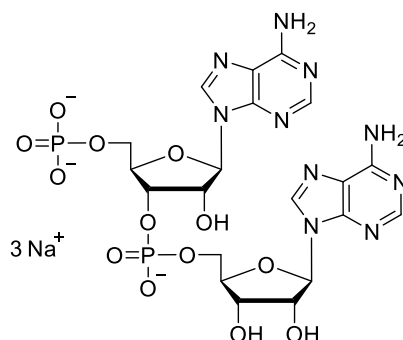


Technical Information about 5'- Phosphoadenylyl- (3' → 5')- adenosine

Update: April 16, 2019 HU



Abbreviation: pApA

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₂₀ H ₂₆ N ₁₀ O ₁₃ P ₂	[3593-47-3]	676.5 (free acid)	λ _{max} 259 nm / ε 27000 / pH 7	P 033

Name: 5'- Phosphoadenylyl- (3' → 5')- adenosine / linear diadenylate

Description: In pApA two 5'-AMP units are connected to form a linear dinucleotide.

Properties: pApA is a potential metabolite of the bacterial second messenger c-diAMP (BIOLOG Cat. No. C 088).

Specification: Crystallized or lyophilized sodium salt. The free acid or other salt forms are available upon request. Please keep in mind that equal concentrations of the compound may look different in volume due to sensitivity of the lyophilized form to humidity. The compound can even contract to small volume droplets. Normally the product is located in the conical bottom of the tube. Micromolar quantities are determined by UV at λ_{max}.

Purity: Typical analysis is better than 95% (HPLC / UV / 259 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: pApA has excellent solubility in water and aqueous buffers. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing. When opening the tube please make sure that no substance is lost within the cap.

Stability and Storage: pApA is chemically rather stable. Nevertheless, we recommend that the compound should be stored in the freezer, for longer storage periods preferably in freeze-dried form.

Toxicity and Safety: Please keep in mind that the *in vivo* properties of this compound are not sufficiently characterized up to now. Avoid skin contact or ingestion and allow only trained personnel to handle the product. Our products are designed, developed and sold for research purposes only. They are intended for *in vitro* and nonhuman *in vivo* laboratory applications. Any other use requires approval of health authorities.

Not for drug, household or related uses!

Selected Reference for pApA:

Bai, Y.; Yang, J.; Eisele, L.E.; Underwood, A.J.; Koestler, B.J.; Waters, C.M.; Metzger, D.W.; Bai, G., *J. Bacteriol.*, **195**, 5123 - 5132 (2013): "Two DHH Subfamily Proteins in *Streptococcus pneumoniae* Possess Cyclic Di-AMP Phosphodiesterase Activity and Affect Bacterial Growth and Virulence"

Rao, F.; See, R.Y.; Zhang, D.; Toh, D.C.; Ji, Q.; Liang, Z.-X., *J. Biol. Chem.*, **285**, 473 - 482 (2010): "YybT is a Signaling Protein that Contains a Cyclic Dinucleotide Phosphodiesterase Domain and a GGDEF Domain with ATPase Activity"

Selected References for c-diAMP:

Sureka, K.; Choi, P.H.; Precit, M.; Delince, M.; Pensinger, D.A.; Huynh, T.N.; Jurado, A.R.; Goo, Y.A.; Sadilek, M.; Iavarone, A.T.; Sauer, J.-D.; Tong, L.; Woodward, J.J., *Cell*, **158**, 1389 - 1401 (2014): "The Cyclic Dinucleotide c-diAMP is an Allosteric Regulator of Metabolic Enzyme Function"

Oppenheimer-Shaanan, Y.; Wexselblatt, E.; Katzhendler, J.; Yavin, E.; Ben-Yehuda, S., *EMBO Rep.*, **12**, 594 - 601 (2011): "c-di-AMP Reports DNA Integrity During Sporulation in *Bacillus subtilis*"

Römling, U., *Sci. Signal.*, **1(33)**, pe39 (2008): "Great Times for Small Molecules: c-di-AMP, a Second Messenger Candidate in Bacteria and Archaea"

Witte, G.; Hartung, S.; Büttner, K.; Hopfner, K.-P., *Mol. Cell*, **30**, 167 - 178 (2008): "Structural Biochemistry of a Bacterial Checkpoint Protein Reveals Diadenylate Cyclase Activity Regulated by DNA Recombination Intermediates"