# ORN Sa19 Control

Negative control for the TLR13 ligand *S. aureus* 23S rRNA derived oligoribonucleotide

Catalog code: tlrl-orn19c

https://www.invivogen.com/orn-sa19

For research use only

Version 21E20-MM

## PRODUCT INFORMATION

### Contents

- 200 µg lyophilized ORN Sa19 Control
- 1.5 ml endotoxin-free water

### Storage and stability

- ORN Sa19 Control is provided lyophilized and shipped at room temperature. Upon receipt, store at -20°C.
- Upon resuspension, store at -20°C. Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles.

### Quality Control:

- The absence of TLR13 activity has been confirmed using HEK-Blue™ mTLR13 cells.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

## DESCRIPTION

Toll-like receptor 13 is an endosomal murine TLR whose role and ligand remain unclear. Three independent teams have identified bacterial single-stranded RNA as a TLR13 ligand[1-3]. More precisely, a conserved 23S ribosomal RNA (rRNA) sequence, "CGGAAAGACC", was shown to induce cytokine production in a TLR13-, MyD88, and UNC93B-dependent manner. Interestingly, this rRNA sequence is the binding site of the macrolide-lincosamide -streptogramin (MLS) group of antibiotics, and 23S rRNA from bacteria resistant to these antibiotics is not recognized by TLR13[1]. Further, these data reveal a mechanism developed by bacteria to evade the host innate immune system through the acquisition of antibiotic resistance.

ORN Sa19 Control is a 19 mer S. aureus 23S rRNA derived oligoribonucleotide, which carries a G in place of the central A. ORN Sa19 Control is stabilized by phosphorothioate modification.

Sequence 5' -GGACGG**G**AAGACCCCGUGG- 3'

**1. Oldenburg M. *et al.*, 2012.** TLR13 recognizes bacterial 23S rRNA devoid of erythromycin resistance-forming modification. Science. 337(6098). **2. Hidmark A. *et al.*, 2012. Cutting edge:** TLR13 is a receptor for bacterial RNA. J Immunol. 189(6):2717-21. **3. Li XD & Chen ZJ. 2012.** Sequence specific detection of bacterial 23S ribosomal RNA by TLR13. elife. 1:e00102.

## METHODS

### Preparation of stock solution (200 µg/ml)

- Add 1 ml of endotoxin-free water (provided) and homogenize by mixing gently until completely dissolved.

### Evaluation of TLR13 activation

ORN Sa19 Control can be used as a negative control to study the stimulatory effect of ORN Sa19 in HEK-Blue™ mTLR13 cells. These cells stably express the murine TLR13 gene and an NF-κB-inducible secreted embryonic alkaline phosphatase (SEAP). For more information visit: https://www.invivogen.com/hekblue-tlr13.

- Add 20 µl of ORN Sa19 Control at 0.02-2 µg/ml (final concentration) in a well of a 96-well plate.

*Note: Use the ORN Sa19 Control at the same concentration as the TLR13 agonist ORN Sa19.*

- Add 180 µl of cell suspension (prepare cell suspension according to data sheet) per well.
- Incubate the plate for 6-24 h at 37 °C, 5% $CO_2$.
- Determine mTLR13 stimulation with ORN Sa19 by assessing cytokine expression using an ELISA, or SEAP expression using a SEAP detection medium, such as HEK-Blue™ Detection.

## RELATED PRODUCTS

| Product | Description | Cat.Code |
|---|---|---|
| HEK-Blue™ Detection | SEAP detection medium | hb-det2 |
| HEK-Blue™ mTLR13 Cells | mTLR13 reporter cells | hkb-mtlr13 |
| ORN Sa19 | TLR13 agonist | tlrl-orn19 |

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