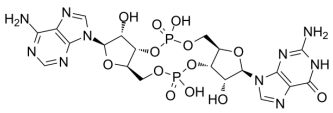
cGAMP

Cat. No.:	HY-12512
CAS No.:	849214-04-6
Molecular Formula:	$C_{20}H_{24}N_{10}O_{13}P_2$
Molecular Weight:	674.41
Target:	STING
Pathway:	Immunology/Inflammation
Storage:	Powder -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 180 mg/mL (266.90 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.4828 mL	7.4139 mL	14.8278 mL
	5 mM	0.2966 mL	1.4828 mL	2.9656 mL
	10 mM	0.1483 mL	0.7414 mL	1.4828 mL

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

BIOLOGICAL ACTIVITY

Description

cGAMP (Cyclic GMP-AMPP) functions as an endogenous second messenger in metazoans and triggers interferon production in response to cytosolic DNA. cGAMP 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

Endogenous Metabolite

In Vitro

cGAMP promotes the antigen-specific proliferation capacity of spleen cells in mice[2].
cGAMP directly activates murine and human dendritic cells in vitro[2].
On stimulation with cGAMP, 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 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 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]. Liu Y, et al. Activated STING in a vascular and pulmonary syndrome. N Engl J Med. 2014 Aug 7;371(6):507-18.

[4]. 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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