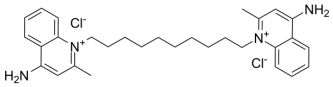
Dequalinium Chloride

Cat. No.:	HY-B0567
CAS No.:	522-51-0
Molecular Formula:	$C_{30}H_{40}Cl_2N_4$
Molecular Weight:	527.57
Target:	Potassium Channel; nAChR; Apoptosis; Bacterial; Parasite
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling; Apoptosis; 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 : < 1 mg/mL (insoluble or slightly soluble) H_2O : < 0.1 mg/mL (insoluble)

BIOLOGICAL ACTIVITY

Description	Dequalinium chloride is an Apamin (HY-P0256)-sensitive potassium channel selective blocker. Dequalinium chloride is a cationic, lipophilic mitochondrial poison. Dequalinium chloride is also an antagonist pf α7 nAChR, and an anti-microbial antiseptic agent with a broad bactericidal and fungicidal activity[1][2][3][4].
In Vitro	Dequalinium chloride blocks angiotensin II (100 nM)-evoked K^+ loss in guinea-pig hepatocytes, with an IC_{50} of 1.5 μM[5]. Dequalinium (0-100 μg/mL, 72 h) chloride inhibits cell growth in human Pca cell lines (PC3, DU145, LNCaP, MDA-PCA-2B), and induces cell apoptosis in PC3 cells (0.9 μM, 4 h)[7]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Dequalinium chloride shows a LD_{50} of 18.3 mg/kg in mice (i.p., a single time)[2]. Dequalinium chloride (2 mg/kg, i.p., daily for 10 days) inhibits the tumor growth of mouse bladder carcinoma MB49[3]. Dequalinium chloride (2 mg/kg, s.c.) reduces Diisopropylfluorophosphate-induced tremors (organophosphate poisoning) in mice[6]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Belanger-Coast MG, et al. Dequalinium chloride is an antagonists of α7 nicotinic acetylcholine receptors. Eur J Pharmacol. 2022 Jun 15;925:175000.

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[3]. Castle NA, et al. Dequalinium: a potent inhibitor of apamin-sensitive K+ channels in hepatocytes and of nicotinic responses in skeletal muscle. Eur J Pharmacol. 1993 May 19;236(2):201-7.

[4]. Bugay V, et al. Effects of Sublethal Organophosphate Toxicity and Anti-cholinergics on Electroencephalogram and Respiratory Mechanics in Mice. Front Neurosci. 2022 May 2;16:866899.

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[7]. Gamboa-Vujicic, G., et al., Toxicity of the mitochondrial poison dequalinium chloride in a murine model system. J Pharm Sci, 1993. 82(3): p. 231-5.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA