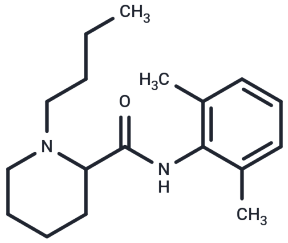
# Data Sheet (Cat.No.T0030L)

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

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|---|---|
| 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

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|---|---|
| Solubility | DMSO: 25 mg/mL (86.68 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |

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.





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