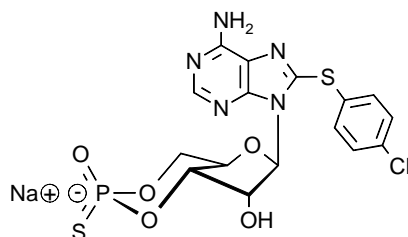


Technical Information about Rp-8-CPT-cAMPS

Potent membrane permeant, PDE resistant inhibitor of cAMP-dependent protein kinase type I and type II

Update: April 20, 2011 WH



Abbreviation:

Rp-8-CPT-cAMPS

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat. No.
C ₁₆ H ₁₄ ClN ₅ O ₅ PS ₂ ·Na	[129735-01-9]	509.8	λ _{max} 282 nm / ε 16000 / pH7	C 011

Name: 8- (4- Chlorophenylthio)adenosine- 3', 5'- cyclic monophosphorothioate, Rp- isomer (Rp-8-CPT-cAMPS)

Description: Rp-8-CPT-cAMPS is an analogue of the parent second messenger cyclic AMP where the hydrogen in position 8 of the nucleobase is replaced by the lipophilic chlorophenylthio moiety. In addition, the equatorial one of the two exocyclic oxygen atoms in the cyclic phosphate is modified by sulfur (R-isomer). The suffix "p" indicates that R/S nomenclature refers to phosphorus. The compound can be considered as a combination of the well known derivative 8-CPT-cAMP with Rp-cAMPS.

Legal information: Synthesis and distribution protected under patent DE 3802865.4 licensed to BIOLOG Life Science Institute.

Properties:

- site selective inhibitor of protein kinase A type I and II, preferring site A of type I and site B of type II (Dostmann et al. 1990, Gjertsen et al. 1995),
- metabolic stability towards mammalian cyclic nucleotide-responsive phosphodiesterases,
- high lipophilicity and good membrane permeability while still soluble in aqueous solvents (Genieser 1995),
- can discriminate between protein kinase A (antagonist) and some other cyclic AMP receptors, e.g. ion channels (agonist).

Summing up Rp-8-CPT-cAMPS is a membrane-permeant inhibitor of protein kinase A type I and type II. Its metabolic stability avoids potential side effects through active metabolites. In contrast to common ATP-site inhibitors, Rp-8-CPT-cAMPS occupies cAMP binding sites at the regulatory subunit of PKA and prevents the kinase holoenzyme from dissociation and thus from activation. Due to this working principle, preincubation of the inhibitor prior to the activation step is necessary for optimal results.

Specification: Crystallized or lyophilized sodium salt. Other salt forms of Rp-8-CPT-cAMPS are available upon request. Please keep in mind that equal amounts of the compound may look different in volume depending on humidity. Micromolar quantities are determined by UV at λ_{max}. The agonistic Sp-isomer (Sp-8-CPT-cAMPS) is offered by BIOLOG as well (Cat. No. C 012).

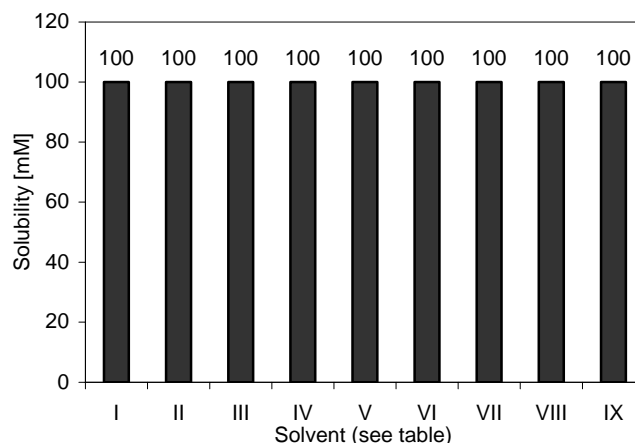
Purity: Typical analysis is better than 99% (HPLC / UV / 282 nm). The product is not sterile and has not been tested for endotoxins.

Stability and Storage: Rp-8-CPT-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 protected from bright light, stored in the freezer, for longer storage periods preferably in freeze-dried form, since the agonistic 8-CPT-cAMP can be formed slowly by oxidation processes.

Application: Experience shows that applicable concentrations of Rp-8-CPT-cAMPS depend on the type of biosystem, its membrane properties and kinase content. A main application for Rp-8-CPT-cAMPS is to eliminate the first messenger-stimulated phosphorylation by cyclic AMP-dependent protein kinase. For this purpose preincubation (e.g. 20 min) is important since the production of intracellular cyclic AMP initiated by a first messenger is much faster than the antagonist can penetrate the membrane when given extracellularly. Since Rp-8-CPT-cAMPS is hydrolytically stable in mammalian and many other systems there is no danger of degradation during incubation periods. If you have good or moderate results with 8-CPT-cAMP or Rp-cAMPS, you can be sure that Rp-8-CPT-cAMPS will be membrane-permeant in your system as well.

Solubility: Detailed information on the solubility of Rp-8-CPT-cAMPS in water and various buffers are listed in the solubility chart below. Concentrations have been determined at ambient temperature and can be considered as minimum concentrations usually obtainable, however, slight batch-to-batch variations cannot be ruled out. 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.

No.	Solvent	Solubility [mM]
I	H ₂ O	100
II	DMSO	100
III	DMF	100
IV	Ethanol 96%	100
V	Methanol	100
VI	PBS, pH 7.4	100
VII	100 mM Na ₂ HPO ₄ , pH 7.0	100
VIII	25 mM Hepes/NaOH, pH 7.2	100
IX	25 mM Tris/HCl, pH 7.4	100



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!

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For a detailed list please inquire or visit our website (<http://www.biolog.de>).

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