Terbinafine hydrochloride

Cat. No.: HY-17395

CAS No.: 78628-80-5

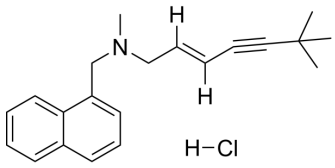
Molecular Formula: $C_{21}H_{26}ClN$

Molecular Weight: 327.89

Target: Fungal; Bacterial; Antibiotic

Pathway: Anti-infection

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 60 mg/mL (182.99 mM; Need ultrasonic)
H_2O : 1 mg/mL (3.05 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0498 mL	15.2490 mL	30.4980 mL
	5 mM	0.6100 mL	3.0498 mL	6.0996 mL
	10 mM	0.3050 mL	1.5249 mL	3.0498 mL

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

In Vivo

1. Add each solvent one by one: 0.5% CMC-Na/saline water
   Solubility: 13.75 mg/mL (41.93 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.62 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.62 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.62 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Terbinafine hydrochloride (TDT 067 hydrochloride) is an orally active and potent antifungal agent. Terbinafine hydrochloride is a potent non-competitive inhibitor of squalene epoxidase from Candida, with a K_i of 30 nM. Terbinafine hydrochloride also shows antibacterial activity against certain Gram-positive and Gram-negative bacteria[1][2][3].
Terbinafine hydrochloride is a click chemistry reagent, it contains an Alkyne group and can undergo copper-catalyzed azide-alkyne cycloaddition (CuAAc) with molecules containing Azide groups.

IC_{50} & Target	Ki: 30 nM (squalene epoxidase)[1]
In Vitro	Terbinafine has a primary fungicidal action in vitro against most fungal pathogens, including dermatophytes, and dimorphic and filamentous fungi. Terbinafine specifically inhibits fungal ergosterol biosynthesis at the point of squalene epoxidation. The treated fungal cells rapidly accumulate tlic intermediate squalene and become deficient in the end-product of the pathway, ergosterol[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Terbinafine is not only active after topical application but is very effective in experimental dermatophytoses following oral administration. In fungi infected guinea-pigs, the skin temperature dropps dramatically after the fourth treatment of terbinafine[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [2]	Guinea-pigs: The backs (lumbar regions) of guinea-pigs, which have been mechanically depilated, are infected with 0.1 mL Sabouraud's dextrose 2% broth containing 10^6 c.f.u. of Truhophyton mentagrophytes. The treatments commence 48 h post-inoculation. The test compounds (Terbinafine) are suspended in 2% tylose and Tween 80 and administered via a stomach tube once daily on 9 consecutive days, or dissolved in a mixture of polyethylene glycol 400 and etbanol and spread on the infected part ot the body in a volume of 0.4 mL with a Hrigalski spatula once daily for 1-7 consecutive days[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Microbiol. 2024 Jan 15.
- Cancer Commun (Lond). 2021 Jul 16.
- Adv Sci (Weinh). 2023 Sep;10(27):e2206878.
- Cancer Res. 2022 Sep 2;82(17):3032-3044.
- Clin Transl Med. 2024 Feb;14(2):e1586.

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REFERENCES

[1]. Ryder NS, et al. Terbinafine: mode of action and properties of the squalene epoxidase inhibition. Br J Dermatol. 1992 Feb;126 Suppl 39:2-8.

[2]. Mieth H, et al. Preclinical evaluation of terbinafine in vivo. Clin Exp Dermatol. 1989 Mar;14(2):104-8.

[3]. Ciftci E, et al. Mupirocin vs terbinafine in impetigo.Indian J Pediatr. 2002 Aug;69(8):679-82.

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