

PRODUCT DATA SHEET

1,2-Distearoyl-sn-glycero-3-phosphorylcholine

Catalog number: 1427

Synonyms: DSPC

Source: synthetic

Solubility: methylene chloride, methanol

CAS number: 816-94-4

Molecular Formula: C₄₄H₈₈NPO₈

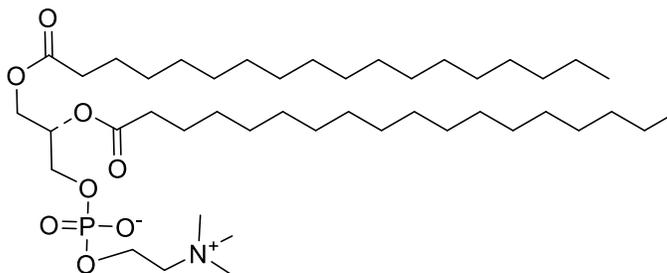
Molecular Weight: 790

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 high purity phosphorylcholine (PC) that is acylated at the sn-1 and -2 positions with stearic acid, forming a phosphorylcholine that is common in many animals and is therefore useful as a standard.¹ PC is a major component of biological membranes, especially in the outer leaflet, often composing almost 50% of the total phospholipids.² 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.³ 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.⁴ 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. E. Sim, P. Cullis, and R. Richards "Physical Studies on Phosphonium Phosphatidylcholine" *Journal of Biochemistry*, vol. 151 pp. 555-560, 1975
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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