Laminarin
Soluble beta-glucan from Laminaria digitata; Dectin-1 ligand
Catalog code: tlrl-lam
http://www.invivogen.com/laminarin

For research use only
Version # 18A10-MM

PRODUCT INFORMATION

Content:
100 mg laminarin provided as a powder

Storage and stability:
- Laminarin is shipped at room temperature. Store at 15-25°C.
- Upon resuspension, 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 and HEK-Blue™ hDectin-1a cells, respectively. 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 10⁵ 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™.

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 of Laminarin]

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.

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 10⁵ 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 10⁵ 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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<td>QUANTI-Blue™</td>
<td>rep-qb1</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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<td>Curdlan AL</td>
<td>tlr-curd</td>
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<tr>
<td>Zymosan</td>
<td>tlr-zyn</td>
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</tbody>
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