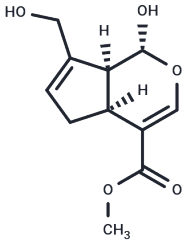
Data Sheet (Cat.No.T2210)

TargetMol

Genipin

Chemical Properties



CAS No. : 6902-77-8

Formula: C11H14O5

Molecular Weight: 226.23

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	Genipin ((+)-Genipin), an active aglycone derived from an iridoid glycoside called geniposide, is found in the fruit of Gardenia jasminoides Ellis.
Targets(IC50)	Autophagy
In vitro	Genipin stimulats glucose uptake in a time- and dose-dependent manner. The maximal effect is achieved at 2?h with a concentration of 10?μM. In myotubes, genipin promotes glucose transporter 4 (GLUT4) translocation to the cell surface, which increases the phosphorylation of insulin receptor substrate-1 (IRS-1), AKT, and GSK3β. Meanwhile, genipin increases ATP levels, closed KATP channels, and then increases the concentration of calcium in the cytoplasm in C2C12 myotubes. Genipin-stimulated glucose uptake could be blocked by both the PI3-K inhibitor wortmannin and calcium chelator EGTA. Moreover, genipin increases the level of reactive oxygen species and ATP in C2C12 myotubes[1]. Genipin increases mitochondrial membrane potential, which then increases ATP levels and closes KATP channels, thereby stimulating insulin secretion in pancreatic β-cells. Genipin activates glucose-excited POMC neurons[2]. Cytochrome c content increases significantly in the cytosol of genipin-treated FaO cells. Activation of caspase-3 and caspase-7 is ultimately responsible for genipin-induced apoptotic process in hepatoma cells. ROS level notably increases in Hep3B cells treated with 200 μM genipin[3].
Kinase Assay	Briefly, the peptide substrate N-acetyl-Asp-Glu-Val-Asp-ρ-nitroanilide (Ac-DEVD-ρNA) is added to the cell lysates in assay buffer (50 mM HEPES, pH 7.4, 100 mM NaCl, 0.1% CHAPS, 10 mM dithiothreitol, 1 mM EDTA, 10% glycerol) and incubated at 37°C. The cleavage of the substrate is monitored at 405 nm.

Solubility Information

Solubility	Ethanol: 45 mg/mL (198.91 mM),Sonication is recommended. H2O: 1 mg/mL (4.42 mM),Sonication is recommended. DMSO: 252.5 mg/mL (1116.12 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 (8.84 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one.*

In vivo Formulation	*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	4.4203 mL	22.1014 mL	44.2028 mL
5 mM	0.8841 mL	4.4203 mL	8.8406 mL
10 mM	0.442 mL	2.2101 mL	4.4203 mL
50 mM	0.0884 mL	0.442 mL	0.8841 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

Ma C, et al. Genipin stimulates glucose transport in C2C12 myotubes via IRS-1 and calcium- dependent mechanism. J Endocrinol. 2012 Dec 20.

Duan H, Li S, Hao P, et al.Activation of endogenous neurogenesis and angiogenesis by basic fibroblast growth factor-chitosan gel in an adult rat model of ischemic stroke.Neural Regeneration Research.2024, 19(2): 409-415.

Parton LE, et al. Glucose sensing by POMC neurons regulates glucose homeostasis and is impaired in obesity. Nature. 2007 Sep 13;449(7159):228-32.

Wu J, Huang Y, Yu H, et al.Chitosan-based thermosensitive hydrogel with longterm release of murine nerve growth factor for neurotrophic keratopathy.Neural Regeneration Research.2023

Kim BC, et al. Genipin-induced apoptosis in hepatoma cells is mediated by reactive oxygen species/c-Jun NH2-terminal kinase-dependent activation of mitochondrial pathway. Biochem Pharmacol. 2005 Nov 1;70(9):1398-407.

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