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, 1 years; -20°C, 6 months (protect from light)

**SOLVENT & SOLUBILITY**

**In Vitro**

DMSO: ≥ 100 mg/mL (442.03 mM)  
$H_2O$: 4 mg/mL (17.68 mM; Need ultrasonic)  
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (mg)</th>
<th>Concentration (mM)</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSO</td>
<td>1 mM</td>
<td>4.4203 mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.8841 mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.4420 mL</td>
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<td></td>
</tr>
</tbody>
</table>

Preparing Stock Solutions

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

**In Vivo**

1. 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

2. 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

3. 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

4. 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 \(\mu\)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-\(\rho\)-nitroanilide (Ac-DEVD-\(\rho\)NA) 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.
- Eur J Pharmacol. 2019 Feb 15;845:56-64.
- Hum Cell. 2021 Nov 22.

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REFERENCES


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

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