Adenosine-3’,5’-cyclic Monophosphothioate, Rp-Isomer . sodium salt

PKA Inhibitor

Competitive inhibitor of cyclic AMP-dependent protein kinase I and II.
Metabolic stability towards mammalian cyclic nucleotide- responsive phosphodiesterases.
Discriminates between protein kinase A (antagonist) and some other cyclic AMP receptors, e.g. channels or CAP 3 (agonist).
Membrane-permeant for several systems (for improved permeability more lipophilic analogues e.g. Rp-8-Br-cAMPS (Prod. No. BML-CN216) are recommended).

Rp-cAMPS is an analogue of the natural signal molecule cyclic AMP in which the equatorial one of the two exocyclic oxygen atoms in the cyclic phosphate moiety is replaced by sulfur. The suffix "p" indicates that R/S nomenclature refers to phosphorus.

Citations: 9 View Online »

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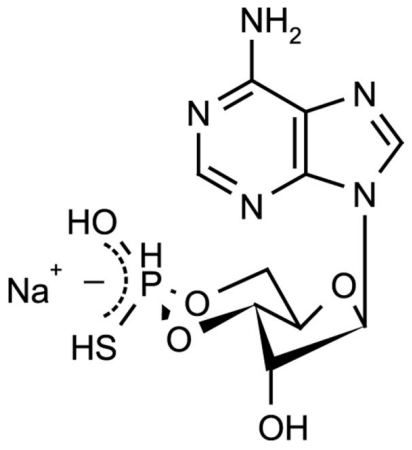
ALX-480-085-M001	1mg

Manuals, SDS & CofA View Online »


NH2
N
N
N
N
HO
H
Na+
−
P
O
O
O
HS
OH

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended.
Handling	Hygroscopic.
Short Term Storage	Ambient
Long Term Storage	-20°C
Shipping	Ambient Temperature

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	Rp-cAMPS . Na, cAMPS . Na, Rp-Isomer
Appearance	White to off-white powder. Please keep in mind that equal amounts of the compound may look different in volume depending on humidity. Rp-cAMPS is hygroscopic and tends to form a transparent film on the bottom of the tube.
CAS	73208-40-9
Couple Target	PKA
Couple Type	Inhibitor
Formula	$C_{10}H_{11}N_5O_5PS$. Na
Identity	Determined by MS and UV.
MW	344.3 . 23.0
Purity	≥99% (HPLC) (low adenosine, cAMP and Sp-cAMPS content)
Solubility	Soluble in water or aqueous buffers, DMSO, Methanol.

Technical Info / Product Notes

Since even minor impurities of cyclic AMP or the agonistic diastereomer Sp-cAMPS (0.2%) can already activate protein kinase A and compete with the antagonistic effect of the Rp- isomer, it is imperative to work with a strictly pure compound, especially concerning cyclic nucleotide contaminants. Cyclic AMP interference is not so important when working with cell cultures, since cAMP itself has very low membrane permeability and, in addition, would be metabolized immediately by both intracellular and external serum cyclic nucleotide-dependent phosphodiesterases.

Traces of the activator Sp-cAMPS, however, are fatal since it effectively competes with Rp-cAMPS and is only extremely slowly degraded by PDE. Another reason also demands for a pure reagent: Some cyclic AMP binding proteins other than kinases, such as some cyclic nucleotide-gated ion channels or the CAP protein, are activated by Rp-cAMPS. Thus, pure Rp-cAMPS can distinguish between protein kinase A and these receptors, but a contaminated reagent will yield misinformation.

This Rp-cAMPS is strictly checked for absence of activators such as Sp-cAMPS or cyclic AMP (< 0.05% when packed). Analysis of Rp-cAMPS from other sources, however, showed that this is not common practice.

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