

Product Data Sheet

Product Name: Ethambutol

Cat. No.: GC17176

Chemical Properties

Cas. No. 74-55-5

Chemical Name (2S)-2-[2-[[[(2S)-1-hydroxybutan-2-yl]amino]ethylamino]butan-1-ol

SMILES CCC(CO)NCCNC(CC)CO

Formula $C_{10}H_{24}N_2O_2$

M.Wt 204.31

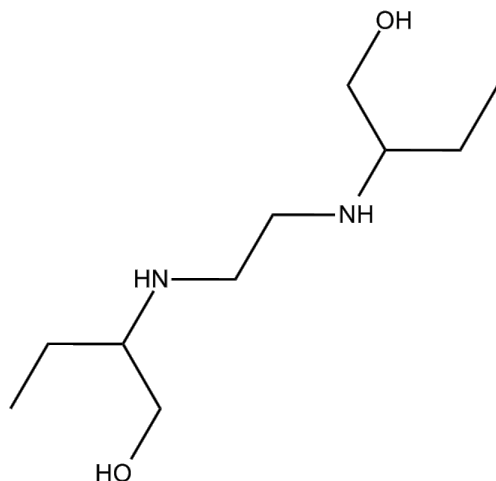
Solubility Soluble in DMSO

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

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

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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 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. avium* complex (MAC) are sensitive to Ethambutol. [1] Ethambutol 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 x/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
- [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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