Costunolide

Cat. No.: HY-N0036
CAS No.: 553-21-9
Molecular Formula: C₁₅H₂₀O₂
Molecular Weight: 232.32
Target: Apoptosis
Pathway: Apoptosis
Storage:
- Powder: -20°C, 3 years; 4°C, 2 years
- In solvent: -80°C, 6 months; -20°C, 1 month

SOLVENT & SOLUBILITY

In Vitro
DMSO: ≥ 49 mg/mL (210.92 mM)

* “≥” means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>4.3044 mL</td>
<td>21.5220 mL</td>
<td>43.0441 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.8609 mL</td>
<td>4.3044 mL</td>
<td>8.6088 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.4304 mL</td>
<td>2.1522 mL</td>
<td>4.3044 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: ≥ 2.58 mg/mL (11.11 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.58 mg/mL (11.11 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.58 mg/mL (11.11 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Costunolide, a sesquiterpene lactone, exhibits anti-inflammatory and anti-oxidant properties and mediates apoptosis. IC₅₀ Value: 6.2 - 9.8 ug/mL(sarcoma cells viability)[3]
Target: Apoptosis inducer

in vitro: Costunolide significantly inhibited RANKL-induced BMM differentiation into osteoclasts in a dose-dependent manner without affecting cytotoxicity. Costunolide did not regulate the early signaling pathways of RANKL, including the mitogen-activated protein kinase and NF-κB pathways. However, costunolide suppressed nuclear factor of activated T-cells,
cytoplasmic 1 (NFATc1) expression via inhibition of c-Fos transcriptional activity without affecting RANKL-induced c-Fos expression. The inhibitory effects of costunolide were rescued by overexpression of constitutively active (CA)-NFATc1 [1]. Exposure of T24 cells to costunolide was also associated with increased expression of Bax, down-regulation of Bcl-2, survivin and significant activation of caspase-3, and its downstream target PARP [2]. Both costunolide and dehydrocostus lactone inhibited cell viability dose- and time-dependently. IC50 values ranged from 6.2 ug/mL to 9.8 ug/mL. Cells treated with costunolide showed no changes in cell cycle, little in caspase 3/7 activity, and low levels of cleaved caspase-3 after 24 and 48 h [3].
in vivo: Neither costunolide nor alpha-MGBL affected the blood-ethanol elevation in pylorus-ligated rats or that induced by intraperitoneal and intraduodenal ethanol administration [4]. Costunolide and alpha-MGBL suppressed gastric emptying in rats given 20% ethanol and 1% sodium carboxymethyl cellulose.

Clinical trial:

CUSTOMER VALIDATION


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REFERENCES


