

Technical Note 112

Synthetic Lyso phospholipids: LysoFos™ Glycerol and LysoFos™ Choline Ether

The Lyso phospholipids (LPs) are a family of simple phospholipids that have been considered as components in the biosynthesis of cell membrane and play critical roles in cell development and disease occurring¹. They share a basic set of structural similarity, particular a phosphate headgroup and a single hydrophobic chain².

Lyso phospholipids have also been shown to be components of oxidized low density lipoproteins (LDL) in atherosclerotic lesions, where they play a role in several cell signaling pathways, and enhance radiation-induced apoptosis of malignant cells³. In vivo, Lyso phosphatidylcholine (LPC) modulates inflammatory responses⁴. LPC is synthesized by the enzymatic hydrolysis of phosphatidylcholine by phospholipase A₂⁵. This highly specific lipase cleaves the acyl chain at the sn-2 position leaving a single acyl chain in the sn-1 position.

Synthetic lyso phospholipids have a variety of uses in membrane protein science including membrane protein purification, folding, and structural studies⁶. LPC, in particular, has been used to purify functional recombinant human P-glycoprotein⁷ and the cystic fibrosis transmembrane conductance regulator (CFTR)⁸ as well as the G-protein coupled vasopressin V₁ receptor⁹.

In addition of offering a line of lyso phosphatidylcholines, the LysoFos™ Cholines, Anatrace offers a novel family of synthetic lyso phospholipid analogs, LysoFos™ Glycerol and LysoFos™ Choline Ether. These lyso phospholipid analogs are designed to improve LPs solubility and stability in aqueous solution so that the molecules could have extended period to exercise their functions during experiments.

LysoFos™ Glycerol and LysoFos™ Choline Ether are produced according to our rigorous standards of purity; all products are ≥99% pure by HPLC and have low absorbance and conductance specifications. We offer five different acyl chain lengths (C10, C12, C14, C16, and C18) to meet your needs with a suitable range of physical properties.

Storage and Handling:

LysoFos™ Glycerol and Choline Ethers should be stored at -20°C.

LysoFos™ Glycerol and Choline Ethers hygroscopic; protect from moisture.

Lyso phospholipids are subject to acyl chain migration in acidic aqueous solution.

LysoFos™ Glycerol

- L310 LysoFos™ Glycerol 10, ANAGRADE®
[1-decanoyl-2-hydroxy-*sn*-glycero-3-phospho-(1'-*rac*-glycerol) (sodium salt)]
FW: 422.38 [cas#: N/A] C₁₆H₃₂O₉PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L312 LysoFos™ Glycerol 12, ANAGRADE®
[1-lauroyl-2-hydroxy-*sn*-glycero-3-phospho-(1'-*rac*-glycerol) (sodium salt)]
FW: 450.44 [cas#: N/A] C₁₈H₃₆O₉PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L314 LysoFos™ Glycerol 14, ANAGRADE®
[1-myristol-2-hydroxy-*sn*-glycero-3-phospho-(1'-*rac*-glycerol) (sodium salt)]
FW: 478.49 [326495-21-0] C₂₀H₄₀O₉PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L316 LysoFos™ Glycerol 16, ANAGRADE®
[1-palmitol-2-hydroxy-*sn*-glycero-3-phospho-(1'-*rac*-glycerol) (sodium salt)]
FW: 506.54 [326495-22-1] C₂₂H₄₄O₉PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L318 LysoFos™ Glycerol 18, ANAGRADE®
[1-octadecanoyl-2-hydroxy-*sn*-glycero-3-phospho-(1'-*rac*-glycerol) (sodium salt)]
FW: 534.6 [326495-23-1] C₂₄H₄₈O₉PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >1%
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1

LysoFos™ Choline Ether

- L410 LysoFos™ Choline Ether 10, ANAGRADE®
[1-decyl-2-hydroxy-*sn*-glycero-3-phosphocholine]
FW: 397.49 [cas#: N/A] C₁₈H₄₀O₆PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Conductance (10% solution) <200 μS
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L412 LysoFos™ Choline Ether 12, ANAGRADE®
[1-dodecyl-2-hydroxy-*sn*-glycero-3-phosphocholine]
FW: 425.54 [cas#: N/A] C₂₀H₄₄O₆PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Conductance (10% solution) <200 μS
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L414 LysoFos™ Choline Ether 14, ANAGRADE®
[1-tetradecyl-2-hydroxy-*sn*-glycero-3-phosphocholine]
FW: 453.59 [cas#: N/A] C₂₂H₄₈O₆PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Conductance (10% solution) <200 μS
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L416 LysoFos™ Choline Ether 16, ANAGRADE®
[1-hexadecyl-2-hydroxy-*sn*-glycero-3-phosphocholine]
FW: 481.65 [52691-62-0] C₂₄H₅₂O₆PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >10%
Conductance (10% solution) <200 μS
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1
- L418 LysoFos™ Choline Ether 18, ANAGRADE®
[1-octadecyl-2-hydroxy-*sn*-glycero-3-phosphocholine]
FW: 509.7 [74430-89-0] C₂₆H₅₆O₆PNa
CMC (H₂O) N/A
Purity ≥99%
pH (1% solution) 5-8
Solubility in water at 0-5°C >1%
Conductance (10% solution) <200 μS
Absorbant of 1% detergent solution
340 nm < 0.02
280 nm < 0.08
260 nm < 0.1

References:

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