Arbutin

Cat. No.: HY-N0192
CAS No.: 497-76-7
Molecular Formula: C₁₂H₁₆O₇
Molecular Weight: 272.25
Target: Tyrosinase
Pathway: Metabolic Enzyme/Protease
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: ≥ 50 mg/mL (183.65 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<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>3.6731 mL</td>
<td>18.3655 mL</td>
<td>36.7309 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.7346 mL</td>
<td>3.6731 mL</td>
<td>7.3462 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3673 mL</td>
<td>1.8365 mL</td>
<td>3.6731 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 (9.18 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.18 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.18 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Arbutin (β-Arbutin) is a competitive inhibitor of tyrosinase in melanocytes, with $K_{i,app}$ values of 1.42 mM for monophenolase; 0.9 mM for diphenolase. Arbutin is also used as depigmenting agents[1]. Arbutin is a natural polyphenol isolated from the bearberry plant Arctostaphylos uva-ursi, possesses with anti-oxidant, anti-inflammatory and anti-tumor properties[2][3].

IC₅₀ & Target
Tyrosinase[1]
In Vitro

Arbutin (0.3-5.4 mM; 24 hours, 48 hours, 72 hours; B16 murine melanoma cells) inhibits the viability of B16 murine melanoma cells in a time- and dose-dependent manner[2]. Arbutin (1.4-5.4 mM; 24 hours) increases the apoptosis rate of B16 murine melanoma cell of treatment at a dose of 5.4 mM[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**Cell Viability Assay[2]**

<table>
<thead>
<tr>
<th>Cell Line</th>
<th>B16 murine melanoma cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
<td>0.3 mM, 0.7 mM, 1.4 mM, 2.1 mM, 2.9 mM, 3.6 mM, 5.4 mM</td>
</tr>
<tr>
<td>Incubation Time</td>
<td>24 hours, 48 hours or 72 hours</td>
</tr>
<tr>
<td>Result</td>
<td>Inhibited the viability of B16 murine melanoma cells in a time- and dose-dependent manner.</td>
</tr>
</tbody>
</table>

**Apoptosis Analysis[2]**

<table>
<thead>
<tr>
<th>Cell Line</th>
<th>B16 murine melanoma cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration</td>
<td>1.4 mM, 2.9 mM, 5.4 mM</td>
</tr>
<tr>
<td>Incubation Time</td>
<td>24 hours</td>
</tr>
<tr>
<td>Result</td>
<td>Caused apoptosis in 19.3% of the cells.</td>
</tr>
</tbody>
</table>

In Vivo

Arbutin (50 mg/kg, 100 mg/kg; oral administration; every day; for 17 days; male C57BL/6 mice) pretreatment exhibits markedly protective effects on ISO-induced cardiac hypertrophy in mice[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**Animal Model:** Male C57BL/6 mice (20-25 g)[3]

<table>
<thead>
<tr>
<th>Dosage</th>
<th>50 mg/kg, 100 mg/kg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>Oral administration; every day; for 17 days</td>
</tr>
<tr>
<td>Result</td>
<td>Ameliorated the ISO-induced myocardial injury.</td>
</tr>
</tbody>
</table>

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REFERENCES


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