Liothyronine sodium

Cat. No.: HY-A0070  
CAS No.: 55-06-1  
Molecular Formula: C₁₅H₁₁I₃NNaO₄  
Molecular Weight: 672.96  
Target: Thyroid Hormone Receptor  
Pathway: Others  
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: ≥ 42 mg/mL (62.41 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>1.4860 mL</td>
<td>7.4299 mL</td>
<td>14.8597 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.2972 mL</td>
<td>1.4860 mL</td>
<td>2.9719 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1486 mL</td>
<td>0.7430 mL</td>
<td>1.4860 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 (3.09 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   Solubility: ≥ 2.08 mg/mL (3.09 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   Solubility: ≥ 2.08 mg/mL (3.09 mM); Clear solution

BIOLOGICAL ACTIVITY

Description  
Liothyronine sodium is an active form of thyroid hormone, which binds to β1 thyroid hormone receptor (TRβ1), and activates its activity.

IC₅₀ & Target  
TRβ1[1][2]

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**In Vitro**

Liothyronine (T3, 100 nM) stimulates the proliferation of hepatocarcinoma cells in which TRβ1 is overexpressed\(^1\). Liothyronine binds to human β1 thyroid hormone receptor (hTRβ1), and change its conformation. Liothyronine promotes growth, induces differentiation and regulates metabolic effects\(^2\).

**PROTOCOL**

**Cell Assay**\(^1\)

Thyroid hormone depleted (Td) serum is prepared. The growth of hepatocarcinoma cells in methylcellulose is performed. To determine the effect of Liothyronine (T3) on the growth of cells, cells are plated at a density of \(3 \times 10^4\) cells/60 mm dish on day 0, and incubated in medium containing 5% regular serum, 5% Td or 5% Td and 100 nM T3. The colony formation in methylcellulose is scored 3 weeks after initial plating\(^1\).

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

**REFERENCES**
