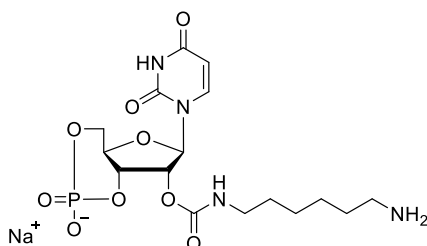


Technical Information about 2'-AHC-cUMP

Update: September 21, 2023 ss



Abbreviation: **2'-AHC-cUMP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₁₆ H ₂₄ N ₄ O ₉ P · Na	[pending]	470.4	λ _{max} 262 nm / ε 10200 / pH 7	A 162

Name: 2'- O- (6- Aminohexylcarbamoyl)uridine- 3', 5'- cyclic monophosphate, sodium salt

Description: 2'-AHC-cUMP is an analogue of the natural signal molecule cyclic UMP (cUMP, Cat. No. U 001) in which a hexyl spacer with a terminal amino group has been attached to the ribose 2'-hydroxy group by a carbamate bond.

Properties:

- Analogue of cyclic UMP prepared to be coupled to various structures including proteins,
- ligand for immobilization to yield affinity gels,
- also suitable for conjugation with fluorescent dyes or labels.

In spite of its modification, 2'-AHC-cUMP could still be sensitive against phosphodiesterases. 2'-AHC-cUMP is also available as a ligand immobilized to agarose (2'-AHC-cUMP-Agarose, Cat. No. A 164).

Specification: Crystallized or lyophilized sodium salt. Please keep in mind that equal concentrations of the compound can appear very 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. Micro molar quantities are determined by UV at λ_{max}.

Purity: Typical analysis is better than 98% (HPLC / UV / 262 nm). The product is not sterile and has not been tested for endotoxins.

Stability and Storage: 2'-AHC-cUMP is chemically rather stable 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.

Solubility: 2'-AHC-cUMP is readily soluble in water or buffer. When opening the tube please make sure that no substance is lost within the cap. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing.

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 2'-AHC-cUMP:

Schwede, F.; Rentsch, A.; Genieser, H.-G., *Handb. Exp. Pharmacol.*, **238**, 307 - 337 (2017): "Medicinal Chemistry of the Noncanonical Cyclic Nucleotides cCMP and cUMP"

Selected References for cUMP (Cat. No. U 001):

- Tal, N.; Morehouse, B.R.; Millman, A.; Stokar-Avihail, A.; Avraham, C.; Fedorenko, T.; Yirmiya, E.; Herbst, E.; Brandis, A.; Mehlman, T.; Oppenheimer-Shaanan, Y.; Keszei, A.F.A.; Shao, S.; Amitai, G.; Kranzusch, P.J.; Sorek, R., *Cell*, **184**, 5728 - 5739 (2021): "Cyclic CMP and Cyclic UMP Mediate Bacterial Immunity Against Phages"
- Bähre, H.; Hartwig, C.; Munder, A.; Wolter, S.; Stelzer, T.; Schirmer, B.; Beckert, U.; Frank, D.W.; Tümmler, B.; Kaefer, V.; Seifert, R., *Biochem. Biophys. Res. Commun.*, **460**, 909 - 914 (2015): "cCMP and cUMP Occur in Vivo"
- Beste, K.Y.; Spangler, C.M.; Burhenne, H.; Koch, K.-W.; Shen, Y.; Tang, W.; Kaefer, V.; Seifert, R., *PLoS ONE*, **8**: e70223 (2013): "Nucleotidyl Cyclase Activity of Particulate Guanylyl Cyclase A: Comparison with Particulate Guanylyl Cyclases E and F, Soluble Guanylyl Cyclase and Bacterial Adenylyl Cyclases CyaA and Edema Factor"
- Jäger, R.; Russwurm, C.; Schwede, F.; Genieser, H.-G.; Koesling, D.; Russwurm, M., *J. Biol. Chem.*, **287**, 1210 - 1219 (2012): "Activation of PDE10 and PDE11 Phosphodiesterases"
- Zong, X.; Krause, S.; Chen, C.-C.; Krüger, J.; Gruner, C.; Cao-Ehlker, X.; Fenske, S.; Wahl-Schott, C.; Biel, M., *J. Biol. Chem.*, **287**, 26506 - 26512 (2012): "Regulation of Hyperpolarization-Activated Cyclic Nucleotide-Gated (HCN) Channel Activity by cCMP"
- Göttle, M.; Dove, S.; Kees, F.; Schlossmann, J.; Geduhn, J.; König, B.; Shen, Y.; Tang, W.-J.; Kaefer, V.; Seifert, R., *Biochemistry*, **49**, 5494 - 5503 (2010): "Cytidylyl and Uridylyl Cyclase Activity of Bacillus anthracis Edema Factor and Bordetella pertussis CyaA"
- Scott, S.-P.; Shea, P.W.; Dryer, S., *Biochemistry*, **46**, 9417 - 9431 (2007): "Mapping Ligand Interactions with the Hyperpolarization Activated Cyclic Nucleotide Modulated (HCN) Ion Channel Binding Domain Using Soluble Construct"
- Moll, D.; Prinz, A.; Gesellchen, F.; Drewianka, S.; Zimmermann, B.; Herberg, F.W., *J. Neural. Transm.*, **113**, 1015 - 1032 (2006): "Biomolecular Interaction Analysis in Functional Proteomics"
- Blecher, M.; Ro'Ane, J.T.; Flynn, P.D., *Arch. Biochem. Biophys.*, **142**, 351 - 362 (1971): "Biological Roles for 3',5'-Cyclic Nucleotides. I. Lipolytic Agents in Isolated Rat Epididymal Adipose Cells and Substrates for Adipose Tissue Phosphodiesterase"