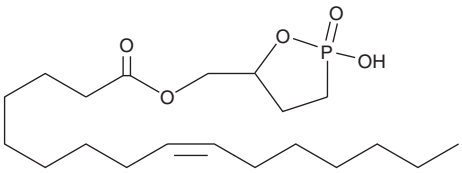
PRODUCT INFORMATION

Palmitoleoyl 3-carbacyclic Phosphatidic Acid

Item No. 10010298

CAS Registry No.: 910228-13-6
Formal Name: 9Z-hexadecenoic acid, (2-hydroxy-2-oxido-1,2-oxaphospholan-5-yl) methyl ester
Synonyms: 3-carbacyclic PA, 3-ccPA 16:1
MF: $C_{20}H_{37}O_5P$
FW: 388.5
Purity: ≥95%
Supplied as: A solution in chloroform
Storage: -20°C
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Palmitoleoyl 3-carbacyclic phosphatidic acid (3-ccPA 16:1) is supplied as a solution in chloroform. 3-ccPA 16:1 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the chloroform solution of 3-ccPA 16:1 should be diluted with the aqueous buffer of choice. 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.

Description

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.[1,2] 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).[3] 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.[3] 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.[3] 3-ccPA 16:1 significantly inhibits autotaxin (IC_{50} = 620 nM), an enzyme that is important in cancer cell survival, growth, migration, invasion and metastasis.[4] 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.[4]

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(6)**, 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(1)**, 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).

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