**PRODUCT INFORMATION**

**Content:**
Nigericin is provided as a sodium salt and is available in two quantities:
- 10 mg : tlrl-nig
- 50 mg : tlrl-nig-5

**Storage and stability:**
- Nigericin is shipped at room temperature. Store at -20 °C. Upon resuspension, nigericin are should be stored at 4 °C for short term storage or -20 °C for long storage.
- Resuspended product is stable for 1 month at 4 °C and for 1 year at -20°C when properly stored.

**Quality control:**
- The biological activity of nigericin is confirmed using the inflammasome induction assay based on THP1-Null cells and HEK-Blue™ IL-1β cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) is confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

**DESCRIPTION**

Nigericin is a microbial toxin derived from *Streptomyces hygroscopicus*. Nigericin acts as a potassium ionophore. The release of IL-1β in response to nigericin has been demonstrated to be NALP3-dependent. Similar to ATP, nigericin induces a net decrease in intracellular levels of potassium which is crucial for the activation of caspase-1. Nigericin requires signaling through pannexin-1 to induce caspase-1 maturation and IL-1β processing and release.


**CHEMICAL PROPERTIES**

**CAS Number:** 28643-80-3
**Synonym:** Antibiotic K178, Polyetherin A
**Molecular weight:** 746.94
**Formula:** C40H67NaO11
**Purity:** ≥98.0%
**Appearance:** White powder
**Solubility:** Ethanol 5 mg/ml

**METHODS**

**Solubilization of Nigericin**
- Prepare a 5 mg/ml (6.7 mM) nigericin stock solution in 100% ethanol.
- Prepare further dilutions by adding the appropriate amount of endotoxin-free water.

**Detection of NLRP3 inflammasome induction**
Secretion of IL-1β is an indicator of the NLRP3 inflammasome induction. The activation and release of IL-1β requires two distinct signals: the first signal leads to the transcriptional upregulation and synthesis of pro-IL-1β; the second signal leads to IL-1β maturation and secretion through the activation of NLRP3 inflammasome.

The synthesis of pro-IL-1β can be induced by priming human monocytic THP-1 cells for 3 h with PMA (phorbol 12-myristate 13-acetate; 300 ng/ml) or LPS (lipopolysaccharide, 1 μg/ml). Subsequent stimulation with 1 μM nigericin leads to the formation of NLRP3 inflammasome resulting in IL-1β maturation and secretion. Secreted IL-1β can be detected by Western blot or ELISA. Alternatively, InvivoGen recommends the use of HEK-Blue™ IL-1β cells, a reporter cell line that specifically detects bioactive IL-1β. These cells express an NF-κB and AP-1-inducible SEAP (secreted alkaline phosphatase) reporter gene. The presence of IL-1β leads to NF-κB and AP-1 activation and the subsequent secretion of SEAP. Levels of SEAP can be easily determined with HEK-Blue™ Detection or QUANTI-Blue™ detection media that turn purple/blue in the presence of alkaline phosphatase. HEK-Blue™ Detection is designed for high-throughput detection of SEAP, while QUANTI-Blue™ is more sensitive and designed for the detection and quantification of SEAP.

**RELATED PRODUCTS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Catalog Code</th>
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<tbody>
<tr>
<td>HEK-Blue™ IL-1β Cells</td>
<td>hkb-il1b</td>
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<tr>
<td>LPS-EB (LPS from <em>E.coli K12</em>)</td>
<td>tlrl-eklps</td>
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<td>Other inflammasome inducers:</td>
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<tr>
<td>Alum crystals</td>
<td>tlrl-alk</td>
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<tr>
<td>CPPD crystals</td>
<td>tlrl-cppd</td>
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<td>Hemozoin</td>
<td>tlrl-hz</td>
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<td>MSU crystals</td>
<td>tlrl-msu</td>
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<tr>
<td>Poly(dA:dT)</td>
<td>tlrl-pat</td>
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