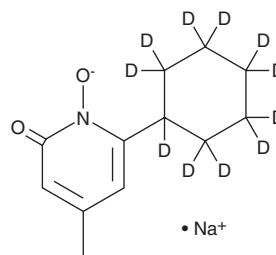


# PRODUCT INFORMATION



## Ciclopirox-d<sub>11</sub> (sodium salt) Item No. 28698

**Formal Name:** 6-(cyclohexyl-d<sub>11</sub>)-1-hydroxy-4-methyl-2(1H)-pyridinone, monosodium salt  
**MF:** C<sub>12</sub>H<sub>5</sub>D<sub>11</sub>NO<sub>2</sub> • Na  
**FW:** 240.3  
**Chemical Purity:** ≥95% (Ciclopirox)  
**Deuterium Incorporation:** ≥99% deuterated forms (d<sub>1</sub>-d<sub>11</sub>); ≤1% d<sub>0</sub>  
**Supplied as:** A solid  
**Storage:** -20°C  
**Stability:** ≥4 years



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

### Laboratory Procedures

Ciclopirox-d<sub>11</sub> (sodium salt) is intended for use as an internal standard for the quantification of ciclopirox (Item No. 16021) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Ciclopirox-d<sub>11</sub> (sodium salt) is supplied as a solid. A stock solution may be made by dissolving the ciclopirox-d<sub>11</sub> (sodium salt) in the solvent of choice, which should be purged with an inert gas. Ciclopirox-d<sub>11</sub> (sodium salt) is soluble in the organic solvent DMSO.

### Description

Ciclopirox is an iron chelator, antifungal, and anticancer agent.<sup>1-4</sup> It inhibits the iron-dependent enzyme prolyl hydroxylase 2 (PHD2; IC<sub>50</sub> = 1.58 μM), an effect that is reduced in the presence of iron.<sup>1</sup> It stabilizes hypoxia-inducible factor-α (HIF-1α) under normoxic conditions in rat glomus cells when used at a concentration of 5 μM.<sup>5</sup> 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.<sup>2,3</sup> It inhibits proliferation of Rh30, HT-29, and MDA-MB-231 cells in a concentration-dependent manner and halts the cell cycle at the G<sub>1</sub>/G<sub>0</sub> phase and induces apoptosis in Rh30 cells.<sup>4</sup> 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. Comparison of *in vitro* antifungal activities of efinaconazole and currently available antifungal agents against a variety of pathogenic fungi associated with onychomycosis. *Antimicrob. Agents Chemother.* **57(4)**, 1610-1616 (2013).
3. Ceschin-Roques, C.G., Hänel, H., Pruja-Bougaret, S.M., et al. Ciclopirox nail lacquer 8%: In vivo penetration into and through nails and in vitro effect on pig skin. *Skin Pharmacol.* **4(2)**, 89-94 (1991).
4. Zhou, H., Shen, T., Luo, Y., et al. The antitumor activity of the fungicide ciclopirox. *Int. J. Cancer* **127(10)**, 2467-2477 (2010).
5. Baby, S.M., Roy, A., Mokashi, A.M., et al. Effects of hypoxia and intracellular iron chelation on hypoxia-inducible factor-1α and -1β in the rat carotid body and glomus cells. *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.

#### WARRANTY AND LIMITATION OF REMEDY

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