M-TriLYS

Synthetic muramyl tripeptide; NOD2 agonist

Catalog code: tlrl-mtl

https://www.invivogen.com/m-trilys

For research use only

Version 23J16-MM

PRODUCT INFORMATION

Contents

- 1 mg M-TriLYS
- 1.5 ml sterile endotoxin-free water

Storage and stability

- M-TriLYS is shipped at room temperature. Upon receipt, store at -20°C.
- Upon resuspension, prepare aliquots and store at -20°C. Resuspended product is stable for 6 months at -20°C when properly stored. Avoid repeated freeze-thaw cycles.

Quality control

- Activation of NOD2 has been confirmed using HEK-Blue™ NOD2 cells.
- The absence of NOD1 activity has been confirmed using HEK-Blue™ NOD1 cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

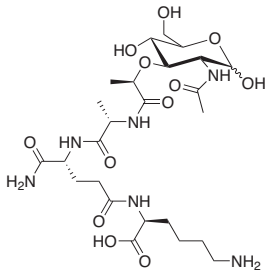
M-TriLYS is a chemically synthesized muramyl tripeptide. It is an agonist of the cytosolic receptor NOD2[1]. NOD2 acts as a general sensor of bacterial invasion. It is involved in the recognition of peptidoglycan (PGN), a major surface component of Gram-positive bacteria[2]. In Gram-negative bacteria, a thin layer of PGN is found in the periplasmic space. There are two types of PGN, the diaminopimelic acid (DAP) type and the L-lysine-(Lys)-type. The DAP type is found in Gram-negative bacteria and certain Gram-positive bacteria, whereas the Lys type is found in most Gram-positive bacteria. Naturally occuring M-TriLYS is released by the Gram-positive commensal bacteria *Lactobacillus salivarius* after digestion of its PGN.

NOD2 activation with M-TriLYS causes pro-inflammatory cytokine release through the mitogen-activated protein kinase (MAPK) and NF-κB activation, thus contributing to host defense. Of note, M-TriLYS has been shown to produce the anti-inflammatory cytokine IL-10 and protect mice from colitis[1].

1. Macho Fernandez E. *et al.*, 2011. Anti-inflammatory capacity of selected lactobacilli in experimental colitis is driven by NOD2-mediated recognition of a specific peptidoglycan derived muropeptide, Gut 60:1050-9. **2. Girardin SE. *et al.*, 2003.** Peptidoglycan molecular requirements allowing detection by Nod1 and Nod2. J Biol Chem. 278(43):41702-8.

CHEMICAL PROPERTIES

Working concentration: 100 ng/ml-10 µg/ml
Synonym: MurNAc-Ala-D-isoGln-Lys
Formula: $C_{25}H_{44}N_6O_{12}$
Molecular weight: 620.65 g/mol
Solubility: 1 mg/ml in water
Structure:



METHODS

Preparation of stock solution (1 mg/ml)

1. Add 1 ml endotoxin-free water (provided) and vortex until completely dissolved.
2. Prepare aliquots and store at -20 °C.

NOD2 stimulation with M-TriLYS

M-TriLYS can be used to activate NOD2 in cells expressing this receptor, such as HEK-Blue™ NOD2 cells. These cells express the human or mouse NOD2 gene and an NF-κB inducible SEAP reporter gene. Levels of SEAP can be determined using HEK-Blue™ Detection, a cell culture medium that allows the detection of SEAP as it is secreted.
For more information visit: https://www.invivogen.com/hek-blue-nod.

1. Add 20 µl of M-TriLYS at 100 ng-10 µg/ml per well of a 96-well plate.
2. Prepare a cell suspension as described on the technical data sheet in HEK-Blue™ Detection medium and immediately add 180 µl of the cell suspension to each well containing M-TriLYS.
3. Incubate the plate for 6-24 h at 37 °C, 5% CO_2.
4. Determine SEAP levels using a spectrophotometer at 620-655 nm.

RELATED PRODUCTS

Product	Desciption	Cat.Code
HEK-Blue™ Detection	SEAP detection medium	hb-det2
HEK-Blue™ hNOD2 Cells	Human NOD2 reporter cells	hkb-hnod2
HEK-Blue™ mNOD2 Cells	Murine NOD2 reporter cells	hkb-mnod2
MDP	NOD2 agonist	tlrl-mdp
Murabutide	NOD2 agonist	tlrl-mbt

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