Technical Information about 8-[DY-547]-AET-2'-O-Me-cAMP

Fluorescent, PKA-inactive activator of Epac

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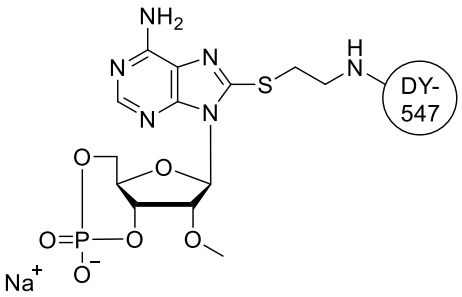

Abbreviation: **8-[DY-547]-AET-2'-O-Me-cAMP**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
$C_{43}H_{51}N_8O_{13}PS_3 \cdot Na_2$	[pending]	1061.1	λ_{max} 559 nm / ε 150000 (EtOH)	D 089

Name: 8- (2- [DY-547]- aminoethylthio)- 2'- O- methyladenosine- 3', 5'- cyclic monophosphate

Legal information: The reagent is protected under patent EP 1511757 and foreign equivalents issued or licensed to BIOLOG Life Science Institute

Description: 8-[DY-547]-AET-2'-O-Me-cAMP is a fluorescent analogue of the parent second messenger cyclic AMP in which the dye is connected to position 8 of the adenine nucleobase via a 5-atom spacer. In addition, the 2'-ribose hydroxyl group has been methylated.

Properties: 8-[DY-547]-AET-2'-O-Me-cAMP is a fluorescent activator of the exchange protein directly activated by cAMP (Epac or cAMP-GEF) with λ_{exc} 557nm and λ_{em} 574 nm.
Since a free 2'-ribose hydroxyl group in cyclic AMP is essential for stimulation of cAMP-dependent protein kinase (PKA), the methylated structure of 8-[DY-547]-AET-2'-O-Me-cAMP is an extremely poor PKA activator and allows for specific discrimination between both signalling pathways.

Specification: Crystallized or lyophilized sodium salt. Other salt forms are available upon request. Please keep in mind that equal concentrations of the compound may look different in volume due to sensitivity of the lyophilized form to 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}.

Purity: Typical analysis is better than 98% (HPLC / UV / 559 nm). The product is not sterile and has not been tested for endotoxins.

Solubility: 8-[DY-547]-AET-2'-O-Me-cAMP has good solubility in water and aqueous buffers. 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: 8-[DY-547]-AET-2'-O-Me-cAMP is chemically rather stable. Nevertheless, it 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 its 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.

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Not for drug, household or related uses!

References for 8-[DY-547]-AET-2'-O-Me-cAMP: 8-[DY-547]-AET-2'-O-Me-cAMP is a new structure which has been synthesized by BIOLOG LSI for the first time. There are no corresponding references available. For related information compare:

Selected Reference for the Fluorescent cGMP Analogue 8-[DY-547]-AET-cGMP (Cat. No. D 087):

Biskup, C.; Kusch, J.; Schulz, E.; Nache, V.; Schwede, F.; Lehmann, F.; Hagen, V.; Benndorf, K., *Nature*, **446**, 440 - 443 (2007): "Relating ligand binding to activation gating in CNGA2 channels"

Selected References for Epac Activators:

Christensen, A.E.; Selheim, F.; de Rooij, J.; Dremier, S.; Schwede, F.; Dao, K.K.; Martinez, A.; Maenhaut, C.; Barrere-Lemaire, S.; Genieser, H.-G.; Doeskeland, S.O., *J. Biol. Chem.*, **278**, 35394 - 35402 (2003): "cAMP Analog Mapping of Epac1 and cAMP-Kinase. Discriminating Analogs Demonstrate that Epac and cAMP-Kinase Act Synergistically to Promote PC-12 Cell Neurite Extension"

Kang, G.; Joseph, J.W.; Chepurny, O.G.; Monaco, M.; Wheeler, M.B.; Bos, J.L.; Schwede, F.; Genieser, H.-G.; Holz, G.G., *J. Biol. Chem*., **278**, 8279 - 8285 (2003): "Epac-selective cAMP Analog 8-pCPT-2'-O-Me-cAMP as a Stimulus for Ca^{2+}-induced Ca^{2+} Release and Exocytosis in Pancreatic beta-Cells"

Enserink J.M.; Christensen, A.E.; de Rooij, J.; van Triest, M.; Schwede, F.; Genieser, H.-G.; Døskeland, S.O.; Blank, J.L.; Bos, J.L., *Nature Cell Biol.*, **4**, 901 - 906 (2002): "A novel Epac-specific cAMP Analog Demonstrates Independent Regulation of Rap1 and ERK"

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