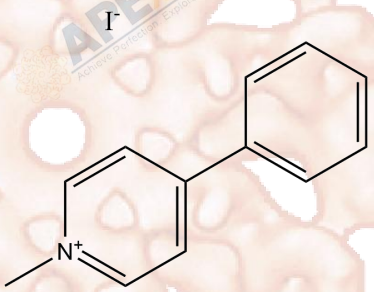
Product Data Sheet

MPP+ iodide



Cat. No.:	C8601
CAS No.:	36913-39-0
Formula:	C12H12IN
M.Wt:	297.14
Synonyms:	N-Methyl-4-Phenylpyridinium Iodide
Target:	Mitochondrial Respiratory Complex I
Pathway:	Protease
Storage:	Store at 4° C away from light. Powder: -20° C for 3 years. Liquid: -80° C for 1 year.

Solvent & Solubility

In Vitro

Soluble in DMSO

Preparing Stock Solutions

Mass / Solvent / Concentration	1mg	5mg	10mg
1 mM	3.3654 mL	16.8271 mL	33.6542 mL
5 mM	0.6731 mL	3.3654 mL	6.7308 mL
10 mM	0.3365 mL	1.6827 mL	3.3654 mL

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

Biological Activity

Shortsummary

MPP⁺ iodide (1-Methyl-4-phenylpyridinium iodide) is a neurotoxic metabolite of MPTP and a high-affinity substrate of the serotonin transporter (SERT). It selectively accumulates in dopaminergic neurons via the dopamine transporter (DAT), where it disrupts mitochondrial complex I and triggers cell death. This compound is widely used to induce Parkinson ' s disease-like pathology in cellular and animal models, supporting studies on neurodegeneration, oxidative stress, and neuroprotection.

IC_{50} & Target

In Vitro

Cell Viability Assay

Cell Line:	SH-SY5Y cells
Preparation method:	Incubation Time: 24 hours

	Reacting conditions:	1, 2, 3 mM
	Applications:	SH-SY5Y cells were treated with MPP+, mimicking the progress of dopaminergic neurons loss in PD; Reduced cell viability in both dose-dependent (1, 2, 3 mM for 24 h) and time dependent (1 mM) manner.
In Vivo	**Animal experiment**	
	Animal models:	Male C57BL/6J mice
	Dosage form:	72 mg/kg of body weight equally 134 distributed over four injections
	Applications:	A decrease in TH expression and DAT expression was observed in the MPTP-induced SN as compared to controls at different time points (days 1, 3, 5, 7, 10) after MPTP treatment by RT-PCR. A significant decrease in the number of TH-positive neurons was observed on day 7 after MPTP treatment.
	Preparation method:	Eight- to ten-week-old male C57BL/6J mice (weighing 20 – 128 25 g) were used for the MPTP treatment. All animal 129 experiments were conducted according to protocols 130 approved by the Institutional Animal Care and Use 131 Committee, National University of Singapore. Mice were 132 given four injections of MPTP – HCl at 2-h Q7 133 intervals (total dosage—72 mg/kg of body weight equally 134 distributed over four injections). Control animals were injected an 136 equal volume of 0.9% sterile saline. Animals were sacri- 137 ficed 1, 3, 5, 7, 10 days after the last MPTP injection. The 138 SN was dissected bilaterally and total RNA was isolated 139 using the miRNeasy mini kit for RT-PCR analysis.
	Other notes:	The technical data provided above is for reference only.

Product Citations

See more customer validations on www.apexbt.com.

References

1. Zhao M, et al. Mitochondrial calcium dysfunction contributes to autophagic cell death induced by MPP+ via AMPK pathway. Biochem Biophys Res Commun. 2019;509(2):390-394.

2. Kanagaraj N, Beiping H, Dheen ST, Tay SS. Downregulation of miR-124 in MPTP-treated mouse model of Parkinson's disease and MPP iodide-treated MN9D cells modulates the expression of the calpain/cdk5 pathway proteins. Neuroscience. 2014 Jul 11;272:167-79. doi: 10.1016/j.neuroscience.2014.04.039. Epub 2014 Apr 30. PMID: 24792712.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

APExBIO Technology

www.apexbt.com

7505 Fannin street, Suite 410, Houston, TX 77054.

Tel: +1-832-696-8203 | Fax: +1-832-641-3177 | Email: info@apexbt.com