

# FLA-ST Ultrapure

Purified flagellin from *S. typhimurium*; TLR5 ligand

Catalog code: tlrl-epstfla, tlrl-epstfla-5

<https://www.invivogen.com/fla-st>

For research use only

Version 24A16-MM

## PRODUCT INFORMATION

### Contents

- FLA-ST Ultrapure (purified flagellin from *Salmonella typhimurium*) is provided lyophilized and is available in two quantities:

tlrl-epstfla: 10 µg

tlrl-epstfla-5: 50 µg

- 1.5 ml endotoxin-free water

### Storage and stability

- FLA-ST Ultrapure is shipped at room temperature. Upon receipt, store at -20°C.
- Upon resuspension, prepare aliquots of FLA-ST Ultrapure 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

- Purity: >95% (SDS-PAGE)
- Endotoxin levels: <0.05 EU/µg
- Biological activity has been confirmed using HEK-Blue™ hTLR5 cells.

## DESCRIPTION

FLA-ST Ultrapure is a high purity grade of flagellin isolated from the Gram-negative bacteria *Salmonella typhimurium*. Flagellin, the principal component of the flagella present on many Gram-negative and Gram-positive bacteria, is a proinflammatory molecule recognized by distinct types of pattern recognition receptors (PRRs); the surface localized Toll-like receptor (TLR5)<sup>1</sup> and the cytosolic NOD-like receptors (NLRs), NLRC4 and NAIP5<sup>2</sup>.

Extracellular flagellin is detected by TLR5 resulting in MyD88-mediated NF-κB activation, cytokine and nitric oxide production depending on the nature of the TLR5 signaling complex<sup>3</sup>. Intracellular flagellin is detected by NLRC4 (also known as IPAF) and NAIP5. Recognition by NLRC4 and NAIP5, leads to inflammasome assembly, triggering caspase-1 activation of IL-1β and IL-18.

1. Hayashi F. *et al.*, 2001. The innate immune response to bacterial flagellin is mediated by Toll-like receptor 5. *Nature* 410(6832):1099-103. 2. Zhao Y. *et al.*, 2011. The NLRC4 inflammasome receptors for bacterial flagellin and type III secretion apparatus. *Nature* 477(7366):596-600. 3. Mizel S.B. *et al.*, 2003. Induction of macrophage nitric oxide production by Gram-negative flagellin involves signaling via heteromeric Toll-like receptor 5/Toll-like receptor 4 complexes. *J Immunol.* 170(12):6217-23.

## METHODS

### Preparation of stock solution (500 µg/ml)

- Open vial lid carefully to avoid any loss of product.
- Resuspend FLA-ST Ultrapure with endotoxin-free water (provided).

- Add 20 µl to 10 µg of FLA-ST Ultrapure

*Note:* Alternatively, 10 µg of FLA-ST Ultrapure can be resuspended in 40 µl of endotoxin-free water to provide a stock solution at 250 µg/ml.

- Add 100 µl to 50 µg of FLA-ST Ultrapure

- Mix by pipetting. Do **not** vortex. Prepare aliquots and store at -20°C.

Working concentration: 10-100 ng/ml

### TLR5 stimulation using FLA-ST Ultrapure

FLA-ST Ultrapure can be used to stimulate TLR5 in HEK-Blue™ TLR5 cells. These cells stably overexpress the TLR5 gene and an NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP). Levels of SEAP can be easily determined using a SEAP detection medium, such as HEK-Blue™ Detection.

For more information, visit: [www.invivogen.com/hek-blue-tlr5](http://www.invivogen.com/hek-blue-tlr5).

- Dispense 20 µl of FLA-ST Ultrapure (10-100 ng/ml final concentration) per well of a 96-well plate.
- Prepare a suspension of HEK-Blue™ TLR5 cells in HEK-Blue™ Detection medium as per the data sheet.
- Immediately add 180 µl of the cell suspension to each FLA-ST-containing well.
- Incubate the plate at 37°C in a CO<sub>2</sub> incubator for 16-24 hours.
- Determine SEAP levels using a spectrophotometer at 620-655 nm.

## RELATED PRODUCTS

Product	Description	Cat. Code
HEK-Blue™ hTLR5 Cells	Human TLR5 reporter cells	hkb-htlr5
HEK-Blue™ mTLR5 Cells	Murine TLR5 reporter cells	hkb-mtlr5
HEK-Blue™ Detection	SEAP detection medium	hb-det2
FLA-BS Ultrapure	Flagellin from <i>B. subtilis</i>	tlrl-pbsfla
FLA-PA Ultrapure	Flagellin from <i>P. aeruginosa</i>	tlrl-pafla

## TECHNICAL SUPPORT

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