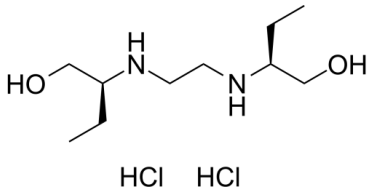
Data Sheet

Product Name:	Ethambutol (dihydrochloride)
Cat. No.:	CS-2631
CAS No.:	1070-11-7
Molecular Formula:	C10H26Cl2N2O2
Molecular Weight:	277.23
Target:	Bacterial
Pathway:	Anti-infection
Solubility:	DMSO : 100 mg/mL (360.71 mM; Need ultrasonic); H2O : ≥ 50 mg/mL (180.36 mM)



BIOLOGICAL ACTIVITY:

Ethambutol dihydrochloride (Emb dihydrochloride) is a bacteriostatic antimycobacterial agent, which obstructs the formation of cell wall by inhibiting arabinosyl transferases. Target: Antibacterial Ethambutol 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].

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.

CAIndexNames:

1-Butanol, 2,2'-(1,2-ethanediyldiimino)bis-, hydrochloride (1:2), (2S,2'S)-

SMILES:

CC[C@H](NCCN[C@@H](CC)CO)CO.Cl.Cl

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

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