti-inflammatory action [1][2] .
Targets(IC50)	Antioxidant,Reactive Oxygen Species,ROS
In vivo	N,N'-Dimethylthiourea (DMTU; 1, 2.5, or 5 mmol/kg; orally) administered at 0.5 h before the onset of WIRS reduces the severity of gastric mucosal lesions with attenuation of the changes in the levels of gastric mucosal MPO, pro-inflammatory cytokines, LPO, NOx, nonprotein SH, and vitamin C and gastric adherent mucus found at 3 h after the onset of WIRS in a dose-dependent manner in Male Wistar rats aged 6 weeks [1]. DMTU protects against WIRS-induced gastric mucosal lesions in rats by exerting its antioxidant action including ·OH scavenging and its anti-inflammatory action without affecting the stress response.

Solubility Information

Solubility	DMSO: 250 mg/mL (2399.92 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (96 mM),Solution. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (19.2 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	9.5997 mL	47.9985 mL	95.9969 mL
5 mM	1.9199 mL	9.5997 mL	19.1994 mL
10 mM	0.960 mL	4.7998 mL	9.5997 mL
50 mM	0.192 mL	0.960 mL	1.9199 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Yoshiji Ohta, et al. Protective effect of N,N'-dimethylthiourea against stress-induced gastric mucosal lesions in rats. Fundam Clin Pharmacol. 2017 Jun;31(3):319-328.
Ni H, Reitman Z J, Zou W, et al.FLASH radiation reprograms lipid metabolism and macrophage immunity and sensitizes medulloblastoma to CAR-T cell therapy.Nature Cancer.2025: 1-14.
Zhongyi Zhang, et al. Analysis of volatile compounds in fermented black garlic by GC-MS.