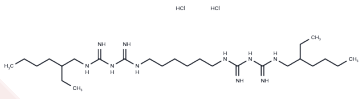
Data Sheet (Cat.No.T14177)

TargetMol

Alexidine dihydrochloride

Chemical Properties



CAS No. : 1715-30-6

Formula: C26H58Cl2N10

Molecular Weight: 581.71

Storage: Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Alexidine dihydrochloride has antifungal and antibiofilm activity against a diverse range of fungal pathogens. Alexidine dihydrochloride is an anticancer agent that targets a mitochondrial tyrosine phosphatase, PTPMT1, in mammalian cells and causes mitochondrial apoptosis. Thus, Alexidine dihydrochloride has the potential to be developed as a pan-antifungal, antibiofilm drug.
Targets(IC50)	Apoptosis,Antifungal
In vitro	Alexidine dihydrochloride effectively eliminates mature biofilms of Candida, Cryptococcus, and Aspergillus spp., which are typically resistant to nearly all antifungal drugs, at low concentrations (1.5 to 6μg/mL). It exhibits potent activity against most strains of Candida, achieving minimum inhibitory concentrations (MIC) of ≤1.5μg/mL for all tested isolates in planktonic form, except for Candida parapsilosis and Candida krusei. Notably, it also demonstrates significant effectiveness against fluconazole-resistant Candida isolates, including strains of C. albicans, C. glabrata, C. parapsilosis, and C. auris. Furthermore, Alexidine dihydrochloride prevents the growth and spread of fungi by entirely inhibiting filamentation and biofilm dispersal, specifically at concentrations significantly lower than those harmful to human cells (150ng/mL versus 5- to 10-fold higher concentrations for 50% killing of HUVECs and lung epithelial cells).
In vivo	The study primarily investigates biofilm formation by C. Albicans, leveraging an established murine biofilm model for evaluating both existing and novel antifungal compounds. Alexidine dihydrochloride is highlighted for its efficacy, inhibiting 67% of fungal biofilm growth and viability in comparison to control groups, as evidenced by fungal colony-forming unit (CFU) counts. Additionally, microscopic examination of 24-hour-old biofilms within mice jugular vein catheters demonstrates a considerably reduced biofilm density when treated with Alexidine dihydrochloride[1].

Solubility Information

Solubility	DMSO: 255 mg/mL (438.36 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (8.6 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.7191 mL	8.5953 mL	17.1907 mL
5 mM	0.3438 mL	1.7191 mL	3.4381 mL
10 mM	0.1719 mL	0.8595 mL	1.7191 mL
50 mM	0.0344 mL	0.1719 mL	0.3438 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Mamouei Z, et al. Alexidine Dihydrochloride Has Broad-Spectrum Activities against Diverse Fungal Pathogens. mSphere. 2018 Oct 31;3(5). pii: e00539-18.