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8-Bromo-cAMP

cAMP pathway activator; Activates cAMP-dependent kinase

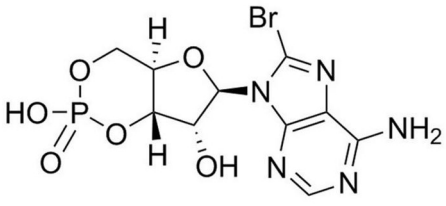
Catalog #73602	10 mg
Catalog #73604	100 mg

Product Description

8-Bromo-cAMP is a membrane-permeable cAMP derivative. It can activate cAMP-dependent protein kinase, with long-acting effects due to its resistance to cAMP phosphodiesterase (Schwede et al.). It can be used to study calcium-mediated pathways (IC_{50} = 0.84 mM; Xaus et al.).

Molecular Name:	8-Bromo-cAMP
Alternative Names:	8-BrcAMP; 8-Bromoadenosine 3',5'-cyclic monophosphate; NSC 171719
CAS Number:	23583-48-4
Chemical Formula:	$C_{10}H_{11}BrN_5O_6P$
Molecular Weight:	408.1 g/mol
Purity:	≥ 95%
Chemical Name:	8-bromo-adenosine cyclic 3',5'-(hydrogen phosphate)

Structure:



Properties

Product Format: A crystalline solid

Stability and Storage: Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage store with a desiccant. Stable as supplied for 12 months from date of receipt.

Preparation:

- PBS (pH 7.2) ≤ 7.4 mM

For example, to prepare a 5 mM stock solution in PBS, resuspend 10 mg in 4.9 mL of PBS. If not fully dissolved, warm the stock solution in a 37°C water bath or incubator with periodic mixing until the solution is clear.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in PBS at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use.

Published Applications

REPROGRAMMING

- Improves the reprogramming efficiency of human neonatal foreskin fibroblast (HFF1) cells, in combination with Valproic Acid (Catalog #72292) (Wang & Adjaye).

IMMUNOLOGY

- Inhibits M-CSF-dependent proliferation of macrophages (Xaus et al.).
- Protects neutrophils against TNF-α-induced apoptosis (Krakstad).

CANCER RESEARCH

- Induces a proliferative response in an IL-3-dependent leukemic cell line (Barge et al.).
- Induces membrane depolarization in pancreatic cancer cell lines (Sorio et al.).

References

Barge RM et al. (1997) 8-Bromo-cAMP induces a proliferative response in an IL-3 dependent leukemic cell line and activates Erk 1,2 via a Shc-independent pathway. Biochim Biophys Acta 1355(2): 141–6.

Krakstad C. (2004) cAMP protects neutrophils against TNF-α-induced apoptosis by activation of cAMP-dependent protein kinase, independently of exchange protein directly activated by cAMP (Epac). J Leukoc Biol 76(3): 641–7.

Schwede F et al. (2000) Cyclic nucleotide analogs as biochemical tools and prospective drugs. Pharmacol Ther 87(2-3): 199–226.

Sorio C et al. (2011) Defective CFTR expression and function are detectable in blood monocytes: development of a new blood test for cystic fibrosis. PLoS One 6(7): e22212.

Wang Y & Adjaye J. (2011) A cyclic AMP analog, 8-Br-cAMP, enhances the induction of pluripotency in human fibroblast cells. Stem Cell Rev 7(2): 331–41.

Xaus J et al. (1999) Adenosine inhibits macrophage colony-stimulating factor-dependent proliferation of macrophages through the induction of p27kip-1 expression. J Immunol 163(8): 4140–9.

Related Products

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