

Scleroglucan

Beta-glucan from *Sclerotium rolfsii*; Dectin-1 ligand

Catalog code: tlrl-scg

<https://www.invivogen.com/scleroglucan>

For research use only

Version 19K13-MM

PRODUCT INFORMATION

Contents

- 100 mg scleroglucan

Storage and stability:

- Scleroglucan is shipped at room temperature. Store at room temperature (15-25°C).
- Upon resuspension, scleroglucan is stable for at least 1 month at 2-8°C.

Quality control:

- The biological activity has been validated using cellular assays.

DESCRIPTION

Scleroglucan is a high molecular weight (>1000 kDa) polysaccharide produced by fermentation of the filamentous fungus *Sclerotium rolfsii*. Scleroglucan consists of a linear $\beta(1-3)$ D-glucose backbone with one $\beta(1-6)$ D-glucose side chain every three main residues. Scleroglucan is recognized by Dectin-1¹ and strongly activates HEK-Blue™ Dectin-1 and RAW-Blue™ cells. Detection of β -glucans by Dectin-1 receptor leads to the CARD9-dependent activation of NF- κ B and MAP kinases².

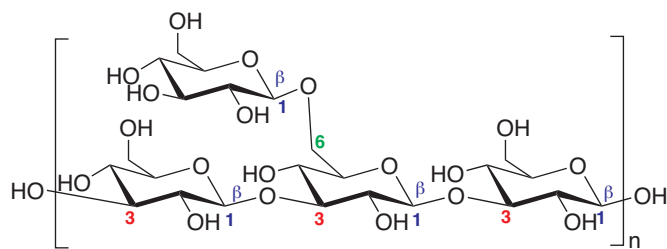
1. Adams EL, et al., 2008. Differential high-affinity interaction of dectin-1 with natural or synthetic glucans is dependent upon primary structure and is influenced by polymer chain length and side-chain branching. J Pharmacol Exp Ther. 325(1):115-23. 2. Goodridge HS, et al., 2009. Beta-glucan recognition by the innate immune system. Immunol Rev. 230(1):38-50.

CHEMICAL PROPERTIES

CAS number: 39464-87-4

Synonym: $\beta(1\rightarrow3,1\rightarrow6)$ -glucan

Partial Structure:



METHODS

Preparation of scleroglucan suspension (1 mg/ml)

Stimulation of Dectin-1 can be achieved with 1-100 μ g/ml of scleroglucan.

1. Weigh 10 mg of scleroglucan in a round-bottom tube.
2. To 10 mg of scleroglucan add 10 ml of water pre-warmed to 37°C. Dispense water in a single expulsion to avoid the formation of clumps.
3. Vortex to homogenize.

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

Detection of scleroglucan-induced dectin-1 activation

Activation of Dectin-1 by scleroglucan can be determined using Dectin-1 expressing cells, such as 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™ Solution.

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

RELATED PRODUCTS

Product	Cat.Code
HEK-Blue™ hDectin-1b Cells	hkb-hdect1b
RAW-Blue™ Cells	raw-sp
QUANTI-Blue™ Solution	rep-qbs
Other Dectin-1 ligands:	
HKCA (heat killed <i>C.albicans</i>)	tlrl-hkca
Zymosan (cell wall preparation from <i>S. cerevisiae</i>)	tlrl-zyn
Zymosan depleted (hot alkali treated zymosan)	tlrl-dzn
WGP Dispersible (1,3/1,6- β -glucan from <i>S. cerevisiae</i>)	tlrl-wgp
WGP Soluble (control for WGP Dispersible)	tlrl-wgps

TECHNICAL SUPPORT

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