Memantine (hydrochloride)
Item No. 14184

CAS Registry No.: 41100-52-1
Formal Name: 3,5-dimethyl-tricyclo[3.3.1.13,7]decan-1-amine, monohydrochloride
Synonyms: Akatinol, Axura, Ebix, Namenda, NSC 102290, SUN Y7017
MF: C_{12}H_{21}N \cdot \text{HCl}
FW: 215.8
Purity: ≥98%
Supplied as: A crystalline solid
Storage: Room temperature
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly

Laboratory Procedures

Memantine (hydrochloride) is supplied as a crystalline solid. A stock solution may be made by dissolving the memantine (hydrochloride) in the solvent of choice. Memantine (hydrochloride) is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of memantine (hydrochloride) in these solvents is approximately 20, 10, and 2.5 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of memantine (hydrochloride) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of Memantine (hydrochloride) in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Memantine is an N-methyl-D-aspartate (NMDA) open-channel blocker ($K_i = 1.2 \mu M$ at -60 mV) and uncompetitive antagonist with known anti-Parkinsonian, antiepileptic, anti-stroke, and anti-Alzheimer’s disease properties.\(^1\)\(^2\)\(^3\) At 12 \mu M memantine blocks 90\% of NMDA receptor activity and prevents NMDA-receptor mediated neurotoxicity resulting from excessive levels of glutamate in rat cortical and retinal ganglion cell neurons.\(^1\)

References