

PRODUCT DATA SHEET

1,2-Dimyristoyl-*sn*-glycero-3-phosphatidic acid (Na⁺salt), (DMPA)

Catalog number: 1428

Synonyms: DMPA

Source: synthetic

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

CAS number: 80724-31-8

Molecular Formula: C₃₁H₆₀O₈P • Na

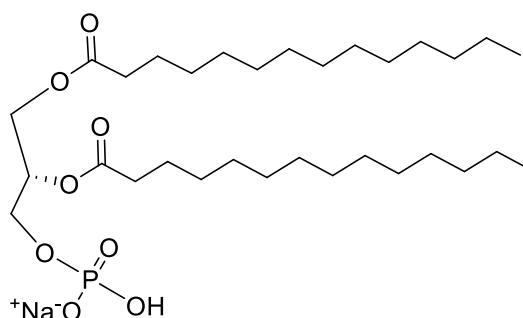
Molecular Weight: 615

Storage: -20°C

Purity: TLC >98%

TLC System: chloroform/methanol/DI water/
ammonium hydroxide
(65:25:2:6)

Appearance: solid



Application Notes:

This phosphatidic acid (PA) is a well-defined phospholipid acylated with C14:0 fatty acids at the *sn*-1 and *sn*-2 positions. DMPA has been used to study the phosphatidic acid domains in membranes and the effect of divalent counterions.¹ PA is an important acidic lipid that is only found in relatively small amounts in comparison to other lipids. Phosphatidic acid acts as the precursor to a number of phospholipids and triacylglycerols, is integral in forming the shape of cellular membranes,² has roles in cellular signaling,³ and has a role in vesicle fission and fusion. PA 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. PA can be converted to diacylglycerols which are important cellular signaling agents.⁴ 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 this disease.⁵

Selected References:

1. J. Faruqi and A. Travestet "Phosphatidic Acid Domains in Membranes: Effect of Divalent Counterions" *Biophysical Journal*, Vol. 92 pp. 2806-2818, 2007
2. E. Kooijman et al. "Modulation of Membrane Curvature by Phosphatidic Acid and Lysophosphatidic Acid" *Traffic*, Vol. 4(3) pp. 162-174, 2003
3. K. Athenstaedt and G. Daum "Phosphatidic acid, a key intermediate in lipid metabolism" *European Journal of Biochemistry*, Vol. 266 pp. 1-16, 1999
4. M. Hodgkin et al. "Diacylglycerols and phosphatidates: which molecular species are intracellular messengers?" *Trends in Biochemical Sciences*, Vol. 23(6) pp. 200-204, 1998
5. A. Gimenez et al. "Regulation of Phosphatidic Acid Levels in *Trypanosoma cruzi*" *Lipids*, vol. 46 pp. 969-979, 2011

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