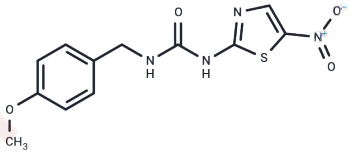
Data Sheet (Cat.No.T1881)

TargetMol

AR-A014418

Chemical Properties



CAS No. : 487021-52-3

Formula: C12H12N4O4S

Molecular Weight: 308.31

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	AR-A014418 (GSK 3β inhibitor VIII) is an ATP-competitive, and selective GSK3β inhibitor.
Targets(IC50)	GSK-3
In vitro	AR-A014418 inhibited neuroendocrine markers and inhibited the growth of neuroma cells in NGP cells and SH-5Y-SY cells.AR-A014418 inhibited neurodegeneration induced by β-like amyloid peptide in hippocampal slices.AR-A014418 inhibited the expression of tau in 3T3 fibroblasts expressing human four-repeat tau proteins at the GSK3-specific locus (Ser AR-A014418 inhibited tau phosphorylation at the GSK3-specific site (Ser-396) in 3T3 fibroblasts expressing human tetra-repeat tau protein with an IC50 of 2.7 μM and protected cultured N2A cells from death induced by blocking the PI3K/PKB pathway.
In vivo	AR-A014418 inhibited neuroendocrine markers and inhibited the growth of neuroma cells in NGP cells and SH-5Y-SY cells.AR-A014418 inhibited neurodegeneration induced by β-like amyloid peptide in hippocampal slices.AR-A014418 inhibited the expression of tau in 3T3 fibroblasts expressing human four-repeat tau proteins at the GSK3-specific locus (Ser AR-A014418 inhibited tau phosphorylation at the GSK3-specific site (Ser-396) in 3T3 fibroblasts expressing human tetra-repeat tau protein with an IC50 of 2.7 μM and protected cultured N2A cells from death induced by blocking the PI3K/PKB pathway.
Kinase Assay	GSK3 Scintillation Proximity Assay: The competition experiments are carried out in duplicate with 10 concentrations of the inhibitor in clear-bottomed microtiter plates. The biotinylated peptide substrate, biotin-AAEELDSRAGS(PO3H2)PQL, is added at a final concentration of 2 μM in an assay buffer containing 6 milliunits of recombinant human GSK3 (equal mix of both α and β), 12 mM MOPS, pH 7.0, 0.3 mM EDTA, 0.01% β-mercaptoethanol, 0.004% Brij 35, 0.5% glycerol, and 0.5 μg of bovine serum albumin/25 μl and preincubated for 10-15 min. The reaction is initiated by the addition of 0.04 μCi of [γ-33P]ATP and unlabeled ATP in 50 mM Mg(Ac)2 to a final concentration of 1 μM ATP and assay volume of 25 μl. Blank controls without peptide substrate are used. After incubation for 20 min at room temperature, each reaction is terminated by the addition of 25 μl of stop solution containing 5 mM EDTA, 50 μM ATP, 0.1% Triton X-100, and 0.25 mg of streptavidin-coated SPA beads corresponding to ~35 pmol of binding capacity. After 6 h the radioactivity is determined in a liquid scintillation counter. Inhibition curves are analyzed by non-linear regression using GraphPad Prism.

Cell Research	Cell viability is assessed by calcein/propidium iodide uptake. Calcein AM is taken up and cleaved by esterases present within living cells, yielding yellowish-green fluorescence, whereas PI is only taken up by dead cells, which become orange-red fluorescent. In brief, N2A cells are cultured for 2 days in vitro and then treated with 50 μM LY-294002 in the presence of AR-A014418 or vehicle (DMSO) for 24 h. Subsequently, N2A cells are incubated for 30 min with 2 μM PI and 1 μM calcein-AM. The cultures are then rinsed three times with Hanks' buffered saline solution containing 2 mM CaCl2, and the cells are visualized by fluorescence microscopy using a Zeiss Axiovert 135 microscope. Three fields (selected at random) are analyzed per well (300 cells/field) in at least three different experiments. Cell death is expressed as percentage of PI-positive cells from the total number of cells. In every experiment, specific cell death is obtained after subtracting the number of dead cells present in vehicle-treated cultures. (Only for Reference)

Solubility Information

Solubility	Ethanol: 1.5 mg/mL (4.87 mM),Sonication is recommended. DMSO: 30.8 mg/mL (99.9 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (6.49 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	3.2435 mL	16.2174 mL	32.4349 mL
5 mM	0.6487 mL	3.2435 mL	6.487 mL
10 mM	0.3243 mL	1.6217 mL	3.2435 mL
50 mM	0.0649 mL	0.3243 mL	0.6487 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.

Reference

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