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# Technical Information about Rp-5,6-DCl-cBIMPS

**Membrane permeant and PDE resistant analogue of Rp-cAMPS**

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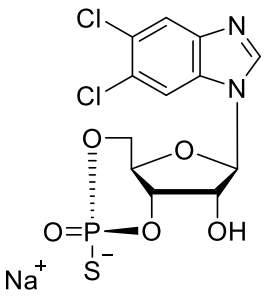


**Abbreviation:** **Rp-5,6-DCl-cBiMPS**

| Formula | CAS No. | Molecular Weight | UV | BIOLOG Cat. No. |
|---|---|---|---|---|
| $C_{12}H_{10}Cl_2N_2O_5PS{\cdot}Na$ | [120912-55-2] | 419.2 | $\lambda_{max}$ 254 nm / ε 6400 / pH7 | D 013 |

**Name:** 5, 6- Dichloro-1- ß- D- ribofuranosylbenzimidazole- 3', 5'- cyclic monophosphorothioate, Rp- isomer ( Rp-5,6-DCl-cBIMPS )

**Description:** Rp-5,6-DCl-cBIMPS is an analogue of the parent second messenger cyclic AMP in which the adenine moiety is replaced by a highly lipophilic modified benzimidazole ring system. In addition, the equatorial one of the two exocyclic oxygen atoms in the cyclic phosphate moiety is modified by sulfur. Protected under patent DE 3802865.4 licensed to BIOLOG LSI.

**Properties:** Rp-5,6-DCl-cBIMPS is the corresponding Rp-isomer to Sp-5,6-DCl-cBIMPS, a rationally designed activator of cAMP-dependent protein kinase ( cAK ). Its kinase properties are still under investigation.

- **Very high lipophilicity and excellent membrane permeability**
- **Very high metabolic stability towards all cyclic nucleotide- responsive phosphodiesterases examined so far**

**Specification:** Crystallized or lyophilized sodium salt. Please keep in mind that equal amounts of the compounds may look different in volume depending on humidity. Micromolar quantities are determined by UV at 254 nm. Other salt forms of Rp-5,6-DCl-cBIMPS are available upon request. BIOLOG also offers the corresponding agonistic Sp- isomer (Sp-5,6-DCl-cBIMPS; Cat. No. D 014) and the parent sulfur-free 5,6-DCl-cBIMP (Cat. No. D 011).

**Purity:** Typical analysis is better than 99% (HPLC /UV/254 nm). The product is not sterile.

**Solubility:** Due to its high lipophilicity the solubility of Rp-5,6-DCl-cBIMPS in water or buffer is limited. However, a 1 mM ($10^{-3}$ M) stock solution containing 1 mmol/1000ml can be obtained without difficulties. The compound has also good solubility in DMSO and ethanol. When opening the tube 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.

**Stability and Storage:** Rp-5,6-DCl-cBIMPS 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 very likely that lipophilic cAMP analogs 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 compounds 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!**


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**Selected References:** In contrast to its corresponding Sp-isomer (Sp-5,6-DCl-cBIMPS) Rp-5,6-DCl-cBIMPS has not been used very often and hence references are limited:

Dostmann, W.R.G.; Taylor, S.S.; Genieser, H.-G.; Jastorff, B.; Døskeland, S.O.; Øgreid, D., *J. Biol. Chem*., **265**, 10484 - 10491 (1990): "Probing the Cyclic Nucleotide Binding Sites of cAMP-dependent Protein Kinase I and II with Analogs of Adenosine 3',5'-Cyclic Phosphorothioates"

Genieser, H.-G.; Winkler, E.; Butt, E.; Zorn, M.; Schulz, S.; Iwitzki, F.; Störmann, R.; Jastorff, B.; Døskeland, S.O.; Øgreid, D.; Ruchaud, S.; Lanotte, M., *Carbohydr. Res.,* **234***,* 217 - 235 (1992):
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Jäger, R.; Russwurm, C.; Schwede, F.; Genieser, H.-G.; Koesling, D.; Russwurm, M., *J. Biol. Chem*., **287**, 1210 – 1219 (2012): „ Activation of PDE10 and PDE11 Phosphodiesterases“



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