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Technical Information about 8-Azido-cAMP

Membrane-permeant and PDE-resistant photoaffinity label of cAMP-dependent binding proteins

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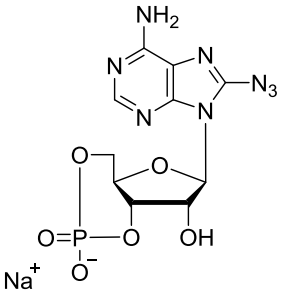

Abbreviation: **8-N_3-cAMP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{10}H_{10}N_8O_6P{\cdot}Na$	[31966-52-6]	392.2	λ_{max} 281 nm / ε 13000 / pH 6	A 014

Name: 8- Azidoadenosine- 3', 5'- cyclic monophosphate

Description: 8-N_3-cAMP is an analogue of the parent second messenger cyclic AMP (cAMP) in which the hydrogen in position 8 of the nucleobase is replaced by the light-sensitive azido moiety.

Properties:

- UV light-induced photoaffinity label for cAMP-dependent binding proteins

- Increased membrane permeability while still soluble in aqueous solvents

- Increased metabolic stability towards cyclic nucleotide-responsive phosphodiesterases examined so far

In contrast to its isotope-labelled form, labelling with 8-N_3-cAMP is normally not detectable at the intact protein but needs degradation of the protein and subsequent chromatographic analysis of amino acid fragments.
For fluorescent modifications of 8-N_3-cAMP which should strongly facilitate identification of labelled areas please inquire.

Specification: Crystallized or lyophilized sodium salt. Other salt forms of 8-N_3-cAMP are available upon request. Please keep in mind that equal amounts of the compound may look 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}. BIOLOG can also offer the agonistic Sp-isomer and the inhibitory Rp-isomer of the corresponding phosphorothioates.

Purity: Typical analysis is better than 95% (HPLC / UV / 281 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 8-N_3-cAMP has sufficient solubility in water or buffer for most applications. 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.

Stability and Storage: 8-N_3-cAMP is a light-sensitive structure but if protected from bright light it 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: Since cyclic AMP 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!

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Selected References for 8-N_3-cAMP: Since 8-N_3-cAMP is a well known biochemical tool there exist numerous citations for almost every biosystem. The following papers give basic information concerning kinase specificity (Øgreid et al. 1989) and application (Haley 1977):

Ito, K.; Liu, H.; Komiyama, M.; Hayashi, T.; Xu, Y., *Molecules*, **18**, 12909 – 12915 (2013): " Direct Light-up of cAMP Derivatives in Living Cells by Click Reactions"

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“

Øgreid D.; Ekanger, R.; Suva, R.H.; Miller, J.P.; Døskeland, S.O., *Eur. J. Biochem.,* **181**,19 - 31 (1989): "Comparison of the Two Classes of Binding Sites (A and B) of Type I and Type II Cyclic-AMP-dependent Protein Kinases Using Cyclic Nucleotide Analogs"

Higashio, T.; Abe, M.; Miyazaki, M.; Yamamoto, K., *Experientia*, **36**, 234 - 236 (1979): "Renal Effects of 8-substituted Derivatives of Adenosine 3',5'-cyclic Monophosphate in Dogs”

Haley, B.E., *Methods Enzymol*., **46**, 339 - 346 (1977): "Adenosine 3',5'-Cyclic Monophosphate Binding Sites”

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