Description: Tanshinone I, an active principle isolated from the herbal medicine Salvia miltiorrhiza, displays cytotoxicity against tumor cells.

Storage: 2 years -80°C in solvent; 3 years -20°C powder;

Solubility

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMSO</td>
<td>6 mg/mL (21.7 mM)</td>
</tr>
<tr>
<td>Ethanol</td>
<td>&lt;1 mg/mL</td>
</tr>
<tr>
<td>Water</td>
<td>&lt;1 mg/mL</td>
</tr>
</tbody>
</table>

(< 1 mg/ml refers to the product slightly soluble or insoluble)

Receptor (IC50)

<table>
<thead>
<tr>
<th>Receptor</th>
<th>IC50</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLA2</td>
<td>11μM</td>
</tr>
</tbody>
</table>

In vivo Activity

Tanshinone I shows anti-inflammatory activity in rat carrageenan-induced paw oedema and adjuvant-induced arthritis. In order to establish the anti-inflammatory activity of Tanshinone I, the classical animal models of acute and chronic inflammation [rat carrageenan (CGN)-induced paw oedema and rat adjuvant-induced arthritis (AIA)] are employed. When Tanshinone I is orally administered, it shows significant anti-inflammatory activity against CGN-induced paw oedema (47% inhibition at 160 mg/kg), while the IC50 of indomethacin is 7.1 mg/kg. In AIA, Tanshinone I gives 27% inhibition of secondary inflammation at 18 day with an oral dose of 50 mg/kg/day, whereas prednisolone (5 mg/kg/day) shows potent inhibition (65%)[1].

Kinase Assay

As sources of PLA2, human recombinant sPLA2 (type IIa) is purified from CHO cells transfected with the PLA2 gene and rabbit recombinant platelet cPLA2 is obtained through its expression in baculovirus. The standard reaction mixture (200 μL) contained 100 mM Tris-HCl buffer (pH 9.0) with 6 mM CaCl2 and 20 nmol 1-acyl-[1-14C]-arachidonyl-sn-glycerophosphoethanolamine (2000 cpm/nmol) in the presence or absence of Tanshinone I. The reaction is started by adding 50 ng purified sPLA2 or cPLA2. After 20 min at 37°C, the free fatty acid generated is analysed. Under these standard conditions, the reaction mixture in the absence of Tanshinone I released approximately 10% of free fatty acid from the phospholipid substrate added[1].

Cell Assay

RAW 264.7 cells are cultured with DMEM supplemented with 10% FBS and 1% antibiotics under 5% CO2 at 37°C. Briefly, cells are plated in 96-well plates (2×105 cells/well). LPS (1 ug/mL) and Tanshinone I are simultaneously added and incubated for 24 h, unless otherwise specified. The PGE2 concentration in the medium is measured using an EIA kit for PGE2. In order to determine the effects of Tanshinone I on PGE2 production after induction of COX-2, cells are incubated with LPS (1 ug/mL) for 24 h and thoroughly washed. Then, Tanshinone I is added without LPS and the cells are incubated for another 24 h. From the medium, PGE2 concentrations are measured. The cytotoxicity of Tanshinone I to RAW cells is checked using the MTT assay. Tanshinone I does not show any cytotoxicity up to 100 uM[1].

Cell line:

Animal Experiment

Animal Model: Mice

Reference

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