

c-di-GMP VacciGrade™

Cyclic diguanylate monophosphate: a STING ligand

Catalog # vac-nacdg

For research use only. Not for use in humans.

Version # 15K27-MM

PRODUCT INFORMATION

Content:

- 1 mg of lyophilized c-di-GMP VacciGrade™
- 10 ml sterile endotoxin-free physiological water (NaCl 0.9%)

Storage and stability:

- c-di-GMP VacciGrade™ 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 c-di-GMP VacciGrade™ and store at -20°C. Resuspended product is stable for 6 months when properly stored. Avoid repeated freeze-thaw cycles.

Quality control:

- c-di-GMP VacciGrade™ is a preclinical grade preparation of the cyclic dinucleotide c-di-GMP. It is prepared under strict aseptic conditions and is tested for the presence of endotoxins. c-di-GMP VacciGrade™ is guaranteed sterile and its endotoxin level is <0.005 EU/μg.

- Purity and structure has been determined by LC/MS and NMR: ≥ 95%
- Biological activity has been assessed by measuring induction of the interferon pathway in THP1-Blue™ ISG cells.

METHODS

Preparation of sterile stock solution (1 mg/ml):

- Add 1 ml endotoxin-free physiological water to the 1 mg c-di-GMP VacciGrade™ vial to obtain a solution at 1 mg/ml.
- Mix the solution by pipetting up and down.

Working Concentration: 5-50 μg/mouse

CHEMICAL PROPERTIES

Synonym: c-di-GMP sodium salt

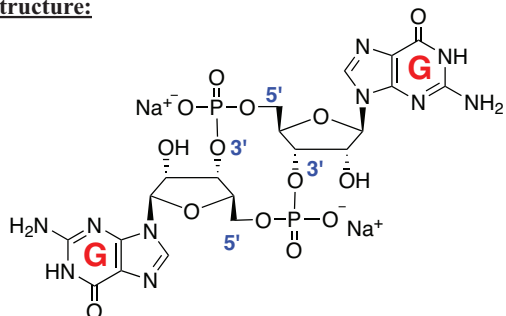
CAS number: 61093-23-0

Formula: C₂₀H₂₂N₁₀O₁₄P₂ · 2Na

Molecular weight: 734.38

Solubility: 50 mg/ml in physiological water

Structure:



DESCRIPTION

Cyclic diguanylate monophosphate (c-di-GMP) is an intracellular signaling molecule produced by bacteria. Administration of c-di-GMP can induce a strong immune response *in vitro* and *in vivo*². It was recently found that this cyclic dinucleotide induces the production of cytokines, such as type I interferons, through the STING/TBK1/IRF3 pathway¹. Due to its immunostimulatory properties, this molecule has been investigated as a vaccine adjuvant. Mucosal delivery of c-di-GMP elicits a balanced Th1/Th2 profile and Th17 response², which is crucial against intracellular pathogens. This adjuvant acts through the recruitment of monocytes and granulocytes, and the maturation of dendritic cells³.

1. Burdette DL. et al., 2010. STING is a direct innate immune sensor of cyclic di-GMP. *Nature*. 478(7370):515-8. **2. Madhun AS. et al., 2011.** Intranasal c-di-GMP-adjuvanted plant-derived H5 influenza vaccine induces multifunctional Th1 CD4+ cells and strong mucosal and systemic antibody responses in mice. *Vaccine*. 29(31):4973-82. **3. Karaolis DK. et al., 2007.** Bacterial c-di-GMP is an immunostimulatory molecule. *J Immunol*. 178:2171-81.

RELATED PRODUCTS

Product	Description	Cat. Code
2'3'-cGAMP VacciGrade™	STING ligand	vac-nacga23
AddaVax™	Squalene-Oil-in-water	vac-adx-10
Alhydrogel® 2%	Al(OH) ₃ gel	vac-alu-250
c-di-AMP VacciGrade™	STING ligand	vac-nacda
CFA	Complete Freund's adjuvant	vac-cfa-10
EndoFit™ Ovalbumin	For <i>in vivo</i> use	vac-pova
Flagellin FliC VacciGrade™	TLR5 ligand	vac-fla
MPLAs VacciGrade™ ODN	TLR4 ligand	vac-mpls
2006 VacciGrade™	Human TLR9 ligand	vac-2006-1
Poly(I:C) VacciGrade™	TLR3 ligand	vac-pic

TECHNICAL SUPPORT

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