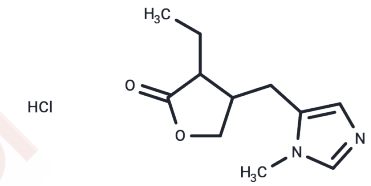
Data Sheet (Cat.No.T0804)

TargetMol

Pilocarpine Hydrochloride

Chemical Properties



CAS No. : 54-71-7

Formula: C11H16N2O2·HCl

Molecular Weight: 244.72

Storage: Store under nitrogen
Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Pilocarpine Hydrochloride (NSC 5746 HCl) is an M3-type muscarinic acetylcholine receptor agonist. Pilocarpine Hydrochloride is used to generate experimental models of epilepsy.
Targets(IC50)	AChR
In vitro	**Methods**: Rat hippocampal brain slices (450 μm) were used to record field potentials in the CA1 region. Pilocarpine Hydrochloride (dissolved in artificial cerebrospinal fluid, aCSF) was added at concentrations of 10, 50, 100, 200, and 500 μM. Slices were continuously perfused for over 30 minutes under conditions of normal [K^+] (3.1 mM) and high [K^+] (6 mM) conditions for over 30 minutes. Record extracellular field potentials and observe spontaneous epileptiform discharges, paroxysmal depolarization drifts, etc. **Results**: Under high [K^+] (6 mM): 50 μM Pilocarpine Hydrochloride induces intense epileptiform discharges. [1]
In vivo	**Methods**: Approximately 7-week-old NodScid immunodeficient mice (both male and female) were administered 1 mg/kg N-methylscopolamine 15 minutes prior to injection to reduce peripheral cholinergic side effects. Multiple intraperitoneal injections of Pilocarpine Hydrochloride (100 mg/kg per dose) were administered administered every 10 minutes until ≥ Grade 3 seizures (Racine scale) occur, with a maximum of 6 injections. Diazepam (10 mg/kg) was administered 90 minutes after SE onset to terminate seizures. SE incidence and mortality rates were observed and recorded. **Results**: Multiple Pilocarpine Hydrochloride injections yielded a high SE incidence (88.1 ±2.9%), low mortality rate, and high proportion of surviving SE (61.8±5.9%).[2]

Solubility Information

Solubility	H2O: 24.5 mg/mL (100.11 mM),Sonication is recommended. DMSO: 138 mg/mL (563.91 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: 4 mg/mL (16.35 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*

In vivo Formulation	*vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.0863 mL	20.4315 mL	40.863 mL
5 mM	0.8173 mL	4.0863 mL	8.1726 mL
10 mM	0.4086 mL	2.0432 mL	4.0863 mL
50 mM	0.0817 mL	0.4086 mL	0.8173 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

Marchi N, et al. In vivo and in vitro effects of pilocarpine: relevance to ictogenesis. Epilepsia. 2007 Oct;48(10): 1934-46.

Su Z, Li Y, Chen S, et al. Identification of Ion Channel-Related Genes and miRNA-mRNA Networks in Mesial Temporal Lobe Epilepsy. Frontiers in Genetics. 2022, 13: 853529-853529

Leung A, et al. Optimization of pilocarpine-mediated seizure induction in immunodeficient NodScid mice. Epilepsy Res. 2015 Jan;109:114-8.

Yang M, Li Y, Liu X, et al.Autophagy-related genes in mesial temporal lobe epilepsy: an integrated bioinformatics analysis.Acta Epileptologica.2024, 6(1): 1-11.

Wang L, Wang K, Chen Y, et al.NLRP3 Inflammasome Inhibition After Pilocarpine-Induced Status Epilepticus Attenuates Chronic Inflammation in Epileptic Mice.Journal of Inflammation Research.2024: 6143-6158.