BD-AcAc 2

Cat. No.: HY-15344  
CAS No.: 1208313-97-6  
Molecular Formula: C₈H₁₆O₄  
Molecular Weight: 176.21  
Target: Reactive Oxygen Species  
Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB  
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**  
DMSO: ≥ 50 mg/mL (283.75 mM)  
H₂O: 33.33 mg/mL (189.15 mM; ultrasonic and heat to 60°C)  
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>Mass (mg)</th>
<th>Concentration (M)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>5.6750 mL</td>
<td>6.7500</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>1.1350 mL</td>
<td>11.3501</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.5675 mL</td>
<td>5.6750</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 (14.19 mM); Clear solution  
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: ≥ 2.5 mg/mL (14.19 mM); Clear solution  
3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (14.19 mM); Clear solution

**BIOLOGICAL ACTIVITY**

**Description**  
BD-AcAc 2, added in diet, could elevated mean blood ketone bodies of 3.5 mm and lowered plasma glucose, insulin, and leptin in animals; ketone ester given orally would delay CNS-OT seizures in rats breathing hyperbaric oxygen. IC₅₀ value: Target a ketone ester given orally as R,S-1,3-butanediol acetoacetate diester (BD-AcAc(2)) would delay CNS-OT seizures in rats breathing hyperbaric oxygen (HBO(2)). Adult male rats (n = 60) were implanted with radiotelemetry.
units to measure electroencephalogram (EEG). One week postsurgery, rats were administered a single oral dose of BD-AcAc(2), 1,3-butanediol (BD), or water 30 min before being placed into a hyperbaric chamber and pressurized to 5 atmospheres absolute (ATA) O2 [1]. Beginning at a presymptomatic age, 2 groups of male 3xTgAD mice were fed a diet containing a physiological enantiomeric precursor of ketone bodies (KET) or an isocaloric carbohydrate diet. The results of behavioral tests performed at 4 and 7 months after diet initiation revealed that KET-fed mice exhibited significantly less anxiety in 2 different tests. 3xTgAD mice on the KET diet also exhibited significant, albeit relatively subtle, improvements in performance on learning and memory tests. Immunohistochemical analyses revealed that KET-fed mice exhibited decreased Aβ deposition in the subiculum, CA1 and CA3 regions of the hippocampus, and the amygdala [2].

REFERENCES
