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Technical Information about Rp-8-Br-cAMPS

Potent membrane-permeant, metabolically stable inhibitor of cAMP-dependent protein kinases

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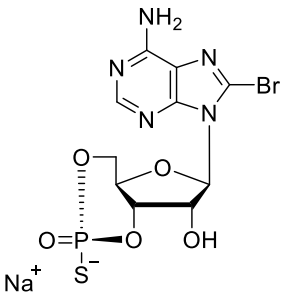

Abbreviation: **Rp-8-Br-cAMPS**

Formula	CAS No.	Molecular Weight	UV	BIOLOG Cat.No.
$C_{10}H_{10}BrN_5O_5PS{\cdot}Na$	[129735-00-8]	446.2	λ_{max} 264 nm / ε 17000 / pH 7	B 001

Name: 8- Bromoadenosine- 3', 5'- cyclic monophosphorothioate, Rp-isomer.

Description: Rp-8-Br-cAMPS is an analogue of the parent compound cyclic AMP in which the hydrogen in position 8 of the nucleobase is replaced by bromine and the equatorial 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.

Properties: Rp-8-Br-cAMPS is a combination of the well accepted protein kinase inhibitor Rp-cAMPS with the widely used 8-bromo cyclic AMP, resulting in a membrane-permeant cyclic AMP antagonist which is not metabolized by mammalian cyclic nucleotide phosphodiesterases.
Rp-8-Br-cAMPS is about 1.5 times more lipophilic compared to 8-Br-cAMP, and 2 times and 3 times more compared to Rp-cAMPS and cAMP, respectively.
In contrast to common ATP-site inhibitors, Rp-8-Br-cAMPS discriminates between both isozymes of protein kinase A preferring type I (Gjertsen et al., 1995) and thus provides additional selectivity. By occupying cAMP binding sites Rp-8-Br-cAMPS 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.

Application: Experience shows that applicable concentrations of Rp-8-Br-cAMPS depend on the type of biosystem, its membrane properties and kinase content. A main application for Rp-8-Br-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-Br-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-Br-cAMP or Rp-cAMPS, you can be sure that Rp-8-Br-cAMPS will be membrane-permeant in your system as well.

Specification: Lyophilized or crystallized sodium salt. The free acid or other salt forms are available upon request. Equal concentrations of Rp-8-Br-cAMPS can appear very 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}. BIOLOG LSI also offers the corresponding agonistic Sp- isomer (Sp-8-Br-cAMPS; Cat. No. B 002) and 8-Br-cAMP (Cat. No. B 007).

Purity: Typical analysis is better than 99% (HPLC / UV / 264 nm). The product has been specially treated for low endotoxin levels, however, we do not guarantee total absence of lipopolysaccharides. The content of the vial is not sterile.
Caution: Since even minor impurities of 8-Br-cAMP (0.2%) or Sp-8-Br-cAMPS can already activate protein kinase A and compete with the antagonistic effect of the Rp-isomer, it is very important to work with strictly pure compounds concerning cyclic nucleotide contaminants. Rp-8-Br-cAMPS is specially checked for absence of both, Sp-8-Br-cAMPS and 8-Br-cAMP (< 0.05% when packed).
However, we cannot guarantee total absence of 8-Br-cAMP due to its formation during prolonged storage.

Stability and Storage: Rp-8-Br-cAMPS has sufficient stability at room temperature and does not need special care during handling or shipment. Nevertheless, we recommend that the compound should be stored in the freezer, for longer storage periods preferably in freeze-dried form, since desulfurization yielding 8-Br-cAMP can occur slowly. This normally rather slow sulfur/oxygen exchange is accelerated by oxidizing agents. Bright light, radioactivity or UV radiation should be avoided.

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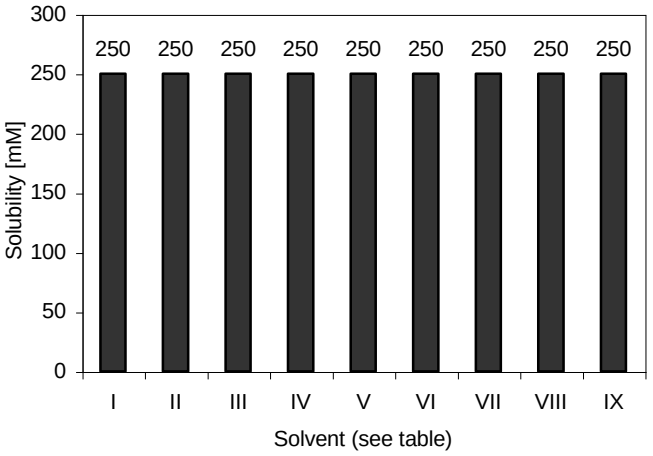
Solubility: Detailed information on the solubility of Rp-8-Br-cAMPS in water and various buffers are listed in the solubility chart below. Concentrations have been tested at ambient temperature and can be considered as minimum concentrations usually obtainable, however, slight batch-to-batch variations 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_2O	250
II	DMSO	250
III	DMF	250
IV	Ethanol 96%	250
V	Methanol	250
VI	PBS, pH 7.4	250
VII	100 mM Na_2HPO_4, pH 7.0	250
VIII	25 mM Hepes/NaOH, pH 7.2	250
IX	25 mMTris/HCl, pH 7.4	250



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 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!

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

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