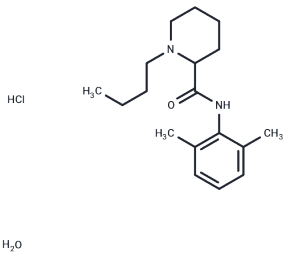
Data Sheet (Cat.No.T80641)

TargetMol

Bupivacaine hydrochloride monohydrate

Chemical Properties



CAS No. : 73360-54-0

Formula: C18H31ClN2O2

Molecular Weight: 342.9

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Bupivacaine hydrochloride monohydrate is a potent NMDA receptor inhibitor of sodium, L-calcium, and potassium channels.Bupivacaine hydrochloride monohydrate inhibits SCN5A channels and is commonly used in the study of chronic pain.
Targets(IC50)	Calcium Channel,NMDAR,iGluR,Potassium Channel,Sodium Channel
In vitro	Bupivacaine hydrochloride monohydrate inhibits synaptic transmission mediated by NMDA receptors in the spinal dorsal horn, which is an area closely associated with central sensitization[1]. Bupivacaine hydrochloride monohydrate affects the voltage dependence of channel activation and steady-state inactivation by shifting the half-maximal activation/inactivation membrane potential to a slightly more negative membrane potential.In the inactivated state, the SCN5A channel shows slight sensitivity to Bupivacaine hydrochloride monohydrate (IC50=2.18±0.16 μM)[3]. Bupivacaine hydrochloride monohydrate reversibly inhibits SK2 channels in a dose-dependent manner, with an IC50 of 16.5 μM[2].

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.9163 mL	14.5815 mL	29.163 mL
5 mM	0.5833 mL	2.9163 mL	5.8326 mL
10 mM	0.2916 mL	1.4582 mL	2.9163 mL
50 mM	0.0583 mL	0.2916 mL	0.5833 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Meaghan A Paganelli, et al. Actions of Bupivacaine, a widely used local anesthetic, on NMDA receptor responses. J Neurosci. 2015 Jan 14;35(2):831-42.
Carsten Stoetzer, et al. Inhibition of Voltage-Gated Na+ Channels by Bupivacaine Is Enhanced by the Adjuvants Buprenorphine, Ketamine, and Clonidine. Reg Anesth Pain Med.Jul/Aug 2017;42(4):462-468.
Alexander P Schwoerer, et al. A Comparative Analysis of Bupivacaine and Ropivacaine Effects on Human Cardiac SCN5A Channels. Anesth Analg. 2015 Jun;120(6):1226-34.

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