

MAO-B-IN-45

Chemical Properties

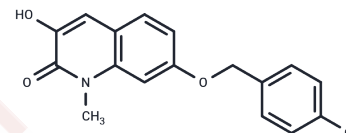
CAS No. : 3069915-36-9

Formula: C₁₇H₁₄ClNO₃

Molecular Weight: 315.75

Storage: 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	MAO-B-IN-45 is a dual inhibitor of ferroptosis and MAO-B. It selectively inhibits MAO-B with an IC ₅₀ of 87.47 nM, demonstrating a selectivity over MAO-A by more than 229 times. In vitro, MAO-B-IN-45 exhibits significant anti-ferroptosis activity by modulating iron metabolism pathways and the GSH-GPX4 axis. Additionally, it improves cognitive and behavioral deficits in 3xTg (APP/Tau/Ps1) Alzheimer's disease mice and significantly reduces levels of ferritin heavy chain 1 (FTH1), β-amyloid protein (APP), and Tau protein phosphorylation (p-Tau) in their brains.
Targets(IC50)	Beta Amyloid, Ferroptosis, Microtubule Associated, Glutathione Peroxidase, Monoamine Oxidase, ROS
In vitro	MAO-B-IN-45 (compound 21d) is a reversible hMAO-B inhibitor with a K _i of 100.6 nM, demonstrating significant inhibitory activity with inhibition rates of 94.81% at 10 μM and 76.31% at 1 μM. The compound exhibits good safety in PC12 and HT22 cells at concentrations ranging from 0.1 to 75 μM over 24 hours. Additionally, MAO-B-IN-45 effectively reduces ferroptosis induced by RSL or Erastin in HT22 cells in a dose-dependent manner at concentrations of 1-50 μM for 24 hours. In HT22 cells, it also decreases reactive oxygen species (ROS) production at 10-50 μM for 24 hours. Furthermore, MAO-B-IN-45, at 15-100 μM over 24 hours, effectively inhibits ferroptosis by reducing iron accumulation and enhancing glutathione (GSH)-dependent pathways in HT22 cells.
In vivo	MAO-B-IN-45 (Compound 21d) administered at a dosage of 10 mg/kg intraperitoneally, daily for 35 days, alleviates memory and cognitive impairments in a 3xTg (APP/Tau/Ps1) mouse model of Alzheimer's disease and demonstrates good safety in vivo.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.1671 mL	15.8353 mL	31.6706 mL
5 mM	0.6334 mL	3.1671 mL	6.3341 mL
10 mM	0.3167 mL	1.5835 mL	3.1671 mL
50 mM	0.0633 mL	0.3167 mL	0.6334 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.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

This product is for Research Use Only · Not for Human or Veterinary or Therapeutic Use

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