ML204

Cat. No.: HY-12949  
CAS No.: 5465-86-1  
Molecular Formula: C₁₅H₁₈N₂  
Molecular Weight: 226.32

Target: TRP Channel

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 
- Pure form: 
  -20°C: 3 years  
  4°C: 2 years  
- In solvent: 
  -80°C: 6 months  
  -20°C: 1 month

SOLVENT & SOLUBILITY

In Vitro

Ethanol: 50 mg/mL (220.93 mM; Need ultrasonic)  
DMSO: ≥ 37 mg/mL (163.49 mM)  
H₂O: < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (mL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mg</td>
<td>22.0926 mL</td>
</tr>
<tr>
<td>5 mg</td>
<td>44.1852 mL</td>
</tr>
<tr>
<td>10 mg</td>
<td>44.1852 mL</td>
</tr>
</tbody>
</table>

Preparing Stock Solutions

1 mM: 4.4185 mL  
5 mM: 0.8837 mL  
10 mM: 0.4419 mL

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 (11.05 mM); Clear solution

2. Add each solvent one by one: 
   10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: 2.5 mg/mL (11.05 mM); Suspended solution; Need ultrasonic

3. Add each solvent one by one: 
   10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (11.05 mM); Clear solution

BIOLOGICAL ACTIVITY

ML204 is a novel potent antagonist that selectively modulates native TRPC4/C5 ion channels. IC₅₀ value:

Target: TRPC4/C5 inhibitor ML204 inhibited TRPC4β-mediated intracellular Ca²⁺ rise with an IC(50) value of 0.96 μM and exhibited 19-fold selectivity against muscarinic receptor-coupled TRPC6 channel activation. In whole-cell patch clamp...
recordings, ML204 blocked TRPC4β currents activated through either μ-opioid receptor stimulation or intracellular dialysis of guanosine 5′-3-O-(thio)triphosphate (GTPγS), suggesting a direct interaction of ML204 with TRPC4 channels rather than any interference with the signal transduction pathways. Selectivity studies showed no appreciable block by 10-20 μM ML204 of TRPV1, TRPV3, TRPA1, and TRPM8, as well as KCNQ2 and native voltage-gated sodium, potassium, and calcium channels in mouse dorsal root ganglion neurons. In isolated guinea pig ileal myocytes, ML204 blocked muscarinic cation currents activated by bath application of carbachol or intracellular infusion of GTPγS, demonstrating its effectiveness on native TRPC4 currents [1]. ML204 blocked TRPC4 channels in an electrophysiological assay with an IC value of 2.6 μM and was also active in fluorescent and electrophysiological assays in which TRPC4 channels were activated by different mechanisms, indicating direct block of TRPC4 channels. Selectivity for block of TRPC4 channels was examined in fluorescent and electrophysiological experiments against closely related TRPC channels and more distantly related TRPV, TRPA and TRPM channels, and against non-TRP ion channels. ML204 afforded good selectivity (19-fold) against TRPC6 channels and more modest selectivity against TRPC3 and TRPC5 (9-fold) channels [2].

REFERENCES
