Dicyclomine hydrochloride

Cat. No.: HY-B1339

CAS No.: 67-92-5

Molecular Formula: $C_{19}H_{36}ClNO_2$

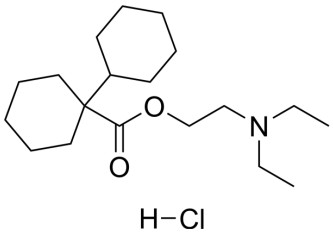
Molecular Weight: 345.95

Target: mAChR

Pathway: GPCR/G Protein; Neuronal Signaling

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

H_2O : 50 mg/mL (144.53 mM; Need ultrasonic)

DMSO : 33.33 mg/mL (96.34 mM; Need ultrasonic)

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	2.8906 mL	14.4530 mL	28.9059 mL
5 mM	0.5781 mL	2.8906 mL	5.7812 mL
10 mM	0.2891 mL	1.4453 mL	2.8906 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (144.53 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (7.23 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.23 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Dicyclomine hydrochloride is a potent and orally active muscarinic cholinergic receptors antagonist. Dicyclomine hydrochloride shows high affinity for muscarinic M1 receptor subtype (K_i=5.1 nM) and M2 receptor subtype (K_i=54.6 nM) in brush-border membrane and basal plasma membranes, respectively[1]. Dicyclomine is an antispasmodic agent and relieves smooth muscle spasm of the gastrointestinal tract in vivo[2].

IC_{50} & Target	mAChR1	mAChR2

In Vivo

Dicyclomine hydrochloride (intraperitoneal injection; 8 mg/kg; daily) exacerbates the cognitive impairments in all the measurements. In addition, the memory impairments are worse in dicyclomine-treated 3xTg-AD mice compared to dicyclomine-treated NonTg mice[2].

Dicyclomine hydrochloride (intraperitoneal injection; 2.0, 4.0, and 8.0 mg/kg; 7 days) produces a highly significant effect on performance in the paired-associates learning (PAL) task in mice.And systemic treatment at lower doses show behavioral impairments in mice in spatial tasks[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57Bl/6 mice[1]
Dosage:	2.0, 4.0, and 8.0 mg/kg
Administration:	Intraperitoneal injection; daily; 7 days
Result:	Produced impairments due to actions of the agent outside of the hippocampus.

REFERENCES

[1]. J Pavía,et al. Pharmacological Characterization and Distribution of Muscarinic Receptors in Human Placental Syncytiotrophoblast Brush-Border and Basal Plasma Membranes. Eur J Pharmacol. . 1997 Feb 12;320(2-3):209-14.

[2]. Antonella Caccamo, et al. M1 Receptors Play a Central Role in Modulating AD-like Pathology in Transgenic Mice. 2006 Mar 2;49(5):671-82.doi: 10.1016/j.neuron.2006.01.020.

[3]. Susan J Bartko,et al. A Computer-Automated Touchscreen Paired-Associates Learning (PAL) Task for Mice: Impairments Following Administration of Scopolamine or Dicyclomine and Improvements Following Donepezil.Psychopharmacology (Berl). 2011 Mar;214(2):537-48.

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