**PRODUCT INFORMATION**

**Contents:**
100 mg laminarin provided as a powder

**Storage and stability:**
- Laminarin is shipped at room temperature. Store at 15-25°C.
- Upon reuspension, laminarin is stable for at least 1 month at 2-8°C when properly stored.

**Quality control:**
- The inhibitory and stimulatory activities are tested using HEK-Blue™ hDectin-1b cells and HEK-Blue™ hDectin-1a cells, respectively.
- The presence of other bacterial contamination (e.g. lipoproteins) is assessed using HEK-Blue™ TLR4 cells.

- The absence of endotoxin contamination is confirmed using HEK-Blue™ TLR2 cells. Some batch-to-batch variation may occur, which may result in TLR2 activity.

**DESCRIPTION**

Laminarin from the brown seaweed *Laminaria digitata* is a linear β-(1→3)-glucan with β-(1→6)-linkages. Laminarin is a low molecular weight (6 kDa), water-soluble β-glucan that can act either as a Dectin-1 antagonist or agonist. It can bind to Dectin-1 without stimulating downstream signaling and is able to block binding to Dectin-1 of particulate β-(1→3)-glucans, such as zymosan. The activity of laminarin on Dectin-1 seems to vary depending on the purity of the laminarin preparation and the Dectin-1 isoform used. Cells expressing the human Dectin-1b isoform do not respond to laminarin, whereas cells expressing the human Dectin-1a isoform are highly responsive to laminarin. The laminarin preparation provided by InvivoGen contains no detectable levels of endotoxin unlike other commercially available preparations.


**CHEMICAL PROPERTIES**

**CAS number:** 9008-22-4

**Synonym:** β(1→3), 1→6)-glucan

**Appearance:** Off-white to slightly brown powder

**Solubility:** 20 mg/ml in water

**Partial Structure:**

![Partial Structure Diagram]

**METHODS**

**Preparation of laminarin stock solution (10 mg/ml)**
- Weigh 10 mg of laminarin.
- Add 1 ml of water to the 10 mg of laminarin. Vortex to homogenize.

**Note:** Rehydration of laminarin provides a clear faintly yellow solution.

**Quality control:**
- Upon resuspension, laminarin is stable for at least 1 month at 2-8°C when properly stored.
- Laminarin is shipped at room temperature. Store at 15-25 °C.

**Working concentration:** 1-100 µg/ml

**Blocking Dectin-1b activity using laminarin**
Laminarin can be used to block Dectin-1b activity in cells expressing Dectin-1b, such as the HEK-Blue™ hDectin-1b cells. These HEK293 cells were transfected with the human Dectin-1b gene and other genes from the Dectin-1 signaling pathway. These cells also stably express a secreted embryonic alkaline phosphatase (SEAP) reporter gene. For more information visit: http://www.invivogen.com/hek-blue-hdectin1b
- Add 20 µl of laminarin (1-100 µg/ml) in a well of a 96-well plate.
- Add 160 µl of HEK-Blue™ hDectin-1b cells (5 x 10⁴ cells) per well.
- Incubate cells and laminarin for 1 h at 37 °C, 5% CO₂.
- Stimulate cells with 20 µl of a dectin-1 agonist (e.g. Zymosan, 1-10 µg/ml) for 16-24 h at 37°C, 5% CO₂.
- Determine inhibition of Dectin-1b activation by assessing SEAP expression using a SEAP detection medium, such as QUANTI-Blue™.

**Activating Dectin-1a using laminarin**
Laminarin can be used to activate Dectin-1a in cells expressing Dectin-1a, such as the HEK-Blue™ hDectin-1a cells. These HEK293 cells were transfected with the human Dectin-1a gene and other genes from the Dectin-1 signaling pathway. These cells also stably express a secreted embryonic alkaline phosphatase (SEAP) reporter gene. For more information visit: http://www.invivogen.com/hek-blue-hdectin1a
- Add 20 µl of laminarin (1-100 µg/ml) in a well of a 96-well plate.
- Add 180 µl of HEK-Blue™ hDectin-1a cells (5 x 10⁴ cells) per well.
- Incubate cells and laminarin for 16-24 h at 37 °C, 5% CO₂.
- Determine of Dectin-1a activation by assessing SEAP expression using a SEAP detection medium, such as QUANTI-Blue™.

**RELATED PRODUCTS**

<table>
<thead>
<tr>
<th>Product</th>
<th>Catalog Code</th>
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<tbody>
<tr>
<td>HEK-Blue™ hDectin-1a</td>
<td>hkb-hdect1a</td>
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<tr>
<td>HEK-Blue™ hDectin-1b</td>
<td>hkb-hdect1b</td>
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<tr>
<td>QUANTI-Blue™</td>
<td>rep-qbl</td>
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<td>Other Dectin-1 ligands:</td>
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<tr>
<td>Beta-glucan peptide</td>
<td>tlr-bgp</td>
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<tr>
<td>Curdlan AL</td>
<td>tlr-curd</td>
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<tr>
<td>Zymosan</td>
<td>tlr-zyn</td>
</tr>
</tbody>
</table>

**TECHNICAL SUPPORT**

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