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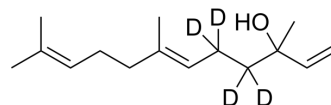
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Nerolidol-d₄

Cat. No.:	HY-N1944S
Molecular Formula:	C ₁₅ H ₂₂ D ₄ O
Molecular Weight:	226.39
Target:	Fungal; Endogenous Metabolite; Bacterial; Parasite; Isotope-Labeled Compounds
Pathway:	Anti-infection; Metabolic Enzyme/Protease; Others
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	<p>Nerolidol-d₄ is deuterated labeled Tenuazonic acid (HY-N6715). Tenuazonic acid, belonging to tetramic acids that are the largest family of natural products, is a putative nonhost-selective mycotoxin isolated from <i>Alternaria alternata</i>^[1]. Tenuazonic acid blocks electron transport beyond primary quinone acceptor (QA) by interacting with D₁ protein and it is a broad-spectrum and effective <i>photosystem II (PSII)</i> inhibitor^[2].</p>
In Vitro	<p>Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs^[1].</p> <p>Nerolidol exhibits potent antioxidant properties in counterbalancing the effect of ROS by protecting the cells against oxidative damage to lipids, proteins and DNA^[3].</p> <p>Nerolidol exhibits potent antimicrobial activity against <i>Staphylococcus aureus</i> FDA 209P, 14 strains of methicillin-susceptible <i>S. aureus</i> (MSSA) and 20 strains of methicillin-resistant <i>S. aureus</i> (MRSA) with MIC values ranging from 512 to over 1024 µg/mL^[3].</p> <p>Nerolidol exhibits anti-biofilm activity against a number of pathogens^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>Nerolidol (0.5%–2%) also has a strong anti-fungal effect against <i>Microsporum gypseum</i> that causes dermatophytosis, a superficial infection in keratinized tissues including hair, nail and stratum corneum of skin^[3].</p> <p>Nerolidol (25-75 mg/kg; ip; single dose) shows neuroprotective effects in mice hippocampus against oxidative stress in neuronal cells^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

REFERENCES

- [1]. Nogueira Neto JD, et al. Antioxidant effects of nerolidol in mice hippocampus after open field test. *Neurochem Res.* 2013 Sep;38(9):1861-70.
- [2]. Chan WK, et al. Nerolidol: A Sesquiterpene Alcohol with Multi-Faceted Pharmacological and Biological Activities. *Molecules.* 2016 Apr 28;21(5):529.
- [3]. Nerolidol, et al. In vitro antileishmanial and cytotoxic activities of nerolidol are associated with changes in plasma membrane dynamics. *Biochim Biophys Acta Biomembr.* 2019 Jun 1;1861(6):1049-1056.
- [4]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother.* 2019 Feb;53(2):211-216.

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

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