Chlorthalidone

Cat. No.: HY-15833
CAS No.: 77-36-1
Molecular Formula: C₁₄H₁₁ClN₂O₄S
Molecular Weight: 338.77
Target: Others
Pathway: Others
Storage: Powder -20°C 3 years
         4°C 2 years
         In solvent -80°C 2 years
                  -20°C 1 year

SOLVENT & SOLUBILITY

In Vitro
DMSO: ≥ 41 mg/mL (121.03 mM)
* “≥” means soluble, but saturation unknown.

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>2.9519 mL</td>
<td>14.7593 mL</td>
<td>29.5186 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.5904 mL</td>
<td>2.9519 mL</td>
<td>5.9037 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2952 mL</td>
<td>1.4759 mL</td>
<td>2.9519 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: ≥ 2.08 mg/mL (6.14 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.14 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Chlorthalidone is a thiazide-like diuretic used to treat hypertension.

In Vivo
Chlorthalidone is a thiazide-like diuretic. After oral intake, peak serum concentrations are achieved in 2-6 hours. The half-life of Chlorthalidone is approximately 42 (range 29-55) hours, reaching 45-60 hours after long-term dosing. However, interindividual variability in the half-life of Chlorthalidone is wide. Chlorthalidone is excreted unchanged by the kidneys. The natriuretic effect of Chlorthalidone is maximal at 18 hours and lasts more than 48 hours. Comparing different doses of Chlorthalidone, it has been observed that 25 mg daily is nearly as effective as higher doses, but with less risk of hypokalemia [1]. Chlorthalidone reduces calcium oxalate calculous recurrence but magnesium hydroxide does not. The effectiveness of Chlorthalidone or magnesium hydroxide is examined in the prevention of recurrent calcium oxalate kidney calculi. In a
double-blind random allocation design daily dosages of 25 or 50 mg. Chlorthalidone, 650 or 1,300 mg. magnesium hydroxide, or an identical placebo are administered. All groups showed significantly decreased calculous events compared to the pretreatment rates. During the trial 56.1 per cent fewer calculi than predicted developed in the placebo group (p less than 0.01), whereas the groups receiving low and high dosage magnesium hydroxide showed 73.9 and 62.3 per cent fewer calculi, respectively (p less than 0.001 and less than 0.01, respectively). Chlorthalidone treatment results in a 90.1 per cent decrease from predicted rates and both dosages yielded similar results. When the treatments are compared Chlorthalidone is significantly better than the placebo or magnesium hydroxide (p less than 0.01). The large decreases in calculous events seen when placebo or ineffective therapy is given underscore the positive treatment bias that occurs when historical controls are used and they demonstrate the need for proper experimental design[2].

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

REFERENCES
