Tamoxifen

Cat. No.: HY-13757A
CAS No.: 10540-29-1
Molecular Formula: C₂₆H₂₉NO
Molecular Weight: 371.51
Target: Estrogen Receptor/ERR; HSP; Autophagy
Pathway: Others; Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Autophagy
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 : ≥ 30 mg/mL (80.75 mM)
H₂O : < 0.1 mg/mL (insoluble)
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<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></td>
<td>2.6917 mL</td>
<td>13.4586 mL</td>
<td>26.9172 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td></td>
<td>0.5383 mL</td>
<td>2.6917 mL</td>
<td>5.3834 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td></td>
<td>0.2692 mL</td>
<td>1.3459 mL</td>
<td>2.6917 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 (5.60 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.08 mg/mL (5.60 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.60 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Tamoxifen (ICI 47699) is a selective estrogen receptor modulator (SERM) which blocks estrogen action in breast cells and can activate estrogen activity in other cells, such as bone, liver, and uterine cells[1][2][3]. Tamoxifen is a potent Hsp90 activator and enhances the Hsp90 molecular chaperone ATPase activity[4].

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<table>
<thead>
<tr>
<th>IC₅₀ &amp; Target</th>
<th>Estrogen receptor</th>
<th>HSP90</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Vitro</strong></td>
<td>Tamoxifen (ICI 47699) shows strong inhibition of MCF-7 cells (EC₅₀=1.41 μM) and to a lesser extent the T47D cells (EC₅₀=2.5 μM) but does not affect the MDA-MB-231 cells[2].</td>
<td></td>
</tr>
<tr>
<td><strong>In Vivo</strong></td>
<td>The Tamoxifen-inducible gene knockout strategy has clear advantages in that expression of a gene can be ablated in adult mice at will in a tissue specific manner. To study the role of Med1 in adult heart, 7-week old TmcsMed1⁻/⁻ mice are given a daily intraperitoneal injection of Tamoxifen at a dose of 65 mg/kg for 5 days and killed at selected intervals thereafter. qPCR analysis of RNA shows that the Med1 expression begin to decrease after 3 days of Tamoxifen injection (about 70% decrease), and by 5 days of injection, Med1 expression is almost non-detectable in the heart. Tamoxifen-inducible cardiac-specific disruption of Med1 (TmcsMed1⁻/⁻) in adult mice causes dilated cardiomyopathy[3].</td>
<td></td>
</tr>
</tbody>
</table>

**PROTOCOL**

**Animal Administration** [3]

Seven-week old TmcsMed1⁻/⁻ mice and the wild-type littermates are then administered Tamoxifen intraperitoneally at a daily dose of 65 mg/kg body weight for 5 days and then killed at selected intervals after initiation of Tamoxifen treatment. For each experiment 3 to 5 mice for control and csMed1⁻/⁻ are used. To obtain survival curve 41 csMed1⁻/⁻ and 41 csMed1fl/fl mice are used. Thirteen TmcsMed⁻/⁻ mice and the same number of littermates are used for the survival curve experiments using Tamoxifen inducible model. The specific criteria for animal euthanasia included absence of food or water intake, slow or no mobility, weak or absence of heart beat, absence of palpitation of the chest as well as absence of respiratory movement. Mice are euthanized by intraperitoneal pentobarbital injection at the dose of 150mg/kg body weight to minimize suffering.

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

**CUSTOMER VALIDATION**

- Biomacromolecules. 2015 Sep 14;16(9):2701-14.

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**REFERENCES**


