Dual AChE-MAO B-IN-3

Cat. No.: HY-151885

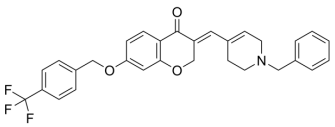
Molecular Formula: $C_{30}H_{26}F_3NO_3$

Molecular Weight: 505.53

Target: Cholinesterase (ChE); Monoamine Oxidase

Pathway: Neuronal Signaling

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Dual AChE-MAO B-IN-3 (compound C10) is a potent dual AChE/MAO-B inhibitior, with IC_{50} values of 0.58 and 0.41 μM, respectively. Dual AChE-MAO B-IN-3 is a dual-binding inhibitor bound to both the catalytic anionic site and peripheral anionic site of AChE. Dual AChE-MAO B-IN-3 can be used for Alzheimer's disease (AD) research[1].

IC_{50} & Target

MAO-B	EeAChE
0.41 ± 0.0 μM (IC_{50})	0.58 ± 0.0 μM (IC_{50})

In Vitro

Dual AChE-MAO B-IN-3 (compound C10) (0-100 μM, 24 h) exhibits low neurotoxicity, and (0-10 μM, 24 h) potently inhibits AChE enzymatic activity[1].

Dual AChE-MAO B-IN-3 more effectively protects against mitochondrial dysfunction and oxidation than Donepezil (HY-14566), strongly inhibits AChE-induced amyloid aggregation, and moderately reduces glutaraldehyde-induced phosphorylation of tau protein in SH-SY5Y cells[1].

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

Cell Viability Assay[1]

Cell Line:	SH-SY5Y cells
Concentration:	10 μM, 50 μM, 100 μM
Incubation Time:	24 h
Result:	Exhibited a nonsignificant reduction in cell viabilities up to the maximum tested concentration of 100 μM. The percentage cell viability at 10-100 μM was observed in the range of 96.92−99.58%. Showed that compound C10 was not toxic to SH-SY5Y neuroblastoma cells at concentrations up to 100 μM.

In Vivo

Dual AChE-MAO B-IN-3 (compound C10) (10 mg/kg, IP, once daily for 10 consecutive days) displays largely enhanced improvements in cognitive behaviors and spatial memory in a scopolamine-induced AD mice model with better efficacy than Donepezil (HY-14566)[1].

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

Animal Model:	ICR mice (female, 8-10 weeks, 25-30 g)[1]

Dosage:	10 mg/kg
Administration:	IP, once daily for 10 consecutive days
Result:	Significantly ameliorated the cognitive impairment in a scopolamine-induced mice model.

REFERENCES

[1]. Li X, et al. Design, Synthesis, and Biological Evaluation of Novel Chromanone Derivatives as Multifunctional Agents for the Treatment of Alzheimer's Disease. ACS Chem Neurosci. 2022 Nov 16.

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