cGAMP diammonium

Cat. No.: HY-110385A

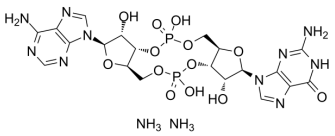
Molecular Formula: $C_{20}H_{30}N_{12}O_{13}P_2$

Molecular Weight: 708.47

Target: STING; Endogenous Metabolite

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease

Storage: -20°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (141.15 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.4115 mL	7.0575 mL	14.1149 mL
	5 mM	0.2823 mL	1.4115 mL	2.8230 mL
	10 mM	0.1411 mL	0.7057 mL	1.4115 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 33.33 mg/mL (47.05 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

cGAMP (Cyclic GMP-AMPP) diammonium functions as an endogenous second messenger in metazoans and triggers interferon production in response to cytosolic DNA. cGAMP diammonium activates stimulator of interferon genes (STING), which activates a signaling cascade leading to the production of type I interferons and other immune mediators[1][2][3][4].

IC_{50} & Target

Human Endogenous Metabolite

In Vitro

cGAMP diammonium promotes the antigen-specific proliferation capacity of spleen cells in mice[2].
cGAMP diammonium directly activates murine and human dendritic cells in vitro[2].
On stimulation with cGAMP diammonium, fibroblasts from the patients showed increased transcription of IFNB1 but not of the genes encoding interleukin-1 (IL1), interleukin-6 (IL6), or tumor necrosis factor (TNF)[3].
cGAMP diammonium activates the endoplasmic reticulum (ER)-resident receptor STING, thereby inducing an antiviral state and the secretion of type I IFNs[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo	cGAMP (5 μg; nostril mucosal adjuvant) diammonium promotes the antigen-specific cytokine production by spleen cells of immunized mice[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Female C57BL/6 (H-2b) mice 6-8 weeks old[2]
Dosage:	5 μg
Administration:	Nostril mucosal adjuvant
Result:	Higher titers of ovalbumin (OVA)-specific IgA and total IgG as well as IgG1 and IgG2c in the sera of mice immunized with cGAMP-adjuvanted OVA as compared to sera from OVA-immunized mice.

CUSTOMER VALIDATION

- Chem Eng J. 2022: 140190.
- Biomaterials. 2023 Mar 31, 122104.
- J Nanobiotechnology. 2022 Jan 6;20(1):23.
- Cell Rep. 2023 Apr 5;42(4):112328.
- Biochem Pharmacol. 2023 May 19;213:115618.

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REFERENCES

[1]. Wu J, et al. Cyclic GMP-AMP is an endogenous second messenger in innate immune signaling by cytosolic DNA. Science. 2013 Feb 15;339(6121):826-30.

[2]. Skrnjug I, et al. Cyclic GMP-AMP displays mucosal adjuvant activity in mice. PLoS One. 2014 Oct 8;9(10):e110150.

[3]. Ablasser A, et al. Cell intrinsic immunity spreads to bystander cells via the intercellular transfer of cGAMP. Nature. 2013 Nov 28;503(7477):530-4.

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