

MDP Control

L-L isomer; a negative control for muramyl dipeptide (MDP)

Catalog # tlr1-mdpcl

For research use only

Version # 16A21-MM

PRODUCT INFORMATION

Contents:

- 5 mg Muramyl dipeptide (MDP) Control, L-L isomer
- 1.5 ml endotoxin-free water

Storage:

- MDP Control is provided as a lyophilized powder and shipped at room temperature. Store at -20 °C.
- Upon resuspension, prepare aliquots of MDP Control and store at -20 °C.
- Product is stable 6 months at -20 °C when properly stored. Avoid repeated freeze-thaw cycles.

Quality control:

- The inability of MDP Control to activate NOD2 has been confirmed using HEK-Blue™ NOD2 cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

MDP Control, the negative control for muramyl dipeptide (MDP), is an L-L isomer that does not activate NOD2. MDP is the minimal bioactive peptidoglycan motif common to all bacteria, the essential structure required for adjuvant activity in vaccines. MDP has been shown to be recognized by NOD2, but not TLR2, nor TLR2/1 or TLR2/6 associations^{1,2}. This recognition is highly stereospecific of the L-D isomer. The core structure required for recognition of NOD2 is MurNAc attached to L-Ala and D-isoGln. Replacement of L-Ala for D-Ala (or D-isoGln for L-isoGln) eliminates the ability of muramyl dipeptide to stimulate NOD2². MDP Control contains L-Ala and L-isoGln.

1. Girardin SE. *et al.*, 2003. Nod2 is a general sensor of peptidoglycan through muramyl dipeptide (MDP) detection. *J Biol Chem.* 278(11):8869-72. 2. Inohara N. *et al.*, 2003. Host recognition of bacterial muramyl dipeptide mediated through NOD2. Implications for Crohn's disease. *J Biol Chem.* 278(8):5509-12.

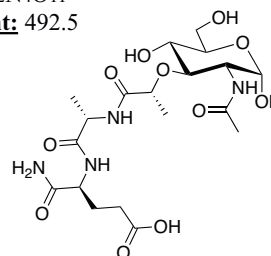
CHEMICAL PROPERTIES

Synonym: N-Acetylmuramyl-L-Alanyl-L-Isoglutamine

Formula: C₁₉H₃₂N₄O₁₁

Molecular weight: 492.5

Structure:



METHODS

Preparation of stock solution (10 mg/ml)

- Add 500 µl endotoxin-free water (provided) to 5 mg of MDP Control.
- Vortex until complete solubilization.

Below is a protocol for determining NOD2 stimulation MDP. Please note that MDP Control (L-L isomer) has no activity on NOD2. Use MDP Control at the same concentration as MDP.

NOD2 activation using MDP

MDP 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 easily determined using HEK-Blue™ Detection, a cell culture medium that allows the detection of SEAP as it is secreted by the cells.

For more information visit: www.invivogen.com/hek-blue-nod2

- Add 20 µl of MDP at various concentrations (10 ng-10 µg/ml) per well of a 96-well plate.
- Prepare a cell suspension (~280,000 cells per ml) in HEK-Blue™ Detection medium and immediately add 180 µl of the cell suspension (~50,000 cells) to each MDP-containing well.
- Incubate the plate for 6-24 h at 37 °C, 5% CO₂.
- Determine SEAP levels using a spectrophotometer at 620-655 nm.

RELATED PRODUCTS

| Product | Catalog Code |
|---|--------------|
| HEK-Blue™ Detection | hb-det2 |
| HEK-Blue™ hNOD2 Cells (human NOD2 gene) | hkb-hnod2 |
| HEK-Blue™ mNOD2 Cells (mouse NOD2 gene) | hkb-mnod2 |
| MDP | tlr1-mdp |

TECHNICAL SUPPORT

InvivoGen USA (Toll-Free): 888-457-5873

InvivoGen USA (International): +1 (858) 457-5873

InvivoGen Europe: +33 (0) 5-62-71-69-39

InvivoGen Hong Kong: +852 3-622-34-80

E-mail: info@invivogen.com