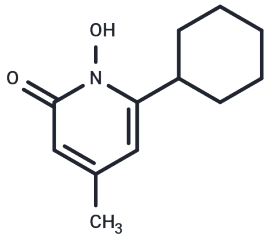
Data Sheet (Cat.No.T1482)

TargetMol

Ciclopirox

Chemical Properties



CAS No. : 29342-05-0

Formula: C12H17NO2

Molecular Weight: 207.27

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	Ciclopirox (HOE296b) exerts its action by binding to and chelating trivalent cations, such as Fe3+ and Al3+, thereby inhibiting the availability of essential co-factors for enzymes. Ciclopirox is a synthetic, broad-spectrum antifungal agent with additional antibacterial and anti-inflammatory activities. This may lead to a loss of activity of enzymes that are essential for cellular metabolism, the organization of cell wall structure and other crucial cell functions. In addition, ciclopirox exerts its anti-inflammatory activity by inhibiting 5-lipoxygenase and cyclooxygenase (COX).
Targets(IC50)	ATPase,Ferroptosis,Antibacterial,Autophagy,Antifungal
In vivo	Ciclopirox induces the activity of HIF-1-mediated reporter genes and the expression of endogenous HIF-1 target genes, including increased levels of mRNA expression, transcription, and vascular endothelial growth factor protein. It exerts a dose-dependent inhibitory effect on the growth of Candida albicans yeast and filamentous cells. Ciclopirox prevents mitochondrial damage induced by H2O2 by maintaining mitochondrial transmembrane potential. In adenocarcinoma SK-HEP-1 cells, Ciclopirox decreases MTT reduction (a marker of mitochondrial function) and completely blocks the release of lactate dehydrogenase (a marker of cell death) stimulated by hydrogen peroxide. In astrocytes treated with SIN-1 under glucose deprivation, Ciclopirox increases and maintains high levels of MTP, also preventing the depletion of adenosine triphosphate. Furthermore, Ciclopirox effectively inhibits the opening of mitochondrial permeability transition pores induced by hydrogen peroxide and protects astrocytes from peroxynitrite toxicity by mitigating mitochondrial dysfunction caused by nitrite.

Solubility Information

Solubility	Ethanol: 20.7 mg/mL (99.87 mM),Sonication is recommended. DMSO: 101 mg/mL (487.29 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: 2 mg/mL (9.65 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	4.8246 mL	24.1231 mL	48.2462 mL
5 mM	0.9649 mL	4.8246 mL	9.6492 mL
10 mM	0.4825 mL	2.4123 mL	4.8246 mL
50 mM	0.0965 mL	0.4825 mL	0.9649 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

Linden T, et al. FASEB J,2003, 17(6), 761-763.
Huang Y, Su R, Sheng Y, et al. Small-molecule targeting of oncogenic FTO demethylase in acute myeloid leukemia. Cancer Cell. 2019, 35(4): 677-691. e10.
Sigle HC, et al. J Antimicrob Chemother,2005, 55(5), 663-673.
Lee SJ, et al. Br J Pharmacol,2005, 145(4), 469-476.
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Braga PC, et al. Arzneimittelforschung,1992, 42(11), 1368-1371.
Huang Y, Su R, Sheng Y, et al. Small-molecule targeting of oncogenic FTO demethylase in acute myeloid leukemia [J]. Cancer Cell. 2019, 35(4): 677-691. e10.