1-Dodecylimidazole

Cat. No.: HY-138540

CAS No.: 4303-67-7

Molecular Formula: $C_{15}H_{28}N_2$

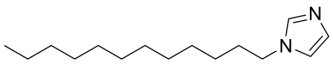
Molecular Weight: 236.4

Target: Fungal

Pathway: Anti-infection

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (423.01 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	4.2301 mL	21.1506 mL	42.3012 mL
	5 mM	0.8460 mL	4.2301 mL	8.4602 mL
	10 mM	0.4230 mL	2.1151 mL	4.2301 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: ≥ 2.5 mg/mL (10.58 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.58 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.58 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

1-Dodecylimidazole (N-Dodecylimidazole) is a lysosomotropic detergent and a cytotoxic agent. 1-Dodecylimidazole causes cell death by its acid-dependent accumulation in lysosomes, disruption of the lysosomal membrane, and releaseof cysteine proteases into the cytoplasm. 1-Dodecylimidazole has hypocholesterolaemic activity and broad-spectrum antifungal activity[1][2][3].

In Vitro

N-dodecylimidazole, an acid activated detergent with a pKa of 6.3, has been shown to be cytotoxic to cells in culture. N-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]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	The hypocholesterolaemic activity of 1-dodecylimidazole results in part from the inhibition of cholesterol biosynthesis at the level of 2,3-oxidosqualene sterol cyclase[2]. 1-dodecylimidazole (150 mg/kg body wt; by stomach tube; daily for 10 days) has lower serum cholesterol concentrations than control rats[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male rats[2]
Dosage:	150 mg/kg body wt
Administration:	By stomach tube; daily for 10 days
Result:	Had significantly lower serum cholesterol concentrations than untreated animals.

REFERENCES

[1]. 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.

[2]. 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.

[3]. Firestone RA, et al. Lysosomotropic agents. 7. Broad-spectrum antifungal activity of lysosomotropic detergents. J Med Chem. 1987;30(8):1519-1521.

[4]. 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.

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