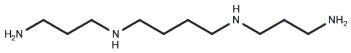
Data Sheet (Cat.No.T3007)

TargetMol

Spermine

Chemical Properties



CAS No. : 71-44-3

Formula: C10H26N4

Molecular Weight: 202.34

Storage: Keep away from direct sunlight,Keep away from moisture
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	Spermine (Neuridine) is an endogenous polyamine in the human body. As a direct free radical scavenger, it exhibits antiviral activity and protects DNA from free radical damage; it is also a key regulator of cell proliferation, differentiation, and apoptosis. Spermine inhibits certain bacteria, particularly strains of Staphylococcus aureus. Spermine induces striatal neurotoxicity in a dose-dependent manner. Spermine reversibly inhibits DNA synthesis, mixed lymphocyte reactions, and the induction of cytolytic lymphocyte reactions in primary cultures of mouse splenocytes.
Targets(IC50)	Endogenous Metabolite,Antibacterial,DNA/RNA Synthesis,Influenza Virus,ROS
In vitro	**Methods**: Mouse renal tubular epithelial cell lines were stimulated with TGF-β1 (10 ng/mL) for 24 hours to induce a fibrotic phenotype. Spermine (10 μM) was added 12 hours prior to TGF-β1 stimulation. Transcriptome sequencing was performed to assess gene expression changes. **Results**: Spermine reversed TGF-β1-induced expression of genes associated with ECM receptors and focal adhesion pathways. [1]
In vivo	**Methods**: A mouse model of renal fibrosis was established using unilateral renal ischemia-reperfusion injury. Spermine (1 mg/kg/day) was administered via intraperitoneal injection starting 2 days prior to surgery, with continuous dosing for 10 days (therapeutic experiments commenced on postoperative day 3). **Results**: Exogenous spermidine supplementation significantly attenuated renal fibrosis and downregulated fibrosis markers including fibronectin, collagen I, and α-SMA. [1]

Solubility Information

Solubility	DMSO: Slightly soluble, H2O: 257.5 mg/mL (1272.61 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.9422 mL	24.7109 mL	49.4218 mL
5 mM	0.9884 mL	4.9422 mL	9.8844 mL
10 mM	0.4942 mL	2.4711 mL	4.9422 mL
50 mM	0.0988 mL	0.4942 mL	0.9884 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

Luo D, et al. The Spermine Oxidase/Spermine Axis Coordinates ATG5-Mediated Autophagy to Orchestrate Renal Senescence and Fibrosis. Adv Sci (Weinh). 2024 Aug;11(29):e2306912.
Wang Q, Zhao Y, Qin X, et al.Deciphering relationship between depression and microbial molecules based on multi-omics: A case study of Chaigui Granules.Chinese Herbal Medicines.2024