

Pustulan

Beta-glucan from *Lasallia pustulata* - Dectin-1 ligand

Catalog # ttrl-pst

For research use only

Version # 13H20-MM

PRODUCT INFORMATION

Content:

100 mg pustulan

Storage and stability:

- Pustulan is shipped at room temperature. Store at room temperature.
- Upon resuspension, pustulan is stable at least 1 month at 4°C.

DESCRIPTION

Pustulan is a median molecular weight (20 kDa), linear (1-6) linked β -D-glucan from lichen *Lasallia pustulata*. Pustulan is recognized by the membrane bound Dectin-1, a C-type lectin-like pattern recognition receptor¹. Detection of β -glucans by Dectin-1 receptor leads to the CARD9-dependent activation of NF- κ B and MAP kinases². Studies have shown that pustulan can stimulate innate immune responses, inducing heat shock protein expression, eliciting phagocytosis³, and production of proinflammatory cytokines⁴.

1. Willment JA. et al., 2001. Characterization of the human beta -glucan receptor and its alternatively spliced isoforms. *J Biol Chem.* 276(47):43818-23. **2. Goodridge HS. et al., 2009.** Beta-glucan recognition by the innate immune system. *Immunol Rev.* 230(1):38-50. **3. Rubin-Bejerano I. et al., 2007.** Phagocytosis by human neutrophils is stimulated by a unique fungal cell wall component. *Cell Host Microbe.* 2(1):55-67. **4. Noss I. et al., 2013.** Comparison of the potency of a variety of β -glucans to induce cytokine production in human whole blood. *Innate Immun.* 19(1):10-9.

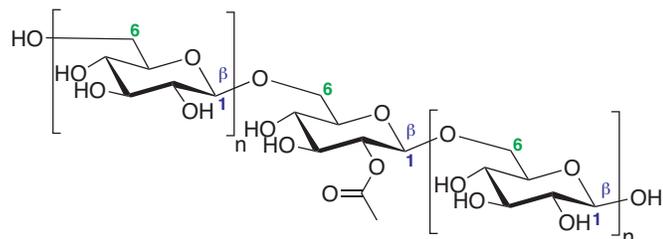
CHEMICAL PROPERTIES

CAS number: 37331-28-5

Synonym: β (1 \rightarrow 6)-glucan

Appearance: Off-white to slightly brown powder

Partial Structure:



METHODS

Preparation of pustulan suspension (1 mg/ml)

Stimulation of Dectin-1 can be achieved with 1 - 100 μ g/ml of pustulan.
- Weigh 10 mg of pustulan in a round-bottom tube.
- Add 10 ml of water to the 10 mg of pustulan. Vortex to homogenize. Dispense water in a single expulsion to avoid the formation of clumps.

Note: Pustulan is insoluble and results in a non-homogeneous suspension with gelatinous precipitates. Avoid the use of conical tubes.

Detection of pustulan-induced dectin-1 activation

Activation of Dectin-1 by pustulan can be determined using Dectin-1 expressing cells, including the murine macrophage RAW-Blue™ cells. These cells express Dectin-1 and a SEAP (secreted embryonic alkaline phosphatase) reporter construct inducible by NF- κ B and AP-1. Expression of SEAP can be assessed in the cell supernatant using the SEAP detection medium QUANTI-Blue™.

- Add 20 μ l of pustulan suspension (suggested concentration range 0.1 - 100 μ g/ml) in a well of a 96-well plate.
- Add 180 μ l of RAW-Blue™ cell suspension (~100,000 cells) per well.
- Incubate the plate for 20 - 24 h at 37°C, 5% CO₂.
- Collect 50 μ l of supernatant and add to a well of a 96-well plate containing 150 μ l of QUANTI-Blue™.
- Incubate the plate at 37°C incubator for 1 - 3 h.
- Determine SEAP levels using a spectrophotometer at 620-655 nm.

RELATED PRODUCTS

Product	Catalog Code
RAW-Blue™ Cells	raw-sp
QUANTI-Blue™	rep-qb1
Other Dectin-1 ligands:	
HKCA (heat killed <i>C.albicans</i>)	ttrl-hkca
HKSC (heat killed <i>S.cerevisiae</i>)	ttrl-hksc
Lichenan ((1,3/1,4- β -glucan from <i>C.islandica</i>)	ttrl-lich
Zymosan (cell wall preparation from <i>S.cerevisiae</i>)	ttrl-zyn
Zymosan depleted (hot alkali treated zymosan)	ttrl-dzn
WGP Dispersible (1,3/1,6- β -glucan from <i>S.cerevisiae</i>)	ttrl-wgp
WGP Soluble (control for WGP Dispersible)	ttrl-wgsp

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 Hong Kong: +852 3622-3480

E-mail: info@invivogen.com