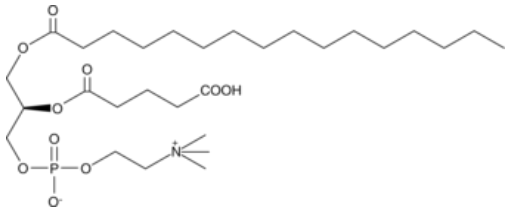
Product Data Sheet

Product Name: PGPC
Cat. No.: GC44616

Chemical Properties

Cas. No.	89947-79-5		
Chemical Name	1-palmitoyl-2-glutaryl phosphatidylcholine		
SMILES	CCCCCCCCCCCCCCCC(=O)OC[C@H](COP(=O)(O)OCC[N](C)(C)C)OC(=O)CCCC(=O)O		
Formula	$C_{29}H_{56}NO_{10}P$	M.Wt	609.7
Solubility	20mg/mL in ethanol, 1mg/mL in DMSO	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C 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



Background

PGPC is an oxidized phospholipid that can be formed under conditions of oxidative stress. [1] It is found as a component in mildly oxidized LDL (MM-LDL) and in products formed from the oxidation of 1-palmitoyl-2-arachidonoyl-sn-glycero-3-phosphocholine (Ox-PAPC). [2] PGPC activates peroxisome proliferator-activated receptor (PPARα) in a concentration-dependent manner in a cell-based ligand-binding assay. [3] It increases VCAM1 and E-selectin expression in human aortic endothelial cells (HAECs), as well as HAEC binding by monocytes and polymorphonuclear neutrophils (PMNs), in a concentration-dependent manner.[4] PGPC (37.5 μM) also increases total 5-lipoxygenase metabolites in murine resident peritoneal macrophages (RPMs) and induces apoptosis in A7r5 rat

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aortic smooth muscle cells in vitro when used at a concentration of 50 μM.[5][6] PGPC levels are increased in the serum, LDL, and peripheral blood mononuclear cells (PBMCs) of patients with coronary artery disease. [7] UVA irradiation increases PGPC levels in cultured human skin fibroblasts. [8]

Reference:

[1]. Fruhwirth, G.O., Loidl, A., and Hermetter, A. Oxidized phospholipids: From molecular properties to disease. Biochimica et Biophysica Acta 1772, 718-736 (2007).
[2]. Watson, A.D., Leitinger, N., Navab, M., et al. Structural identification by mass spectrometry of oxidized phospholipids in minimally oxidized low density lipoprotein that induce monocyte/endothelial interactions and evidence for their presence in vivo. The Journal of Biological Chemisty 272(21), 13597-13607 (1997).
[3]. Lee, H., Shi, W., Tontonoz, P., et al. Role for peroxisome proliferator-activated receptor α in oxidized phospholipid-induced synthesis of monocyte chemotactic protein-1 and interleukin-8 by endothelial cells. Circ. Res. 87(6), 516-521 (2000).
[4]. Leitinger, N., Tyner, T.R., Oslund, L., et al. Structurally similar oxidized phospholipids differentially regulate endothelial binding of monocytes and neutrophils. Proceedings of the National Academy of Sciences of the United States of America 96(21), 12010-12015 (1999).
[5]. Zemski Berry, K.A., and Murphy, R.C. Phospholipid ozonation products activate the 5-lipoxygenase pathway in macrophages. Chem. Res. Toxicol. 29(8), 1355-1364 (2016).
[6]. Fruhwirth, G.O., Moumtzi, A., Loidl, A., et al. The oxidized phospholipids POVPC and PGPC inhibit growth and induce apoptosis in vascular smooth muscle cells. Biochim. Biophys. Acta. 1761(9), 1060-1069 (2006).
[7]. Mozzini, C., Frata Pasini, A., Garbin, U., et al. Increased endoplasmic reticulum stress and Nrf2 repression in peripheral blood mononuclear cells of patients with stable coronary artery disease. Free Radic. Biol. Med. 68, 178-185 (2014).
[8]. Gruber, F., Bicker, W., Oskolkova, O.V., et al. A simplified procedure for semi-targeted lipidomic analysis of oxidized phosphatidylcholines induced by UVA irradiation. J. Lipid. Res. 53(6), 1232-1242 (2012).

Caution: Product has not been fully validated for medical applications. For research use only.
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