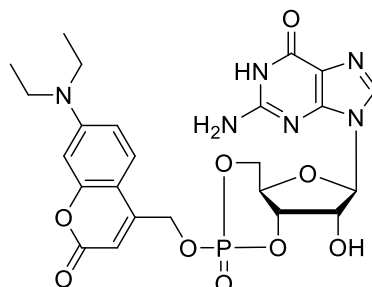# Technical Information about DEACM-caged cGMP

Update: May 23, 2019 HJ

Abbreviation: DEACM-caged cGMP

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{24}H_{27}N_6O_9P$ x 3 H_2O	[339291-42-8]	628.5	λ_{max} 403 nm / ε 19300 / pH 7	D 043

Name: (7- Diethylaminocoumarin-4- yl)methylguanosine- 3', 5'- cyclic monophosphate, axial isomer

Description: DEACM-caged cGMP is a weakly fluorescent, photo-activatable, caged form of the second messenger and protein kinase G activator cyclic GMP (cGMP). Due to the chiral phosphorus atom, two different isomers (axial and equatorial) can be distinguished.

Specification: Lyophilized or crystallized solid. For the corresponding equatorial isomer or the isomeric mixture please inquire.

Properties: DEACM-caged cGMP releases cGMP and a fluorescent coumarin analogue upon illumination with light pulses of 360 - 440 nm (Osram high pressure lamp).

Purity: Typical purity is better than 98% (HPLC) at time of quality control and packing. However, actual purity depends on storage and transport conditions. The product is not sterile and has not been tested for endotoxins.

Solubility: Due to its high lipophilicity DEACM-caged cGMP has only limited solubility in aqueous systems. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing. When opening the tube please make sure that no substance is lost within the cap.

Stability and Storage: DEACM-caged cGMP is relatively stable when stored in the dark (freezer). Long term stability experience remains to be established.

Toxicity and Safety: Since cyclic GMP has important tasks in every organism, it is not unlikely that lipophilic analogues could 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 DEACM-caged cGMP and Related Compounds:

Böhmer, M.; Van, Q.; Weyand, I.; Hagen, V.; Beyermann, M.; Matsumoto, M.; Hoshi, M.; Hildebrand, E.; Kaupp, U.B., *EMBO J.*; **24**, 2741 - 2752 (2005): "Ca²⁺ Spikes in the Flagellum Contol Chemotactic Behavior of Sperm"

Reisert, J.; Bradley, J., *J. Physiol.*, **569**, 4 - 5 (2005): "Activation of Olfactory Cyclic-nucleotide Gated Channels Revisited"

Nache, V.; Schulz, E.; Zimmer, T.; Kusch, J.; Biskup, C.; Koopmann, R.; Hagen, V.; Benndorf, K., *J. Physiol.*, **569**, 91 - 102 (2005): "Activation of Olfactory-type Cyclic Nucleotide-gated Channels is Highly Cooperative"

Hagen, V.; Benndorf, K.; Kaupp, U.B. (2005): "Photochemical Release of Second Messengers - Caged Cyclic Nucleotides", in: Eds. M. Goeldner, R. Givens, Wiley-VCH Verlag, Weinheim, p. 155 - 178 (2005): "*Dynamic Studies in Biology - Phototriggers, Photoswitches and Caged Biomolecules*"

Kaupp, U.B.; Seifert, R., *Physiol. Rev.*, **82**, 769 - 824 (2002): "Cyclic Nucleotide-Gated Ion Channels"

Hagen, V.; Bendig, J.; Frings, S.; Eckardt, T.; Helm, S.; Reuter, D.; Kaupp, U.B., *Angew. Chem. Int. Ed.*, **40**, 1046 - 1048 (2001): "Highly Efficient and Ultrafast Phototriggers for cAMP and cGMP by Using Long-Wavelength UV/Vis-Activation"

Hagen, V.; Bendig, J.; Frings, B.; Wiesner, B.; Schade, B.; Helm, S.; Lorenz, D.; Kaupp, U.B., *J. Photochem. Photobiol. B-Biol.*, **53**, 91 - 102 (1999): "Synthesis, Photochemistry and Application of (7-Methoxycoumarin-4-yl)Methyl-Caged 8-Bromoadenosine Cyclic 3', 5'-Monophosphate and 8-Bromoguanosine Cyclic 3', 5'-Monophosphate Photolyzed in the Nanosecond Time Region"