**BAY 11-7082**
Inhibitor of NF-κB, IκB kinase, and the NLRP3 inflammasome - InvitroFit™

Catalog code: tlrl-b82, tlrl-b82-5
https://www.invivogen.com/bay11-7082

For research use only
Version 23L08-MM

**PRODUCT INFORMATION**

**Contents**
BAY 11-7082 is available in two quantities:
- tlrl-b82: 10 mg BAY 11-7082 -InvitroFit™
- tlrl-b82-5: 5 x 10 mg BAY 11-7082 -InvitroFit™

**Storage and stability**
- BAY 11-7082 is shipped at room temperature. Upon receipt, store at -20 °C.
- Upon resuspension, prepare aliquots and store at -20 °C. Resuspended product is stable for at least 3 months at -20 °C when properly stored. Avoid repeated freeze-thaw cycles.

**Quality control**
- Purity: ≥95% (UHPLC)
- The inhibitory activity has been confirmed using in-house cellular assays.
- The absence of bacterial contamination (e.g., lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

**DESCRIPTION**

BAY 11-7082 was first described as an irreversible inhibitor of the NF-κB pathway. Specifically, it inhibits the phosphorylation of IκB-α, which is essential for the release of NF-κB from the cytosolic IκB-α/NF-κB complex. The transcription factor NF-κB regulates multiple aspects of innate and adaptive immune functions and serves as a pivotal mediator of inflammatory responses.

Further studies have revealed that BAY 11-7082 has multiple targets, including the NLRP3 inflammasome sensor. The NLRP3 inflammasome is activated by a two-step process. First, a priming step induces the NF-κB-dependent transcription of pro-IL-1β and of the NLRP3 sensor. The second step triggers the multimerization of the activated sensor with ASC and pro-caspase-1 molecules. This assembly allows caspase-1 self-activation, in turn induces the maturation and secretion of IL-1β and IL-18 cytokines, along with alarmins, and a pyroptotic cell death. Thus, BAY 11-7082 may inhibit the inflammasome responses indirectly by preventing the nuclear translocation of NF-κB at the priming step. Moreover, BAY 11-7082 was shown to exhibit direct inhibitory functions on the NLRP3 inflammasome by blocking the sensor's ATPase activity. Of note, this inhibitor does not affect the NLRP1 inflammasome but it may partially inhibit the Salmonella-induced NLRC4 inflammasome. To conclude, BAY 11-7082 has been reported to display broad-spectrum anti-inflammatory activities and influence various physiological processes.


**CHEMICAL PROPERTIES**

**CAS number:** 19542-67-7

**Synonym:** (E)-3-(4-Methylphenylsulfonyl)-2-propenenitrile

**Formula:** C_{10}H_{9}NO_{2}S

**Molecular weight:** 207.25 g/mol

**Solubility:** 25 mg/ml in DMSO and 15 mg/ml in ethanol

**Structure:**

![Chemical structure of BAY 11-7082](https://www.invivogen.com/bay11-7082)

**METHODS**

**Preparation of stock solution (50 mM)**
1. Add 965 μl DMSO to 10 mg BAY 11-7082 vial.
2. Vortex until completely resuspended.
3. Prepare aliquots of BAY 11-7082 and store at -20 °C.
4. Once BAY 11-7082 is resuspended, further dilutions can be prepared using sterile aqueous buffers.

**Working concentration:** 1-20 μM for cell culture assays

**PROTOCOLS**

For reference only; as described in the indicated publications.

**Cell Culture Assay**
- **Cells:** Bone marrow-derived macrophages
- **Working concentration:** 1 - 10 μM
- **Incubation time:** 30 min - 3 h
- **Method:** ELISA

**Cell Culture Assay**
- **Cells:** NCI-H1703 cells non-small cell lung carcinoma cell line
- **Working concentration:** 8 μM
- **Incubation time:** 12 h
- **Method:** Cell proliferation

**RELATED PRODUCTS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
<th>Cat. Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ac-YVAD-cmk</td>
<td>Caspase -1 inhibitor</td>
<td>inh-yvad</td>
</tr>
<tr>
<td>MCC950</td>
<td>NLRP3-inflammasome inhibitor</td>
<td>inh-mcc</td>
</tr>
</tbody>
</table>

**TECHNICAL SUPPORT**

InvivoGen USA (Toll-Free): 888-457-5873
InvivoGen USA (International): +1 (858) 457-5873
InvivoGen Europe: +33 (0) 5-62-71-69-39
InvivoGen Asia: +852 3622-34-80
E-mail: info@invivogen.com

www.invivogen.com