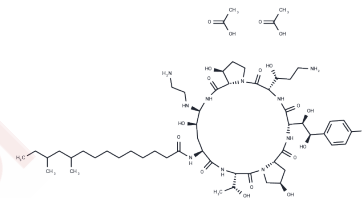


Caspofungin Acetate

Chemical Properties

CAS No. :	179463-17-3
Formula:	C ₅₆ H ₉₆ N ₁₀ O ₁₉
Molecular Weight:	1213.42
Appearance:	no data available
Storage:	keep away from direct sunlight Powder: -20°C for 3 years In solvent: -80°C for 1 year



Biological Description

Description	Caspofungin Acetate (MK 0991) is the acetate salt of an antimycotic echinocandin lipopeptide, semisynthetically derived from a fermentation product of the fungus <i>Glarea lozoyensis</i> . This agent is active against <i>Aspergillus</i> and <i>Candida</i> species.
Targets(IC50)	Antibiotic,Antifungal
In vitro	Caspofungin acetate is the first in a new class of antifungals that inhibits the synthesis of beta (1, 3)-d-glucan, an essential component of the cell wall of filamentous fungi. Prior studies have shown in vitro activity of caspofungin acetate using the reference methods, broth microdilution or macrodilution, for antifungal susceptibility testing of <i>Candida</i> species established by the National Committee for Clinical Laboratory Standards 1997 guidelines against a variety of <i>Candida</i> species including <i>Candida krusei</i> . Although caspofungin acetate is only Food and Drug Administration-approved for the treatment of aspergillosis, there is information showing that many <i>Candida</i> species are susceptible. The minimal inhibitory concentration for 90% inhibition of <i>Candida</i> species by caspofungin acetate are as follows: <i>C. albicans</i> 0.5 µg/mL (range, 0.25-0.5), <i>C. glabrata</i> 1.0 µg/mL (range, 0.25-2.0), <i>C. tropicalis</i> 1.0 µg/mL (range, 0.25-1.0), <i>C. parapsilosis</i> 0.5 µg/mL (range, 0.25-1.0), and <i>C. krusei</i> 2.0 µg/mL (range, 0.5-2.0)
In vivo	Mice injected with caspofungin at vitreal concentrations from 0.41 to 4.1 µM cause no significant alterations in their ERG waveforms and their retinas have no detectable morphologic changes or loss of cells. At the vitreal concentration of 41 µM, caspofungin reduces the amplitudes of the a-waves, b-waves, and scotopic threshold responses of the ERG and also produces a decrease in the number of cells in the ganglion cell layer [4]. Caspofungin (8 mg/kg) or amphotericin B at 1 mg/kg given i.p. once daily for 7 days beginning at 30 h after infection resulted in 100% survival through day 28 relative to vehicle control treatment, which results in 100% mortality by day 11 after infectious challenge. Caspofungin reduces recovery of viable <i>Candida</i> from kidney and brain tissues compared to vehicle control treatment on day 5, when control burden peaked. Caspofungin-treated mice dosed with 2 mg/kg or greater have significantly lower brain burden than amphotericin-B-treated mice at day 5. Amphotericin B and caspofungin treatment reduce kidney fungal burden by 1.7 log CFU/g and 2.46 to 3.64 log CFU/g, respectively[5].

Solubility Information

A DRUG SCREENING EXPERT

Solubility	DMSO: 83.3 mg/mL (68.65 mM),Sonication is recommended. H2O: 100 mg/mL (82.41 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
------------	---

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.8241 mL	4.1206 mL	8.2412 mL
5 mM	0.1648 mL	0.8241 mL	1.6482 mL
10 mM	0.0824 mL	0.4121 mL	0.8241 mL
50 mM	0.0165 mL	0.0824 mL	0.1648 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

- McGee WT, et al. Crit Care Med, 2003, 31(5), 1577-1578.
- Ma L, Lian Y, Tang J, et al. Identification of the Anti-Fungal Drug Fenticonazole Nitrate as a Novel PPAR γ -Modulating Ligand With Good Therapeutic Index: Structure-Based Screening and Biological Validation. Pharmacological Research. 2021: 105860.
- Quan C, Chen Y, Wang X, et al. Loss of histone lysine methyltransferase EZH2 confers resistance to tyrosine kinase inhibitors in non-small cell lung cancer. Cancer Letters. 2020
- Bartizal K, et al. Antimicrob Agents Chemother, 1997, 41(11), 2326-2332.
- Leonard WR Jr, et al. J Org Chem. 2007, 72(7):2335-43.
- Tsang C C, Chan K F, Chan W, et al. Hepatic phaeohyphomycosis due to a novel dematiaceous fungus, Pleurostoma hongkongense sp. nov., and importance of antifungal susceptibility testing. Emerging Microbes & Infections. 2021 Dec;10(1):81-96.
- Mojumder DK, et al. Evaluating retinal toxicity of intravitreal caspofungin in the mouse eye. Invest Ophthalmol Vis Sci. 2010 Nov;51(11):5796-803.
- Wu X, Wang Z, Liang Z, et al.Pleiotropic role of CCR9/CCL25 signaling in adriamycin-induced cardiomyopathy. Journal of Advanced Research.2024
- Flattery, Amy M. et al. Efficacy of caspofungin in a juvenile mouse model of central nervous system candidiasis. Antimicrobial Agents and Chemotherapy (2011), 55(7), 3491-3497.
- Diversity and Antifungal Susceptibilities of Yeasts from Mangroves in Hong Kong, China-A One Health Aspect
- Wang M, Ye F, Su J, et al. Caspofungin and LTX-315 inhibit SARS-CoV-2 replication by targeting the nsp12 polymerase[J]. 2020
- Tsang C C, Tang J Y M, Ye H, et al. Rare/cryptic Aspergillus species infections and importance of antifungal susceptibility testing[J]. Mycoses. 2020, 63(12): 1283-1298.
- Tsang C C, Chan K F, Chan W, et al. Hepatic phaeohyphomycosis due to a novel dematiaceous fungus, Pleurostoma hongkongense sp. nov., and importance of antifungal susceptibility testing[J]. Emerging Microbes & Infections. 2020: 1-53.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only· Not for Human or Veterinary or Therapeutic Use

Tel:781-999-4286 E_mail:info@targetmol.com Address:36 Washington Street,Wellesley Hills,MA 02481