

## MAO-B-IN-21

## Chemical Properties

|                   |                                                                 |
|-------------------|-----------------------------------------------------------------|
| CAS No. :         | 2956426-18-7                                                    |
| Formula:          | C <sub>24</sub> H <sub>25</sub> ClN <sub>2</sub> O <sub>4</sub> |
| Molecular Weight: | 440.92                                                          |
| Appearance:       | no data available                                               |
| Storage:          | Powder: -20°C for 3 years   In solvent: -80°C for 1 year        |

## Biological Description

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Description   | MAO-B-IN-21 is an MAO-B inhibitor characterized by superior antioxidant and anti-A $\beta$ aggregation activities. The compound additionally shows metal-ion chelating capabilities, mitigates neuroinflammation (NO, TNF- $\alpha$ ), and demonstrates neuroprotective effects with notable BBB permeability. In an A $\beta$ 1-42 induced Alzheimer's disease mouse model, MAO-B-IN-21 markedly enhances memory and cognitive functions [1].                                                                                                                                                                                                                   |
| Targets(IC50) | Monoamine Oxidase                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| In vitro      | MAO-B-IN-21 at a concentration of 37.5 $\mu$ M in a methanol solution (甲醇溶液) inhibits Cu <sup>2+</sup> -induced ROS production due to its metal chelating properties and/or its antioxidant capacity, capable of scavenging free radicals from the Cu <sup>2+</sup> -ascorbic acid redox system [1]. Additionally, MAO-B-IN-21 at 25 $\mu$ M for 24 hours at 37°C suppresses the self-induced aggregation of A $\beta$ 1-42 and disassembles preformed A $\beta$ 1-42 fibrils [1]. Furthermore, MAO-B-IN-21 in a range of 2.5-25 $\mu$ M over 24 hours inhibits the production of ROS in LPS-stimulated BV-2 microglial cells [1].                               |
| In vivo       | MAO-B-IN-21 (30 mg/kg; ig; single dose) readily crosses the blood-brain barrier in Balb/C mice [1]. At doses of 8 mg/kg and 32 mg/kg administered intragastrically (ig; as a single dose), it reduces escape latency time (ELT) and decreases A $\beta$ 1-42 levels, suggesting improvements in learning and memory in an A $\beta$ -induced Alzheimer's disease (AD) mouse model [1]. Pharmacokinetic analysis in Balb/C mice [1] shows the following parameters: Tissue T 1/2 T max C max AUC 0-t AUC brain/plasma ratio with plasma at 1.15 h, 0.5 h, 1539 ng/mL, 2941 ng·h/mL, 0.69 and brain at 2.07 h, 1.0 h, 922.7 ng/g, and 2032.5 ng·h/g, respectively. |

### Preparing Stock Solutions

|       | 1mg       | 5mg        | 10mg       |
|-------|-----------|------------|------------|
| 1 mM  | 2.268 mL  | 11.3399 mL | 22.6799 mL |
| 5 mM  | 0.4536 mL | 2.268 mL   | 4.536 mL   |
| 10 mM | 0.2268 mL | 1.134 mL   | 2.268 mL   |
| 50 mM | 0.0454 mL | 0.2268 mL  | 0.4536 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.

**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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