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Technical Information about Sp-8-Piperidino-cAMPS

Site selective, PDE-resistant and membrane permeant activator of protein kinase A

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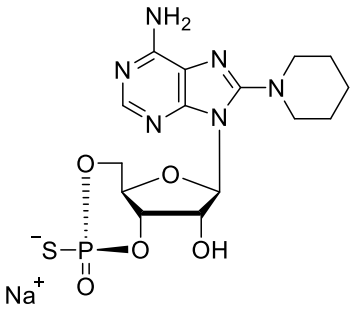

Abbreviation: **Sp-8-PIP-cAMPS**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat.No.
$C_{15}H_{20}N_6O_5PS{\cdot}Na$	[156816-35-2]	450.4	λ_{max} 273.5 nm / ε 15000 / pH 7	P 005

Name: 8- Piperidinoadenosine- 3', 5'- cyclic monophosphorothioate, Sp-isomer

Description: Sp-8-PIP-cAMPS is an analogue of the parent compound cyclic AMP in where the axial one of the two exocyclic oxygen atoms in the cyclic phosphate moiety is modified by sulfur (the suffix "p" indicates that R/S nomenclature refers to phosphorus). In addition, the hydrogen in position 8 of the nucleobase is replaced by a piperidine ring.
Its synthesis and distribution is protected by patent DE 3802865.4, licensed to BIOLOG Life Science Institute.

Properties:

- **activator of protein kinase A (PKA)**
- **high site selectivity, prefering site B of PKA II**
- **metabolic stability towards cyclic nucleotide- responsive phosphodiesterases due to phosphorothioate modification**
- **high lipophilicity and good membrane permeability while still soluble in aqueous solvents**

Sp-8-PIP-cAMPS is a site- selective, lipophilic analogue of the phosphodiesterase-stable protein kinase A activator Sp-cAMPS which strongly selects site B of PKA type II.

Application: If Sp-8-PIP-cAMPS is combined with an analog which selects site of PKA II (such as 6-Bnz-cAMP, Cat. No. B 009), selective synergistic stimulation of only type II of PKA can be achieved. Please ask for the special corresponding technical leaflet on this topic.

Specification: Lyophilized or crystallized sodium salt.The free acid or other salt forms are available upon request.
Equal concentrations of Sp-8-PIP-cAMPS can appear very different in volume due to high sensitivity of the lyophilized form to humidity. Normally, the product is located in the conical bottom of the tube. Micromolar quantities are determined by UV at λ_{max}. The antagonistic Rp- isomer (Rp-8-PIP-cAMPS) is offered by BIOLOG as well (Cat. No. P 004).

Purity: Typical analysis is better than 99% (HPLC /UV/273 nm). The product is not sterile.

Solubility: Sp-8-PIP-cAMPS is readily soluble in water or buffer. Please rinse tube walls carefully (and cap if necessary) and preferably use ultrasonic or vortex to achieve total and uniform mixing. When opening the tube make sure that no substance is lost within the cap.

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Stability and Storage: Sp-8-PIP-cAMPS has sufficient stability at room temperature and does not need special care during handling or shipment. Nevertheless the compound and its solutions should be stored in the refrigerator and should be lyophilized and frozen for longer storage periods since desulfurization yielding 8-PIP-cAMP can occur slowly. This normally rather slow sulfur/oxygen exchange is accelerated by oxidizing agents.

Toxicity and Safety: Since cyclic AMP has multiple tasks in every organism it is very likely that lipophilic cAMP analogs 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 these compounds 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!

References for Sp-8-PIP-cAMPS:

1 Øgreid, D.; Dostmann, W.; Genieser, H.-G.; Niemann, P.; Døskeland, S.O.; Jastorff, B.; *Eur. J. Biochem.*, **221**, 1089 - 1094 (1994): "(Rp)- and (Sp)- 8- Piperidinoadenosine- 3', 5'- (cyclic) Thiophosphates Discriminate Completely Between Site A and B of the Regulatory Subunits of cAMP-dependent Protein Kinase Type I and II"

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