Isosteviol

Cat. No.: HY-N0872
CAS No.: 27975-19-5
Molecular Formula: \( \text{C}_{20}\text{H}_{30}\text{O}_{3} \)
Molecular Weight: 318.45
Target: Reactive Oxygen Species; Topoisomerase
Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-\( \kappa \)B; Cell Cycle/DNA Damage

Storage:
- Powder: -20°C, 3 years; 4°C, 2 years
- In solvent: -80°C, 2 years; -20°C, 1 year

SOLVENT & SOLUBILITY

In Vitro

DMSO: \( \geq 100 \text{ mg/mL (314.02 mM)} \)
* “≥” means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent</th>
<th>Mass Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mg</td>
<td>5 mg</td>
</tr>
<tr>
<td></td>
<td>10 mg</td>
<td></td>
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</tbody>
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<tr>
<td>1 mM</td>
<td>3.1402 mL</td>
<td>15.7011 mL</td>
<td>31.4021 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6280 mL</td>
<td>3.1402 mL</td>
<td>6.2804 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3140 mL</td>
<td>1.5701 mL</td>
<td>3.1402 mL</td>
</tr>
</tbody>
</table>

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: \( \geq 2.75 \text{ mg/mL (8.64 mM)} \); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-\( \beta \)-CD in saline)
   Solubility: \( \geq 2.75 \text{ mg/mL (8.64 mM)} \); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: \( \geq 2.75 \text{ mg/mL (8.64 mM)} \); Clear solution

BIOLOGICAL ACTIVITY

Description
Isosteviol (\( (-) \)-Isosteviol) is a derivative of Stevioside through acid catalyzed hydrolysis of Stevioside. Isosteviol inhibits DNA polymerase and DNA topoisomerase and has antibacterial, anticancer and anti-tuberculosis effects\[1\] [2] [3] [4].

In Vitro
Isosteviol (\( (-) \)-Isosteviol) dose-dependently relaxed the vasopressin (\( 10^{-8} \) M)-induced vasoconstriction in isolated aortic rings with or without endothelium. However, in the presence of potassium chloride (\( 3\times 10^{-2} \) M), the vasodilator effect of isosteviol...
on arterial strips disappeared. Only the inhibitors specific for the ATP-sensitive potassium (KATP) channel or small conductance calcium-activated potassium (SKCa) channel inhibited the vasodilator effect of isosteviol in isolated aortic rings contracted with $10^{-8}$ M vasopressin\[^1\].

The attenuation by isosteviol of the vasopressin- and phenylephrine-induced increase in $[\text{Ca}\^{2+}]_i$ was inhibited by glibenclamide, apamin and 4-aminopyridine but not by charybdotoxin. Furthermore, the inhibitory action of isosteviol on $[\text{Ca}\^{2+}]_i$ was blocked when A7r5 cells co-treated with glibenclamide and apamin in conjunction with 4-aminopyridine were present\[^2\].

Isosteviol (1-100 micromol/l) inhibits angiotensin-II-induced DNA synthesis and endothelin-1 secretion. Measurements of 2′,7′-dichlorofluorescin diacetate, a redox-sensitive fluorescent dye, showed an isosteviol-mediated inhibition of intracellular reactive oxygen species generated by the effects of angiotensin II\[^3\].

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

REFERENCES


