Concanavalin A

NFAT activator

Catalog code: inh-cona, inh-cona-2

https://www.invivogen.com/concanavalin-a

For research use only

Version 25A28-MM

PRODUCT INFORMATION

Contents:

Concanavalin A (Con A) is available in two quantities:

- **inh-cona:** 100 mg
- **inh-cona-2:** 2 x 100 mg

Storage and stability:

- Concanavalin A is shipped at room temperature. Upon receipt, store at -20 °C.
- Upon resuspension, prepare aliquots of Concanavalin A and store at -20 °C. Resuspended Concanavalin A is stable for 12 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control:

- The biological activity of this product has been validated using the Jurkat-Lucia™ NFAT cell.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

Concanavalin A (Con A), a mannose/glucose-binding lectin isolated from Jack beans (*Canavalia ensiformis*), is a well-known T cell mitogen that can activate the immune system, recruit lymphocytes and elicit cytokine production[1]. In addition to its mitogenic activity, ConA can induce programmed cell death via mitochondria-mediated apoptosis and autophagy[2-4]. Interestingly, ConA has been reported to activate NFAT (nuclear factor of activated T cells), a family of transcription factors that are important in the development and function of the immune system, including T cell receptor (TCR) engagement[5]. Specifically, binding of ConA triggers cross-linking of the TCR complex leading to T cell activation.

1. Dwyer JM. & Johnson C., 1981. The use of concanavalin A to study the immunoregulation of human T cells. Clin Exp Immunol. 46(2): 237–249. **2. Lei HY. & Chang CP., 2009.** Lectin of Concanavalin A as an anti-hepatoma therapeutic agent. J Biomed Sci. 16:10. **3. Kulkarni GV. et al., 1998.** Role of mitochondrial membrane potential in concanavalin A-induced apoptosis in human fibroblasts. Exp Cell Res. 245(1):170-8. **4. Li W. et al., 2011.** Concanavalin A: A potential anti-neoplastic agent targeting apoptosis, autophagy and anti-angiogenesis for cancer therapeutics. BBRC. 414(2):282-6. **5. Bemer V. & Truffa-Bachi P., 1996.** T cell activation by concanavalin A in the presence of cyclosporin A: immunosuppressor withdrawal induces NFATp translocation and interleukin-2 gene transcription. Eur J Immunol. 26(7):1481-8.

CHEMICAL PROPERTIES

CAS number: 11028-71-0

Molecular weight: 104 kDa

Solubility: 10 mg/ml in water or phosphate buffered saline (PBS)

METHODS

Preparation of stock solution (2.5 mg/ml)

1. Weigh 5 mg of Concanavalin A.
2. Add 2 ml of sterile PBS (pH 7.5; not provided) to 5 mg of Concanavalin A. Vortex gently until completely dissolved.

Note: The solution may appear hazy.

Working concentration: 1- 100 µg/ml for cell culture assays

Reporter assay using Jurkat-Lucia™ NFAT cells:

The following protocol describes the monitoring of NFAT activation using Jurkat-Lucia™ NFAT cells, a human T lymphocyte-based Jurkat cell line that has been stably transfected with an NFAT-inducible secreted Lucia luciferase reporter gene.

1. Centrifuge cells at 300 x g (RCF) for 5 minutes.
2. Remove supernatant and resuspend Jurkat-Lucia™ NFAT cells at 2 x 10^6 cells/ml in fresh, pre-warmed growth medium.
3. Add 20 µl of Concanavalin A (1- 100 µg/ml) per well.
4. Add 180 µl of cell suspension (~360,000 cells) per well of a flat-bottom 96-well plate.
5. Incubate the plate at 37 °C in a CO_2 incubator for 18-24 h.
6. Prepare QUANTI-Luc™ 4 Reagent working solution following the instructions on the data sheet.
7. Transfer 20 µl of cell supernatant into a 96-well white (opaque) or black plate, or a luminometer tube.
8. Add 50 µl of QUANTI-Luc™ 4 Reagent working solution per well.
9. Proceed **immediately** with the measurement.

RELATED PRODUCTS

Product	Description	Cat. Code
Ionomycin	NFAT activator	inh-ion-3
Jurkat-Lucia™ NFAT cells	Reporter T lymphocytes	jktl-nfat
PMA	Phorbol myristate acetate	tlrl-pma

TECHNICAL SUPPORT
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