Dihydrotanshinone I

Cat. No.: HY-N0360
CAS No.: 87205-99-0
Molecular Formula: C₁₈H₁₄O₃
Molecular Weight: 278.3
Target: SARS-CoV
Pathway: Anti-infection
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: 4.76 mg/mL (17.10 mM; Need ultrasonic)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.5932 mL</td>
<td>17.9662 mL</td>
<td>35.9324 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.7186 mL</td>
<td>3.5932 mL</td>
<td>7.1865 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3593 mL</td>
<td>1.7966 mL</td>
<td>3.5932 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: 0.48 mg/mL (1.72 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.48 mg/mL (1.72 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.48 mg/mL (1.72 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Dihydrotanshinone I is a natural compound extracted from Salvia miltiorrhiza Bunge which has been widely used for treating cardiovascular diseases. Dihydrotanshinone I exhibits entry-blocking effect for MERS-CoV.

In Vitro
In lipopolysaccharide (LPS)-stimulated human umbilical vein endothelial cells (HUVECs), DHT (10 nM) decreases lectin-like ox-LDL receptor-1 (LOX-1) and NADPH oxidase 4 (NOX4) expression, reactive oxygen species (ROS) production, NF-κB nuclear translocation, ox-LDL endocytosis and monocytes adhesion[3]. Dihydrotanshinone I
induces caspase dependent apoptosis induced in HCT116 cells. Dihydrotanshinone I induces concentration and ROS dependent caspase activation. Apoptosis induced by Dihydrotanshinone I is completely prevented by Z-VAD-fmk. Apoptosis induced by Dihydrotanshinone I is significantly inhibited by pretreatment of Z-LEHD-fmk but only is partially inhibited by Z-IETD-fmk. Apoptosis induced by Dihydrotanshinone I is significantly increased by caspase-2 knockdown[3].

### In Vivo

DHT (10 and 25 mg/kg) significantly attenuates atherosclerotic plaque formation, alters serum lipid profile, decreases oxidative stress and shrinks necrotic core areas in ApoE^{-/-} mice. DHT dramatically inhibits the enhanced expression of LOX-1, NOX4, and NF-κB in aorta[1]. Dihydrotanshinone I (1, 2, 4 mg/kg) treatment can improve cardiac function, reduce infarct size, ameliorate the variations in myocardial zymogram and histopathological disorders, decrease 20-HETE generation, and regulate apoptosis-related protein in myocardial ischemia-reperfusion rats[2].

### PROTOCOL

#### Kinase Assay [3]

Cells are treated with various concentrations of Dihydrotanshinone I (3.13-20 µM) for 48 h. For the activity assay, Ac-DEVD-AMC (1 µg/µL), Ac-IETD-AMC (1 µg/µL) or Ac-LEDH-AMC (1 µg/µL) and cell lysate are added into Protease Assay Buffer in 96-well plate. Reaction mixtures with lysis buffer are used as negative controls. Cells treated with DMSO (0.1%) are treated as vehicle control. The reaction mixtures are incubated for 1 h at 37°C. The AMC liberated from the substrates is measured using spectrofluorometer of Victor 2 plate reader with an excitation wavelength of 380 nm and an emission wavelength of 430 nm.

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

#### Animal Administration [1]

Male ApoE^{-/-} mice (6-8 weeks old) on C57BL/6J background and age-matched wild-type C57BL/6J controls housed in SPF-grade animal facilities with a 12 h light/dark cycle, at 23°C (±2°C). Starting from 6 weeks, the mice are fed with a HCD (54.35% raw grain, 20% lard, 0.15% cholesterol, 15% sucrose, 0.5% Sodium Cholate, 10% yolk powder) for 12 weeks. All ApoE^{-/-} mice are dosed daily via intragastric gavage with 10 and 25 mg/kg Dihydrotanshinone I dissolved in 0.5% CMC-Na or administered 0.5% CMC-Na alone (vehicle control) (n=8 per group).

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

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### REFERENCES


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Tel: 609-228-6898  Fax: 609-228-5909  E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA