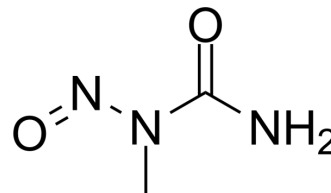


N-Nitroso-N-methylurea

Cat. No.:	HY-34758
CAS No.:	684-93-5
Molecular Formula:	C ₂ H ₅ N ₃ O ₂
Molecular Weight:	103.08
Target:	DNA Alkylator/Crosslinker
Pathway:	Cell Cycle/DNA Damage
Storage:	4°C, protect from light, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (2425.30 mM; Need ultrasonic)
H₂O : 50 mg/mL (485.06 mM; Need ultrasonic)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	9.7012 mL	48.5060 mL	97.0120 mL
	5 mM	1.9402 mL	9.7012 mL	19.4024 mL
	10 mM	0.9701 mL	4.8506 mL	9.7012 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 10 mg/mL (97.01 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.08 mg/mL (20.18 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (20.18 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (20.18 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

N-Nitroso-N-methylurea (NMU;MNU;NMH) is a potent carcinogen, mutagen and teratogenand. N-Nitroso-N-methylurea is a direct-acting alkylating agent that interacts with DNA. N-Nitroso-N-methylurea targets multiple animal organs to cause various cancer and/or degenerative disease. N-Nitroso-N-methylurea is also a precursor in the synthesis of diazomethane^{[1][2][3][4]}.

In Vitro	N-Nitroso-N-methylurea (NMU; 5 μ M) treatment increases the cellular NF- κ B activity in human malignant keratinocytes. N-Nitroso-N-methylurea also increases the amount of I- κ B α phosphorylation ^[5] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	N-Nitroso-N-methylurea can be used in animal modeling to construct rat tumor models. N-Nitroso-N-methylurea (NMU) gives intravenously to rats at age 50 days induced mammary carcinomas in 89% of BUF/N, 73% of Sprague-Dawley, and 89% of F344 females. Latent periods are, respectively, 77, 86, and 94 days. Doubling times of NMU-induced primary and transplanted carcinomas are similar to 7 days. Cachexia ensues at the 5th week from the onset of the first tumor. When the tumor is larger than 15 g, hypercalcemia is usually observed ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Adv Sci (Weinh). 2023 Oct 12:e2301977.
- Int Immunopharmacol. 2023 Sep 10;124(Pt A):110902.
- Int Immunopharmacol. 2023 Jul 22;122:110641.
- J Ethnopharmacol. 31 October 2022, 115885.
- Mol Cell Biol. 2021 Jul 6;MCB0030321.

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- [1]. Gullino PM, et al. N-nitrosomethylurea as mammary gland carcinogen in rats. J Natl Cancer Inst. 1975 Feb;54(2):401-14.
- [2]. Tsubura A, et al. Review: Animal models of N-Methyl-N-nitrosourea-induced mammary cancer and retinal degeneration with special emphasis on therapeutic trials. In Vivo. 2011 Jan-Feb;25(1):11-22.
- [3]. Johnson EM, et al. Effects of N-nitroso-N-methylurea on enzymatic ontogeny associated with teratogenesis. Teratology. 1968 May;1(2):179-91.
- [4]. Silvia Garbarino, et al. One-pot synthesis of α -haloketones employing a membrane-based semibatch diazomethane generator. Journal of Flow Chemistry volume 6, pages211-217(2016).
- [5]. Moon KY. N-nitroso-N-methylurea and N-nitroso-N-ethylurea induce upregulation of cellular NF-kappa B activity through protein kinase C-dependent pathway in human malignant keratinocytes. Arch Pharm Res. 2010 Jan;33(1):133-9.

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

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