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:** C_{44}H_{84}NO_{8}P  
**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

![Molecular Structure of Phosphatidylcholine](image)

**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, lyso-phosphatidylcholine, and platelet-activating factor. The choline headgroup is an essential nutrient in animals although it can be synthesized by methylation of 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:**

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