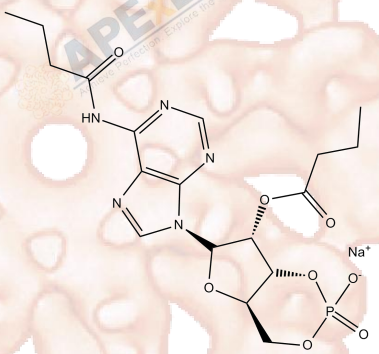
Product Data Sheet

Dibutyryl-cAMP, sodium salt



Cat. No.:	B9001
CAS No.:	16980-89-5
Formula:	C18H23N5NaO8P
M.Wt:	491.37
Synonyms:	Dibutyryl cAMP sodium salt; DBcAMP sodium salt, Bucladesine sodium salt
Target:	PDE; PKA
Pathway:	Metabolic Enzyme/Protease; Tyrosine Kinase
Storage:	Store at -20° C

Solvent & Solubility

In Vitro

⩾49.1 mg/mL in H2O; ⩾23.7 mg/mL in DMSO; ⩾3.21 mg/mL in EtOH with gentle warming and ultrasonic

Preparing Stock Solutions

Mass / Solvent / Concentration	1mg	5mg	10mg
1 mM	2.0351 mL	10.1756 mL	20.3513 mL
5 mM	0.4070 mL	2.0351 mL	4.0703 mL
10 mM	0.2035 mL	1.0176 mL	2.0351 mL

Please refer to the solubility information to select the appropriate solvent.

Biological Activity

Shortsummary

Dibutyryl-cAMP, sodium salt (CAS 16980-89-5) is a cell-permeable, stable cyclic AMP (cAMP) analog, functioning as a selective activator of cAMP-dependent pathways in various cell types and exhibiting modulating activity on intracellular signaling processes in multiple tissues. Additionally, it serves as a phosphodiesterase () inhibitor, contributing to the regulation of cAMP levels within cells.

In experimental contexts, Dibutyryl-cAMP, sodium salt elevates intracellular cAMP concentrations and enhances the activation of protein kinase A (PKA), as demonstrated by [IC50/EC50/other values], tested against [cell lines/organisms]. It can also induce differentiation, promote cellular proliferation, or modulate

	inflammatory responses by mimicking endogenous cAMP actions and bypassing some of the regulatory constraints imposed on native cyclic nucleotides. In research and application settings, Dibutyryl-cAMP, sodium salt is widely used as a tool compound for investigating cAMP-mediated cellular signaling, studying the mechanisms underlying cAMP-dependent gene expression, or evaluating the role of cAMP in processes such as inflammation, wound healing, and cell differentiation. Its usability in a broad range of experimental systems makes Dibutyryl-cAMP, sodium salt a valuable agent for dissecting cAMP-regulated pathways and assessing pharmacological modulation of intracellular signaling cascades.
IC_{50} & Target	

In Vitro

Cell Viability Assay

Cell Line:	Hippocampal neurons from 17E Sprague-Dawley rats
Preparation method:	Neurons at day 4 postplating were assessed for glucose uptake at 0 and 1 h following exposure for 1 h to Bt2cAMP (0, 0.5, 1, 5, 10, 50 mM).
Reacting conditions:	0, 0.5, 1, 5, 10 and 50 μM dibutyryl cAMP for 1 h incubation
Applications:	Dibutyryl cAMP significantly inhibited neuronal glucose uptake in a dose-dependent manner. Neurons exposed to 50 μM dibutyryl cAMP showed only 13% of glucose uptake by the control neurons.

In Vivo

Animal experiment

Animal models:	Mice, 20 ~ 25 g
Dosage form:	600 nM/mouse. Injected intraperitoneally for 4 days
Applications:	Treatment with intraperitoneal injection of dibutyryl cAMP (600 nM/mouse) reversed zinc chloride- and lead acetate-induced avoidance memory retention impairments in mice. Thus, dibutyryl cAMP could be used to explore the potential role of protein kinase A pathways in zinc chloride- and lead acetate-induced avoidance memory alterations.
Preparation method:	Dibutyryl-cAMP were dissolved in dimethyl sulfoxide (DMSO)/deionized water (1:9).
Other notes:	The technical data provided above is for reference only.

Product Citations

See more customer validations on www.apexbt.com.

References

1. Prapong T, Uemura E, Hsu WH. G protein and cAMP-dependent protein kinase mediate amyloid beta-peptide inhibition of neuronal glucose uptake. Experimental Neurology, 2001, 167(1): 59-64.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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