MAO-IN-M30 dihydrochloride

Cat. No.: HY-131036

CAS No.: 64821-19-8

Molecular Formula: $C_{14}H_{16}Cl_2N_2O$

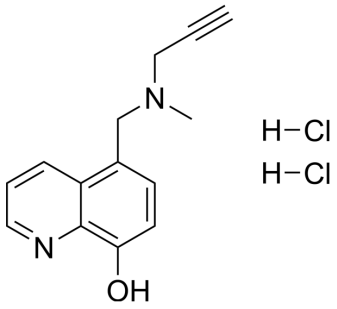
Molecular Weight: 299.2

Target: Monoamine Oxidase

Pathway: Neuronal Signaling

Storage: -20°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 2 mg/mL (6.68 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.3422 mL	16.7112 mL	33.4225 mL
	5 mM	0.6684 mL	3.3422 mL	6.6845 mL
	10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description

MAO-IN-M30 dihydrochloride is an orally active, brain-permeable, and brain selective irreversible MAO-A (IC_{50}=37 nM) and MAO-B (IC_{50}=57 nM) inhibitor. MAO-IN-M30 dihydrochloride is a potent iron chelator and radical scavenger. MAO-IN-M30 dihydrochloride has a neuroprotective effect against Dexamethasone-induced brain cell apoptosis. MAO-IN-M30 dihydrochloride also exhibits neurorestorative activity in post MPTP and lactacystin models of Parkinson's disease[1][2][3].
MAO-IN-M30 (dihydrochloride) is a click chemistry reagent, it contains an Alkyne group and can undergo copper-catalyzed azide-alkyne cycloaddition (CuAAc) with molecules containing Azide groups.

IC_{50} & Target

MAO-A	MAO-B
37 nM (IC_{50})	57 nM (IC_{50})

In Vitro

MAO-IN-M30 (0.25 nM; 72 hours) significantly increased cell viability to ~90% after exposure to Dexamethasone[3].
MAO-IN-M30 (0-10 μM; 24 hours) enhances PC12 cell survival[4].
MAO-IN-M30 treatment significantly decreases the occurrence of fragmented DNA compared to the dexamethasone-treated group in SH-SY5Y cells[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[3]

Cell Line:	SH-SY5Y cells
Concentration:	0.25 nM
Incubation Time:	72 hours
Result:	Significantly increased cell viability to ⊠90% after exposure to Dexamethasone.

Cell Viability Assay[4]

Cell Line:	PC12 cells
Concentration:	0-10 μM
Incubation Time:	24 hours
Result:	Enhanced the PC12 cell viability, the cell viability increasing to 85 ± 6 and 90 ± 7%.

In Vivo

MAO-IN-M30 (0.5-2.5 mg/kg; p.o.; once daily for 14 consecutive days) possesses neuroprotective activities[6].

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

Animal Model:	Male C57/BL mice (20-22 g; MPTP-induced neurotoxicity in mice)[6]
Dosage:	0.5, 2.5 mg/kg
Administration:	P.o.; once daily for 14 consecutive days
Result:	Significantly elevate striatal dopamine levels, reduce its metabolism, and elevate tyrosine-hydroxylase protein levels and activity. Elevated MPTP-reduced dopaminergic and transferrin receptor cell count in the SNpc.

REFERENCES

[1]. Gal S, et al. M30, a novel multifunctional neuroprotective drug with potent iron chelating and brain selective monoamine oxidase-ab inhibitory activity for Parkinson's disease. J Neural Transm Suppl. 2006;(70):447-456.

[2]. Zheng H, et al. Novel multifunctional neuroprotective iron chelator-monoamine oxidase inhibitor drugs for neurodegenerative diseases: in vitro studies on antioxidant activity, prevention of lipid peroxide formation and monoamine oxidase inhibition. J Neurochem. 2005;95(1):68-78.

[3]. Gal S, et al. Novel multifunctional neuroprotective iron chelator-monoamine oxidase inhibitor drugs for neurodegenerative diseases. In vivo selective brain monoamine oxidase inhibition and prevention of MPTP-induced striatal dopamine depletion. J Neurochem. 2005;95(1):79-88.

[4]. Gal S, et al. Restoration of nigrostriatal dopamine neurons in post-MPTP treatment by the novel multifunctional brain-permeable iron chelator-monoamine oxidase inhibitor drug, M30. Neurotox Res. 2010;17(1):15-27.

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