N-Nitroso-N-methylurea

Cat. No.: HY-34758

CAS No.: 684-93-5

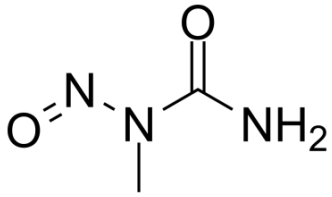
Molecular Formula: $C_2H_5N_3O_2$

Molecular Weight: 103.08

Target: DNA Alkylator/Crosslinker

Pathway: Cell Cycle/DNA Damage

Storage: 4°C, protect from light, stored under argon
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under argon)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (1212.65 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	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

1. 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
2. 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
3. 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 μM) treatment increases the cellular NF-κB activity in human malignant keratinocytes. N-Nitroso-N-methylurea also increases the amount of I-κBα phosphorylation[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo	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.

REFERENCES

[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.

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