

# Poly(dG:dC)/LyoVec™

Synthetic double-stranded DNA complexed with LyoVec™

Catalog code: tlrl-pgcc

<https://www.invivogen.com/poly-dgdc>

For research use only

Version 20D07-MM

## PRODUCT INFORMATION

### Contents

- 4 x 25 µg lyophilized poly(dG:dC)/LyoVec™

*Note:* Each vial contains 25 µg of poly(dG:dC)•poly(dC:dG) complexed with 50 µg LyoVec.

- 10 ml sterile endotoxin-free water

### Storage and stability

- Poly(dG:dC)/LyoVec™ is provided lyophilized and shipped at room temperature. Store lyophilized product at -20°C. Lyophilized product is stable for 12 months when properly stored.
- Upon resuspension, store poly(dG:dC)/LyoVec™ at 4°C. Resuspended product is stable for 1 week when stored at 4°C.

### Quality control

- The ability of Poly(dG:dC)/LyoVec™ to induce type I interferon (IFN) has been verified 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

Poly(deoxyguanylic-deoxycytidylic) acid (Poly(dG:dC)) is a synthetic repetitive double-stranded DNA (dsDNA). Poly(dG:dC) sodium salt is complexed with the cationic lipid LyoVec™ to facilitate its uptake.

Intracellular poly(dG:dC) is detected by several cytosolic DNA sensors (CDS), such as cGAS<sup>1</sup>, DAI<sup>2</sup>, DDX41<sup>2,3</sup>, IFI16<sup>2,3</sup> and LRRFIP1<sup>2,4</sup>, triggering the production of type I interferons (IFNs). This induction of IFN appears to be mediated by the endoplasmic reticulum protein STING<sup>1,3,5</sup>. Moreover, Poly(dG:dC) activates the cytosolic DNA sensor AIM2 (absent in melanoma 2) to trigger inflammasome formation, leading to the secretion of the pro-inflammatory cytokines IL-1β and IL-18<sup>6</sup>.

1. Unterholzner L., 2013. The interferon response to intracellular DNA: why so many receptors? Immunobiology. 218(11):1312-21. 2. Takaoka A. et al., 2007. DAI (DLM-1/ZBP1) is a cytosolic DNA sensor and an activator of innate immune response. Nature. 448(7152):501-5. 3. Zhang Z. et al., 2011. The helicase DDX41 senses intracellular DNA mediated by the adaptor STING in dendritic cells. Nat Immunol. 12(10):959-65. 4. Yang P. et al., 2010. The cytosolic nucleic acid sensor LRRFIP1 mediates the production of type I interferon via a beta-catenin-dependent pathway. Nat Immunol. 11(6):487-94. 5. Wu J. et al., 2013. Cyclic GMP-AMP is an endogenous second messenger in innate immune signaling by cytosolic DNA. Science. 339(6121):826-30. 6. Jones JW. et al., 2010. Absent in melanoma 2 is required for innate immune recognition of Francisella. PNAS, 107(21):9771-6.

## METHODS

### Preparation of stock solution (50 µg/ml)

- Add 500 µl sterile endotoxin-free water (provided) per vial of poly(dG:dC)/LyoVec™. Mix gently. Allow at least 15 minutes for complete solubilization.

Working concentrations: 10 ng/ml to 5 µg/ml

### Induction of type I IFNs

Induction of type I IFNs with poly(dG:dC) can be studied in a variety of cells including the monocytic cell line THP1-Blue™ ISG cells. These cells derive from the human THP-1 monocyte cell line by stable integration of an IFN regulatory factor (IRF)-inducible secreted embryonic alkaline phosphatase (SEAP) reporter construct.

For more information: <https://www.invivogen.com/thp1-blue-isg>.

1. Dispense 20 µl of the poly(dG:dC)/cationic lipid complex (final concentration 10 ng/ml to 5 µg/ml) per well of a 96-well plate.
2. Prepare a cell suspension of THP1-Blue™ ISG cells according to the data sheet and add 180 µl of the cell suspension per well.
3. Incubate the plate for 6-24 h at 37°C, 5% CO<sub>2</sub>.
4. Add 20 µl of supernatant per well into a flat-bottom 96-well plate.
5. Dispense 180 µl of QUANTI-Blue™ Solution per well.
6. Incubate the plate at 37°C for 1-3 h.
7. Determine SEAP levels using a spectrophotometer at 620-655 nm.

## RELATED PRODUCTS

Product	Catalog Code
Poly(dG:dC)naked	tlrl-pgcn
Poly(dA:dT)/LyoVec™	tlrl-patc
Poly(dA:dT) naked	tlrl-patn
LyoVec™	lyec-1
QUANTI-Blue™ Solution	rep-qbs
THP1-Blue™ ISG cells	thp-isg

## TECHNICAL SUPPORT

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