

PRODUCT DATA SHEET

Lanosterol

Catalog number: 1120, 1120-k

Synonyms: 3 β -Hydroxy-8,24-lanostadiene

Source: synthetic or plant

Solubility: chloroform

CAS number: 79-63-0

Molecular Formula: C₃₀H₅₀O

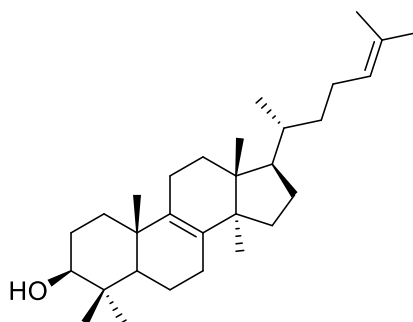
Molecular Weight: 427

Storage: -20°C

Purity: TLC >55%, GC >55%

TLC System: hexane/ethyl ether (60:40 by vol.)

Appearance: solid



Application Notes:

Oxidosqualene:lanosterol cyclase (OSLC) catalyzes the cyclization of (3S)-2,3-oxidosqualene into lanosterol, which is the key step in the biosynthesis of sterols in animals and fungi.¹ Lanosterol is converted to ergosterol in yeast and fungi and to cholesterol in mammals by the enzyme lanosterol synthase. Although the main substrate for phytosterols is cycloartenol there is evidence that lanosterol acts as a minor precursor for these sterols.² In patients with Parkinson's disease lanosterol acts as a neuroprotective agent in dopaminergic neurons by inducing mild uncoupling of mitochondria and promoting autophagy.³ Lanosterol 14- α -demethylase is an enzyme involved in the biosynthesis of ergosterol from lanosterol in fungi and yeast, making it an important target for antifungal drugs.⁴

Selected References:

1. M. Kimura et al. "Protostadienol synthase from *Aspergillus fumigatus*: Functional conversion into lanosterol synthase" *Biochemical and Biophysical Research Communications*, Vol. 391 pp. 899-902, 2010
2. K. Ohyama et al. "Dual biosynthetic pathways to phytosterol via cycloartenol and lanosterol in *Arabidopsis*" *PNAS*, Vol. 106(3) pp. 725-730, 2009
3. L. Lim et al. "Lanosterol induces mitochondrial uncoupling and protects dopaminergic neurons from cell death in a model for Parkinson's disease" *Cell Death and Differentiation*, Vol. 19 pp. 416-427, 2012
4. C. Sheng et al. "Three-Dimensional Model of Lanosterol 14- α -Demethylase from *Cryptococcus neoformans*: Active-Site Characterization and Insights into Azole Binding" *Antimicrobial Agents and Chemotherapy*, Vol. 53(8) pp. 3487-3495, 2009

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