Isoliquiritigenin
NLRP3 inflammasome inhibitor
Catalog # inh-ilg

For research use only
Version # 15A22-MM

PRODUCT INFORMATION
Contents:
• 10 mg Isoliquiritigenin
Storage and stability:
- Isoliquiritigenin is provided lyophilized and shipped at room temperature. Store at -20°C. Lyophilized isoliquiritigenin is stable for 2 years when properly stored.
- Upon resuspension, prepare aliquots of isoliquiritigenin and store at -20°C. Resuspended isoliquiritigenin is stable for 6 months when properly stored.
Quality control:
- Purity >95% (liquid chromatography).
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) is confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.
- The inhibitory activity of the product is validated using InvivoGen’s inflammasome inhibition assay (see Methods section).

DESCRIPTION
Isoliquiritigenin (ILG), a simple chalcone-type flavonoid isolated from licorice root (Glycyrrhiza uralensis), exhibits anti-oxidant, anti-inflammatory, and anti-tumor activities. ILG was recently reported to block LPS-induced TLR4/MD2 complex signaling and NF-kB activation, and to inhibit NLRP3-activated ASC oligomerization. Interestingly, NLRP3-dependent IL-1β production has been inhibited with low concentrations of ILG (1 to 10 μM). Thus, ILG can block the NLRP3 inflammasome at both the priming step and the activation step.

METHODOLOGICAL
Preparation of 10 mg/ml (39 mM) stock solution
- Add 1 ml of DMSO to 10 mg isoliquiritigenin. Mix by vortexing.
- Prepare further dilutions by adding the appropriate amount of endotoxin-free water.

Inflammasome inhibition assay:
The following protocol describes the monitoring of inflammasome inhibition by isoliquiritigenin in the human monocytic THP1-Null cell line by measuring the inhibition of IL-1β production. The cells are grown in suspension to a density of 1.0 x 10⁶ cells/ml in RPMI 1640 medium supplemented with 10% heat inactivated fetal bovine serum.
1. Prime cells by adding 1 mg/ml LPS for 3 hours at 37 °C in 5% CO₂.
2. Wash cells gently with PBS and add fresh culture medium.
3. Stimulate cells by adding IL-1β inducers, such as ATP (5 mM) or MSU crystals (100-200 mg/ml), in the presence or absence of isoliquiritigenin (1-50 μg/ml).
4. Incubate from 6 hours to overnight at 37°C in 5% CO₂.
5. Determine caspase-1 inhibition by detecting mature IL-1β in the supernatant of THP-1 cells by Western blot; or by ELISA, using a kit such as LumiKine™ hIL-1β; or with InvivoGen’s HEK-Blue™ IL-1β reporter cells, which are specifically engineered to detect bioactive IL-1β.

PROTOCOLS (For reference only)
Cell Culture Assay:
Cells: RAW 264.7 cells
Working concentration: 30 μM (7.7 μg/ml)
Pre-incubation: 30 minutes
Method: NF-kB activation was monitored by measuring GFP expression from reporter construct using flow cytometry.

Animal Study:
Animal model: BALB/c mice
Dose: 50 mg/kg
Administration: Orally

RELATED PRODUCTS

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<th>Product</th>
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<td>ATP</td>
<td>Adenosine 5’-triphosphate</td>
<td>tflr-apt</td>
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<td>HEK-Blue™ IL-1β cells</td>
<td>IL-1β reporter cells</td>
<td>hkb-il1b</td>
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<td>LumiKine™ hIL-1β</td>
<td>Bioluminescent ELISA kit</td>
<td>lumi-hil1b</td>
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<td>Monosodium urate crystal</td>
<td>tflr-msu</td>
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<td>Parthenolide</td>
<td>Caspase-1 inhibitor</td>
<td>inhr-pdt</td>
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<td>Z-VAD-FMK</td>
<td>NLRP3 &amp; caspase-1 inhibitor</td>
<td>tflr-vad</td>
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