

PRODUCT DATA SHEET

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

Catalog number: 1400

Common Name: DHDPC

Source: synthetic

Solubility: methylene chloride, methanol

CAS number: 70897-27-7

Molecular Formula: C₄₂H₈₄NO₈P

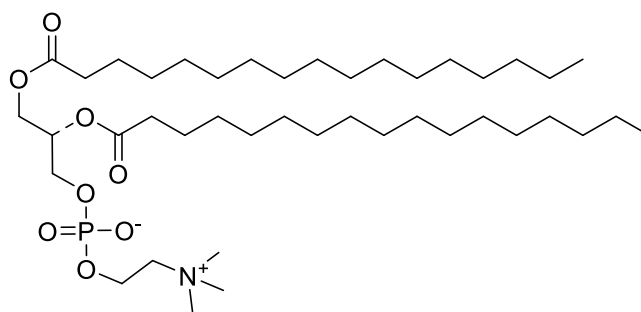
Molecular Weight: 762

Storage: -20°C

Purity: TLC >98%; identity confirmed by MS

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) acylated with two heptadecanoic acids. Due to the unnatural fatty acids this product is ideal as a standard and for biological studies. 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 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.

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

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