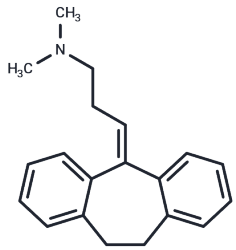
Data Sheet (Cat.No.T0678)

TargetMol

Amitriptyline hydrochloride

Chemical Properties



CAS No. :	549-18-8
Formula:	C20H24ClN
Molecular Weight:	313.86
Storage:	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	Amitriptyline hydrochloride (Annoyltin) is the hydrochloride salt of the tricyclic dibenzocycloheptadiene amitriptyline with antidepressant and antinociceptive activities.
Targets(IC50)	Apoptosis,5-HT Receptor,Adrenergic Receptor,AChR,Norepinephrine,Histamine Receptor,Dopamine Receptor,Potassium Channel,Serotonin Transporter,Sigma receptor, Sodium Channel,Trk receptor
In vitro	Amitriptyline inhibits Forskolin-stimulated cyclic AMP accumulation with EC50 values of 16.2 μM in intact CHO/DOR cells. Amitriptyline causes a concentration-dependent stimulation of ERK1/2 and GSK-3β phosphorylation with EC50 values of 9.0 μM in CHO/DOR cells. Amitriptyline (15 μM) causes a stimulation of ERK1/2 phosphorylation in C6 cells. Amitriptyline (30 μM) inhibits Forskolin-stimulated adenylyl cyclase activity and antagonizes ( )-U50,488 inhibitory effect in rat nucleus accumbens. [5] Amitriptyline binds the extracellular domain of both TrkA and TrkB and promotes TrkA-TrkB receptor heterodimerization. Amitriptyline (< 500 nM) promotes TrkA autophosphorylation in primary neurons and induces neurite outgrowth in PC12 cells. Amitriptyline selectively protects T17 cells from apoptosis with EC50 of 50 nM. [6]
In vivo	Amitriptyline (15 mg/kg, i.p.) activates TrkA and TrkB receptors and significantly reduces kainic acid-triggered neuronal cell death in mice. [6] Amitriptyline (15 mg/kg and 30 mg/kg, i.p.) dose-dependently decreases the immobility time in the forced swimming test (FST) of mice. Amitriptyline (15 mg/kg, i.p.) shows a significant 24-h rhythm in the immobility time in the forced swimming test (FST) of mice. [7] Amitriptyline (1 mg/kg and 3 mg/kg) significantly increases the total distance travelled of mice in novel cages. Amitriptyline (10 mg/kg p.o., twice daily) considerably attenuates the hypothermic response to 8-OHDPAT and mCPP in mice. Amitriptyline (10 mg/kg p.o., twice daily) significantly reduces serotonin transporter density by approximately 20% in cortex of mice. [8]

Solubility Information

Solubility	DMSO: 250 mg/mL (796.53 mM),Sonication is recommended. H2O: 12 mg/mL (38.23 mM),Sonication is recommended. Ethanol: 59 mg/mL (187.98 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (31.86 mM),Solution. *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	3.1861 mL	15.9307 mL	31.8613 mL
5 mM	0.6372 mL	3.1861 mL	6.3723 mL
10 mM	0.3186 mL	1.5931 mL	3.1861 mL
50 mM	0.0637 mL	0.3186 mL	0.6372 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

Vaishnavi SN, et al. Biol Psychiatry, 2004, 55(3), 320-322.
Nguyen T, et al. Mol Pharmacol, 2001, 59(3), 427-433.
Rauser L, et al. J Pharmacol Exp Ther, 2001, 299(1), 83-89.
Werling LL, et al. Exp Neurol, 2007, 207(2), 248-257.
Onali P, et al. J Pharmacol Exp Ther, 2010, 332(1), 255-265.