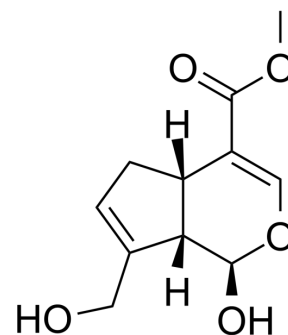


Genipin

Cat. No.:	HY-17389
CAS No.:	6902-77-8
Molecular Formula:	C ₁₁ H ₁₄ O ₅
Molecular Weight:	226.23
Target:	Autophagy
Pathway:	Autophagy
Storage:	4°C, protect from light * In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (442.03 mM)
 H₂O : 4 mg/mL (17.68 mM; Need ultrasonic)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.4203 mL	22.1014 mL	44.2028 mL
	5 mM	0.8841 mL	4.4203 mL	8.8406 mL
	10 mM	0.4420 mL	2.2101 mL	4.4203 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: PBS
Solubility: 9.09 mg/mL (40.18 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Genipin ((+)-Genipin) is a natural crosslinking reagent derived from *Gardenia jasminoides* Ellis fruits. Genipin inhibits UCP2 (uncoupling protein 2) in cells. Genipin has a variety of bioactivities, including modulation on proteins, antitumor, anti-inflammation, immunosuppression, antithrombosis, and protection of hippocampal neurons. Genipin also can be used for type 2 diabetes research^{[1][2]}.

In Vitro

Genipin increases mitochondrial membrane potential, increased ATP levels, closed KATP channels, and stimulated insulin secretion in pancreatic islet cells. Genipin causes suppression of insulin signal transduction through hyperactivation of c-Jun N-terminal kinase (JNK) and subsequent serine phosphorylation of insulin receptor substrate-1 (IRS-1), thus impairing insulin-stimulated glucose uptake in 3T3-L1 adipocytes^[1].

Genipin activates IRS-1, PI3-K, and downstream signaling pathway and increases concentrations of calcium, resulting in glucose transporter 4 (GLUT4) translocation and glucose uptake increase in C2C12 myotubes^[1].

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 μ M Genipin^[2].

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

PROTOCOL

Kinase Assay ^[3]

Briefly, the peptide substrate N-acetyl-Asp-Glu-Val-Asp-p-nitroanilide (Ac-DEVD-pNA) 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.

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

CUSTOMER VALIDATION

- Environ Pollut. 2021, 116840.
- Mol Neurobiol. 2021 May 4.
- Epigenetics. 2018;13(3):310-317.
- Hum Cell. 2021 Nov 22.
- Molecules. 2018 Mar 16;23(3). pii: E675.

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REFERENCES

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

[2]. 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.

[3]. Ye D, et al. Genipin normalizes depression-like behavior induced by prenatal stress through inhibiting DNMT1. Epigenetics. 2018 Mar 9:1-22.

Caution: Product has not been fully validated for medical applications. For research use only.

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