

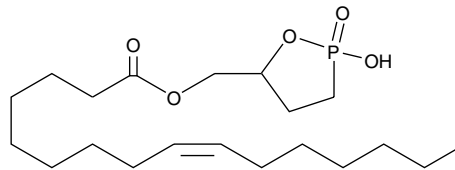
# Product Information



## Palmitoleoyl 3-carbacyclic Phosphatidic Acid

Item No. 10010298

**CAS Registry No.:** 910228-13-6  
**Formal Name:** (2-hydroxy-2-oxido-1,2-oxaphospholan-5-yl)methyl ester-9Z-9Cl-9-hexadecenoic acid  
**Synonyms:** 3-carbacyclic PA, 3-ccPA 16:1  
**MF:** C<sub>20</sub>H<sub>37</sub>O<sub>5</sub>P  
**FW:** 388.5  
**Purity:** ≥95%  
**Stability:** ≥1 year at -20°C  
**Supplied as:** A solution in chloroform



### Laboratory Procedures

For long term storage, we suggest that palmitoleoyl 3-carbacyclic phosphatidic acid (3-ccPA 16:1) be stored as supplied at -20°C. It should be stable for at least one year.

3-ccPA 16:1 is supplied as a solution in chloroform. 3-ccPA 16:1 is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of 3-ccPA 16:1 be prepared by evaporating the chloroform and directly dissolving the neat oil in aqueous buffers. The solubility of 3-ccPA 16:1 in PBS, pH 7.2, is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Cyclic phosphatidic acids (cPAs) are naturally occurring analogs of lysophosphatidic acid (LPA) in which the *sn*-2 hydroxy group forms a 5-membered ring with the *sn*-3 phosphate.<sup>1,2</sup> Carba-derivatives of cPA (ccPA) are modified at the *sn*-2 (2-ccPA) or *sn*-3 (3-ccPA) linkage, preventing the opening of cPA to produce lysophosphatidic acid (LPA). Palmitoleoyl 3-ccPA 16:1 is a cyclic LPA analog that contains the 16:1 fatty acid, palmitoleate, at the *sn*-1 position of the glycerol backbone. At 25 μM, it inhibits the transcellular migration of MM1 cells across mesothelial cell monolayers in response to fetal bovine serum (86.9%) or LPA (99.9%) without affecting proliferation.<sup>3</sup> 3-ccPA 16:1 significantly inhibits autotaxin (IC<sub>50</sub> = 620 nM), an enzyme that is important in cancer cell survival, growth, migration, invasion and metastasis. When delivered intraperitoneally, 3-ccPA 16:1 significantly reduces the number of lung metastases formed in mice injected with B16F10 melanoma cells in the tail vein.<sup>4</sup>

### References

1. Kobayashi, T., Tanaka-Ishii, R., Taguchi, R., *et al.* Existence of a bioactive lipid, cyclic phosphatidic acid, bound to human serum albumin. *Life Sci.* **65(21)**, 2185-2191 (1999).
2. Mukai, M., Imamura, F., Ayaki, M., *et al.* Inhibition of tumor invasion and metastasis by a novel lysophosphatidic acid (cyclic LPA). *Int. J. Cancer* **81**, 918-922 (1999).
3. Uchiyama, A., Mukai, M., Fujiwara, Y., *et al.* Inhibition of transcellular tumor cell migration and metastasis by novel carba-derivatives of cyclic phosphatidic acid. *Biochim. Biophys. Acta* **1771**, 103-112 (2007).
4. Baker, D.L., Fujiwara, Y., Pigg, K.R., *et al.* Carba analogs of cyclic phosphatidic acid are selective inhibitors of autotaxin and cancer cell invasion and metastasis. *J. Biol. Chem.* **281(32)**, 22786-22793 (2006).

### Related Products

For a list of related products please visit: [www.caymanchem.com/catalog/10010298](http://www.caymanchem.com/catalog/10010298)

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