Formononetin

Cat. No.: HY-N0183  
CAS No.: 485-72-3  
Molecular Formula: $C_{16}H_{12}O_4$  
Molecular Weight: 268.26  
Target: FGFR; Apoptosis  
Pathway: Protein Tyrosine Kinase/RTK; Apoptosis  
Storage: Powder -20°C 3 years  
4°C 2 years  
In solvent -80°C 1 year  
-20°C 6 months

SOLVENT & SOLUBILITY

In Vitro  
DMSO: ≥ 35 mg/mL (130.47 mM)  
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.7277 mL</td>
<td>18.6386 mL</td>
<td>37.2773 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.7455 mL</td>
<td>3.7277 mL</td>
<td>7.4555 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3728 mL</td>
<td>1.8639 mL</td>
<td>3.7277 mL</td>
<td></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 (9.32 mM); Suspended solution; Need ultrasonic  
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: 2.5 mg/mL (9.32 mM); Suspended solution; Need ultrasonic  
3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (9.32 mM); Clear solution

BIOLOGICAL ACTIVITY

Description  
Formononetin is a potent FGFR2 inhibitor with an IC<sub>50</sub> of ~4.31 μM. Formononetin potently inhibits angiogenesis and tumor growth<sup>[1]</sup>.

IC<sub>50</sub> & Target  
FGFR2  
4.31 μM (IC<sub>50</sub>)
In Vitro

Formononetin is one of the major isoflavonoid constituents isolated from Astragalus membranaceus and has been demonstrated to possess diverse pharmacological benefits. Formononetin possesses anti-angiogenic activity in human colon cancer cells. Formononetin also promotes cell cycle arrest via downregulation of Akt/Cyclin D1/CDK4 in human prostate cancer cells.[1]. Formononetin (25 to 150 μM) markedly decreases the proliferation of endothelial cells stimulated by FGF2[1].

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

Cell Viability Assay[1]

<table>
<thead>
<tr>
<th>Cell Line:</th>
<th>HUVECs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration:</td>
<td>0, 10, 25, 50, 75, 100, and 150 μM</td>
</tr>
<tr>
<td>Incubation Time:</td>
<td></td>
</tr>
<tr>
<td>Result:</td>
<td>Significantly decreased the proliferation of HUVECs stimulated by FGF2 in a dose-dependent manner, while had little inhibitory effects on HUVECs that were not stimulated by FGF2.</td>
</tr>
</tbody>
</table>

In Vivo

Formononetin dramatically suppresses tumor volumes and the Formononetin-treated group tumor weight are significantly inhibited compared with the vehicle group. Formononetin treatment is well tolerated, and there is no significant difference in weight between vehicle group and formononetin treated groups.[1].

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


Dosage: 100 mg/kg

Administration: Treated daily by intragastric administration for 25 days

Result: Inhibited breast cancer growth and angiogenesis in vivo.

CUSTOMER VALIDATION

- Phytother Res. 2023 Apr 1.

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REFERENCES
