Calpeptin

Cat. No.: HY-100223
CAS No.: 117591-20-5
Molecular Formula: C₂₀H₃₀N₂O₄
Molecular Weight: 362.46
Target: Cathepsin; Proteasome; Apoptosis
Pathway: Metabolic Enzyme/Protease; 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: ≥ 155 mg/mL (427.63 mM)
H₂O: < 0.1 mg/mL (insoluble)
* “≥” means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td></td>
<td>2.7589 mL</td>
<td>13.7946 mL</td>
<td>27.5893 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td></td>
<td>0.5518 mL</td>
<td>2.7589 mL</td>
<td>5.5179 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td></td>
<td>0.2759 mL</td>
<td>1.3795 mL</td>
<td>2.7589 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: ≥ 2.5 mg/mL (6.90 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.90 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Calpeptin is a potent, cell penetrating calpain inhibitor, with an IDs₀ of 40 nM for Calpain I in human platelets[1]. Calpeptin is also an inhibitor of cathepsin K[2].

IC₅₀ & Target
ID₅₀: 40 nM (Calpain I in human platelets)[1].
Cthepsin K[2]

In Vitro
Calpeptin (0-100 nM, 24 hours) treatment suppresses the proliferation of both WI38 VA13 and IMR90 cells in a dose-
dependent manner. Calpeptin (1000 pg/ml, 24 hours) inhibits IL-6-induced cell proliferation of lung fibroblasts[3].

**Cell Proliferation Assay**[3]

<table>
<thead>
<tr>
<th>Cell Line</th>
<th>WI38 VA13 and IMR90 cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
<td>0-100 nM</td>
</tr>
<tr>
<td>Incubation Time</td>
<td>24 hours</td>
</tr>
<tr>
<td>Result</td>
<td>Suppressed the proliferation in a dose-dependent manner.</td>
</tr>
</tbody>
</table>

**In Vivo**

Calpeptin with Bleo (0.04 mg/mouse, i.p., 3 times weekly, 28 days) administration significantly inhibits the collagen deposition and increases of calpain activity in the NSC-125066 treated mouse lung tissues[3].

<table>
<thead>
<tr>
<th>Animal Model</th>
<th>C57BL/6 female mice (Eight-week-old)[3].</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosage</td>
<td>0.04 mg/mouse.</td>
</tr>
<tr>
<td>Administration</td>
<td>Intraperitoneally three times weekly for 28 days (together with Bleo).</td>
</tr>
<tr>
<td>Result</td>
<td>Inhibited the collagen deposition and increase of calpain activity in the NSC-125066 treated mouse lung tissues.</td>
</tr>
</tbody>
</table>

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**REFERENCES**

