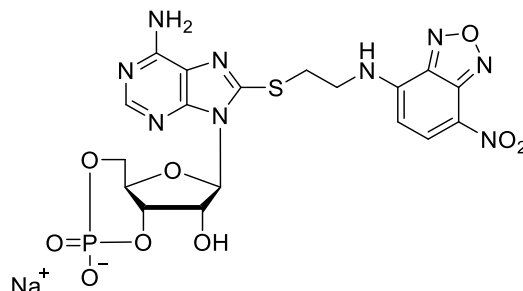


Technical Information about 8-NBD-cAMP

Fluorescent and membrane-permeant analogue of cAMP

Update: July 06, 2018 HU



Abbreviation: 8-NBD-cAMP

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₁₈ H ₁₇ N ₉ O ₉ PS·Na	[221905-51-7]	589.4	λ _{max} 463 nm / ε 22000 (MeOH)	N 002

Name: 8-(2-[7-Nitro-4-benzofurazanyl]aminoethylthio)adenosine-3',5'-cyclic monophosphate / syn.: 8-[[2-[(7-nitro-2,1,3-benzoxadiazol-4-yl)amino]ethyl]thio]adenosine-3',5'-cyclic monophosphate.

Description: 8-NBD-cAMP is an analogue of cyclic AMP which is modified with the fluorescent dye NBD via a spacer at position 8 of the adenine nucleobase.

Properties: The NBD dye is only moderately fluorescent in aqueous solvents, but fluorescence considerably increases in hydrophobic media (λ_{exc} 471 nm / λ_{em} 536 nm). This holds true for hydrophobic protein binding sites as well.

- High lipophilicity and good membrane permeability while still soluble in aqueous solvents
- Increased metabolic stability towards cyclic nucleotide-responsive phosphodiesterases
- Activator of the cAMP-dependent protein kinase

Specification: Crystallized or lyophilized sodium salt. Other salt forms of 8-NBD-cAMP are available upon request. Please keep in mind that equal amounts of the dry 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. Micro molar quantities are determined by UV/VIS at 463 nm (ε 22000 / methanol).

Purity: Typical analysis is better than 95% (HPLC / UV / 285 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 8-NBD-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-NBD-cAMP has sufficient stability at room temperature and does not need special care during handling or transport. Nevertheless, the compound should be protected from light and stored in the 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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- Tsalkova, T.; Mei, F.C.; Cheng, X., *PLoS One*, **7(1)**, e30441 (2011): "A Fluorescence-Based High-Throughput Assay for the Discovery of Exchange Protein Directly Activated by Cyclic AMP (EPAC) Antagonists"
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- Tsalkova, T.; Blumenthal, D.K.; Mei, F.C.; White, M.A.; Cheng, X.D., *J. Biol. Chem.*, **284**, 23644 - 23651 (2009): "Mechanism of Epac Activation Structural and Functional Analyses of Epac2 Hinge Mutants with Constitutive and Reduced Activities"
- Moll, D.; Prinz, A.; Gesellchen, F.; Drewianka, S.; Zimmermann, B.; Herberg, F.W., *J. Neural. Transm.*, **113**, 1015 - 1032 (2006): "Biomolecular Interaction Analysis in Functional Proteomics"
- Kraemer, A.; Rehmann, H.; Cool, R.H.; Theiss, C.; de Rooij, J.; Bos, J.L.; Wittinghofer, A., *J. Mol. Biol.*, **306**, 1167 - 1177 (2001): "Dynamic Interaction of cAMP with the Rap Guanine-nucleotide Exchange Factor Epac1"

Reference for the corresponding cGMP analogue (8-NBD-cGMP, Cat. No. N 001):

- Ruf et al. in Heilmeyer, L.M.G. (ed.), *Signal Transduction and Protein Phosphorylation, Ser. A, Life Sci.*, **135**, 99 - 104 (1987), Plenum Press, NATO ASI, 1987: "Binding of Fluorescent Analogs of Cyclic GMP to cGMP-dependent Protein Kinase"