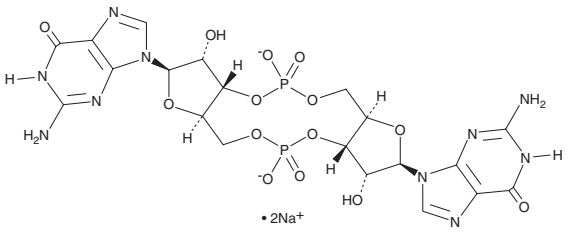
PRODUCT INFORMATION

Cyclic di-GMP (sodium salt)

Item No. 17144

CAS Registry No.:	2222132-40-1
Formal Name:	guanylyl-(3'→5')-3'-guanylic acid, cyclic nucleotide, disodium salt
Synonyms:	c-di-GMP, Cyclic diguanylate, 3',5'-Cyclic diguanylic acid
MF:	$C_{20}H_{22}N_{10}O_{14}P_2 \bullet 2Na$
FW:	734.4
Purity:	≥95%
UV/Vis.:	λ_{max}: 245 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

c-di-GMP (sodium salt) is supplied as a crystalline solid. A stock solution may be made by dissolving the c-di-GMP (sodium salt) in the solvent of choice. The solubility of c-di-GMP (sodium salt) in water is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cyclic di-GMP is a second messenger in bacteria involved in diverse prokaryotic processes, including biofilm formation, motility, virulence, and cell cycling.[1,2] In eukaryotic cells, cyclic di-GMP is detected by and binds to the transmembrane protein stimulator of interferon genes (STING; K_d = 1.21 µM), leading to activation of the innate immune system.[3,4] It has been used at a preset molar ratio with STING dimers in binding assays to determine the binding constants of particularly tight binding partners, such as 2'3'-cGAMP. Cyclic di-GMP induces IFN-β mRNA expression *in vitro* (EC_{50} = 537.8 nM) but less potently than 2'3'-cGAMP (Item No. 19887), 3'2'-cGAMP, 3'3'-cGAMP (Item No. 17966), and 2'2'-cGAMP (Item No. 22419).

References

1. Römling, U., Galperin, M.Y., and Gomelsky, M. Cyclic di-GMP: The first 25 years of a universal bacterial second messenger. *Microbiol. Mol. Biol. Rev.* **77(1)**, 1-52 (2013).
2. Martķnez, L.C. and Vadyvaloo, V. Mechanisms of post-transcriptional gene regulation in bacterial biofilms. *Front. Cell. Neurosci.* **4(38)**, 1-15 (2014).
3. Schaap, P. Cyclic di-nucleotide signaling enters the eukaryote domain. *IUBMB Life* **65(11)**, 897-903 (2013).
4. Zhang, X., Shi, H., Wu, J., *et al.* Cyclic GMP-AMP containing mixed phosphodiester linkages is an endogenous high-affinity ligand for STING. *Mol. Cell* **51(2)**, 226-235 (2015).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM