# Product Data Sheet

Product Name: 6-Bnz-cAMP sodium salt
Cat. No.: GC12834

## Chemical Properties

| | | | |
|---|---|---|---|
| Cas. No. | 1135306-29-4 | | |
| Chemical Name | sodium (4aR,6R,7R,7aS)-6-(6-benzamido-9H-purin-9-yl)-7-hydroxytetrahydro-4H-furo[3,2-d][1,3,2]dioxaphosphinin-2-olate 2-oxide | | |
| SMILES | O=C(NC1=NC=NC2=C1N=CN2[C@@H]3O[C@@](COP(O4)(O[Na])=O)([H])[C@]4([H])[C@H]3O)C5=CC=CC=C5 | | |
| Formula | $C_{17}H_{15}N_5NaO_7P$ | M.Wt | 455.29 |
| Solubility | PBS (pH 7.2): 3 mg/ml | 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 | 6-Bnz-cAMP sodium salt | | |

## Background

6-Bnz-cAMP is a PKA-selective activator. It regulates the PKA dependent signaling pathways.

Like PKA contains an evolutionally conserved cAMP-binding domain that acts as a molecular switch for sensing intracellular second messenger cAMP levels to control diverse biological functions. CAMP response element-binding protein (CREB) is the well-known direct target protein of PKA. Phosphorylation of CREB (pCREB) by PKA has been shown to be involved in regulating osteoblast differentiation.

The proliferative signaling pathway which activated by the 6-Bnz-cAMP involves activation of the epidermal growth factor receptor and ERK1/2. Extending the duration of PKA-dependent ERK1/2 activation and converted cAMP from a proliferative into an anti-proliferative, neurite outgrowth- promoting signal.


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6-Bnz-cAMP can promote not only differentiation and mineralization, but also initial cell adhesion.6-Bnz-cAMP is able to induce osteogenic differentiation of MC3T3-E1 cells. Moreover 6-Bnz-cAMP may facilitate release kinetic from a tissue-engineered polymeric scaffold system. It also can serve as a novel bone-inducing growth factor for repairing and regenerating bone tissues during bone regenerative engineering.

References:

[1]Lo KW, Kan HM, Ashe KM, Laurencin CT.  The small molecule PKA-specific cyclic AMP analogue as an inducer of osteoblast-like cells differentiation and mineralization. J Tissue Eng Regen Med. 2012 Jan;6(1):40-8.
[2]Simone Kiermayer, Ricardo M.  Biondi,etal., Epac Activation Converts cAMP from a Proliferative into a Differentiation Signal in PC12 Cells. Molecular Biology of the Cell. Vol. 16, 5639–5648, December 2005.
[3]Cheng X, Ji Z, Tsalkova T, Mei F.  Epac and PKA: a tale of two intracellular cAMP receptors. Acta Biochim Biophys Sin (Shanghai). 2008 Jul;40(7):651-62.


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