Flupirtine Maleate

Cat. No.: HY-17001
CAS No.: 75507-68-5
Molecular Formula: \( C_{19}H_{21}FN_4O_6 \)
Molecular Weight: 420.39
Target: Potassium Channel; iGluR
Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling
Storage: 4°C, sealed storage, away from moisture

* In solvent: -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

### SOLVENT & SOLUBILITY

**In Vitro**

DMSO: 100 mg/mL (237.87 mM; Need ultrasonic)

H\(_2\)O: 1.43 mg/mL (3.40 mM; ultrasonic and warming and heat to 60°C)

<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>1 mM</td>
<td>2.3787 mL</td>
<td>11.8937 mL</td>
<td>23.7874 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4757 mL</td>
<td>2.3787 mL</td>
<td>4.7575 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2379 mL</td>
<td>1.1894 mL</td>
<td>2.3787 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 (5.95 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.95 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.95 mM); Clear solution

### BIOLOGICAL ACTIVITY

**Description**

Flupirtine Maleate is a brain penetrant, and orally bioavailable, non-opioid and centrally acting analgesic agent. Flupirtine Maleate is an indirect N-methyl-D-aspartate receptor (NMDAR) antagonist. Neuroprotective properties\(^1\)\(^2\).

**In Vitro**

Flupirtine (0.1, 1, and 10 mM; 24 hours) significantly reduces the growth and viability of U373 malignant glioma cells with the \( \text{GI}_{50} \) of 0.47 mM. Flupirtine has neuroprotective effect on U373 MG cells\(^3\).

Flupirtine Maleate is active at the KCNQ and GABA\(_A\) channels in the range of 10-30 μM\(^4\)

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

Cell Viability Assay\(^3\)
### Cell Line

<table>
<thead>
<tr>
<th>Cell Line</th>
<th>U373 malignant glioma cell lines</th>
</tr>
</thead>
</table>

### Concentration

<table>
<thead>
<tr>
<th>Concentration</th>
<th>0.001, 0.01, 0.1, 1, and 10 mM</th>
</tr>
</thead>
</table>

### Incubation Time

<table>
<thead>
<tr>
<th>Incubation Time</th>
<th>24 hours</th>
</tr>
</thead>
</table>

### Result

The growth of U373 MG cells was significantly reduced at high doses (1 and 10 mM) of flupirtine compared with low doses (0.001 to 0.1 mM) and control dose.

### In Vivo

Flupirtine (5 and 10 mg/kg) induces acute neuroprotection, reduces motor coordination impairment and ameliorates recombinant tissue plasminogen activator (rtPA)-induced toxicity[^2].

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

<table>
<thead>
<tr>
<th>Animal Model</th>
<th>Male C57BL6 mice (22-25 g each)[^2]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosage</td>
<td>1, 5, 10 mg/kg</td>
</tr>
<tr>
<td>Administration</td>
<td>Single intraperitoneal injection during post-ischemic reperfusion</td>
</tr>
<tr>
<td>Result</td>
<td>Both 5 and 10 mg/kg reduced infarct volumes on day 2 post-stroke, no effect was observed with 1 mg/kg.</td>
</tr>
</tbody>
</table>

### Customer Validation


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### References


