Oxythiamine

Cat. No.: HY-107430
CAS No.: 136-16-3
Molecular Formula: C₁₂H₁₆N₃O₂S
Molecular Weight: 266.34
Target: Others
Pathway: Others
Storage: Powder -20°C 3 years
In solvent -80°C 6 months
-20°C 1 month

SOLVENT & SOLUBILITY

In Vitro

DMSO : 51.67 mg/mL (194.00 mM; Need ultrasonic)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent</th>
<th>Mass</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Concentration</td>
<td>1 mg</td>
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<tr>
<td>1 mM</td>
<td></td>
<td>3.7546 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td></td>
<td>0.7509 mL</td>
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<tr>
<td>10 mM</td>
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<td>0.3755 mL</td>
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</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: ≥ 2.58 mg/mL (9.69 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.58 mg/mL (9.69 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.58 mg/mL (9.69 mM); Clear solution

BIOLICAL ACTIVITY

Description
Oxythiamine, an antimetabolite and a vitamin B1 antagonist, is a well-known thiamine antagonist and inhibitor of transketolase.

IC₅₀ & Target
Vitamin B1, Thiamine, Transketolase[1].

In Vitro
Oxythiamine, an antimetabolite and a vitamin B1 antagonist, is a well-known thiamine antagonist and inhibitor of transketolase. Oxythiamine alters protein expression in a dose dependent manner. The level of alpha-enolase is
increased by Oxythiamine treatment, while expression of 14-3-3 protein beta/alpha is suppressed by Oxythiamine at a stratified dose. Oxythiamine causes dynamic changes of total protein expression in time dependent fashion. Oxythiamine suppresses expression of cellular phosphor proteins significantly[2].

**PROTOCOL**

**Cell Assay**[2]

Human pancreatic carcinoma cell line MIA PaCa-2 is used throughout the study. Experiments are set up in two groups: dose and time-dependent groups. For the dose-dependent group, the cells are stimulated with 5, 50 and 500 μM Oxythiamine (OT) for 48 hours, respectively. The unstimulated cells are considered as control. For the time-dependent group, the cells are stimulated with 50 μM Oxythiamine in MEM containing natural amino acids or 50% of 15 N algal amino acid mixture for 12 and 48 h. The unstimulated cells are considered as the zero time point. Each treatment is repeated four times with 10 mL/flask. The cell pellets are then collected for further analysis[2].

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

**REFERENCES**
