Product Data Sheet

Product Name: Sp-cAMPS
Cat. No.: GC61747

Chemical Properties

Cas. No.	71774-13-5		
SMILES	O[C@H]1[C@@H](O[C@@]2([H])[C@@]1([H])O[P@](OC2)(S)=O)N3C4=C(C(N)=NC=N4)N=C3		
Formula	$C_{10}H_{12}N_5O_5PS$	M.Wt	345.27
Solubility		Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Sp-cAMPS		

Background

Sp-cAMPS, a cAMP analog, is potent activator of cAMP-dependent PKA I and PKA II. Sp-cAMPS is also a potent, competitive phosphodiesterase (PDE3A) inhibitor with a Ki of 47.6 μM. Sp-cAMPS binds the PDE10 GAF domain with an EC50 of 40 μM[1][2][3].

Treatment of hepatocytes with Sp-cAMPS, the stimulatory diastereomer of adenosine cyclic 3',5'-phosphorothioate, mimics the response seen with glucagon. The glucagon-stimulated increases in the level of Ca2+ can be mimicked by Sp-cAMPS[4].

In chronic alcohol consumption (CAC) mice, direct infusion of the Sp-cAMPS (1 μg/μL) into the prefrontal cortex significantly improves or impairs, respectively, working memory performance in withdrawn and water animals[5].

[1]. Su H Hung, et al. A new nonhydrolyzable reactive cAMP analog, (Sp)-adenosine-3',5'-cyclic-S-(4-bromo-2,3-dioxobutyl)monophosphorothioate irreversibly inactivates human platelet cGMP-inhibited cAMP phosphodiesterase. Bioorg Chem. 2002 Feb;30(1):16-31.
[2]. L Y Wang, et al. Regulation of kainate receptors by cAMP-dependent protein kinase

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and phosphatases. Science. 1991 Sep 6;253(5024):1132-5. [3]. Ronald JÄger, et al. Activation of PDE10 and PDE11 phosphodiesterases. J Biol Chem. 2012 Jan 6;287(2):1210-9. [4]. P A Connelly,et al. A study of the mechanism of glucagon-induced protein phosphorylation in isolated rat hepatocytes using (Sp)-cAMPS and (Rp)-cAMPS, the stimulatory and inhibitory diastereomers of adenosine cyclic 3',5'-phosphorothioate. J Biol Chem. 1987 Mar 25;262(9):4324-32. [5]. G Dominguez, et al. Rescuing prefrontal cAMP-CREB pathway reverses working memory deficits during withdrawal from prolonged alcohol exposure. Brain Struct Funct. 2016 Mar;221(2):865-77.

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