

HKCA

Heat-killed preparation of *Candida albicans*; Dectin-1 ligand

Catalog code: tlr1-hkca

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

For research use only

Version 24E28-MM

PRODUCT INFORMATION

Contents

- 10⁹ freeze-dried cells of heat-killed preparation of *Candida albicans* (HKCA)
- 1.5 ml of sterile endotoxin-free water

Storage and stability

- HKCA is shipped at room temperature. Upon receipt, store at 4°C.
- Resuspended HKCA can be stored at 4°C for 6 months.

Quality control:

- The biological activity has been validated using HEK-Blue™ hDectin-1b cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

HKCA is a heat-killed preparation of *C. albicans*. HKCA derives from the strain ATCC 10231. HKCA activates the β -glucan specific Dectin-1 receptor, which is expressed on phagocytes¹. β -Glucans are glucose polymers found in the cell walls of fungi, such as zymosan (a cell wall preparation of *Saccharomyces cerevisiae*) and *Candida albicans*. Dectin-1 binds and internalizes β -glucans and mediates the production of reactive oxygen species (ROS), activation of NF- κ B and the subsequent secretion of proinflammatory cytokines. However, it is now clear that its β -glucan moiety triggers NF- κ B activation only through Dectin-1 as treatment with hot alkali or organic solvents abrogates the TLR2-dependent response^{2,3}. RAW-Blue™ cells express high levels of endogenous Dectin-1 and therefore can be used as a Dectin-1 reporter cell line. Stimulation of RAW-Blue™ cells with depleted zymosan or heat-killed preparations of yeast induces the activation of NF- κ B in a Dectin-dependent manner. NF- κ B activation can be readily monitored as RAW-Blue™ cells stably express an NF- κ B-inducible SEAP reporter gene.

1. Brown GD, et al., 2003. Dectin-1 mediates the biological effects of beta-glucans. J Exp Med. 197: 1119- 24. 2. Gantner BN, et al., 2003. Collaborative induction of inflammatory responses by dectin-1 and Toll-likereceptor 2. J Exp Med. 197: 1107- 17. 3. Ikeda Y, et al., 2008. Dissociation of Toll- like receptor 2-mediated innate immune response to Zymosan by organic solvent-treatment without loss of Dectin-1 reactivity. Biol Pharm Bull.31: 13-8.

METHODS

Preparation of sterile suspension (10⁹ cells/ml)

Stimulation of Dectin-1 can be achieved with HKCA 10⁸ cells/ml.

1. Add 1 ml of sterile endotoxin-free water (provided) to rehydrate the pellet.
2. Vortex for 10 seconds to homogenize.

Note: Resuspended HKCA results in a milky solution.

Detection of HKCA-induced Dectin-1 activation

HKCA can be used to activate Dectin-1 in cells expressing this receptor, 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: <https://www.invivogen.com/hek-blue-hdectin1b>.

1. Add 20 μ l of HKCA (10⁸ cells/ml final concentration) in a well of a 96-well plate.
2. Add 180 μ l of HEK-Blue™ hDectin-1b cells (~50,000 cells) per well.
3. Incubate cells for 16-24 h at 37 °C, 5% CO₂.
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
Curdlan	Dectin-1 agonist	tlr1-curd
HEK-Blue™ hDectin-1b cells	Reporter cells	hkb-hdect1b
QUANTI-Blue™ Solution	SEAP detection reagent	rep-qbs
RAW-Blue™ cells	Reporter cells	raw-sp
Zymosan	TLR2 & Dectin-1 agonist	tlr1-zyn
Zymosan depleted	Dectin-1 agonist	tlr1-dzn

TECHNICAL SUPPORT

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