Memantine hydrochloride

Cat. No.: HY-B0365A

CAS No.: 41100-52-1

Molecular Formula: $C_{12}H_{22}ClN$

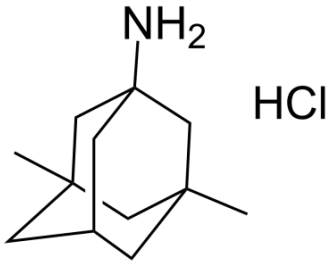
Molecular Weight: 215.76

Target: Cytochrome P450; iGluR; Autophagy

Pathway: Metabolic Enzyme/Protease; Membrane Transporter/Ion Channel; Neuronal Signaling; Autophagy

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 33.33 mg/mL (154.48 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	4.6348 mL	23.1739 mL	46.3478 mL
5 mM	0.9270 mL	4.6348 mL	9.2696 mL
10 mM	0.4635 mL	2.3174 mL	4.6348 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Memantine (hydrochloride) (D-145 (hydrochloride)) is a moderate affinity, uncompetitive NMDA receptor antagonist, inhibit CYP2B6 and CYP2D6 with K_i of 0.51 nM and 94.9 μM, respectively.

IC_{50} & 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].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Neuropharmacology. 2020 Dec 17;184:108443.
- Neurochem Res. 2018 Oct;43(10):2008-2015.

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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.

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