Data Sheet (Cat.No.T200389)

TargetMol

H3R antagonist 4

Chemical Properties

CAS No. :

Formula: C30H36N2O9

Molecular Weight: 568.61

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	H3R antagonist 4 (compound 11l) serves as a dual inhibitor of cholinesterases and histamine H3 receptors (H3R), demonstrating IC50 values of 7.04 μM (eeAChE), 9.73 μM (hAChE)(reversible), and 1.09 nM (H3R). It effectively inhibits both self and Cu2+-induced Aβ1-42 aggregation at 95.48% and 88.63%, respectively, and degrades Aβ1-42 protofibrils with 80.16% and 89.30% efficiency under similar conditions. Additionally, H3R antagonist 4 possesses the chelating capability for biometals Cu2+, Zn2+, Al3+, and Fe2+. It significantly reduces tau protein hyperphosphorylation induced by Aβ1-42, inhibits RSL-3 induced apoptosis and ferroptosis in PC12 cells, and shows optimal blood-brain barrier permeability and intestinal absorption characteristics in hCMEC/D3 and hPepT1-MDCK cells, respectively. Moreover, the compound improves learning and memory impairments in an Alzheimer's mouse model induced with scopolamine.
Targets(IC50)	Apoptosis,Ferroptosis,Microtubule Associated,Histamine Receptor,Cholinesterase (ChE)
In vitro	H3R antagonist 4 (compound 11l) exhibits inhibitory activity against ee AChE, eq BuChE, and h AChE, with corresponding IC50 values of 7.04 μM, 13.40 μM, and 9.73 μM respectively, and its inhibition mechanism on hu AChE is reversible. It binds to AChE, occupying the enzyme's CAS, mid-gorge, and PAS sites, interacting with hu AChE's anionic active center and peripheral anionic site, acting as a dual-site AChE inhibitor. H3R antagonist 4 effectively reduces self and Cu^2+-induced Aβ 1-42 aggregation by 95.48% and 88.63% respectively (ThT fluorescence assay) and degrades preformed fibrils by 80.16% and 89.30% respectively (TEM). Its inhibitory IC50 value against H3R is 1.09 nM (TRFRET). At concentrations of 5 μM, 10 μM, and 20 μM (WB), it reduces abnormal tau phosphorylation in PC12 cells. With a concentration of 11 μM, it enhances the survival rate of PC12 cells (treated with 800 μM H2O2) to 75.66%, reduces ROS levels, and increases the proportion of apoptotic cells significantly to 22.9%±0.36%. H3R antagonist 4 (5, 10, 20 μM) inhibits iron death in PC12 cells induced by RSL3, significantly enhancing cell viability and induced damage raises in vitro blood-brain barrier permeability. It chelates biometals such as Cu^2+, Zn^2+, Al^3+, and Fe^2+ (UV-vis spectrometry). In hPepT1-MDCK cells, it boosts PepT1 protein expression. At concentrations ranging from 0 to 80 μM (1h), H3R antagonist 4 shows anti-inflammatory effects in BV-2 cells without affecting proliferation.
In vivo	Compound 11l, an H3R antagonist, at doses of 2.5 and 5.0 mg/kg, was effective in ameliorating the neuropathological morphological alterations induced by scopolamine. Furthermore, it significantly improved cognitive deficits and spatial memory in mice

In vivo	models of Alzheimer's disease (AD).

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.7587 mL	8.7934 mL	17.5867 mL
5 mM	0.3517 mL	1.7587 mL	3.5173 mL
10 mM	0.1759 mL	0.8793 mL	1.7587 mL
50 mM	0.0352 mL	0.1759 mL	0.3517 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.