Technical Information about N⁶-Benzyl-cAMP

Specific site-selective activator of cAMP-dependent protein kinase and tumor growth inhibitor

Update: October 10, 2017

Abbreviation: 6-Bn-cAMP

<table>
<thead>
<tr>
<th>Formula</th>
<th>CAS No.</th>
<th>Molecular Weight</th>
<th>UV</th>
<th>BIOLOG Cat. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C₁₇H₁₇N₅O₆P·Na</td>
<td>[32115-08-5]</td>
<td>441.3</td>
<td>λ_max 268 nm / ε 20500 / pH 7</td>
<td>B 008</td>
</tr>
</tbody>
</table>

Name: N⁶- Benzyladenosine-3', 5'-cyclic monophosphate

Description: 6-Bn-cAMP is an analogue of the natural signal molecule cyclic AMP where one of the amino hydrogens in position 6 of the adenine nucleobase is replaced by a benzyl residue.

Properties: 6-Bn-cAMP is a stimulator of cAMP-dependent protein kinases with certain site selectivity for site A, and does not activate the exchange protein activated by cyclic AMP (Epac). Due to its ability to stop growth of several cancer cell lines at very low doses its therapeutic use is under investigation. Especially, it is often used in combination with 8-chloro-cAMP (Cat. No. C 007), taking advantage from kinase synergism effects due to the different site selectivities of both compounds. 6-Bn-cAMP has increased hydrolytic stability against PDE, esterases, amidases and considerably higher membrane permeability compared to cAMP.

Specification: Crystallized or lyophilized sodium salt. Other salt forms are available upon request. Equal concentrations of 6-Bn-cAMP can appear very different in volume due to sensitivity of the lyophilized form to humidity. The compound can even contract to small volume droplets. Normally the product is located in the conical bottom of the tube. Micromolar quantities are determined by UV at λ_{max}.

Purity: Typical analysis is better than 98% (HPLC / UV / 268 nm). The product is not sterile and has not been tested for endotoxins.

Stability and Storage: 6-Bn-cAMP has sufficient stability at room temperature and does not need special care during handling or shipment. Nevertheless, we recommend that the compound should be stored in the freezer, for longer storage periods preferably in freeze-dried form.

Toxicity and Safety: Since cyclic AMP has multiple tasks in every organism, it is not unlikely that lipophilic cAMP analogues will interfere with many cell regulation processes in vivo. However, due to the rather small quantities to work with, no health hazards have been reported. Nevertheless please keep in mind, that the in vivo properties of this compound are not sufficiently characterized up to now. Avoid skin contact or ingestion and allow only trained personnel to handle the product. Our products are designed, developed and sold for research purposes only! They are intended for in vitro and nonhuman in vivo laboratory applications. Any other use requires approval of health authorities. Not for drug, household or related uses!
Solubility: Detailed information on the solubility of 6-Bn-cAMP in water and various buffers are listed in the solubility chart below. Concentrations have been determined at ambient temperature and can be considered as minimum concentrations usually obtainable, however, slight batch-to-batch variations cannot be ruled out. When opening the tube please make sure that no substance is lost within the cap. Please rinse tube walls carefully and preferably use ultrasonic or vortex to achieve total and uniform mixing.

<table>
<thead>
<tr>
<th>No.</th>
<th>Solvent</th>
<th>Solubility [mM]</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>H₂O</td>
<td>250</td>
</tr>
<tr>
<td>II</td>
<td>DMSO</td>
<td>250</td>
</tr>
<tr>
<td>III</td>
<td>DMF</td>
<td>250</td>
</tr>
<tr>
<td>IV</td>
<td>Ethanol 96%</td>
<td>14.3</td>
</tr>
<tr>
<td>V</td>
<td>Methanol</td>
<td>250</td>
</tr>
<tr>
<td>VI</td>
<td>PBS, pH 7.4</td>
<td>250</td>
</tr>
<tr>
<td>VII</td>
<td>100 mM NaHPO₄, pH 7.0</td>
<td>250</td>
</tr>
<tr>
<td>VIII</td>
<td>25 mM Hepes/NaOH, pH 7.2</td>
<td>250</td>
</tr>
<tr>
<td>IX</td>
<td>25 mMTris/HCl, pH 7.4</td>
<td>250</td>
</tr>
</tbody>
</table>

Selected References for 6-Bn-cAMP:


Cho-Chung, Y.S.; Clair, T., Pharmac. Ther., 60, 265 - 288 (1993): "The Regulatory Subunit of cAMP-dependent Protein Kinase as a Target for Chemotherapy of Cancer and Other Cellular Dysfunctional-related Diseases"


Øgreid, D.; Ekanger, R.; Suva, R.H.; Miller, J.P.; Sturm, P.; Corbin, J.D.; Døskeland, S.O., Eur. J. Biochem., 150, 219 - 227 (1985): "Activation of Protein Kinase Isozymes by Cyclic Nucleotide Analog Used Singly or in Combination"