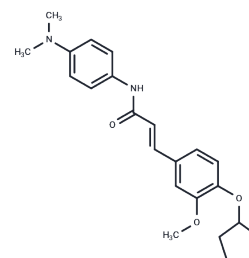


Neuroprotective agent 12

Chemical Properties

CAS No. : 2522599-69-3
 Formula: C₂₃H₂₈N₂O₃
 Molecular Weight: 380.48
 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	Neuroprotective agent 12 is an orally active compound capable of crossing the blood-brain barrier, offering significant neuroprotective properties. It exhibits robust antioxidant and anti-inflammatory effects, markedly inhibiting cell death induced by glutamate and acrolein. This agent reduces the expression of PDE4B while elevating levels of HO-1, p-CREB, and BDNF. In a traumatic brain injury (TBI) mouse model, Neuroprotective agent 12 demonstrates potent neuroprotection and holds potential for research into TBI and other central nervous system disorders.
Targets(IC50)	NF-κB,PDE,ROS
In vitro	Neuroprotective agent 12 (Compound 5) can reverse cell death in HT22 cells induced by glutamate or acrolein within 24 hours. This compound, at concentrations of 3-300 μM over 0.5-24 hours, is non-toxic to HT22 cells below 100 μM and markedly reduces cytotoxicity caused by glutamate or acrolein. It interacts with the PDE4D active site without affecting PDE4B2 and PDE4D7 activity. At 1-10 μM over 24 hours, Neuroprotective agent 12 significantly elevates protein levels of p-CREB, BDNF, and HO-1 in HT22 cells, regulating the PDE/CREB pathway by directly reducing PDE4B protein levels. Also, at 1-10 μM with 1 μg/mL LPS over 24 hours, it inhibits LPS-induced neuroinflammation by modulating the NF-κB pathway and decreases NO release in LPS-stimulated BV2 cells in a dose-dependent manner. The compound exhibits good intestinal absorption and blood-brain barrier penetration, inhibits CYP2C19, CYP2C9, and CYP2D6, but does not inhibit CYP1A2 or Pgp substrates, and has low toxicity (LD50: 300-5000 mg/kg).
In vivo	In a mouse model of traumatic brain injury, Neuroprotective agent 12 (Compound 5) administered via gavage at 5-10 mg/kg, twice over 48 hours, demonstrates significant anti-ischemic activity and blood-brain barrier neuroprotection.

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6283 mL	13.1413 mL	26.2826 mL
5 mM	0.5257 mL	2.6283 mL	5.2565 mL
10 mM	0.2628 mL	1.3141 mL	2.6283 mL
50 mM	0.0526 mL	0.2628 mL	0.5257 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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