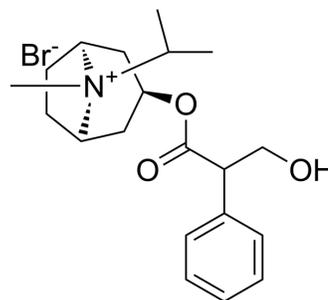


Ipratropium bromide

Cat. No.:	HY-B0241
CAS No.:	22254-24-6
Molecular Formula:	C ₂₀ H ₃₀ BrNO ₃
Molecular Weight:	412.36
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

H₂O : 100 mg/mL (242.51 mM; Need ultrasonic)
 DMSO : ≥ 35 mg/mL (84.88 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.4251 mL	12.1253 mL	24.2507 mL
	5 mM	0.4850 mL	2.4251 mL	4.8501 mL
	10 mM	0.2425 mL	1.2125 mL	2.4251 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 50 mg/mL (121.25 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (6.06 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (6.06 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (6.06 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ipratropium bromide (Sch 1000) is a muscarinic receptor antagonist, with IC₅₀s of 2.9 nM, 2 nM, and 1.7 nM for M1, M2, and M3 receptors, respectively. Ipratropium bromide relaxes smooth muscle, can be used in the research for COPD (chronic obstructive pulmonary disease) and asthma^{[1][2][3][4][5]}.

IC₅₀ & Target

mAChR1	mAChR2	mAChR3
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In Vitro	<p>Ipratropium bromide (1 nM, 10 nM, 100 nM; 15 min) exerts its toxic effects via disruption of mitochondrial membrane potential^[1].</p> <p>Ipratropium bromide (1 nM-1 μM; 4 h) increases infarct size in isolated perfused heart ischaemia/reperfusion experiments with a dose-responsive manner (EC₅₀=22.7 nM)^[1].</p> <p>Ipratropium bromide (0.001 nM-0.1 mM; 2 h) inhibits adult rat cardiac myocyte growth after 4 h hypoxia treatment^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[1]</p>								
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In Vivo	<p>Ipratropium bromide (1.0 μg/kg; i.v.; single dose) enhances vagal nerve stimulation inducing bronchoconstriction^[2].</p> <p>Ipratropium bromide (0.04 mg/20 mL and 0.20 mg/20 mL; 30 min, rate=30 mL/30 min) can protect the lungs against the cadmium-induced acute neutrophilic inflammation by reducing the parenchyma inflammatory infiltration of neutrophils^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>								
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REFERENCES

- [1]. Fryer AD, et al. MacLagan, Ipratropium bromide potentiates bronchoconstriction induced by vagal nerve stimulation in the guinea-pig. *Eur J Pharmacol*, 1987. 139(2): p. 187-91.
- [2]. Harvey, et al. Maddock, Ipratropium Bromide-Mediated Myocardial Injury in In Vitro Models of Myocardial Ischaemia/Reperfusion. *Toxicol Sci*, 2014.
- [3]. Maria Prat, et al. Discovery of novel quaternary ammonium derivatives of (3R)-quinuclidinyl amides as potent and long acting muscarinic antagonists. *Bioorg Med Chem Lett*. 2015 Apr 15;25(8):1736-1741.
- [4]. Wenhui Zhang, et al. Anti-inflammatory effects of formoterol and ipratropium bromide against acute cadmium-induced pulmonary inflammation in rats. *Eur J Pharmacol*. 2010 Feb 25;628(1-3):171-8.

Caution: Product has not been fully validated for medical applications. For research use only.

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