

PRODUCT INFORMATION



$^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -Cyclic di-GMP (sodium salt) Item No. 36245

Formal Name: 2,9-bis(2-(amino- ^{15}N)-6-oxo-1,6-dihydro-9H-purin-9-yl- $^{13}\text{C}_5$ - $^{15}\text{N}_4$)-3,10-dihydroxyoctahydro-2H,7H-difuro[3,2-d:3',2'-j][1,3,7,9]tetraoxa[2,8]diphosphacyclododecine-5,12-bis(olate)-2R,3R,3aS,7,7aR,9R,10R,10aS,14,14aR- $^{13}\text{C}_{10}$ 5,12-dioxide, disodium salt

Synonyms: $^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -c-di-GMP, $^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -Cyclic diguanylate, $^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -3',5'-Cyclic diguanylic Acid

MF: [^{13}C]₂₀H₂₂[^{15}N]₁₀O₁₄P₂ • 2Na

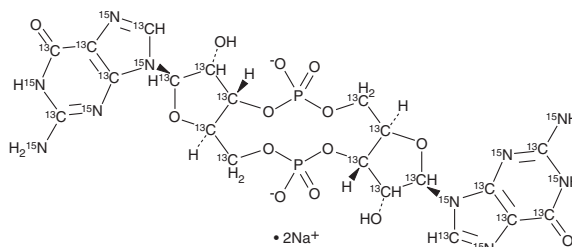
FW: 764.2

Purity: ≥98%

Supplied as: A 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

$^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -Cyclic di-GMP (sodium salt) is supplied as a solid. A stock solution may be made by dissolving the $^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -cyclic di-GMP (sodium salt) in water. We do not recommend storing the aqueous solution for more than one day.

Description

$^{13}\text{C}_{20}, ^{15}\text{N}_{10}$ -Cyclic di-GMP is intended for use as an internal standard for the quantification of cyclic di-GMP (Item No. 17144) by GC- or LC-MS. 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; $K_d = 1.21 \mu\text{M}$), 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* ($\text{EC}_{50} = 537.8 \text{ nM}$) 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

- 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).
- Martínez, L.C. and Vadyvaloo, V. Mechanisms of post-transcriptional gene regulation in bacterial biofilms. *Front. Cell. Neurosci.* **4**(38), 1-15 (2014).
- Schaap, P. Cyclic di-nucleotide signaling enters the eukaryote domain. *IUBMB Life* **65**(11), 897-903 (2013).
- 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).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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