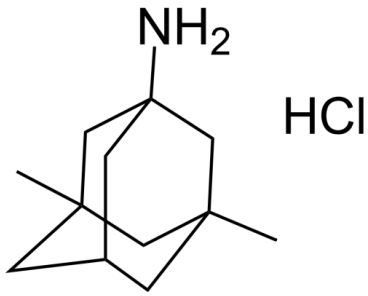
Data Sheet

Product Name:	Memantine (hydrochloride)
Cat. No.:	CS-2422
CAS No.:	41100-52-1
Molecular Formula:	C12H22ClN
Molecular Weight:	215.76
Target:	Autophagy; Cytochrome P450; iGluR
Pathway:	Autophagy; Membrane Transporter/Ion Channel; Metabolic Enzyme/Protease; Neuronal Signaling
Solubility:	H2O : ≥ 33.33 mg/mL (154.48 mM)



BIOLOGICAL ACTIVITY:

Memantine (hydrochloride) (D-145 (hydrochloride)), an amantadine derivative with low to moderate-affinity for NMDA receptors, inhibit CYP2B6 and CYP2D6 with K_i of 0.51 nM and 94.9 μM, respectively. IC50 & Target: NMDA Receptor[1]. **In Vitro:** Memantine (hydrochloride) (D-145 (hydrochloride)) is a moderate-affinity, uncompetitive, voltage-dependent, NMDA-receptor antagonist with fast on/off kinetics that inhibits excessive calcium influx induced by chronic overstimulation of the NMDA receptor. Memantine is approved in the US and the EU for the treatment of patients with moderate to severe dementia of the Alzheimer's type[1]. Memantine has considerable therapeutic potential for the myriad of clinical entities associated with NMDA receptor-mediated neurotoxicity[2]. Memantine blocked 200 microM NMDA-evoked responses with a 50% inhibition constant (IC_{50}) of approximately 1 microM at -60 mV and an empirical Hill coefficient of approximately 1[3].

References:

[1]. Robinson, D.M. and G.M. Keating, Memantine: a review of its use in Alzheimer's disease. Drugs, 2006. 66(11): p. 1515-34.

[2]. Chen, H.S., et al., Open-channel block of N-methyl-D-aspartate (NMDA) responses by memantine: therapeutic advantage against NMDA receptor-mediated neurotoxicity. J Neurosci, 1992. 12(11): p. 4427-36.

[3]. Chen, H.S. and S.A. Lipton, Mechanism of memantine block of NMDA-activated channels in rat retinal ganglion cells: uncompetitive antagonism. J Physiol, 1997. 499 (Pt 1): p. 27-46.

CAIndexNames:

Tricyclo[3.3.1.13,7]decan-1-amine, 3,5-dimethyl-, hydrochloride (1:1)

SMILES:

N[C@@]1(C2)C[C@]3(C)C[C@@]2(C)C[C@@H](C3)C1.Cl

Caution: Product has not been fully validated for medical applications. For research use only.

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