3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Econazole nitrate salt

Product Number **E 4632**
Store at Room Temperature

Product Description

Molecular Formula: $C_{18}H_{15}Cl_3N_2O \bullet HNO_3$
Molecular Weight: 444.7
CAS Number: 24169-02-6
Melting Point: 162 °C[1]
Synonyms: 1-(2-[(4-chlorophenyl)methoxy]-2-[2,4-dichlorophenyl]ethyl)-1H-imidazole nitrate; 1-[2,4-dichloro-β-[(p-chlorobenzyl)oxy]phenethyl]imidazole[1]

Econazole is an imidazole and halogenated aromatic compound structurally related to miconazole that has antifungal properties.[2,3] Its mechanism of action has been proposed to resemble that of unsaturated fatty acids and to involve inhibition of Ca^{2+} inflow and potential alterations in plasma membrane fluidity and structure.[4] Econazole has been shown to inhibit current flow through the renal epithelial Ca^{2+} channel ECaC1 by whole cell patch clamp analysis in cells.[5]

Econazole nitrate has been used in a study of the cultured murine monocyte/macrophage cell line J774 to probe mRNA levels and enzyme activity of inducible nitric oxide synthase.[6] An *in vitro* model of human cutaneous candidosis based on reconstructed human epidermis has utilized econazole to mitigiate the damaging effects of *Candida albicans* blastospores on the epidermis.[7] The bactericidal and inhibitory effects of several azole antifungal compounds, including econazole, against *Mycobacterium smegmatis* has been investigated.[8]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in a $CHCl_3$:MeOH mixture (1:1, 25 mg/ml), with heat and sonication as needed, yielding a clear, colorless solution. It is also very slightly soluble in water, slightly soluble in alcohol, and sparingly soluble in chloroform and methylene chloride.[2] This product is also soluble in DMSO (0.4 mg/ml).

References

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3. Heel, R. C., et al., Econazole: a review of its antifungal activity and therapeutic efficacy. Drugs, **16(3)**, 177-201 (1978).
4. Gamberucci, A., et al., On the mechanism of action of econazole, the capacitative calcium inflow blocker. Biochem. Biophys. Res. Commun., **248(1)**, 75-77 (1998).
5. Nilius, B., et al., Pharmacological modulation of monovalent cation currents through the epithelial Ca^{2+} channel ECaC1. Br. J. Pharmacol., **134(3)**, 453-462 (2001).
6. Bogle, R. G., et al., Effect of anti-fungal imidazoles on mRNA levels and enzyme activity of inducible nitric oxide synthase. Br. J. Pharmacol., **111(4)**, 1257-1261 (1994).
7. Korting, H. C., et al., A model of human cutaneous candidosis based on reconstructed human epidermis for the light and electron microscopic study of pathogenesis and treatment. J. Infect., **36(3)**, 259-267 (1998).
8. Jackson, C. J., et al., Bactericidal and inhibitory effects of azole antifungal compounds on *Mycobacterium smegmatis*. FEMS Microbiol. Lett., **192(2)**, 159-162 (2000).

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