

## CERTIFICATE OF ANALYSIS – TECHNICAL DATA SHEET

<b>Product name</b>	PAPC	<b>Expiry date</b>	-
<b>Catalog number</b>	HC4043-5MG	<b>Activity</b>	N.A.
<b>Lot number</b>	-	<b>Amount</b>	5 mg
<b>Volume</b>	See application notes	<b>Concentration</b>	N.A.
<b>Formulation</b>	Dried synthetic PAPC, packed under argon	<b>Purification</b>	N.A.
<b>Host Species</b>	N.A.	<b>Purity</b>	>95%
<b>Endotoxin</b>	N.A.		
<b>Storage</b>	-20°C or below		

### Application notes

#### 1. For use of total amount in once:

Add buffer or medium used in the experiment and resuspend lipids by vigorous vortexing for at least 30 seconds. Optimal working concentrations are up to 100 µg/ml. Do not exceed concentrations of 0.5 mg/ml since PAPC is poorly soluble in water. Sonicate if necessary to ensure better resuspension of PAPC.

PAPC is used as negative control for OxPAPC. The concentration range in which PAPC can be used is dependent on the cell type and should be equal to OxPAPC, usually below 100 µg/ml. Please note that PAPC can be oxidized by cells.

#### 2. For partially use of amount:

Add chloroform to the vial to obtain lipid concentration of 1 to 10 mg/ml and vortex. Aliquot PAPC solution into sterile glass (optimal) or polypropylene cell culture tubes. Before use check if the tubes are resistant to chloroform. Evaporate chloroform under a stream of nitrogen or argon gas with simultaneous vortexing in order to obtain a thin film of lipid on the tube walls. Continue according to 1.

### General Information

**Description** 1-palmitoyl-2-arachidonoyl-sn-phosphatidylcholine (PAPC), is a naturally occurring phospholipid containing polyunsaturated arachidonic acid, which is a common lipid in mammalian cell membranes and lipoproteins. PAPC can be used as an unoxidized control in experiments utilizing oxidized PAPC (OxPAPC; cat. # HC4035/HC4036). OxPAPC, is a prototypic biologically active oxidized phospholipid first isolated from LDL minimally modified by oxidation (MM-LDL). OxPAPC is an active principle of MM-LDL and mimicks several pro- and anti-inflammatory effects induced by oxidized lipoproteins. Oxidation of PAPC generates two groups of oxidized phospholipids containing either fragmented or oxygenated sn-2 residues. The best-characterized fragmented species contain a five-carbon sn-2 residue bearing omega-aldehyde or omega-carboxyl groups. Oxygenation of arachidonic acid residue produces phospholipids containing esterified isoprostanes. Both fragmented and oxygenated species can regulate immune reactions. Pro-inflammatory effects of OxPAPC induce stimulation of endothelial cells to bind monocytes and induction of tissue clotting factor, IL-8, MCP-1, G-CSF and other mediators of atherothrombosis. Anti-inflammatory effects of OxPAPC are mediated by induction of protective enzymes such as heme oxygenase-1 and suppression of innate immune responses to bacterial lipopolysaccharide (LPS) due to inhibition of LPS recognition by LPS-binding protein (LBP) and CD14. OxPAPC is active in vivo and was shown to protect mice from lethal endotoxin shock. Biological activities of OxPAPC are mediated by a variety of signal transduction mechanisms, including elevation of cAMP and Ca<sup>2+</sup> levels, activation of MAP kinases, PI-3-kinase and small GTPases Rac-1 and Cdc42. OxPAPC-induced protein synthesis is mediated by transcription factors such as Egr-1, NFAT, CREB, PPAR $\alpha$ , PPAR $\gamma$ , but does not involve NF $\kappa$ B-dependent transcription.

**Aliases** 1-palmitoyl-2-arachidonoyl-sn-phosphatidylcholine

- References**
1. Birukov, K et al; Signal transduction pathways activated in human pulmonary endothelial cells by OxPAPC, a bioactive component of oxidized lipoproteins. *Microvasc Res* 2004, *67*: 18
  2. Zheng, M et al; Inhibition of LPS- and CpG DNA-induced TNF-alpha response by oxidized phospholipids. *Am J Physiol Lung Cell Mol Physiol* 2004, *286*: L808
  3. Birukov, K et al; Epoxycyclopentenone-containing oxidized phospholipids restore endothelial barrier function via Cdc42 and Rac. *Circ Res* 2004, *95*: 892
  4. Furnkranz, A et al; Oxidized phospholipids trigger atherogenic inflammation in murine arteries. *Arterioscler Thromb Vasc Biol* 2005, *25*: 633
  5. Blüml, S et al; Oxidized phospholipids negatively regulate dendritic cell maturation induced by TLRs and CD40. *J Immunol* 2005, *175*: 501

**Storage&stability** After arrival product should be stored at -20°C or below. Under recommended storage conditions, product is stable for at least one year. Aliquots prepared in chloroform can be stored at preferably -20°C or below for a few months. 1-palmitoyl-2-arachidonoyl-sn-phosphatidylcholine (PAPC) is more prone to oxidation and less soluble in water as

compared to 1,2-dimyristoyl-sn-glycero-3-phosphocholine. Avoid prolonged contact with air. Storage under argon or nitrogen is recommended.

**Precautions**

For research use only. Not for use in or on humans or animals or for diagnostics. It is the responsibility of the user to comply with all local/state and federal rules in the use of this product. Hycult Biotech is not responsible for any patent infringements that might result from the use or derivation of this product.

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We hereby certify that the above-stated information is correct and that this product has been successfully tested by the Quality Control Department. This product was released for sale according to the existing specifications. This document has been produced electronically and is valid without a signature.

Approved by Manager of QC  
Brenda Teunissen

Date  
26/10/2020

Do you have any questions or comments regarding this product? Please contact us via [support@hycultbiotech.com](mailto:support@hycultbiotech.com).