Product Information

Clotrimazole

C6019

Store at room temperature.

Product Description

Molecular Formula: $C_{22}H_{17}N_2Cl$

Molecular Weight: 344.8

CAS Number: 23593-75-1

Melting Point: 147-149 °C

λ_{max}: 261 nm

Synonyms: 1-(o-chloro-α,α-diphenylbenzyl)imidazole, 1-(o-chlorotrityl)imidazole, diphenyl-(2 chlorophenyl)-1imidazolylmethane

Clotrimazole is an imidazole derivative and antifungal compound which has similar antimicrobial action and activity to ketoconazole.[2] Clotrimazole is known to block the Ca^{2+}-activated K^+ channels of intermediate conductance (IK channels) in erythrocytes.[3] The inhibition of the canine isoform of the IK1 channel, as expressed in HEK293 or CHO cells, by clotrimazole has been investigated.[4]

Clotrimazole has been utilized in vitro on cultured human prostate cancer cells to counteract the proliferative effects of 1-ethyl-2-benzimidazolinone and riluzole.[5] The upregulation of the ERG11 gene, which codes for the azole target enzyme lanosterol demethylase, in Candida species upon treatment with clotrimazole and other antibiotics has been studied.[6]

A concentration of 3 µg/mL of clotrimazole is generally effective for inhibiting many fungal species that are sensitive to clotrimazole.[2] An investigation of various yeast strains and their susceptibility to clotrimazole and other antibiotics has been published.[7] The effectiveness of clotrimazole against various Mycobacteria strains, with cytochrome P450 monooxygenases as specific molecular targets, has been studied.[8] The susceptibility of several strains of Plasmodium falciparum to clotrimazole has been reported.[9]

Precautions and Disclaimer

For laboratory use only. Not for drug, household or other uses.

References

1. The Merck Index, 12th ed., Entry# 2478.
2. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, England: 1996), p. 403.
3. Jensen, B. S., et al., The Ca2+-activated K+ channel of intermediate conductance: a molecular target for novel treatments? Curr. Drug Targets, 2(4), 401-422 (2001).
4. Wulf, A., and Schwab, A., Regulation of a calciumsensitive K+ channel (cIK1) by protein kinase C. J. Membr. Biol., 187(1), 71-79 (2002).
5. Parihar, A. S., et al., Effects of intermediate conductance Ca2+-activated K+ channel modulators on human prostate cancer cell proliferation. Eur. J. Pharmacol., 471(3), 157-164 (2003).
6. Henry, K. W., et al., Upregulation of ERG genes in Candida species by azoles and other sterol biosynthesis inhibitors. Antimicrob. Agents Chemother., 44(10), 2693-2700 (2000).
7. Carrillo-Munoz, A. J., et al., Ciclopiroxolamine: in vitro antifungal activity against clinical yeast isolates. Int. J. Antimicrob. Agents, 20(5), 375-379 (2002).
8. McLean, K. J., et al., Azole antifungals are potent inhibitors of cytochrome P450 mono-oxygenases and bacterial growth in Mycobacteria and Streptomycetes. Microbiology, 148(Pt 10), 2937- 2949 (2002).
9. Tiffert, T., et al., Potent antimalarial activity of clotrimazole in in vitro cultures of Plasmodium falciparum. Proc. Natl. Acad. Sci. USA, 97(1), 331-336 (2000).

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