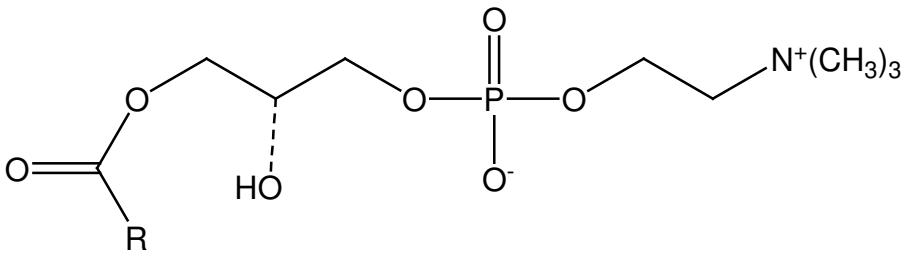
MATREYA LLC
Lipids and Biochemicals
2178 High Tech Road, State College, PA 16803
Tel. 814-355-1030 Fax 814-355-1031 www.matreya.com

PRODUCT DATA SHEET

lyso-Lecithin, egg

Catalog number: 1046
Common Name: *lyso*-Phosphatidylcholine
Source: Semisynthetic, chicken egg
Solubility: chloroform/methanol, 2:1
CAS number: 9008-30-4

Molecular Formula: $C_{24}H_{50}NO_7P$
Molecular Weight: 496 (palmitoyl)
Storage: -20°C
Purity: TLC >98%
TLC System: chloroform/methanol/DI water, (60:30:5 by vol.)
Appearance: solid



Application Notes:

This product is a high purity *lyso*-phosphatidylcholine (*lyso*-PC) containing a natural mixture of fatty acids acylated to the sn-1 position and a hydroxyl group on the sn-2 position. Phosphtidylcholine is a major component of biological membranes, especially in the outer leaflet, often composing almost 50% of the total phospholipids.[1] It is a vital component in membrane bilayers and is the main phospholipid circulating in plasma. PC plays an important role in membrane-mediated cell signaling by generating diacylglycerols and phospholipids. Phospholipase D is an enzyme that cleaves off the choline head group, converting PC to phosphatidic acid, while phospholipase C cleaves off the phosphate group leaving diacylglycerol. PC is the biosynthetic precursor of sphingomyelin, phosphatidylethanolamine, *lyso*-phosphatidylcholine, and platelet-activating factor. *lyso*-PC is formed by the action of phospholipase A2 on phosphatidylcholine by hydrolyzing the fatty acid on the sn-2 position. *lyso*-PC has many cellular functions but it is quickly acylated or further degraded in living systems. It has been found to stimulate phagocytosis, change the surface properties of erythrocytes, and have pro-inflammatory and cell signaling properties. *lyso*-Lecithin induces demyelination of nerves in biological systems and can therefore be used to mimic some of the effects of demyelinating diseases.[2] *Lyso*-PC activates the enzyme phospholipase C, which releases diacylglycerols and inositol triphosphate, thus mediating a number of different functions. *lyso*-phosphatidylcholine has also been shown to be protective against lethal sepsis in some studies. In endothelial membranes it produces a selective unresponsiveness to receptor-regulated endothelium-dependent vasodilators, causing atherosclerosis.[3] *lyso*-PC has been demonstrated to induce a fibrillation-like arrhythmia in isolated cardiomyocytes.[4] This high purity product has natural stereochemistry and is ideal as a standard. It is also ideal for use in biological systems.

Selected References:

1. M. Billah and J. Anthes "The regulation and cellular functions of phosphatidylcholine hydrolysis" *Biochemistry Journal*, Vol. 269 pp. 281-291, *1990*
2. R. Woodruff and R. Franklin "Demyelination and remyelination of the caudal cerebellar peduncle of adult rats following stereotaxic injections of lysolecithin, ethidium bromide, and complement/anti-galactocerebroside: A comparative study" *Glia*, vol. 25 pp. 216-228, *1999*
3. P. Henry et al. "Impairment of endothelium-dependent arterial relaxation by lysolecithin in modified low-density lipoproteins" *Nature*, vol. 344 pp. 160-162, *1990*
4. E. Omerovic et al. "Pro-Arrhythmic Effects of Lysolecithin on Isolated Cardiomyocytes" *Circulation*, *2008*;118:S_922

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