Product Data Sheet

Product Name: Tiotropium Bromide hydrate
Cat. No.: GC13134

Chemical Properties

Cas. No.	139404-48-1		
Chemical Name	(1R,2R,4S,5S,7s)-7-(2-hydroxy-2,2-di(thiophen-2-yl)acetoxy)-9,9-dimethyl-3-oxa-9-azatricyclo[3.3.1.02,4]nonan-9-ium bromide hydrate		
SMILES	O=C(C(C1=C([H])C([H])=C([H])S1)(C2=C([H])C([H])=C([H])S2)O[H])O[C@@]3([H])C([H])([H])[C@]4([H])[N+](C([H])([H])[H])(C([H])([H])[H])[C@@](C3([H])[H])([H])[C@@]5([H])O[C@@]45[H].[H]O[H].[Br-]		
Formula	$C_{19}H_{22}NO_4S_2.Br.xH_2O$	M.Wt	490.43
Solubility	DMSO : 8mg/mL	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ 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	Tiotropium Bromide hydrate		

Background

Tiotropium Bromide hydrate is an anticholinergic and bronchodilator and a muscarinic receptor antagonist.Target: mAChRTiotropium bromide (Ba 679 BR) is a novel potent and long-lasting muscarinic antagonist that has been developed for the treatment of chronic obstructive airways disease (COPD). Binding studies with [3H]tiotropium bromide in human lung have confirmed that this is a potent muscarinic antagonist with equal affinity for M1-, M2- and M3-receptors and is approximately 10-fold more potent than ipratropium bromide. In vitro tiotropium bromide has a potent inhibitory effect against cholinergic nerve-induced contraction of guinea-pig and human airways, that has a slower onset than atropine or ipratropium bromide. tiotropium bromide dissociates slowly from M3-receptors (on airway smooth muscle) but rapidly from M2 autoreceptors (on cholinergic nerve terminals) [1]. Tiotropium bromide is a quaternary ammonium

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com
Address: 10292 Central Ave. #205, Montclair, CA, USA

derivative that binds to muscarinic receptors. However, although tiotropium binds with high affinity to muscarinic receptors of M1-, M2- and M3-subtypes, it dissociates very slowly from M1- and M3-receptors but more rapidly from M2-receptors, thereby giving it a unique kinetic selectivity [2].

References:

[1]. Barnes, P.J., et al., Tiotropium bromide (Ba 679 BR), a novel long-acting muscarinic antagonist for the treatment of obstructive airways disease. Life Sci, 1995. 56(11-12): p. 853-9.

[2]. Hansel, T.T. and P.J. Barnes, Tiotropium bromide: a novel once-daily anticholinergic bronchodilator for the treatment of COPD. Drugs Today (Barc), 2002. 38(9): p. 585-600.