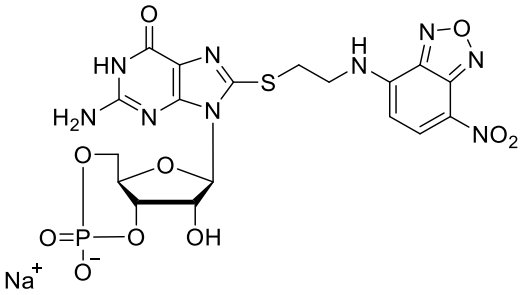
BIOLOG - LIFE SCIENCE INSTITUTE -

Technical Information about 8-NBD-cGMP

Fluorescent and membrane-permeant analogue of cGMP

Update: July 10, 2018 HJ



Abbreviation: **8-NBD-cGMP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{18}H_{17}N_9O_{10}PS{\cdot}Na$	[115993-88-9]	605.4	λ_{max} 463 nm / ε 22000 (MeOH)	N 001

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

Description: 8-NBD-cGMP is an analogue of cyclic GMP which is modified with the fluorescent dye NBD via a spacer at position 8 of the guanine nucleobase.

Properties: The NBD dye is only moderately fluorescent in aqueous solvents, but fluorescence considerably increases in hydrophobic media (λ_{exc} 475 nm / λ_{em} 525 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 cGMP-dependent protein kinase and most probably also of cGMP-gated ion channels**

Specification: Crystallized or lyophilized sodium salt. Other salt forms of 8-NBD-cGMP 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 (ε 22000 / methanol).

Purity: Typical analysis is better than 95% (HPLC / UV / 276 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 8-NBD-cGMP 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-cGMP 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 GMP has multiple tasks in every organism it is very likely that lipophilic cGMP 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!

BIOLOG Life Science Institute, Bremen, Germany Phone: 49 (0) 421 591355 Fax: 49 (0) 421 5979713 e-mail: service@biolog.de

Selected References for 8-NBD-cGMP:

Salowe, S.P.; Wiltsie, J.; Liberator, P.A.; Donald, R.G.K., *Biochemistry*, **41** (13), 4385 - 4391 (2002): "The Role of a Parasite-Specific Allosteric Site in the Distinctive Activation Behavior of Eimeria tenella cGMP-Dependent Protein Kinase"

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"

BIOLOG Life Science Institute, Bremen, Germany Phone: 49 (0) 421 591355 Fax: 49 (0) 421 5979713 e-mail: service@biolog.de