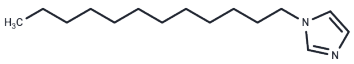
Data Sheet (Cat.No.T37885)

TargetMol

1-Dodecylimidazole

Chemical Properties



CAS No. : 4303-67-7

Formula: C15H28N2

Molecular Weight: 236.4

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	1-Dodecylimidazole (N-Dodecylimidazole) is a chemical compound that acts as a cytotoxic agent and lysosomotropic detergent, inducing cell death through acid-dependent lysosomal accumulation, disrupting the lysosomal membrane, and releasing cysteine proteases into the cytoplasm. It also exhibits hypocholesterolemic and broad-spectrum antifungal activities.
Targets(IC50)	Antifungal
In vitro	1-Dodecylimidazole is an acid-activated detergent with a pKa of 6.3 which has been shown to be cytotoxic to cells in culture. 1-Dodecylimidazole displayed extracellular pH (pHe)-dependent cytotoxicity against EMT-6 and MGH U1 cells. cell killing was dose-dependent and was 100-fold greater at pHe 6.0 than pHe 7.0[4].
In vivo	The hypocholesterolaemic activity of 1-dodecylimidazole partly arises from inhibiting cholesterol biosynthesis at the 2,3-oxidosqualene sterol cyclase level[2]. Administration of 1-dodecylimidazole (150 mg/kg body wt; by stomach tube; daily for 10 days) results in lower serum cholesterol concentrations compared to control rats[2].

Solubility Information

Solubility	DMSO: 100 mg/mL (423.01 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (13.96 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	4.2301 mL	21.1506 mL	42.3012 mL
5 mM	0.846 mL	4.2301 mL	8.4602 mL
10 mM	0.423 mL	2.1151 mL	4.2301 mL
50 mM	0.0846 mL	0.423 mL	0.846 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

Wilson PD, et al. A relationship between multidrug resistance and growth-state dependent cytotoxicity of the lysosomotropic detergent N-dodecylimidazole. Biochem Biophys Res Commun. 1991;176(3):1377-1382.
Atkin SD, et al. The isolation of 2,3-oxidosqualene from the liver of rats treated with 1-dodecylimidazole, a novel hypocholesterolaemic agent. Biochem J. 1972;130(1):153-157.
Firestone RA, et al. Lysosomotropic agents. 7. Broad-spectrum antifungal activity of lysosomotropic detergents. J Med Chem. 1987;30(8):1519-1521.
Boyer MJ, et al. pH dependent cytotoxicity of N-dodecylimidazole: a compound that acquires detergent properties under acidic conditions. Br J Cancer. 1993;67(1):81-87.