

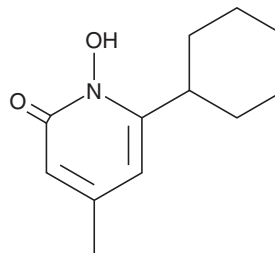
PRODUCT INFORMATION



Ciclopirox

Item No. 16021

CAS Registry No.: 29342-05-0
Formal Name: 6-cyclohexyl-1-hydroxy-4-methyl-2(1H)-pyridinone
Synonym: HOE 296b
MF: C₁₂H₁₇NO₂
FW: 207.3
Purity: ≥98%
UV/Vis.: λ_{max}: 231, 303 nm
Supplied as: A crystalline solid
Storage: Room temperature
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Ciclopirox is supplied as a crystalline solid. A stock solution may be made by dissolving the ciclopirox in the solvent of choice, which should be purged with an inert gas. Ciclopirox is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of ciclopirox in ethanol is approximately 30 mg/ml and approximately 15 mg/ml in DMSO and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of ciclopirox can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of ciclopirox in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Ciclopirox is an iron chelator, antifungal, and anticancer agent.¹⁻⁴ It inhibits the iron-dependent enzyme hypoxia-inducible factor prolyl hydroxylase 2 (HIF-PH2; IC₅₀ = 1.58 μM), an effect that is reduced in the presence of iron.¹ It stabilizes hypoxia-inducible factor-α (HIF-1α) under normoxic conditions in rat glomus cells when used at a concentration of 5 μM.⁵ Ciclopirox is active against clinical isolates of *T. rubrum*, *T. mentagrophytes*, and *C. albicans* (MICs = 0.03-0.5, 0.03-0.5, and 0.06-0.5 μg/ml, respectively) and inhibits growth of *T. mentagrophytes* on porcine skin *ex vivo* when applied topically.^{2,3} It inhibits proliferation of Rh30, HT-29, and MDA-MB-231 cells in a concentration-dependent manner and halts the cell cycle at the G₁/G₀ phase and induces apoptosis in Rh30 cells.⁴ Ciclopirox (25 mg/kg) reduces tumor growth in an MDA-MB-231 mouse xenograft model. Formulations containing ciclopirox have been used in the topical treatment of fungal infections.

References

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2. Jo Siu, W.J., Tatsumi, Y., Senda, H., *et al. Antimicrob. Agents Chemother.* 57(4), 1610-1616 (2013).
3. Ceschin-Roques, C.G., Hänel, H., Pruja-Bougaret, S.M., *et al. Skin Pharmacol.* 4(2), 89-94 (1991).
4. Zhou, H., Shen, T., Luo, Y., *et al. Int. J. Cancer* 127(10), 2467-2477 (2010).
5. Baby, S.M., Roy, A., Mokashi, A.M., *et al. Histochem. Cell. Biol.* 120(5), 343-352 (2003).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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