
Product Data Sheet

Product Name: Ipratropium-d3 bromide

Cat. No.: GC68326

Chemical Properties

Cas. No.

Formula $C_{20}H_{27}D_3BrNO_3$ M.Wt 415.38

Solubility H_2O : 100 mg/mL (240.74 mM; Need ultrasonic) Storage Store at $-20^{\circ}C$

General tips For obtaining a higher solubility , please warm the tube at $37^{\circ}C$ and shake it in the ultrasonic bath for a while. Stock solution can be stored below $-20^{\circ}C$ for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

Background

Ipratropium-d3 bromide (Sch 1000-d3) 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]}.

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].

[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*,

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

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2014.

[4]. 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.

[5]. 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.

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