Curdlan

Beta-1,3-glucan from *Alcaligenes faecalis*; Dectin-1 ligand

Catalog code: tlrl-curd

https://www.invivogen.com/curdlan

For research use only

Version 21K10-MM

PRODUCT INFORMATION

Contents

- 1 g Curdlan

Storage and stability

- Curdlan is shipped at room temperature. Upon receipt, store at room temperature (15-25 °C). **DO NOT FREEZE.**
- Upon resuspension, curdlan is stable for 1 month at 4 °C.

Quality control

- The Dectin-1 activity of curdlan has been tested using cellular assays.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been assessed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells. Curdlan does not induce TLR2 and TLR4 activity when used at concentrations lower than or equal to 100 µg/ml.

DESCRIPTION

Curdlan is a high molecular weight linear polymer consisting of β-(1->3)-linked glucose residues. Curdlan is produced as a water-insoluble polysaccharide by the soil bacterium, *Alcaligenes faecalis*. Curdlan is recognized by the membrane bound Dectin-1 receptor leading to the CARD9-dependent activation of NF-κB and MAP kinases[1]. Furthermore, Dectin-1 signaling activates the NFAT transcription factor. Data suggest that Curdlan is also recognized by the cytosolic NLRP3 inflammasome complex which cooperates with Dectin-1 resulting in a robust activation of IL-1β-mediated inflammatory response[2].

1. Goodridge HS. *et al.*, 2009. Beta-glucan recognition by the innate immune system. Immunol Rev. 230(1):38-50. **2. Kankkunen P., 2010.** (1,3)-beta-glucans activate both dectin-1 and NLRP3 inflammasome in human macrophages. J Immunol. 184(11):6335-42.

CHEMICAL PROPERTIES

CAS number: 54724-00-4
Synonym: β-1,3-Glucan hydrate
Molecular formula: (-C6H10O5-)n
Appearance: Off-white to slightly brown powder

METHODS

Preparation of curdlan suspension (1 mg/ml)

Stimulation of Dectin-1 can be achieved with 10-100 µg/ml of curdlan.

- Weigh 10 mg of curdlan in a round-bottom tube.
- Add 10 ml of water to the 10 mg of curdlan. Vortex to homogenize. Dispense water in a single expulsion to avoid the formation of clumps.

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

Detection of curdlan-induced Dectin-1 activation

Curdlan can be used to activate Dectin-1 in cells expressing this receptor, 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 stably express a secreted embryonic alkaline phosphatase (SEAP) reporter gene. For more information visit: https://www.invivogen.com/hek-blue-hdectin1a.

1. Add 20 µl of curdlan (0.1-100 µg/ml) in a well of a 96-well plate.
2. Add 180 µl of HEK-Blue™ hDectin-1a cells (5 x 10^5 cells) per well.
3. Incubate cells for 16-24 h at 37 °C, 5% CO_2.
4. Determine of Dectin-1a activation by assessing SEAP expression using a SEAP detection medium, such as QUANTI-Blue™ Solution.

RELATED PRODUCTS

Product	Description	Cat.Code
HEK-Blue™ hDectin-1a Cells	Dectin-1a reporter cells	hkb-hdect1a
HKCA	Heat killed *C. albicans*	tlrl-hkca
QUANTI-Blue™ Solution	SEAP detection reagent	rep-qbs
WGP Dispersible	Dectin-1 agonist	tlrl-wgp
WGP Soluble	WGP control	tlrl-wgps
Zymosan depleted	Dectin-1 agonist	tlrl-zyd
Zymosan	TLR2 & Dectin-1 agonist	tlrl-zyn

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