Thiabendazole

Cat. No.: HY-B0263  
CAS No.: 148-79-8  
Molecular Formula: $C_{10}H_7N_3S$  
Molecular Weight: 201.25  
Target: Mitochondrial Metabolism; Parasite  
Pathway: Metabolic Enzyme/Protease; Anti-infection  
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: 50 mg/mL (248.45 mM; Need ultrasonic)  
H$_2$O: 0.1 mg/mL (0.50 mM; Need ultrasonic)  

Preparation of 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>4.9689 mL</td>
<td>24.8447 mL</td>
<td>49.6894 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.9938 mL</td>
<td>4.9689 mL</td>
<td>9.9379 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.4969 mL</td>
<td>2.4845 mL</td>
<td>4.9689 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 (12.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.5 mg/mL (12.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Thiabendazole inhibits the mitochondrial helminth-specific enzyme, fumarate reductase, with anthelminthie property.  
Target: Fumarate Reductase  
Thiabendazole serves to block angiogenesis in both frog embryos and human cells. It has also been shown to serve as a vascular disrupting agent to reduce newly established blood vessels. Thiabendazole has been shown to effectively do this in certain cancer cells. Thiabendazole works by inhibition of the mitochondrial, helminth-specific enzyme, fumarate reductase, with possible interaction with endogenous quinone [1]. Thiabendazole inhibited B16F10 proliferation in vitro in a dose- and time-dependent manner with an IC50 of $532.4 \pm 32.6, 322.9 \pm 28.9, 238.5 \pm 19.8$ microM at 24, 48, and 72 h, respectively. Moreover, thiabendazole inhibited the angiogenesis and the migration of B16F10 cells in vitro. Furthermore, thiabendazole restrained transcription and translation of the VEGF gene in B16F10 in vitro, and the apoptotic percentage of B16F10 cells was increased after exposure to thiabendazole [2].
REFERENCES
