

ssPolyU/LyoVec™

Single-stranded polyU oligonucleotide complexed with LyoVec™; Human TLR8/mouse TLR7 agonist

Catalog code: tlr1-lpu

<https://www.invivogen.com/sspolyu-lv>

For research use only

Version 19K23-MM

PRODUCT INFORMATION

Contents

- 4 x 25 µg lyophilized ssPolyU/LyoVec™
- Note: Each vial contains 25 µg of ssPolyU complexed with 50 µg LyoVec™.*
- 10 ml endotoxin-free water

Storage and stability

- ssPolyU/LyoVec™ is provided lyophilized and shipped at room temperature. Store lyophilized ssPolyU/LyoVec™ at -20 °C.
- Upon resuspension, store ssPolyU/LyoVec™ at 4 °C. Resuspended product is stable for 1 week at 4 °C.

Quality control:

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

DESCRIPTION

ssPolyU is a lyophilized preparation of single-stranded poly-uridine (polyU) complexed with the cationic lipid LyoVec™, to protect it from degradation and facilitate its uptake. PolyU is a synthetic ssRNA which when complexed to cationic lipids can substitute for viral RNAs in inducing IFN α production in plasmacytoid dendritic cells (PDC). Murine PDC deficient for TLR7 failed to produce IFN α in response to polyU, while the response to CpG-ODNs was unaffected, suggesting that TLR7 plays a critical role in viral ssRNA recognition¹. In human cells, TLR8 was shown to be the key receptor for viral ssRNA², implying a species specificity difference in ssRNA recognition. During infection, some viral particles are degraded by the endosomal proteases, exposing the viral genome and allowing TLR7 and/or TLR8 signaling, which are known to occur in endosomes³. TLR7 and TLR8 can recognize both self and viral RNA but seem able to distinguish the presence of viral RNA by detecting their abnormal localization in the endosome rather than a particular RNA motif.

1. Diebold SS, et al., 2004. Innate antiviral responses by means of TLR7-mediated recognition of single-stranded RNA. *Science*. 5:303(5663):1529-31. 2. Heil F, et al., 2004. Species-specific recognition of single-stranded RNA via toll-like receptor 7 and 8. *Science*. 5:303(5663):1526-9. 3. Heil F, et al., 2003. The Toll-like receptor 7 (TLR7)-specific stimulus loxoribine uncovers a strong relationship within the TLR7, 8 and 9 subfamily. *Eur J Immunol*. 33(11):2987-97.

METHODS

Preparation of stock solution (50 µg/ml)

Stimulation of mouse TLR7 and human TLR8 can be achieved with 1-10 µg/ml ssPolyU/LyoVec™.

- Add 500 µl endotoxin-free water (provided) and mix gently. Allow at least 15 minutes for complete solubilization.

Human TLR8 / Mouse TLR7 stimulation

ssPolyU/LyoVec™ can be used to stimulate TLR7 or TLR8 in HEK-Blue™ TLR7 or TLR8 cells. These cells stably express an NF- κ B-inducible secreted embryonic alkaline phosphatase (SEAP) and overexpress the TLR7 or the TLR8 gene.

For more information visit: <https://www.invivogen.com/hek-blue-tnfr>

1. Stimulate HEK-Blue™ TLR7 or TLR8 cells with 1-10 µg/ml ssPolyU/LyoVec™.
2. Incubate for 6-24 h at 37 °C, 5% CO₂.
3. Determine TLR stimulation using a SEAP detection medium, such as QUANTI-Blue™ Solution or HEK-Blue™ Detection.

RELATED PRODUCTS

Product	Description	Cat.Code
CL264	TLR7 ligand	tlr1-c264s
Gardiquimod™	TLR7 ligand	tlr1-gdqs
HEK-Blue™ mTLR7 cells	Murine TLR7 reporter cells	hkb-mtlr7
HEK-Blue™ hTLR8 cells	Human TLR8 reporter cells	hkb-htlr8
HEK-Blue™ Detection	SEAP detection reagent	hb-det2
Imiquimod (R837)	TLR7 ligand	tlr1-imqs
ORN06/LyoVec™	TLR8 ligand	tlr1-orn6
QUANTI-Blue™ Solution	SEAP detection reagent	rep-qbs
ssPolyU Naked	TLR7/TLR8 ligand	tlr1-sspu
ssRNA40/LyoVec™	TLR8 ligand	tlr1-lrna40

TECHNICAL SUPPORT

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