c-di-AMP

Cat. No.: HY-12326

CAS No.: 54447-84-6

Molecular Formula: $C_{20}H_{24}N_{10}O_{12}P_2$

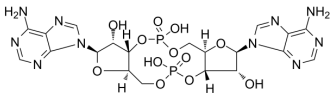
Molecular Weight: 658.41

Target: STING; Bacterial; Endogenous Metabolite

Pathway: Immunology/Inflammation; Anti-infection; Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 3.33 mg/mL (5.06 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.5188 mL	7.5941 mL	15.1881 mL
	5 mM	0.3038 mL	1.5188 mL	3.0376 mL
	10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

c-di-AMP (Cyclic diadenylate) is a STING agonist, which binds to the transmembrane protein STING thereby activating the TBK3-IRF3 signaling pathway, subsequently triggering the production of type I IFN and TNF. c-di-AMP (Cyclic diadenylate) is also a bacterial second messenger, which regulates cell growth, survival, and virulence, primarily within Gram-positive bacteria, and also regulates host immune response. c-di-AMP (Cyclic diadenylate) acts as a potent mucosal adjuvant stimulating both humoral and cellular responses[1][2][3][4].

IC_{50} & Target

STING[3]

In Vitro

c-di-AMP (Cyclic diadenylate) signaling is a central factor in many Gram-positive bacteria regulating cell wall synthesis, potassium ion channels, DNA repair, and biofilm formation. c-di-AMP is also essential for cell growth, survival, and virulence of several well-known human pathogenic bacteria including S. aureus, L. monocytogenes, S. pyogenes, and Mycobacterium spp[1].

c-di-AMP (Cyclic diadenylate) combines with model antigens, such as OVA or β-Gal, acts as a potent mucosal adjuvant stimulating both humoral and cellular responses[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Gut Microbes. 2022 Jan-Dec;14(1):2119055.
- Cell Death Dis. 2022 Jul 28;13(7):653.

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REFERENCES

[1]. Fahmi T, et al. c-di-AMP: An Essential Molecule in the Signaling Pathways that Regulate the Viability and Virulenceof Gram-Positive Bacteria. Genes (Basel). 2017 Aug 7;8(8).

[2]. Ning H, et al. Recombinant BCG With Bacterial Signaling Molecule Cyclic di-AMP as Endogenous AdjuvantInduces Elevated Immune Responses After Mycobacterium tuberculosis Infection. Front Immunol. 2019 Jul 3;10:1519.

[3]. Ebensen T, et al. The Combination Vaccine Adjuvant System Alum/c-di-AMP Results in Quantitative and QualitativeEnhanced Immune Responses Post Immunization. Front Cell Infect Microbiol. 2019 Feb 19;9:31.

[4]. Sanchez MV, et al. Intranasal delivery of influenza rNP adjuvanted with c-di-AMP induces strong humoral and cellularimmune responses and provides protection against virus challenge. PLoS One. 2014 Aug 20;9(8):e104824.

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