

## PRODUCT DATA SHEET

### 1,2-Dipalmitoyl-sn-glycero-3-phosphorylcholine

**Catalog number:** 1426

**Common Name:** DPPC

**Source:** synthetic

**Solubility:** methylene chloride, methanol

**CAS number:** 63-89-8

**Molecular Formula:** C<sub>40</sub>H<sub>80</sub>NO<sub>8</sub>P

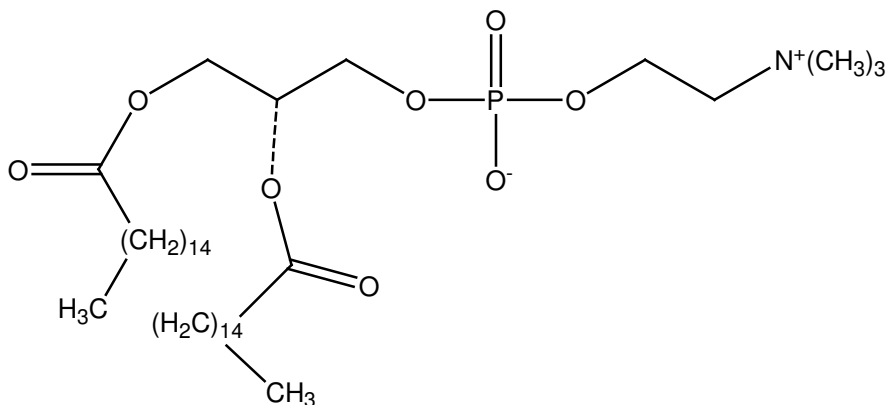
**Molecular Weight:** 734

**Storage:** -20°C

**Purity:** TLC > 98%

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

**Appearance:** solid



### **Application Notes:**

This product is a well-defined, high purity, phosphatidylcholine (PC) containing two palmitoyl acyl groups. 1,2-Dipalmitoyl-sn-glycero-3-phosphorylcholine (DPPC) is the major component of pulmonary surfactant, the lipoprotein complex that is formed by type II alveolar cells in the lung.<sup>1</sup> PC is a major component of biological membranes, especially in the outer leaflet, often composing almost 50% of the total phospholipids.<sup>2</sup> 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.<sup>3</sup> 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 methylating phosphatidylethanolamine to phosphatidylcholine and then cleaving the headgroup with phospholipase D.<sup>4</sup> 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.

### **Selected References:**

1. S. Yu and F. Possmayer "Dipalmitoylphosphatidylcholine and cholesterol in monolayers spread from adsorbed films of pulmonary surfactant" *Journal of Lipid Research*, Vol. 42(9) pp. 1421-1429, 2001
2. M. Billah and J. Anthes "The regulation and cellular functions of phosphatidylcholine hydrolysis" *Biochemistry Journal*, Vol. 269 pp. 281-291, 1990
3. J. Exton "Signaling through Phosphatidylcholine Breakdown" *The Journal of Biological Chemistry*, Vol. 265(1) pp. 1-4, 1990
4. Z. Li and D. Vance "Phosphatidylcholine and choline homeostasis" *Journal of Lipid Research*, Vol. 49 pp. 1187-1194, 2008

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