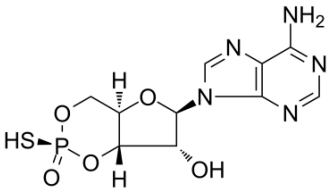
Sp-cAMPS

Cat. No.:	HY-100530B
CAS No.:	71774-13-5
Molecular Formula:	$C_{10}H_{12}N_5O_5PS$
Molecular Weight:	345.27
Target:	PKA; Phosphodiesterase (PDE)
Pathway:	Protein Tyrosine Kinase/RTK; Stem Cell/Wnt; Metabolic Enzyme/Protease
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	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 K_i of 47.6 μM. Sp-cAMPS binds the PDE10 GAF domain with an EC_{50} of 40 μM[1][2][3].			
IC_{50} & Target	PKA I	PKA II	PDE3A 47.6 μM (Ki)	PDE10 GAF domain 50 μM (EC50)
In Vitro	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 Ca^{2+} can be mimicked by Sp-cAMPS[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.			
In Vivo	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(1 μg/μL) into the prefrontal cortex significantly improves or impairs, respectively, working memory performance in withdrawn and water animals[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.			

REFERENCES

[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 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.

Caution: Product has not been fully validated for medical applications. For research use only.

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