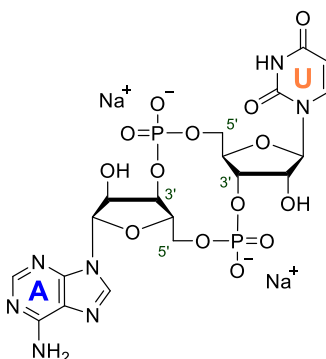


Technical Information about c-(ApUp)

Hybrid purine-pyrimidine cyclic dinucleotide

Update: June 28, 2023 ss



Abbreviation: c-(ApUp)

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₁₉ H ₂₃ N ₇ O ₁₄ P ₂ (free acid)	[83799-66-0] (free acid)	635.4 (free acid)	λ _{max} 260 nm / ε 22500 / pH 7	C 357

Name: Cyclic (adenosine monophosphate- uridine monophosphate), sodium salt
Syn.: c[A(3',5')pU(3',5')p] / cUMP-AMP / cUA

Description: c-(ApUp) is a cyclic dinucleotide in which a 5'-AMP unit and a 5'-UMP are interconnected via 3' → 5' phosphodiester bonds to form a cyclic structure.

Properties: c-(ApUp) is a hybrid purine-pyrimidine cyclic dinucleotide and stereoisomer of the second messenger c[U(2',5')pA(3',5')p] (Cat. No. C 399) and c[A(2',5')pU(3',5')p] (Cat. No. C 398). c-(ApUp) was found to be biosynthesized by an alternative cyclic dinucleotide synthase identified in *Escherichia coli* strain ECOR31, CdnE (WP_001593458). While c-(ApUp) fails to activate STING-dependent type-I interferon signalling in HEK293T cells, it binds to and inhibits the enzymatic function of the mammalian cyclic dinucleotide sensor RECON (REductase COntrolling NF-κB, Whiteley et al. 2019). Recent studies have shown that in the coral *Stylophora pistillata* c-(ApUp) is produced by the cGAS-like pattern recognition receptor (cGLR) Sp-cGLR1 in response to dsRNA-activation (Li et al. 2023).

Specification: Crystallized or lyophilized sodium salt. 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 / 260 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: c-(ApUp) is soluble in water and aqueous buffers (≥ 100 mM, limits have not been determined). 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: c-(ApUp) has sufficient stability at room temperature and does not need special care during handling or shipment. 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 contact with eyes and skin 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 References for c-(ApUp):

Li, Y.; Slavik, K.M.; Morehouse, B.R.; de Oliveira Mann, C.C.; Mears, K.; Liu, J.; Kashin, D.; Schwede, F.; Kranzusch, P.J., cGLRs are a Diverse Family of Pattern Recognition Receptors in Animal Innate Immunity, *Cell* (2023), <https://doi.org/10.1016/j.cell.2023.05.038>

Govande, A.A.; Duncan-Lowey, B.; Eaglesham, J.B.; Whiteley, A.T.; Kranzusch, P.J., *Cell Reports*, **35**, 109206 (2021): "Molecular Basis of CD-NTase Nucleotide Selection in CBASS Anti-Phage Defense"

Whiteley, A.T.; Eaglesham, J.B.; de Oliveira Mann, C.C.; Morehouse, B.R.; Lowey, B.; Nieminen, E.A.; Danilchanka, O.; King, D.S.; Lee, A.S.Y.; Mekalanos, J.J.; Kranzusch, P.J., *Nature*, **567**, 194 - 199 (2019): "Bacterial cGAS-like Enzymes Synthesize Diverse Nucleotide Signals"