Small Molecules

(+)-MK-801 (Hydrogen Maleate)

NMDA antagonist

Catalog #100-0886

10 mg

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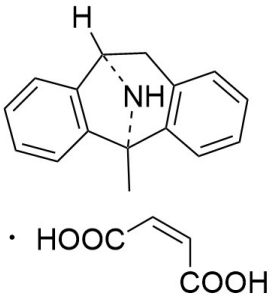
Product Description

(+)-MK-801 is a neuroprotective agent and a noncompetitive N-methyl-D-aspartate (NMDA) antagonist (K_i = 30.5 nM; Foster et al.; Wong et al.). NMDA receptor is a calcium-permeable ion channel found in neurons and regulated by its ligands glutamate and glycine (Song et al.). NMDA receptor signaling is involved with plasticity, cell survival, and cell death. Hyperactivity of these receptors can result in neuron loss and may contribute to neurodegenerative diseases (Parsons & Raymond; Song et al.).

Alternative Names:	Dizocilpine
CAS Number:	77086-22-7
Chemical Formula:	$C_{16}H_{15}N \bullet C_4H_4O_4$
Molecular Weight:	337.4 g/mol
Purity:	≥ 98%
Chemical Name:	10,11-dihydro-5S-methyl-5H-dibenzo[a,d]cyclohepten-5,10-imine, (2Z)-2-butenedioate
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	· DMSO ≤ 55 mM · Absolute ethanol ≤ 1.4 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 2.96 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DISEASE MODELING
· Protects against neuron loss in rat striatum and hippocampus (Wong et al.).

References

Foster AC et al. (1988) Neuroprotective effects of MK-801 in vivo: selectivity and evidence for delayed degeneration mediated by NMDA receptor activation. J Neurosci 8(12): 4745–54.

Parsons MP & Raymond LA. (2014) Extrasynaptic NMDA receptor involvement in central nervous system disorders. Neuron 82(2): 279–93.

Song X et al. (2018) Mechanism of NMDA receptor channel block by MK-801 and memantine. Nature 556(7702): 515–9.

Wong EH et al. (1986) The anticonvulsant MK-801 is a potent N-methyl-D-aspartate antagonist. Proc Natl Acad Sci USA 83(18): 7104–8.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).