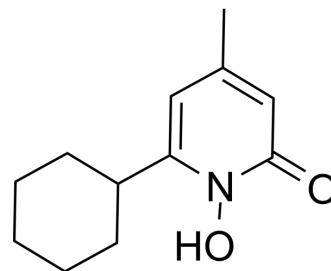


Ciclopirox

Cat. No.:	HY-B0450		
CAS No.:	29342-05-0		
Molecular Formula:	C ₁₂ H ₁₇ NO ₂		
Molecular Weight:	207.27		
Target:	Fungal; Autophagy; Ferroptosis; Bacterial		
Pathway:	Anti-infection; Autophagy; Apoptosis		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (482.46 mM; Need ultrasonic)				
		Solvent Concentration	Mass 1 mg	5 mg	10 mg
	Preparing Stock Solutions	1 mM	4.8246 mL	24.1231 mL	48.2462 mL
		5 mM	0.9649 mL	4.8246 mL	9.6493 mL
10 mM		0.4825 mL	2.4123 mL	4.8246 mL	
Please refer to the solubility information to select the appropriate solvent.					
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (12.06 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (12.06 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (12.06 mM); Clear solution 				

BIOLOGICAL ACTIVITY

Description	Ciclopirox (HOE296b) is a synthetic and orally active antifungal agent that can be used for superficial mycoses research. Ciclopirox olamine has a very broad spectrum of activity and inhibits dermatophytes, yeasts, molds, and many Gram-positive and Gram-negative species pathogenic. Ciclopirox also has anticancer and anti-inflammatory effect ^{[1][2][3]} .
In Vitro	<p>Ciclopirox (10 μM, 18 h) inhibits HUVEC proliferation and angiogenesis^[4].</p> <p>Ciclopirox (0-10 μM, 20 h) inhibits deoxyhypusine hydroxylation in HUVECs^[4].</p> <p>Ciclopirox (0-40 μM, 72 h) shows anti-tumor activity in H1299 and 95D cells (decreases cell viability, with IC₅₀s of 11.13 and</p>

	<p>4.136 μM respectively), and inhibits cell migration and invasion^[5]. Ciclopirox (0-40 μM, 48 h) arrests both H1299 and 95D cells in G1 phase, decreases Cyclin D1 and CDK4 protein level in H1299 and 95D cells^[5]. Ciclopirox (0-20 μM) induces cell aerobic glycolysis, impairs mitochondrial functions and enhances the generation of ROS in H1299 and 95D cells^[5]. Ciclopirox (0-40 μM, 48 h) activates PERK-dependent ER stress in CRC cells (HCT-8, HCT-8/5-FU, and DLD-1 cells)^[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>Ciclopirox (20 mg/kg, i.p.) reduces tumor size in mouse H1299 xenograft model, and reduces tumor cell proliferation (Ki67 staining) and increases apoptosis (Cleaved-Caspase 3 and TUNEL staining)^[5]. Ciclopirox (25 mg/kg, p.o., daily) also inhibits tumor growth in human breast cancer MDA-MB231 xenografts in mice^[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

CUSTOMER VALIDATION

- Clin Transl Med. 2022 Aug;12(8):e999.
- Pharmacol Res. 7 January 2022, 106046.
- Front Pharmacol. 2021 May 10;12:670224.
- Eur J Pharmacol. 2022 Jul 19;175156.

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REFERENCES

- [1]. Clement PM, et al. The antifungal drug ciclopirox inhibits deoxyhypusine and proline hydroxylation, endothelial cell growth and angiogenesis in vitro. *Int J Cancer*. 2002 Aug 1;100(4):491-8.
- [2]. Lu J, et al. Ciclopirox targets cellular bioenergetics and activates ER stress to induce apoptosis in non-small cell lung cancer cells. *Cell Commun Signal*. 2022 Mar 24;20(1):37.
- [3]. Zhou H, et al. The antitumor activity of the fungicide ciclopirox. *Int J Cancer*. 2010 Nov 15;127(10):2467-77.
- [4]. Niewerth, M., et al., Ciclopirox olamine treatment affects the expression pattern of *Candida albicans* genes encoding virulence factors, iron metabolism proteins, and drug resistance factors. *Antimicrob Agents Chemother*, 2003. 47(6): p. 1805-17.
- [5]. Leem, S.H., et al., The possible mechanism of action of ciclopirox olamine in the yeast *Saccharomyces cerevisiae*. *Mol Cells*, 2003. 15(1): p. 55-61.
- [6]. Ratnavel, R.C., R.A. Squire, and G.C. Boorman, Clinical efficacies of shampoos containing ciclopirox olamine (1.5%) and ketoconazole (2.0%) in the treatment of seborrheic dermatitis. *J Dermatolog Treat*, 2007. 18(2): p. 88-96.

Caution: Product has not been fully validated for medical applications. For research use only.

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