Omberacetam

Cat. No.: HY-17456
CAS No.: 157115-85-0
Molecular Formula: C₁₇H₂₂N₂O₄
Molecular Weight: 318.37
Target: iGluR
Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling
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 (314.10 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>3.1410 mL</td>
<td>15.7050 mL</td>
<td>31.4100 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6282 mL</td>
<td>3.1410 mL</td>
<td>6.2820 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3141 mL</td>
<td>1.5705 mL</td>
<td>3.1410 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 (7.85 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (7.85 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Omberacetam (GVS-111) is a medication promoted and prescribed in Russia and neighbouring countries as a nootropic.

In Vitro
Nooglutil exhibits pharmacologically significant competition with a selective agonist of AMPA receptors ([G-3H]Ro 48-8587) for the receptor binding sites (with IC₅₀ = 6.4 ±/− 0.2 microM), while the competition of noopept for these...
receptor binding sites was lower by an order of magnitude (IC50 = 80 +/- 5.6 microM) [1]. GVS-111 significantly increased neuronal survival after H(2)O(2)-treatment displaying a dose-dependent neuroprotective activity from 10 nM to 100 microM, and an IC(50) value of 1.21 +/- 0.07 microM. GVS-111 inhibited the accumulation of intracellular free radicals and lipid peroxidation damage in neurons treated with H(2)O(2) or FeSO(4), suggesting an antioxidant mechanism of action [2].

<table>
<thead>
<tr>
<th>In Vivo</th>
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<tbody>
<tr>
<td>N-Phenylacetyl-L-prolylglycine ethyl ester (GVS-111) administered intravenously at a dose of 0.5 mg/kg/day, for the first time 1 h after ischaemic lesion and then for 9 post-operative days, with the last administration 15 min before testing, attenuated the deficit [3]. GVS-111 itself was not found in rat brain 1 h after 5 mg/kg i.p. administration up to limit of detection (LOD) under high performance liquid chromatography (HPLC) conditions [4]. The most pronounced antiinflammatory effect of dipeptide was observed on the model of adjuvant arthritis in rats, where the drug administered over 25 days in a daily dose of 0.5 mg/kg (i.m.) or 5 mg/kg (p.o.) significantly reduced the chronic immune inflammation (on the 12th day, by 94.0 and 74.1%, respectively) [5].</td>
</tr>
</tbody>
</table>

**REFERENCES**


