Amifostine

Cat. No.: HY-B0639

CAS No.: 20537-88-6

Molecular Formula: $C_5H_{15}N_2O_3PS$

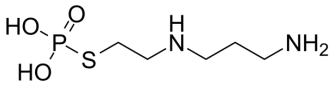
Molecular Weight: 214.22

Target: MDM-2/p53; HIF/HIF Prolyl-Hydroxylase

Pathway: Apoptosis; Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (466.81 mM; Need ultrasonic)
DMF : 1 mg/mL (4.67 mM; Need ultrasonic)
DMSO : < 1 mg/mL (ultrasonic) (insoluble or slightly soluble)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	4.6681 mL	23.3405 mL	46.6810 mL
5 mM	0.9336 mL	4.6681 mL	9.3362 mL
10 mM	0.4668 mL	2.3340 mL	4.6681 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (466.81 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Amifostine (WR2721) is a broad-spectrum cytoprotective agent and a radioprotector. Amifostine selectively protects normal tissues from damage caused by radiation and chemotherapy. Amifostine is potent hypoxia-inducible factor-α1 (HIF-α1) and p53 inducer. Amifostine protects cells from damage by scavenging oxygen-derived free radicals. Amifostine reduces renal toxicity and has antiangiogenic action[1][2][3][4].

In Vitro

Amifostine (0.78125-100 μM, 24 h) reduces tert-Butyl hydroperoxide (TBHP)-induced cell damage in a dose-dependent manner and significantly reduces H9c2 cells apoptosis at a concentration of 100 μM[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Amifostine (i.v., 400 mg/kg, 4 h) has a protective effect against myocardial I/R injury in male C57BL/6 mice[5].

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

Animal Model:	Male C57BL/6 mice with myocardial I/R injury[5]
Dosage:	400 mg/kg
Administration:	Intravenous injection; 4 hours
Result:	Attenuated cardiomyocyte apoptosis and reduced the production of I/R-induced ROS. Significantly reduced the expression of cleaved caspase 3 and Bax while enhanced the expression of SOD1, SOD2 and Bcl2. Significantly increased SOD activity and reduced MDA levels.

CUSTOMER VALIDATION

- Int Immunopharmacol. 2020 Nov;88:106998.

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REFERENCES

[1]. Shao-Ze Wu, et al. Amifostine Pretreatment Attenuates Myocardial Ischemia/Reperfusion Injury by Inhibiting Apoptosis and Oxidative Stress. Oxid Med Cell Longev. 2017;2017:4130824.

[2]. Kouvaris, J.R., V.E. Kouloulias, and L.J. Vlahos, Amifostine: the first selective-target and broad-spectrum radioprotector. Oncologist, 2007. 12(6): p. 738-47.

[3]. D Maurici, et al. Amifostine (WR2721) restores transcriptional activity of specific p53 mutant proteins in a yeast functional assay. Oncogene. 2001 Jun 14;20(27):3533-40.

[4]. Efstathia Giannopoulou, et al. Amifostine inhibits angiogenesis in vivo. J Pharmacol Exp Ther. 2003 Feb;304(2):729-37.

[5]. Michael I Koukourakis, et al. Amifostine induces anaerobic metabolism and hypoxia-inducible factor 1 alpha. Cancer Chemother Pharmacol. 2004 Jan;53(1):8-14.

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