Atropine sulfate monohydrate

Cat. No.: HY-B0394

CAS No.: 5908-99-6

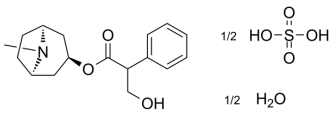
Molecular Formula: $C_{17}H_{27}NO_8S$

Molecular Weight: 347.43

Target: mAChR

Pathway: GPCR/G Protein; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture and light
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (143.91 mM; Need ultrasonic)
H_2O : 33.33 mg/mL (95.93 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8783 mL	14.3914 mL	28.7828 mL
	5 mM	0.5757 mL	2.8783 mL	5.7566 mL
	10 mM	0.2878 mL	1.4391 mL	2.8783 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 (287.83 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 (7.20 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.20 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.20 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Atropine (Tropine tropate) sulfate monohydrate 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 monohydrate inhibits ACh-induced relaxations in human pulmonary veins. Atropine sulfate monohydrate 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 monohydrate 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 monohydrate 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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