1-O-Acetylbritannilactone

Cat. No.: HY-N0896
CAS No.: 33627-41-7
Molecular Formula: C₁₇H₂₄O₅
Molecular Weight: 308.37
Target: NF-κB; COX
Pathway: NF-κB; Immunology/Inflammation
Storage: 4°C, protect from light

Solvent & Solubility

<table>
<thead>
<tr>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>3.2429 mL</td>
<td>16.2143 mL</td>
<td>32.4286 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.6486 mL</td>
<td>3.2429 mL</td>
<td>6.4857 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.3243 mL</td>
<td>1.6214 mL</td>
<td>3.2429 mL</td>
</tr>
</tbody>
</table>

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

BIOLOGICAL ACTIVITY

Description
1-O-Acetylbritannilactone is an active compound isolated from Inula Britannica L. 1-O-Acetylbritannilactone inhibits VEGF-mediated activation of Src and FAK. 1-O-Acetylbritannilactone inhibits LPS-induced PGE₂ production and COX-2 expression, and NF-κB activation and translocation.

IC₅₀ & Target
Src, FAK[¹]
PGE₂, COX-2, NF-κB[²]

In Vitro
1-O-Acetylbritannilactone (ABL) inhibits angiogenesis and lung cancer cell growth through regulating VEGF-Src-FAK signaling. 1-O-Acetylbritannilactone dose-dependently inhibits vascular endothelial growth factor (VEGF)-induced proliferation, migration, and capillary structure formation of cultured human umbilical vascular endothelial cells (HUVECs). Treatment of A549 NSCLC cells with 1-O-Acetylbritannilactone results in cell growth inhibition and Src-FAK in-activation. The potential effect of 1-O-Acetylbritannilactone is tested on Src and FAK phosphorylation in A549 lung cancer cells. Significant high levels of Src and FAK phosphorylations are noticed in A549 cells, which are both inhibited by treatment of 1-O-Acetylbritannilactone (5 μM and 10 μM). Src and FAK are both important for cancer cell proliferation. Thus, A549 cell growth, tested by MTT assay and clonogenicity assay, is remarkably inhibited by corresponding 1-O-Acetylbritannilactone treatment. The anti-A549 cell growth activity of 1-O-Acetylbritannilactone is...
again dose-dependent\textsuperscript{[1]}.

\textbf{In Vivo}

Administration of a single dose of 1-O-Acetylbritannilactone (12 mg/kg/day) remarkably suppresses growth of A549 xenografts in nude mice. In vivo microvessels formation and Src activation are also significantly inhibited in 1-O-Acetylbritannilactone -treated xenograft tumors. To investigate the potential activity of 1-O-Acetylbritannilactone in vivo, a nude mice xenograft model is applied. A single dose of 1-O-Acetylbritannilactone (12 mg/kg/day, i.p.) dramatically inhibits the growth of A549 xenografts in nude mice. Further, the weights of 1-O-Acetylbritannilactone-treated tumors are remarkably lighter than that of vehicle-treated tumors. Notably, 1-O-Acetylbritannilactone administration does not affect mice body weights\textsuperscript{[1]}.

\textbf{PROTOCOL}

\textbf{Cell Assay} \textsuperscript{[1]}

HUVECs or A549 cells \textsuperscript{[1]} are plated in 60 mm plates (300 cells/plate). After overnight incubation, cells are treated with applied agents (e.g., 1-O-Acetylbritannilactone; 5 \(\mu\)M and 10 \(\mu\)M) for 24 h. Cells are then washed, and fresh media are added. After 10 days of incubation, surviving colonies are fixed, stained, and manually counted\textsuperscript{[1]}.

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

\textbf{Animal Administration} \textsuperscript{[1]}

\textbf{Mice} \textsuperscript{[1]}

\textbf{Male nude mice (4-6 weeks old, BALB/c)} are used. A549 cells (five million cells in 0.1 mL of culture medium) are subcutaneously injected at the right thigh of nude mice, and treatment is started when the tumors reach an average volume about 100 mm\textsuperscript{3}. Animals are randomized into two groups with 10 mice per group: (a) Vehicle; (b) 12 mg/kg of 1-O-Acetylbritannilactone. 1-O-Acetylbritannilactone is injected intraperitoneally (i.p.) daily. The mice are examined daily for toxicity/mortality relevant to treatment, and the tumor is measured with a caliper every two days. The tumor volume (in mm\textsuperscript{3}) is calculated, and the tumor growth curve is presented. At the end of experiments, xenograft tumors are isolated through surgery and weighted\textsuperscript{[1]}.

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

\textbf{CUSTOMER VALIDATION}

- Phytomedicine. 2018 Nov.

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\textbf{REFERENCES}


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