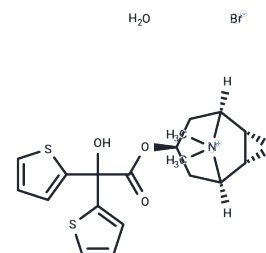


Tiotropium Bromide hydrate

Chemical Properties

CAS No. :	411207-31-3
Formula:	C ₁₉ H ₂₄ BrNO ₅ S ₂
Molecular Weight:	490.43
Appearance:	no data available
Storage:	Powder: -20°C for 3 years In solvent: -80°C for 1 year



Biological Description

Description	Tiotropium Bromide hydrate (BA-679 BR hydrate) is a potent anticholinergic and bronchodilator, serving as a muscarinic receptor antagonist, specifically targeting mAChR. It is developed for treating chronic obstructive airways disease (COPD), demonstrating novel and long-lasting effects. Binding studies with [3H]tiotropium bromide in human lung reveal its high potency and equivalent affinity for M1-, M2-, and M3-receptors, making it roughly 10 times more effective than ipratropium bromide. It notably inhibits cholinergic nerve-induced contraction of both guinea-pig and human airways more potently than atropine or ipratropium bromide, albeit with a slower onset. Tiotropium bromide uniquely presents slow dissociation from M3-receptors on airway smooth muscle and rapid dissociation from M2 autoreceptors on cholinergic nerve terminals. As a quaternary ammonium derivative, it shows high affinity and special kinetic selectivity towards muscarinic receptors across M1-, M2-, and M3-subtypes, due to its slower dissociation from M1- and M3-receptors compared to M2-receptors.
Targets(IC50)	AChR

Solubility Information

Solubility	H ₂ O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: < 1 mg/mL (insoluble or slightly soluble), DMSO: 8 mg/mL (16.31 mM), < 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.039 mL	10.1951 mL	20.3903 mL
5 mM	0.4078 mL	2.039 mL	4.0781 mL
10 mM	0.2039 mL	1.0195 mL	2.039 mL
50 mM	0.0408 mL	0.2039 mL	0.4078 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Barnes PJ, et al. Life Sci, 1995, 56(11-12), 853-859.

Bühling F, et al. Respir Med. 2007 Nov;101(11):2386-94.

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