

Certificate of Analysis

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Product Name: Memantine hydrochloride

Catalog No.: 0773

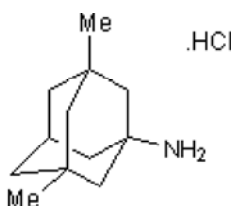
Batch No.: 10

CAS Number: 41100-52-1

IUPAC Name: 3,5-Dimethyl-tricyclo[3.3.1.1^{3,7}]decan-1-amine hydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: C₁₂H₂₁N.HCl
Batch Molecular Weight: 215.77
Physical Appearance: White solid
Solubility: water to 100 mM
Storage: Store at RT
Batch Molecular Structure:



2. ANALYTICAL DATA

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	66.8	10.28	6.49
Found	66.61	10.51	6.67

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Memantine hydrochloride is an antagonist at the NMDA receptor ($IC_{50} = 0.5 - 1.5 \mu M$ in vitro), binding to the ion channel site. Memantine increases BDNF protein and mRNA levels in the brain in vivo. In an animal model of Alzheimer's disease, memantine improves spatial learning and decreases deposition of A β plaques. Memantine has neuroprotective effects in dopaminergic neurons; stimulates release of neurotrophic factor from astroglia and reduces microglia inflammation in vitro.

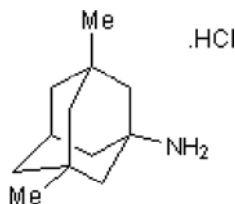
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References:

Wu et al (2009) Novel neuroprotective mechanisms of memantine: increase in neurotrophic factor release from astroglia and anti-inflammation by preventing microglial activation. *Neuropsychopharmacology* **34** 2344. PMID: 19536110.

Parsons et al (2007) Mem.: A NMDA receptor antagonist that improves memory by restoration of homeostasis in the glutamatergic system - too little activation is bad, too much is even worse. *Neuropharmacology* **53** 699. PMID: 17904591.

Parsons et al (1999) Mem. is a clinically well tolerated N-MthD.-aspartate (NMDA) receptor antagonist - a review of preclinical data. *Neuropharmacology* **38** 735. PMID: 10465680.

Storage: Store at RT

Solubility & Usage Info:

water to 100 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

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