Ferulic acid methyl ester

**Cat. No.:** HY-W018643

**CAS No.:** 2309-07-1

**Molecular Formula:** C_{11}H_{12}O_4

**Molecular Weight:** 208.21

**Target:** p38 MAPK; Autophagy

**Pathway:** MAPK/ERK Pathway; Autophagy

**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: ≥ 100 mg/mL (480.28 mM)
- H₂O: 2 mg/mL (9.61 mM; Need ultrasonic)

* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>4.8028 mL</td>
<td>24.0142 mL</td>
<td>48.0284 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.9606 mL</td>
<td>4.8028 mL</td>
<td>9.6057 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.4803 mL</td>
<td>2.4014 mL</td>
<td>4.8028 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 (12.01 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (12.01 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (12.01 mM); Clear solution

**BIOLOGICAL ACTIVITY**

**Description**

Ferulic acid methyl ester (Methyl ferulate) is a derivative of ferulic acid, isolated from Stemona tuberosa, with anti-inflammatory and antioxidant properties[1][2]. Ferulic acid methyl ester is a cell membrane and brain permeable compound, shows free radical scavenging ability, used in the research of neurodegenerative disorders[1]. Ferulic acid methyl ester inhibits COX-2 expression, blocks p-p38 and p-JNK in primary bone marrow derived-macrophages[2].

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<table>
<thead>
<tr>
<th>IC₅₀ &amp; Target</th>
<th>p38</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Vitro</strong></td>
<td>Ferulic acid methyl ester (25 µg/mL) has no cytotoxic effects on BMDMs after treatment for 6 h, 18 h, 48 h[^2]. Ferulic acid methyl ester (Methyl ferulate; 5, 10, 25 µg/mL) suppresses TNFα, IL6, IFNγ but not IL10, inhibits NO generation at 10 and 25 µg/mL, in primary bone marrow derived-macrophages (BMDMs)[^2]. Ferulic acid methyl ester (25 µg/mL) inhibits COX-2 expression, blocks p-p38 and p-JNK[^2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.</td>
</tr>
</tbody>
</table>

|--------------------------|--------------------------------------------------|-----------------------|-------------------------------|------------------------------------------|

<table>
<thead>
<tr>
<th>Western Blot Analysis[^2]</th>
<th>Cell Line: RAW 246.7 cells</th>
<th>Concentration: 10 µg/mL and 25 µg/mL</th>
<th>Incubation Time: For 1 h before stimulation with LPS</th>
<th>Result: Significantly suppressed COX-2 expression at 25 µg/mL.</th>
</tr>
</thead>
</table>

**REFERENCES**
