

PRODUCT DATA SHEET

1,2-Dipalmitoyl-*sn*-glycero-3-phosphatidic acid (Na⁺ salt), (DPPA)

Catalog number: 1429

Common name: DPPA

Source: synthetic

Solubility: chloroform/ methanol/acetic acid,
4:1:0.1

CAS number: 71065-87-7

Molecular Formula: C₃₅H₆₈O₈P · Na

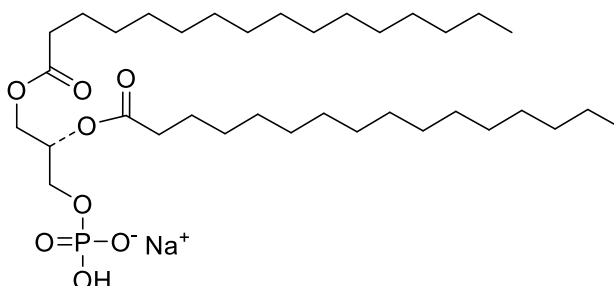
Molecular Weight: 671

Storage: -20°C

Purity: TLC >98%

TLC System: chloroform/methanol/DI
water/ammonium hydroxide
(65:25:4:5)

Appearance: solid



Application Notes:

This phosphatidic acid is a well-defined phospholipid acylated with C16:0 fatty acids at the *sn*-1 and *sn*-2 positions. Phosphatidic acid is an important acidic lipid that is only found in relatively small amounts in comparison to other lipids. It acts as the precursor to a number of phospholipids and triacylglycerols, is integral in forming the shape of cellular membranes,¹ has functions in cellular signaling,² and has a role in vesicle fission and fusion. Phosphatidic acid is generally synthesized by the acylation of glycerophosphate but can also be synthesized by the phosphorylation of 1,2-diacyl-*sn*-glycerol or the hydrolysis of phosphatidylcholine. Phosphatidic acid can be converted to diacylglycerols which are important cellular signaling agents.³ The metabolism of phosphatidic acid has been shown to change due to external stimuli in the pathogen *Trypanosoma cruzi* and this could be used to develop a treatment for diseases caused by this microorganism.⁴ Dipalmitoyl phosphatidic acid has been found to be useful in the formation of lipid vesicles which are used to carry drugs to targeted cells.⁵

Selected References:

1. E. Kooijman et al. "Modulation of Membrane Curvature by Phosphatidic Acid and Lysophosphatidic Acid" *Traffic*, Vol. 4(3) pp. 162-174, 2003
2. K. Athenstaedt and G. Daum "Phosphatidic acid, a key intermediate in lipid metabolism" *European Journal of Biochemistry*, Vol. 266 pp. 1-16, 1999
3. M. Hodgkin et al. "Diacylglycerols and phosphatidates: which molecular species are intracellular messengers?" *Trends in Biochemical Sciences*, Vol. 23(6) pp. 200-204, 1998
4. A. Gimenez et al. "Regulation of Phosphatidic Acid Levels in *Trypanosoma cruzi*" *Lipids*, vol. 46 pp. 969-979, 2011
5. L. Panicker "Effect of propyl paraben on the dipalmitoyl phosphatidic acid vesicles" *Journal of Colloid and Interface Science*, vol. 311 pp. 407-416, 2007

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