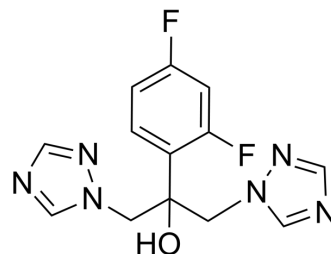


Fluconazole

Cat. No.:	HY-B0101	
CAS No.:	86386-73-4	
Molecular Formula:	C ₁₃ H ₁₂ F ₂ N ₆ O	
Molecular Weight:	306.27	
Target:	Fungal; Antibiotic; Bacterial	
Pathway:	Anti-infection	
Storage:	Powder	-20°C 3 years 4°C 2 years
	In solvent	-80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (326.51 mM)
 H₂O : 2 mg/mL (6.53 mM; Need ultrasonic)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	3.2651 mL	16.3255 mL	32.6509 mL
	5 mM	0.6530 mL	3.2651 mL	6.5302 mL
	10 mM	0.3265 mL	1.6325 mL	3.2651 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (8.16 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (8.16 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (8.16 mM); Clear solution
- Add each solvent one by one: PBS
Solubility: 2 mg/mL (6.53 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Fluconazole (UK-49858) is a triazole antifungal agent with excellent activities against a broad range of fungi, especially against *Candida albicans*. Fluconazole inhibits *C. albicans* and *Candida kefyr* with IC_{99s} range from 0.20 µg/mL to 0.39 µg/mL [1].

In Vitro	<p>Fluconazole inhibits 4 species of <i>Aspergillus fumigatus</i> with the IC₅₀s of 23.9-43.5 µg/mL. Fluconazole (0.20 µg/mL) inhibits significantly the mycelial-phase growth and germ tube elongation of <i>C. albicans</i> in a medium supplemented with serum^[1]. Fluconazole is a triazole antifungal agent that has been available for the treatment of infections due to <i>Candida</i>, <i>Cryptococcus</i>. The MIC₉₀ is highest for <i>C. krusei</i> (MIC ≥ 64 µg/mL) and <i>C. glabrata</i> (MIC, 32 µg/mL) and is ≤2 µg/mL for <i>C. albicans</i> (0.5 µg/mL), <i>C. parapsilosis</i> (2 µg/mL), <i>C. tropicalis</i> (2 µg/mL), <i>C. lusitaniae</i> (2 µg/mL), and <i>C. kefyr</i> (0.5 µg/mL)^[2]. Fluconazole (0.1-50.0 µg/mL) damages the fungal cells and reduces their viability^[3].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[3]</p>								
	<table border="1"> <tr> <td>Cell Line:</td> <td><i>C. albicans</i> yeast cells (strain ATCC 26310 and strain TW)</td> </tr> <tr> <td>Concentration:</td> <td>0.1, 0.5, 5.0, 50.0 µg/mL</td> </tr> <tr> <td>Incubation Time:</td> <td>24 hours</td> </tr> <tr> <td>Result:</td> <td>The MICs against both strains were 0.5 µg/mL.</td> </tr> </table>	Cell Line:	<i>C. albicans</i> yeast cells (strain ATCC 26310 and strain TW)	Concentration:	0.1, 0.5, 5.0, 50.0 µg/mL	Incubation Time:	24 hours	Result:	The MICs against both strains were 0.5 µg/mL.
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	Incubation Time:	24 hours							
Result:	The MICs against both strains were 0.5 µg/mL.								
In Vivo	<p>Fluconazole (0, 0.5, 1, 2.5, 5, 7.5, and 10 mg/kg; administered intraperitoneally (i.p.) as a single dose) results in a 50% reduction in fungal densities (ED₅₀) of 4.87 mg/kg in a murine model of systemic candidiasis^[4]. Fluconazole exhibits terminal elimination half-life of 2.4 h following i.p. administration. The terminal half-life does not change with the dose of fluconazole administered^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
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CUSTOMER VALIDATION

- J Hazard Mater. 2021 Aug 15;416:125764.
- Sci Adv. 2021 May 7;7(19):eabe5171.
- Environ Int. 2019 Jun;127:694-703.
- Transl Res. 2022 Apr 20;S1931-5244(22)00073-1.
- J Agric Food Chem. 2022 Feb 21.

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REFERENCES

- [1]. H Yamaguchi, et al. [In vitro activity of fluconazole, a novel bistriazole antifungal agent]. Jpn J Antibiot. 1989 Jan;42(1):1-16.
- [2]. M A Pfaller, et al. Interpretive breakpoints for fluconazole and *Candida* revisited: a blueprint for the future of antifungal susceptibility testing. Clin Microbiol Rev. 2006 Apr;19(2):435-47.
- [3]. P G Sohnle, et al. Effect of fluconazole on viability of *Candida albicans* over extended periods of time. Antimicrob Agents Chemother. 1996 Nov;40(11):2622-5.

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

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