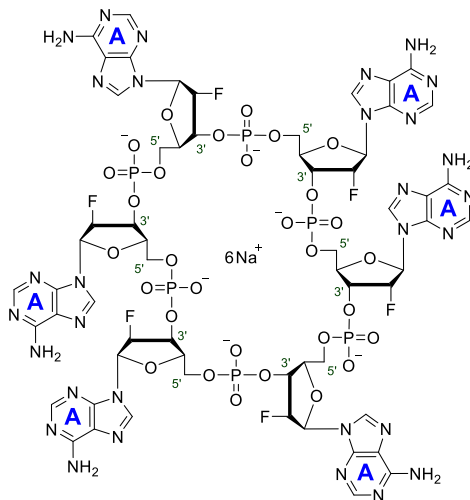


Technical Information about 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP

Analogue of the bacterial second messenger c-hexaAMP with increased metabolic stability

Update: January 18, 2021 AI



Abbreviation: 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₆₀ H ₆₆ F ₆ N ₃₀ O ₃₀ P ₆ (free acid)	[pending]	1987.2 (free acid)	λ _{max} 259 nm / ε 81000 / pH 7	H 038

Name: 2'-, 2'', 2''', 2''''', 2''''''', 2''''''''- Hexadeoxy- 2', 2'', 2''', 2''''', 2''''''', 2''''''''- hexafluoro- cyclic hexaadenosine monophosphate, sodium salt
Syn.: cFA6

Description: c-hexaAMP is a cyclic nucleotide in which six 2'-deoxy-2'-fluoro-modified 5'-AMP units are interconnected via 3'-5' phosphodiester bonds to form a cyclic structure.

Properties: Cyclic oligoadenylates such as c-hexaAMP (Biolog Cat. No.: C 332) were found to be novel bacterial second messengers involved in the Type III CRISPR-Cas-associated detection and degradation of invasive genetic elements in many prokaryotes (Niewoehner et al. (2017); Kazlauskiene et al. (2017)). 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP is an analogue of c-hexaAMP containing fluoro modifications in all ribose 2'-positions. 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP was found to be resistant to degradation by the type III CRISPR-associated ribonuclease Csm6 from *Enterococcus italicus* (EiCsm6) while it still activated EiCsm6 (EC₅₀ = 170 nM), albeit more weakly than c-hexaAMP (all data according to Garcia-Doval et al. (2020)).

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 / 259 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP is soluble in water and aqueous buffers (≥ 2 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: 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP 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 2',2'',2''',2''''',2''''''',2''''''''-Hexa-F-c-hexadAMP:

Garcia-Doval, C.; Schwede, F.; Berk, C.; Rostøl, J.T.; Niewoehner, O.; Tejero, O.; Hall, J.; Marraffini, L.A.; Jinek, M., *Nat. Commun.*, **11**(1):1596 (2020): "Activation and Self-inactivation Mechanisms of the Cyclic Oligoadenylate-dependent CRISPR Ribonuclease Csm6"

Selected References for c-hexaAMP:

Niewoehner, O.; Garcia-Doval, C.; Rostøl, J.T.; Berk, C.; Schwede, F.; Bigler, L.; Hall, J.; Marraffini, L.A.; Jinek, M., *Nature*, **548**, 543 - 548 (2017): "Type III CRISPR-Cas Systems Produce Cyclic Oligoadenylate Second Messengers"

Kazlauskiene, M.; Kostiuk, G.; Venclovas, Č.; Tamulaitis, G.; Siksnys, V., *Science*, **357**, 605 - 609 (2017): "A Cyclic Oligonucleotide Signaling Pathway in Type III CRISPR-Cas Systems"