Ethambutol dihydrochloride

Cat. No.: HY-B0535A

CAS No.: 1070-11-7

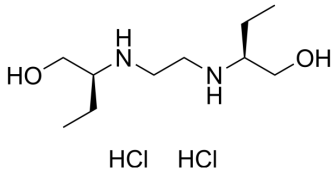
Molecular Formula: $C_{10}H_{26}Cl_2N_2O_2$

Molecular Weight: 277.23

Target: 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 : 100 mg/mL (360.71 mM; Need ultrasonic)
H_2O : ≥ 50 mg/mL (180.36 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	3.6071 mL	18.0356 mL	36.0711 mL
5 mM	0.7214 mL	3.6071 mL	7.2142 mL
10 mM	0.3607 mL	1.8036 mL	3.6071 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 100 mg/mL (360.71 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Ethambutol dihydrochloride (Emb dihydrochloride) is a bacteriostatic antimycobacterial agent, which obstructs the formation of cell wall by inhibiting arabinosyl transferases.Target: AntibacterialEthambutol dihydrochloride (Emb dihydrochloride) directly affects two polymers, arabinogalactan (AG) and lipoarabinomannan (LAM) in Mycobacterium smegmatis. In M. smegmatis, Ethambutol inhibits synthesis of arabinan completely and inhibits AG synthesis most likely as a consequence of this; more than 50% of the cell arabinan is released from the bacteria following Ethambutol treatment, whereas no galactan is released. Ethambutol main targets against embB gene product in M. avium. Ethambutol induces 60% changes in the embB gene in M. tuberculosis resistant mutants [1]. Ethambutol dihydrochloride (Emb dihydrochloride) is effective against actively growing microorganisms of the genus Mycobacterium, including M. tuberculosis. Nearly all strains of M. tuberculosis and M. kansasii as well as a number of strains of the M. aviumcomplex (MAC) are sensitive to Ethambutol. [1] Ethambutol dihydrochloride (Emb dihydrochloride) is potency against M. tuberculosis (H37Rv) with MIC of 0.5 μg/mL in vitro [2]. Ethambutol is efficient on treatment of mycobacterial-infected macrophages. When M. tuberculosis infected macrophages are treated with 6 μg/mL Ethambutol, the log CFUs following treatment for 3 days is 4.17, while value in

	control group is 4.8. The MICs for M. avium (MTCC 1723) and M. smegmatis (MTCC 6) are 15 μg/mL and 0.18 μg/mL, respectively. Ethambutol is efficient in animal model. 100 mg/kg Ethambutol given orally 15 days post i.v. infection 1 ×/week for 5 weeks, induces a lower log CFU compared with untreatment (4.59 vs 5.07) [3].
In Vivo	Ethambutol dihydrochloride can be used in animal modeling to build a model of hyperuricemia. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- ACS Chem Biol. 2021 Dec 15.

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REFERENCES

[1]. Ethambutol. Tuberculosis (Edinb), 2008. 88(2): p. 102-5.

[2]. Rastogi, N., V. Labrousse, and K.S. Goh, In vitro activities of fourteen antimicrobial agents against drug susceptible and resistant clinical isolates of Mycobacterium tuberculosis and comparative intracellular activities against the virulent H37Rv strain in human macrophages. Curr Microbiol, 1996. 33(3): p. 167-75.

[3]. Kaur, D. and G.K. Khuller, In vitro, ex-vivo and in vivo activities of ethambutol and sparfloxacin alone and in combination against mycobacteria. Int J Antimicrob Agents, 2001. 17(1): p. 51-5.

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