Data Sheet (Cat.No.T4081)

TargetMol

MPTP hydrochloride

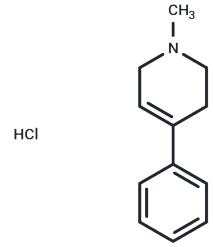
Chemical Properties

CAS No. : 23007-85-4

Formula: C12H16ClN

Molecular Weight: 209.72

Storage: Keep away from moisture,Keep away from direct sunlight
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.



Biological Description

Description	MPTP hydrochloride is a dopamine neurotoxin and the precursor of MPP^+. It can induce apoptosis and has the ability to cross the blood-brain barrier. MPTP hydrochloride is toxic to dopaminergic neurons and is commonly used for the construction of Parkinson's disease animal models.
Targets(IC50)	Apoptosis,Dopamine Receptor
In vitro	**METHODS**: Human neuroblastoma cells M17 were treated with MPTP hydrochloride (1-50 μM) for 48 h. The expression levels of target proteins were detected by Western Blot. **RESULTS**: MPTP hydrochloride promoted Tau protein phosphorylation in M17 cells. [1] **METHODS**: Neuroblastoma cell N2AB-1 and glioma cell C6 were treated with MPTP hydrochloride (0.33-33.7 μM) for 24 h, and the growth curves were examined. **RESULTS**: MPTP hydrochloride did not affect the cell number of actively growing N2AB-1 or C6 cells. [2]
In vivo	**METHODS**: To construct a subacute Parkinson's model, MPTP hydrochloride (30 mg/kg in 0.9% saline) was administered intraperitoneally to C57BL/6 mice once daily for five days. **RESULTS**: Subacute MPTP hydrochloride treatment did not cause significant motor deficits, although the dopaminergic system was severely impaired. mPTP hydrochloride significantly increased the level of α-synuclein and the number of astrocytes in the striatum and disrupted the blood-brain barrier in the substantia nigra pars compacta. [3] **METHODS**: To study the effects of different models on the behavior and pathology of a mouse model of Parkinson's disease, MPTP hydrochloride was used intraperitoneally to construct a subacute model group and a chronic model group. In the subacute model group, MPTP hydrochloride (30 mg/kg) was administered once daily for ten days. In the chronic model group, MPTP hydrochloride (30 mg/kg) was injected once every 3.5 days for five weeks for ten times. **RESULTS**: In the MPTP hydrochloride-induced subacute Parkinson's disease mouse model, there was a small loss of dopaminergic neurons in the midbrain, but there was no effect on the behavior.The MPTP hydrochloride-induced chronic Parkinson's disease mouse model lost a large number of dopaminergic neurons, which was accompanied by anxiety-like behaviors in addition to motor dysfunction. [4]

Solubility Information

Solubility	H2O: 10 mg/mL (47.68 mM),Sonication is recommended. DMSO: 23.86 mg/mL (113.77 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (4.77 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.7683 mL	23.8413 mL	47.6826 mL
5 mM	0.9537 mL	4.7683 mL	9.5365 mL
10 mM	0.4768 mL	2.3841 mL	4.7683 mL
50 mM	0.0954 mL	0.4768 mL	0.9537 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Qureshi HY, et al. Parkinsonian neurotoxin 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine (MPTP) and alpha-synuclein mutations promote Tau protein phosphorylation at Ser262 and destabilize microtubule cytoskeleton in vitro. J Biol Chem. 2011 Feb 18;286(7):5055-68.

Notter MF, et al. Neurotoxicity of MPTP and MPP+ in vitro: characterization using specific cell lines. Brain Res. 1988 Jul 26;456(2):254-62.

Zhang QS, et al. Reassessment of subacute MPTP-treated mice as animal model of Parkinson's disease. Acta Pharmacol Sin. 2017 Oct;38(10):1317-1328.

Ma Y, et al. Effect of Different MPTP Administration Intervals on Mouse Models of Parkinson's Disease. Contrast Media Mol Imaging. 2022 Mar 2;2022:2112146.

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