

PRODUCT DATA SHEET

Lecithin, bovine

Catalog number: 1070

Common name: Phosphatidylcholine; PC

Source: natural, bovine

Solubility: chloroform, ethyl ether

CAS number: 8002-43-5

Molecular Formula: C₄₄H₈₄NO₈P

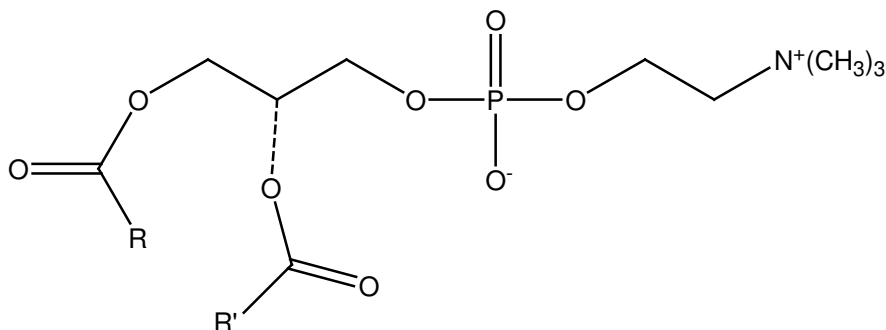
Molecular Weight: 787 (oleoyl)

Storage: -20°C

Purity: TLC >98%; identity confirmed by MS

TLC System: chloroform/methanol/DI water,
(65:25:4 by vol.)

Appearance: liquid



Application Notes:

This product is a high purity phosphatidylcholine (PC) containing a natural mixture of fatty acids acylated to the sn-1 and sn-2 positions. PC 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.² 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, *lys*-phosphatidylcholine, and platelet-activating factor. The choline headgroup is an essential nutrient in animals although it can be synthesized by methylating phosphatidylethanolamine to phosphatidylcholine and then cleaving the headgroup with phospholipase D.³ Tumor cells appear to have increased synthesis of PC and this may be a potential target for cancer therapy. Another function of PC is the activation of enzymes such as the enzyme 3-hydroxybutyrate dehydrogenase which must be bound to phosphatidylcholine before it can function optimally. In bovine phosphatidylcholine has been demonstrated to protect *beta*-lactoglobulin from simulated gastrointestinal proteolysis, possibly due to the lipid binding to a secondary fatty acid binding site in *beta*-lactoglobulin, thus blocking the action of proteases for steric reasons.⁴

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. J. Exton "Signaling through Phosphatidylcholine Breakdown" *The Journal of Biological Chemistry*, Vol. 265(1) pp. 1-4, 1990
3. Z. Li and D. Vance "Phosphatidylcholine and choline homeostasis" *Journal of Lipid Research*, Vol. 49 pp. 1187-1194, 2008
4. G. Mandalari et al. "Physiological phosphatidylcholine protects bovine beta-lactoglobulin from simulated gastrointestinal proteolysis" *Mol Nutr Food Res*, vol. 53 pp. S131-S139, 2009

This product is to be used for research only. It is not intended for drug or diagnostic use, human consumption or to be used in food or food additives. Matreya assumes no liability for any use of this product by the end user. We believe the information, offered in good faith, is accurate.