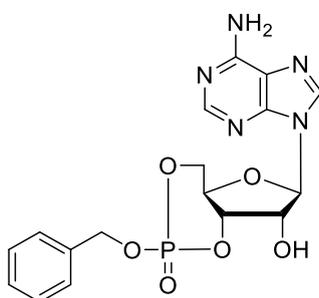


Technical Information about the Benzyl Ester of Adenosine- 3', 5'- cyclic monophosphate (cAMP-Bn)

Membrane-permeant precursor of the second messenger cyclic AMP

Update: July 02, 2018 HU



Abbreviation: cAMP-Bn

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat.No.
C ₁₇ H ₁₈ N ₅ O ₆ P	[62742-71-6]	419.3	λ _{max} 259 nm / ε 15000 / pH 7	A 065

Name: Adenosine- 3', 5'- cyclic monophosphate, benzyl ester

Description: cAMP-Bn is an analog of the natural signal molecule cyclic AMP in which the polar phosphate is masked by a benzyl group.

Properties: The benzyl group of cAMP-Bn masks the charged polar phosphate and thus makes the molecule highly membrane-permeant. Due to its chemical instability, hydrolysis of cAMP-Bn slowly releases the polar cAMP which is trapped inside the cell and subsequently metabolized, resulting in an elevated cAMP level for some time. cAMP-Bn is especially useful if cAMP itself and not an analog is to be applied.

Specification: Lyophilized or crystallized solid. Micromolar quantities are determined by UV at λ_{max}.

Purity: Typical analysis is better than 95% (HPLC / UV / 258 nm) for mixture of axial and equatorial isomers. The product is not sterile and has not been tested for endotoxins.

Solubility/Application: Due to its rather high lipophilicity, the solubility of cAMP-Bn in water or buffers is limited. We suggest to use a small amount of anhydrous organic solvent such as anhydrous DMSO or DMF for dissolution at 1-100 mM, and to dilute with water or buffer down to the concentrations required. In some cases, especially at high concentrations (~1mM), Pluronic® F-127 (Molecular Probes) can be useful to facilitate solubilization in physiological media. Please keep in mind that due to the high potency of cAMP-Bn relatively low concentrations (0.005-0.1 mM) should be sufficient, and be sure to check for DMSO/DMF tolerance in your system. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing.

Stability and Storage: Please note, that aqueous solutions are rather labile and should be freshly prepared immediately before use. Stock solutions in anhydrous DMSO or DMF should be relatively stable when stored frozen at -20°C - -70°C.

Toxicity and Safety: Since cyclic AMP has multiple tasks in every organism, it is very likely that lipophilic cAMP analogs 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 References for cAMP-Bn:

Engels, J.; Schlaeger, E.-J., *J. Med. Chem.*, **20**, 907 - 911 (1977): "Synthesis, Structure and Reactivity of Adenosine Cyclic 3', 5'-Phosphate Benzyl Triesters"

Engels, J., *Z. Naturforsch.*, **32b**, 807 - 809 (1977): "Zum Mechanismus der Hydrolyse des Adenosin-3', 5'-cyclophosphatbenzylesters"

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