"2'3'-cGAMP Control (2'5'-GpAp)"

Linear guanosine monophosphate- adenosine monophosphate; Negative control for 2'3'-cGAMP

Catalog # tlrl-nagpap

For research use only. Not for use in humans.

Version # 16E13-MM

PRODUCT INFORMATION

Content:
- 1 mg of lyophilized chemically synthesized 2'3'-cGAMP Control (2'5'-GpAp)

Note: 2'3'-cGAMP Control is sterile filtered prior to lyophilization.
- 1.5 ml endotoxin-free water

Storage and stability:
- 2'3'-cGAMP Control is shipped at room temperature and should be stored at -20°C.
- Lyophilized product is stable for 1 year when properly stored.
- Upon resuspension, prepare aliquots of 2'3'-cGAMP Control and store at -20°C.
- Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control:
- Purity and structure has been determined by LC/MS and NMR: ≥ 95%
- The inability of 2'3'-cGAMP Control to induce type I interferon (IFN) has been confirmed in THP1-Blue™ ISG cells.
- The absence of bacterial contamination (e.g. lipopolysaccharides & endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

2'3'-cGAMP Control, also known as 2'5'-GpAp, is a linear dinucleotide analog after hydrolysis of cyclic guanosine monophosphate-adenosine monophosphate (2'3'-cGAMP) by phosphodiesterases. 2'3'-cGAMP is a cyclic dinucleotide (CDN) produced in mammalian cells by cGAS (cGAMP synthase) in response to cytosolic DNA. CDNs including 2'3'-cGAMP bind the cytosolic DNA sensor STING (stimulator of interferon genes) and induce the production of type I interferons (IFNs). Due to its linear conformation, 2'5'GpAp is intended to serve as a negative control for 2'3'-cGAMP in type I IFN induction assays. The importance of dinucleotide conformation has been well established in bacteria, where RNA regulatory riboswitches are able to discriminate between biologically active CDNs and their corresponding linear dinucleotides.

To facilitate the study of CDNs and the IFN pathway, InvivoGen has developed stable reporter cells in the human monocytic THP-1 cell line. These cells express a reporter gene (either SEAP or the secreted Lucia luciferase) in response to cytosolic DNA mediated by the adaptor STING. Below is a standard protocol for determining type I IFN induction with a STING agonist such as 2'3'-cGAMP. Use 2'3'-cGAMP Control at the same concentration as 2'3'-cGAMP.

INDUCTION OF TYPE I IFNS IN THP1-Lucia™ ISG CELLS

Induction of type I IFNs with 2'3'-cGAMP can be studied in a variety of cells. The human monocytic cell line THP-1 has been shown to express all the CDSs, with the exception of DAI. A protocol for the induction of type I IFNs using THP1-Lucia™ ISG cells, an IRF-luciferase reporter cell line, is given below:

- Resuspend 2'3'-cGAMP and 2'3'-cGAMP Control, as described above.
- Stimulate cells with 0.1-100 ng/ml 2'3'-cGAMP and 2'3'-cGAMP Control for 16-48 hours.
- Monitor the induction of type I IFNs by measuring the levels of IRF-induced Lucia luciferase in the cell culture supernatant using QUANTI-Luc™, a Lucia luciferase detection reagent.

RELATED PRODUCTS

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