Product Data Sheet

Product Name: Bupivacaine hydrochloride monohydrate
Cat. No.: GC28265

Chemical Properties

Cas. No.	73360-54-0		
SMILES	Cl.O=C(NC=1C(=CC=CC1C)C)C2N(CCCC)CCCC2.O		
Formula	$C_{18}H_{31}ClN_2O_2$	M.Wt	342.9
Solubility		Storage	Keep away from moisture
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°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

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.
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 (IC_{50}=2.18±0.16 μM)[3]. Bupivacaine hydrochloride monohydrate reversibly inhibits SK2 channels in a dose-dependent manner, with an IC_{50} of 16.5 μM[2].

References:

[1]. 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.
[2]. 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.
[3]. 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.