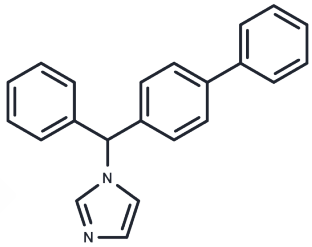
Data Sheet (Cat.No.T1187)

TargetMol

Bifonazole

Chemical Properties



CAS No. : 60628-96-8

Formula: C22H18N2

Molecular Weight: 310.39

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Bifonazole (Bay H-4502) acts to destabilize the fungal cytochrome p450 51 enzyme (also known as Lanosterol 14-alpha-demethylase). It works by inhibiting the production of a substance called ergosterol, which is an essential component of fungal cell membranes. This is vital in the cell membrane structure of the fungus. Its inhibition leads to cell lysis. The disruption in production of ergosterol disrupts the cell membrane and causes holes to appear. The cell membranes of fungi are vital for their survival. They keep unwanted substances from entering the cells and stop the contents of the cells from leaking out.
Targets(IC50)	Antibiotic,Antifungal,Cytochromes P450
In vitro	Bifonazole, a broad spectrum antifungal agent, inhibits monooxygenase activity and induces a type II binding spectrum in 2B4dH(H226Y), a modified enzyme previously crystallized in the presence of 4-(4-chlorophenyl)imidazole (CPI). [1] Bifonazole (40 mM) releases Ca2+ from the store sensitive to 1 mM thapsigargin, an endopolasmic reticulum Ca2+ pump inhibitor. Bifonazole (40 mM) per se induces capacitative Ca2+ entry while reduces 1 mM thapsigargin-induced capacitative Ca2+ entry. [2] Bifonazole is calmodulin antagonists which most effectively reduce glycolysis and ATP level in B16 melanoma cells. Bifonazole acts through allosteric regulation and detachment of glycolytic enzymes from cytoskeleton. [3] Bifonazole blocks PGE2 formation induced by 2 μm and 4 μm arachidonic acid clearly better than at 6 or 10 μm of the agonist. Bifonazole shows the same characteristics in MC3T3-E1 and UMR-106 cells stimulated by ionomycin or various concentrations of arachidonic acid. [4]
In vivo	Bifonazole, but not clotrimazole, exhibits the characteristics of a peroxisome proliferator including hepatomegaly (increase in liver:body weight ratio), up to a 4-fold induction of lauric acid omega-hydroxylase activity and an 8-fold induction of palmitoyl-CoA oxidation by rat liver peroxisomes. Bifonazole also induces P402B1/2B2, P4503A and P4501A1, but not P4502E1. [5]

Solubility Information

Solubility	DMSO: 1.55 mg/mL (4.99 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: 16 mg/mL (51.55 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (3.22 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.2218 mL	16.1088 mL	32.2175 mL
5 mM	0.6444 mL	3.2218 mL	6.4435 mL
10 mM	0.3222 mL	1.6109 mL	3.2218 mL
50 mM	0.0644 mL	0.3222 mL	0.6444 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Zhao Y, et al. J Biol Chem,2006, 281(9), 5973-5981.
Cho KJ, et al. Chin J Physiol,2001, 44(3), 97-101.
Penso J, et al. Eur J Pharmacol,1998, 342(1), 113-117.
Köfeler HC, et al. Br J Pharmacol. 2000 Jul;130(6):1241-6.
Sabzevari O, et al. Toxicology,1996, 106(1-3), 19-26.