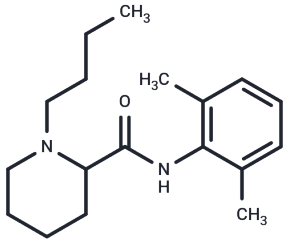
Data Sheet (Cat.No.T0030L)

TargetMol

Bupivacaine

Chemical Properties



CAS No. : 38396-39-3

Formula: C18H28N2O

Molecular Weight: 288.43

Storage: Store at low temperature
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 (AH-250) is a NMDA receptor inhibitor.Bupivacaine can block sodium, L-calcium, and potassium channels.Bupivacaine potently blocks SCN5A channels with the IC50 of 69.5 μM. Bupivacaine can be used for the research of chronic pain.
Targets(IC50)	Calcium Channel,NMDAR,iGluR,Potassium Channel,Sodium Channel
In vitro	Bupivacaine inhibits NMDA receptor-mediated synaptic transmission in the dorsal horn of the spinal cord, a key area in central sensitization[1]. It affects the voltage dependency of channel activation and steady-state inactivation by shifting the membrane potential of half-maximal activation/inactivation toward more negative potentials. SCN5A channels are slightly sensitive to Bupivacaine in their inactivated state (IC50=2.18±0.16 μM)[2]. Additionally, Bupivacaine reversibly inhibits the SK2 channel in a dose-dependent manner with an IC50 of 16.5 μM[3].

Solubility Information

Solubility	DMSO: 27.78 mg/mL (96.31 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 2.78 mg/mL (9.64 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.467 mL	17.3352 mL	34.6705 mL
5 mM	0.6934 mL	3.467 mL	6.9341 mL
10 mM	0.3467 mL	1.7335 mL	3.467 mL
50 mM	0.0693 mL	0.3467 mL	0.6934 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.
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.
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.

Tel:781-999-4286 E_mail:info@targetmol.com Address:34 Washington Street,Wellesley Hills,MA 02481