Technical Information about 8-NBD-cAMP

Fluorescent and membrane-permeant analogue of cAMP

Update: July 06, 2018

Abbreviation: 8-NBD-cAMP

Formula: C_{18}H_{17}N_{9}O_{9}PS\cdot Na

CAS No.: [221905-51-7]

Molecular Weight: 589.4

UV: \( \lambda_{max} \) 463 nm / \( \varepsilon \) 22000 (MeOH)

BIOLOG Cat. No.: N 002

Name: 8-[2-\{7-Nitro-4-benzofurazanyl\}aminomethyl\}thio]adenosine-3',5'-cyclic monophosphate / syn.: 8-[2-\{7-nitro-1,3-benzoxadiazol-4-yloamino\}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:

- 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. Micromolar quantities are determined by UV/VIS at 463 nm (\( \varepsilon \) 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 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!
Selected References for 8-NBD-cAMP:


Tsalkova, T.; Gribenko, A.V.; Cheng, X., Assay Drug Dev. Technol., 9, 88 - 91 (2010): "Exchange Protein Directly Activated by Cyclic AMP Isoform 2 is not a Direct Target of Sulfonylurea Drugs"


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