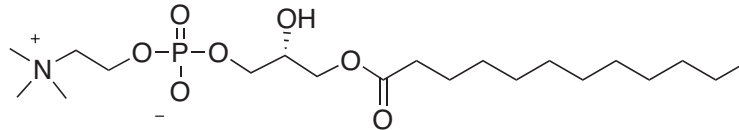


Technical Bulletin 120

Synthetic Lyso phospholipids

The Lyso phospholipids (LPs) are a family of simple phospholipids that have been considered as components in the biosynthesis of the cell membrane and play critical roles in cell development and disease occurring⁽¹⁾. They share a basic set of structural similarity, particular a phosphate headgroup and a single hydrophobic chain⁽²⁾.



LysoFos Choline 12, Anagrade®

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 cells⁽³⁾. *In vivo*, LPC modulates inflammatory responses⁽⁴⁾. LPC is synthesized by the enzymatic hydrolysis of phosphatidylcholine by phospholipase A₂⁽⁵⁾. 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 studies⁽⁶⁾. Lyso phosphatidylcholine (LPC), in particular, has been used to purify functional recombinant human P-glycoprotein⁽⁷⁾ and the cystic fibrosis transmembrane conductance regulator (CFTR)⁽⁸⁾ as well as the G-protein coupled vasopressin V₁ receptor⁽⁹⁾.

In addition to 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 an extended period to exercise their functions during experiments.

The Anatrace product offerings of lyso phosphatidylcholines, the LysoFos Cholines, and the family of synthetic lyso phospholipid analogs, 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 three different acyl chain lengths to provide you with a variety of products with a range of physical properties.

Storage and Handling of LysoFos Choline, LysoFos Choline Ether, and LysoFos Glycerol products:

- Store at -20°C.
- These products are hygroscopic. Protect from moisture.
- Lyso phospholipids are subject to acyl chain migration in acidic aqueous solution.



LysoFos Choline Products:

- L212 **LysoFos Choline 12, Anagrade**
[1-Lauroyl-2-Hydroxy-sn-Glycero-3-Phosphocholine / 1-Dodecanoyl-2-Hydroxy-sn-Glycero-3-Phosphocholine / 12:0 LysoPC]
Chemical Properties:
FW: 439.5 [20559-18-6] $C_{20}H_{42}NO_7P$
CMC (H₂O): ~ 0.32 mM⁽¹⁰⁾
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C for 4 hours: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.04
280 nm: < 0.1
260 nm: < 0.12
- L214 **LysoFos Choline 14, Anagrade**
[1-Myristoyl-2-Hydroxy-sn-Glycero-3-Phosphocholine / LMPC / 14:0 LysoPC]
Chemical Properties:
FW: 467.6 [20559-16-4] $C_{22}H_{46}NO_7P$
CMC (H₂O): ~ 0.036 mM⁽¹⁰⁾
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C for 4 hours: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.04
280 nm: < 0.1
260 nm: < 0.12
- L216 **LysoFos Choline 16, Anagrade**
[1-Palmitoyl-2-Hydroxy-sn-Glycero-3-Phosphocholine / 16:0 LysoPC]
Chemical Properties:
FW: 495.6 [17364-16-8] $C_{24}H_{50}NO_7P$
CMC (H₂O): ~ 0.0032 mM⁽¹⁰⁾
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C for 4 hours: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.04
280 nm: < 0.1
260 nm: < 0.12

LysoFos Choline Ether Products:

- L412 **LysoFos Choline Ether 12, Anagrade**
[1-Dodecyl-2-Hydroxy-sn-Glycero-3-Phosphocholine]
Chemical Properties:
FW: 425.5 $C_{20}H_{44}O_6PNa$
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2
- L414 **LysoFos Choline Ether 14, Anagrade**
[1-Tetradecyl-2-Hydroxy-sn-Glycero-3-Phosphocholine]
Chemical Properties:
FW: 453.6 $C_{22}H_{48}O_6PNa$
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2
- L416 **LysoFos Choline Ether 16, Anagrade**
[1-Hexadecyl-2-Hydroxy-sn-Glycero-3-Phosphocholine]
Chemical Properties:
FW: 481.7 $C_{24}H_{52}O_6PNa$
Product Specifications:
Purity: ≥ 99% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Conductance (10% solution in water): < 200 μS
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2

LysoFos Glycerol Products:

L312 **LysoFos Glycerol 12, Anagrade**
[1-Lauroyl-2-Hydroxy-sn-Glycero-3-Phospho-
(1'-rac-Glycerol) (Sodium Salt)]

Chemical Properties:

FW: 450.4 C₁₈H₃₆O₉PNa

Product Specifications:

Purity: ≥ 95% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2

L314 **LysoFos Glycerol 14, Anagrade**
[1-Myristoyl-2-Hydroxy-sn-Glycero-3-Phospho-
(1'-rac-Glycerol) (Sodium Salt)]

Chemical Properties:

FW: 478.5 C₂₀H₄₀O₉PNa

Product Specifications:

Purity: ≥ 95% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2

L316 **LysoFos Glycerol 16, Anagrade**
[1-Palmitol-2-Hydroxy-sn-Glycero-3-Phospho-
(1'-rac-Glycerol) (Sodium Salt)]

Chemical Properties:

FW: 506.5 [326495-22-1] C₂₂H₄₄O₉PNa

Product Specifications:

Purity: ≥ 95% by HPLC analysis
pH (1% solution in water): 5-8
Solubility in water at 20°C: > 10%
Absorbance of a 1% solution in water:
340 nm: < 0.1
280 nm: < 0.2
260 nm: < 0.2

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