

Product Data Sheet

Product Name: Echinocandin B

Cat. No.: GC40059

Chemical Properties

Cas. No. 54651-05-7

Formula C₅₂H₈₁N₇O₁₆

M.Wt 1060.2

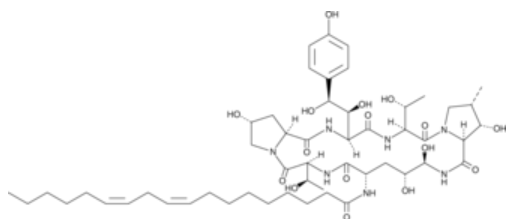
Solubility DMF: Soluble, DMSO: Soluble, Ethanol: Soluble, Methanol: Soluble

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

Animal experiment [1]:

Animal models Female ICR mice

Female ICR mice (four weeks old) were intravenously injected with 2×10^6 cells of *Candida albicans* FP633. Echinocandin B was solubilized in 20% polyethylene glycol 400 saline at a final concentration of 10mg/kg, and administered subcutaneously one hour after challenge and once a day for three consecutive days. After that, antifungal activity of Echinocandin B was analyzed.

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

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Dosage form 10mg/kg/day for 3 days; s.c.

Applications Echinocandin B treatment showed a potent anti-Candida activity in ICR mice infected with *C. albicans* FP633.

References:

[1] Iwamoto T, Fujie A, Sakamoto K, et al. WF11899A, B and C, novel antifungal lipopeptides I. Taxonomy, fermentation, isolation and physico-chemical properties[J]. The Journal of antibiotics, 1994, 47(10): 1084-1091.

Background

Echinocandin B is the key antifungal antibiotic, which is mainly derived from the secondary metabolites of *Aspergillus nidulans* [1]. Due to the structure of the linoleoyl side chain, Echinocandin B shows a strong hemolytic activity[2]. Echinocandin B is a non-competitive inhibitor of β -1, 3-Glucan synthetase, which restricts the synthesis of Glucan, a key component of the cell wall[3]. Echinocandin B has been widely used as a lead compound to synthesize a series of derivatives to inhibit Candida activity[4].

In vitro, Echinocandin B treatment for 2 days inhibited a variety of Candida species activity, with IC₅₀ values of 0.24 μ g/ml for *Candida albicans* FP578, 0.16 μ g/ml for *Candida albicans* FP582, and 0.12 μ g/ml for *Candida albicans* FP633, respectively [5].

In vivo, Echinocandin B treatment via subcutaneous injection at a dose of 10mg/kg/day for 3 days showed a potent anti-Candida activity in ICR mice infected with *C. albicans* FP633[5].

References:

[1] Wiederhold N P, Lewis R E. The echinocandin antifungals: an overview of the pharmacology, spectrum and clinical efficacy[J]. Expert opinion on investigational drugs, 2003, 12(8): 1313-1333.
[2] Niu K, Qi Y X, Cai H W, et al. Investigation of the enhancement for Echinocandin B fermentation with methyl oleate from transcription level[J]. Bioprocess and Biosystems Engineering, 2023, 46(7): 1045-1052.

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- [3] Kumari V, Kumar V, Kaushal M, et al. Curcumin epigenetically represses histone acetylation of echinocandin B producing *Emericella rugulosa*[J]. *Physiologia*, 2023, 3(2): 221-232.
- [4] Cacho R A, Jiang W, Chooi Y H, et al. Identification and characterization of the echinocandin B biosynthetic gene cluster from *Emericella rugulosa* NRRL 11440[J]. *Journal of the American Chemical Society*, 2012, 134(40): 16781-16790.
- [5] Iwamoto T, Fujie A, Sakamoto K, et al. WF11899A, B and C, novel antifungal lipopeptides I. Taxonomy, fermentation, isolation and physico-chemical properties[J]. *The Journal of antibiotics*, 1994, 47(10): 1084-1091.

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