

FSL-1

Synthetic diacylated lipoprotein; TLR2/TLR6 ligand

Catalog code: tlr1-fsl

<https://www.invivogen.com/fsl1>

For research use only

Version 23K13-MM

PRODUCT INFORMATION

Contents

- 100 µg lipopeptide FSL-1
- 1.5 ml endotoxin-free water

Storage and stability

- FSL-1 is provided lyophilized and shipped at room temperature. Upon receipt, store at 4°C.
- Upon resuspension, store at 4°C. Resuspended product is stable for 6 months at 4°C.

Note: We do not recommend freezing the resuspended product as it may result in reduced TLR2/TLR6 activity.

Quality control

- The TLR2 activity has been tested using HEK-Blue™ TLR2 cells.
- The absence of endotoxins has been confirmed using HEK-Blue™ TLR4 cells.

DESCRIPTION

FSL-1 (Pam2CGDPKHPKSF) is a synthetic lipoprotein (LP) that represents the N-terminal part of the 44-kDa lipoprotein LP44 of *Mycoplasma salivarium*¹. The framework structure of FSL-1 is the same as that of MALP-2, a *Mycoplasma fermentans* derived lipopeptide (LP), but they differ in the amino acid sequence and length of the peptide portion². Mycoplasmal LP, such as FSL-1 and MALP-2, contain a lipoylated N-terminal diacylated cysteine residue, whereas bacterial LP contain a triacylated one. This structural difference plays a crucial role in the initial recognition of microbial LP by the host innate immune system.

Mycoplasmal LP, such as FSL-1, are recognized by TLR2 and TLR6, whereas bacterial LP and Pam3CSK4, a synthetic LP, are recognized by TLR2 and TLR1³. FSL-1 stimulation induces a MyD88-dependent signaling cascade leading to AP-1 and NF-κB activation and the subsequent cytokine production^{3,4}.

1. Shibata Ki. *et al.*, 2000. The N-terminal lipopeptide of a 44-kDa membrane-bound lipoprotein of *Mycoplasma salivarium* is responsible for the expression of intercellular adhesion molecule-1 on the cell surface of normal human gingival fibroblasts. *J. Immunol.* 165:6538-44. 2. Okusawa T. *et al.*, 2004. Relationship between Structures and Biological Activities of Mycoplasmal Diacylated Lipopeptides and Their Recognition by Toll-Like Receptors 2 and 6. *Infect Immun.* 72(3): 1657-65. 3. Takeuchi O. *et al.*, 2001. Discrimination of bacterial lipoproteins by Toll-like receptor 6. *Int Immunol.* 13(7):933-40. 4. Ahmad R. *et al.*, 2014. FSL-1 induces MMP-9 production through TLR-2 and NF-κB/AP-1 signaling pathways in monocytic THP-1 cells. *Cell Physiol Biochem.* 34(3):929-42.

CHEMICAL PROPERTIES

Chemical name: (S,R)-(2,3-bis(sn)-palmitoyloxypropyl)-Cys-Gly-Asp-Pro-Lys-His-Pro-Lys-Ser-Phe

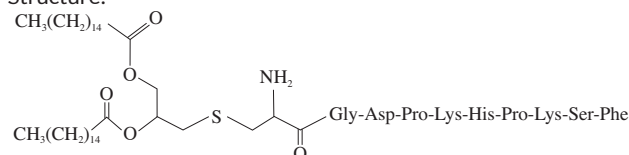
Solubility: 10 mg/ml in water

CAS number: 322455-70-9

Formula: C₈₄H₁₄₀N₁₄O₁₈S

Molecular weight: 1666.2 g/mol

Structure:



METHODS

Preparation of stock solution (100 µg/ml)

- Add 1 ml endotoxin-free water (provided) and vortex until completely dissolved.
- Prepare further dilutions by adding the appropriate amount of endotoxin-free water.

Working concentration: 10 pg/ml-100 ng/ml

TLR2 stimulation using FSL-1

FSL-1 can be used to activate TLR2 in HEK-Blue™ TLR2 cells that were designed to study TLR2 stimulation by monitoring NF-κB activation. Stimulation of HEK-Blue™ TLR2 cells with a TLR2 agonist activates NF-κB which induces the production of SEAP (secreted embryonic alkaline phosphatase). Levels of SEAP can be easily determined using a SEAP detection medium, such as HEK-Blue™ Detection. For more information visit: <https://www.invivogen.com/hek-blue-trl2>.

1. Dispense 20 µl of FSL-1 (10 pg/ml-100 ng/ml final concentration) per well of a 96-well plate.
2. Prepare a suspension of HEK-Blue™ TLR2 cells in HEK-Blue™ Detection medium.
3. Immediately add 180 µl of the cell suspension to each FSL-1-containing well.
4. Incubate the plate at 37°C in a CO₂ incubator for 6-24 hours.
5. Determine SEAP levels using a spectrophotometer at 620-655 nm.

RELATED PRODUCTS

Product	Description	Cat. Code
HEK-Blue™ Detection	SEAP detection medium	hb-det2
HEK-Blue™ hTLR2 cells	Human TLR2 reporter cells	hkb-htlr2
HEK-Blue™ mTLR2 cells	Murine TLR2 reporter cells	hkb-mtlr2
Pam2CSK4	TLR2/6 ligand	trl-pm2s-1
Pam3CSK4	TLR2/TLR1 ligand	trl-pms

TECHNICAL SUPPORT

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