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Technical Information about 2'-O-Monobutyryl-cAMP

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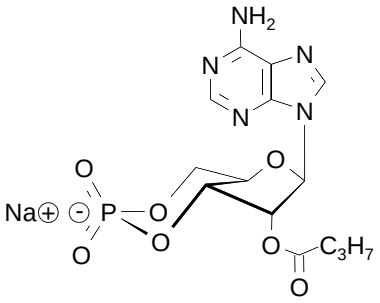


Abbreviation: **2'-O-MB-cAMP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{14}H_{17}N_5O_7P{\cdot}Na$	[55443-13-5]	421.3	λ_{max} 259 nm / ε 15000 / pH 7	M 007

Name: 2'- O- Monobutyryladenosine- 3', 5'- cyclic monophosphate

Description: 2'-O-MB-cAMP is an analogue of the parent compound cyclic AMP in which the hydroxy group in position 2' of the ribose is esterified by butyric acid.

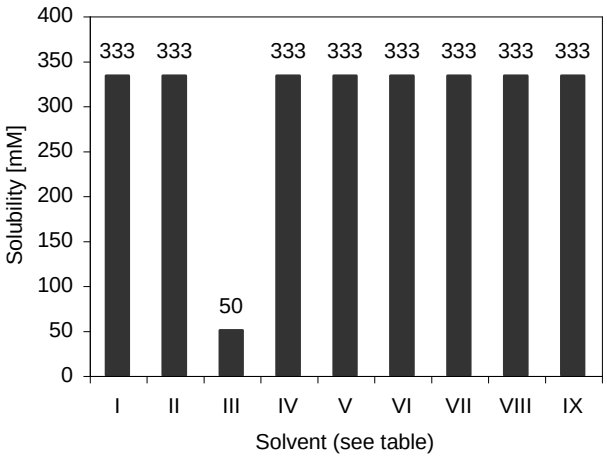
Properties: 2'-O-MB-cAMP is a lipophilic precursor of cyclic AMP with significantly higher membrane permeability. During metabolic activation by esterases cAMP and butyrate are released. Please note that the released butyrate induces a lot of effects which are often interfering with second messenger pathways. That means, that for each experiment with 2'-O-MB-cAMP the influence of butyrate has to be determined in control runs with sodium butyrate or tributyrin.

Specification: Lyophilized or crystallized sodium salt. Other salt forms are available upon request. Equal concentrations of 2'-O-MB-cAMP can appear very different in volume depending on 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 97% (HPLC / UV / 258 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: Detailed information on the solubility of 2'-O-MB-cAMP in water and various buffers are listed in the solubility chart below. Concentrations have been tested at ambient temperature and can be considered as minimum concentrations usually obtainable. 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.

No.	Solvent	Solubility [mM]
I	H_2O	333
II	DMSO	333
III	DMF	50
IV	Ethanol 96%	333
V	Methanol	333
VI	PBS, pH 7.4	333
VII	100 mM Na_2HPO_4, pH 7.0	333
VIII	25 mM Hepes/NaOH, pH 7.2	333
IX	25 mMTris/HCl, pH 7.4	333



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Stability and Storage: 2'-O-MB-cAMP 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.

Toxicity and Safety: Since cAMP has multiple tasks in every organism, it is very likely that lipophilic cAMP analogues will interfere with many cell regulation processes *in vivo*. However, due to the rather small quantities to work with, no health hazards have been reported. Nevertheless 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'-O-MB-cAMP:
For an extended reference list please visit our website http://www.biolog.de.

Wang, J.L.; Guo, J.-X.; Zhang, Q.-Y.; Wu, J.J.-Q.; Seifert, R.; Lushington, G.H., *Bioorg. Med. Chem.*, **15**, 2993 - 3002 (2007): "A Conformational Transition in the Adenylyl Cyclase Catalytic Site Yields Different Binding Modes for Ribosyl-Modified and Unmodified Nucleotide Inhibitors"

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"

Schaeffer, V.H.; Masoud, A.N.; Rubin, R.J., *J. Pharm. Sci.*, **72**, 1255 - 1259 (1983): "Analysis of Monobutyryl and Dibutyryl Derivatives of Adenosine 3',5'-monophosphate in Biological Samples using isocratic Ion Pair High-Performance Liquid Chromatography"

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