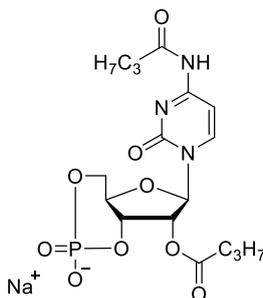


## Technical Information about DB-cCMP

Update: August 06, 2018 HU



**Abbreviation:** DB-cCMP

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C <sub>17</sub> H <sub>23</sub> N <sub>3</sub> O <sub>9</sub> P·Na	[64649-87-2]	467.3	λ <sub>max</sub> 248 nm / ε 17100 / pH 7	D 075

**Name:** N<sup>4</sup>, 2'- O- Dibutyrylcytidine- 3', 5'- cyclic monophosphate

**Description:** DB-cCMP is an analogue of cyclic CMP where both, the amino group in position 4 of the cytosine nucleobase and the ribose 2'-hydroxyl group are modified with a butyrate moiety.

**Properties:** DB-cCMP is a membrane-permeant, metabolically activatable prodrug form of the potential second messenger cCMP (BIOLOG Cat. No. C 001). Please note that the butyrate that is split off from DB-cCMP by esterases induces a lot of effects which are often reported to interfere with second messenger pathways. That means, that for each experiment with DB-cCMP, the influence of butyrate should be determined in control runs with sodium butyrate or tributyrin.

**Specification:** Lyophilized or crystallized sodium salt. The free acid or other salt forms are available upon request. Equal concentrations of DB-cCMP 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. Micromolar quantities are determined by UV at λ<sub>max</sub>.

**Purity:** Typical analysis is better than 97% (HPLC / UV / 248 nm). The product is not sterile and has not been tested for endotoxins.

**Solubility:** DB-cCMP is soluble in water (≥ 50 mM). 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:** DB-cCMP 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 cCMP could have multiple tasks in every organism, it is not unlikely that its analogues could 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 References for DB-cCMP:

Wolter, S.; Kloth, C.; Golombek, M.; Dittmar, F.; Försterling, L.; Seifert, R., *Biochem. Pharmacol.*, 98, 119 – 131 (2015): " cCMP Causes Caspase-dependent Apoptosis in Mouse Lymphoma Cell Lines"

Wolter, S.; Dove, S.; Golombek, M.; Schwede, F.; Seifert, R., *Naunyn-Schmiedebergs Arch. Pharmacol.*, **387**, 1163 - 1175 (2014): "N<sup>4</sup>-monobutyl-cCMP Activates PKA RI $\alpha$  and PKA RII $\alpha$  more Potently and with Higher Efficacy than PKG I $\alpha$  in Vitro but not in Vivo"

Desch, M.; Schinner, E.; Kees, F.; Hofmann, F.; Seifert, R.; Schlossmann, J., *FEBS Lett.*, **584**, 3979 - 3984 (2010): "Cyclic Cytidine 3',5'-monophosphate (cCMP) Signals via cGMP Kinase I"

Haji Hosseini Baghdad Abadi, R., *Anal. Biochem.*, **312**, 91 - 100 (2003): "Nucleotide Profile of Mouse Liver: Response to 2'-O-Dibutyl cytidene 3',5'-cyclic monophosphate"

Ervens, J.; Seifert, R., *Biochem. Biophys. Res. Commun.*, **174**, 258 - 267 (1991): "Differential Modulation by N<sup>4</sup>,2'-O-Dibutyl Cytidine 3':5'-cyclic Monophosphate of Neutrophil Activation"

Yanagida, M.; Gohda, E.; Yamamoto, I., *Neurosci. Lett.*, **114**, 323 - 328 (1990): "Dibutylcytidine 3',5'-cyclic monophosphate Stimulates Neurite Outgrowth in Rat Pheochromocytoma PC12"