Cynaropicrin

Cat. No.: HY-N2350
CAS No.: 35730-78-0
Molecular Formula: C₁₉H₂₂O₆
Molecular Weight: 346.37
Target: MMP; NF-κB; TNF Receptor
Pathway: Metabolic Enzyme/Protease; NF-κB; Apoptosis
Storage: Please store the product under the recommended conditions in the COA.

Solvent & Solubility

In Vitro 10 mM in DMSO

<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><strong>Solvent</strong></td>
<td>1 mM</td>
<td>2.8871 mL</td>
<td>14.4354 mL</td>
</tr>
<tr>
<td><strong>Concentration</strong></td>
<td>5 mM</td>
<td>0.5774 mL</td>
<td>2.8871 mL</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td>10 mM</td>
<td>0.2887 mL</td>
<td>1.4435 mL</td>
</tr>
</tbody>
</table>

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description
Cynaropicrin is a sesquiterpene lactone which can inhibit tumor necrosis factor (TNF-α) release with IC₅₀ values of 8.24 and 3.18 μM for murine and human macrophage cells, respectively. Cynaropicrin also inhibits the increase of cartilage degradation factor (MMP13) and suppresses NF-κB signaling.

IC₅₀ & Target
MMP13; NF-κB; TNF-α

In Vitro
Cynaropicrin strongly inhibits lipopolysaccharide-induced TNF-α release from either murine or human macrophage cells in a dose-dependent manner with the IC₅₀ values of 8.24 and 3.18 μM, respectively. Cynaropicrin shows significant inhibitory effects toward all mitogenic signals with the IC₅₀ values of 1.20 (concanavalin A), 1.02 (phytohemagglutinin) and 0.90 μM (lipopolysaccharide), respectively. Cynaropicrin suppresses CTLL-2 cell proliferation in a dose-dependent manner and the 50% inhibitory concentration (IC₅₀) of Cynaropicrin for CTLL-2 cell growth is 0.91 μM[1]. The increased mRNA expression of MMP13 induced by TNF-α is similarly inhibited in a concentration-dependent manner by Cynaropicrin. The increased mRNA expression of HIF-2α induced by IL-1β in SW1353 is inhibited in a concentration-dependent manner by Cynaropicrin[2].
PROTOCOL

Cell Assay [1]

Human U937 cells are cultured in RPMI1640 supplemented with 10% fetal bovine serum. To differentiate U937 cells, 2×10^6 cells/mL are treated with phorbol 12-myristate 13-acetate (PMA) of 20 ng/mL for 24 h. The PMA is removed by washing and adherent cells are then allowed to recuperate for 40 h. The recuperated cells are subsequently incubated with lipopolysaccharide of 1 μg/mL for 6 h with Cynaropicrin and positive control drugs. Supernatants are harvested and assayed by ELISA kit for human TNF-α[1].

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

Animal Administration [3]

Male Swiss mice are used in this study. Mice are housed at a maximum of 8 per cage and kept in a conventional room at 20 to 24°C under a 12 h to 12 h light-dark cycle. The animals are provided with sterilized water and chow ad libitum. Infection is performed by i.p. injection of 10^4 or 5×10^3 bloodstream trypomastigotes. The animals (18 to 21 g) are divided into the following groups (at least five mice per group): uninfected (noninfected and untreated), untreated (infected with T. cruzi but treated only with vehicle), and treated (infected and treated i.p. with 0.5 to 50 mg/kg/day compound (including Cynaropicrin) or 100 mg/kg/day benznidazole). Mice receive 0.1 mL (i.p.) at 5 and 8 days postinfection (dpi), or at 11, 12, and 13 dpi for the dose of 25 mg/kg, twice a day (b.i.d).[3].

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

REFERENCES

