



Product Information

Memantine hydrochloride

Product Number **M 9292**
Store at Room Temperature

Product Description

Molecular Formula: $C_{12}H_{21}N \cdot HCl$
Molecular Weight: 215.8
CAS Number: 41100-52-1
Melting Point: 258 °C, 295 °C (varying reports)¹
Synonym: 3-5-dimethyltricyclo
[3.3.1.1^{3,7}]decan-1-amine hydrochloride; 3,5-dimethyl-
1-adamantanamine hydrochloride; 1-amino-3,5-
dimethyladamantane; DMAA¹

Memantine is an adamantane derivative that is used in neuroscience research, such as in studies on Parkinsonism.² A review of the *in vitro* neuroprotective properties of memantine has been published.³ The pharmacology of various native N-methyl-D-aspartate (NMDA) receptor subtypes with respect to such agents as memantine has been discussed.⁴

The antagonist activity of memantine (2-33 μ M) on NMDA receptors of cultured superior collicular and hippocampal neurons has been studied.⁵ The protective effect of memantine against NMDA receptor-mediated glutamate toxicity in cultured cerebellar, cortical and mesencephalic neurons has been investigated.⁶

Memantine (100 μ M) has been shown to diminish spontaneous synaptic activity with action potential frequencies above 6 Hz in cultured mouse nerve cells.⁷ In cultured rat ganglion retinal cells, 2 μ M memantine has been demonstrated to reduce neuronal damage caused by HIV-1 coat protein gp120.⁸

Assays for the analysis of memantine from plasma have been published that use LC/fluorescence and GC/MS methods.^{9,10} An LC-MS method for the analysis of memantine in melanin binding studies has been reported.¹¹

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (1 mg/ml), yielding a clear, colorless solution.

References

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7. Netzer, R., and Bigalke, H., Memantine reduces repetitive action potential firing in spinal cord nerve cell cultures. *Eur. J. Pharmacol.*, **186(2-3)**, 149-155 (1990).
8. Lipton, S. A., Memantine prevents HIV coat protein-induced neuronal injury *in vitro*. *Neurology*, **42(7)**, 1403-1405 (1992).

9. Suckow, R. F., et al., Sensitive and selective liquid chromatographic assay of memantine in plasma with fluorescence detection after pre-column derivatization. *J. Chromatogr. B Biomed. Sci. Appl.*, **729(1-2)**, 217-224 (1999).
10. Leis, H. J., et al., Quantitative analysis of memantine in human plasma by gas chromatography/negative ion chemical ionization/mass spectrometry. *J. Mass Spectrom.*, **37(5)**, 477-480 (2002).
11. Koeberle, M. J., et al., Development of a liquid chromatography-mass spectrometric method for measuring the binding of memantine to different melanins. *J. Chromatogr. B Analyt. Technol. Biomed. Life Sci.*, **787(2)**, 313-322 (2003).

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