Atropine sulfate

Cat. No.: HY-B1205A

CAS No.: 55-48-1

Molecular Formula: $C_{17}H_{24}NO_5S_{0.5}$

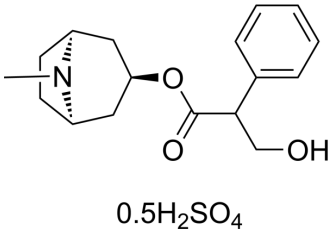
Molecular Weight: 338.41

Target: mAChR

Pathway: GPCR/G Protein; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture

* The compound is unstable in solutions, freshly prepared is recommended.



$0.5H_2SO_4$

SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (295.50 mM; Need ultrasonic)

DMSO : 62.5 mg/mL (184.69 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9550 mL	14.7750 mL	29.5500 mL
5 mM	0.5910 mL	2.9550 mL	5.9100 mL
10 mM	0.2955 mL	1.4775 mL	2.9550 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (295.50 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (6.15 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.15 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Atropine (Tropine tropate) sulfate is a competitive muscarinic acetylcholine receptor (mAChR) antagonist with IC_{50} values of 0.39 and 0.71 nM for Human mAChR M_4 and Chicken mAChR M_4, respectively. Atropine sulfate inhibits ACh-induced relaxations in human pulmonary veins. Atropine sulfate can be used for research of anti-myopia and bradycardia[1][2][3][4].

IC_{50} & Target

mAChR4

In Vitro	Atropine (Tropine tropate; 1 μM; pulmonary veins and arteries) sulfate inhibits ACh-induced relaxations in human pulmonary veins[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Atropine (Tropine tropate; 10 mg/kg; i.p.; once, for 40 minutes; Peromyscus sp.) sulfate inhibits the cardiac arrhythmia which normally occurs throughout torpor[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	White-footed mice (Peromyscus sp.)[2]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection; once, for 40 minutes
Result:	Increased heart rate was a decrease in cardiac arrhythmia.

CUSTOMER VALIDATION

- Cell Discov. 2023 Feb 7;9(1):16.
- Cell Metab. 2022 Nov 11;S1550-4131(22)00490-9.
- Neuron. 2022 Sep 14;S0896-6273(22)00796-6.
- J Hazard Mater. 2023 Dec 14, 133248.
- Food Chem. 30 November 2022, 133593.

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REFERENCES

[1]. McBrien NA, et, al. How does atropine exert its anti-myopia effects? Ophthalmic Physiol Opt. 2013 May;33(3):373-8.

[2]. Morhardt JE. Heart rates, breathing rates and the effects of atropine and acetylcholine on white-footed mice (Peromyscus sp.) during daily torpor. Comp Biochem Physiol. 1970 Mar 15;33(2):441-57.

[3]. Carr BJ, et, al. Myopia-Inhibiting Concentrations of Muscarinic Receptor Antagonists Block Activation of Alpha2A-Adrenoceptors In Vitro. Invest Ophthalmol Vis Sci. 2018 Jun 1;59(7):2778-2791.

[4]. Walch L, et, al. Evidence for a M(1) muscarinic receptor on the endothelium of human pulmonary veins. Br J Pharmacol. 2000 May;130(1):73-8.

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