Ipratropium-d_3 bromide

Cat. No.: HY-B0241S

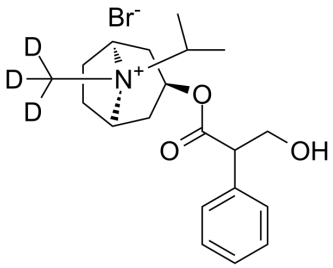
Molecular Formula: $C_{20}H_{27}D_3BrNO_3$

Molecular Weight: 415.38

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 (240.74 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4074 mL	12.0372 mL	24.0743 mL
	5 mM	0.4815 mL	2.4074 mL	4.8149 mL
	10 mM	0.2407 mL	1.2037 mL	2.4074 mL

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

BIOLOGICAL ACTIVITY

Description

Ipratropium-d_3 (bromide) is the deuterium labeled Ipratropium bromide. Ipratropium bromide (Sch 1000) is a muscarinic receptor antagonist, with binding IC50 values of 2.9 nM, 2 nM, and 1.7 nM for M1, M2, and M3 receptors, respectively. Ipratropium bromide can be used in the research for COPD (chronic obstructive pulmonary disease) and asthma[1][2][3].

In Vitro

Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs[1].

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

REFERENCES

[1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. Ann Pharmacother. 2019;53(2):211-216.

[2]. Fryer, A.D. and J. Maclagan, Ipratropium bromide potentiates bronchoconstriction induced by vagal nerve stimulation in the guinea-pig. Eur J Pharmacol, 1987. 139(2): p. 187-91.

[3]. Harvey, K.L., A. Hussain, and H.L. Maddock, Ipratropium Bromide-Mediated Myocardial Injury in In Vitro Models of Myocardial Ischaemia/Reperfusion. Toxicol Sci, 2014.

[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.

[5]. 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.

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