

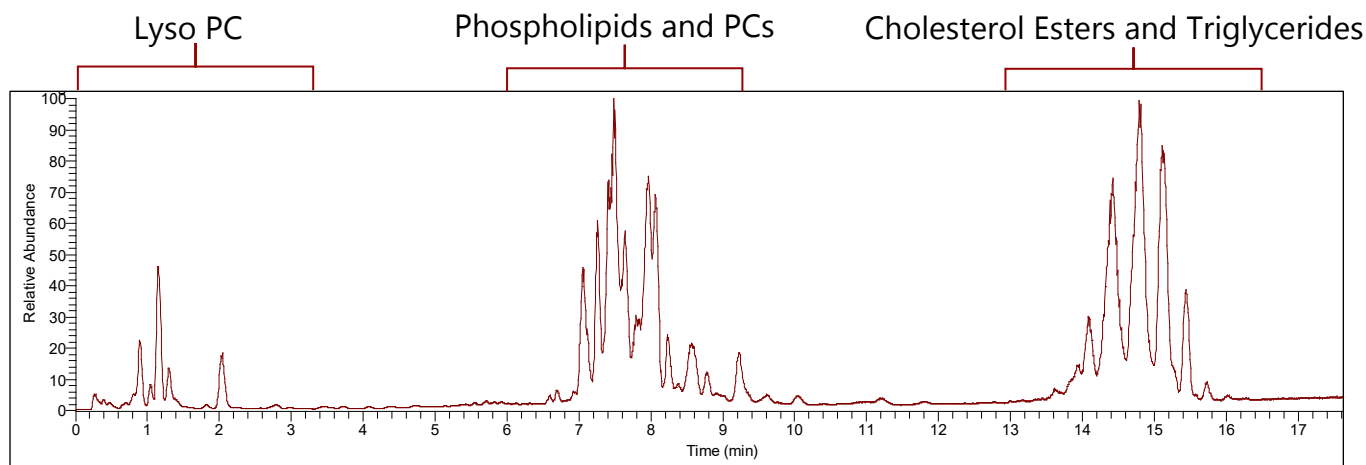
Lipidomics Study

In this study, we demonstrate the advantages of utilizing the monodisperse fully porous particle column in the study of lipids and lipid classes. We collected data on 5 classes of lipids— lysophosphatidylcholines, phospholipids, phosphatidylcholines, cholesterol esters, and various triglycerides.

Experimental Conditions

Instrument:	Thermo Q-Exactive with Dionex UHPLC pump
Column:	Evosphere C12, 100 Å, 3 µm, 2.1 x 50 mm Monodisperse Particle Column
PN#:	EVO12020303
Mobile Phase A:	60/40 ACN/H ₂ O with 0.1% FA and 10 mM NH ₄ HCO ₂
Mobile Phase B:	90/8/2 IPA/ACN/ H ₂ O with 0.1% FA and 10mM NH ₄ HCO ₂
Flow Rate:	500 µL/min
Temp:	50 °C

Time	%B
1 min	20
3 min	30
4 min	45
6 min	60
8 min	65
10 min	65
15 min	90
17 min	98
18 min	98



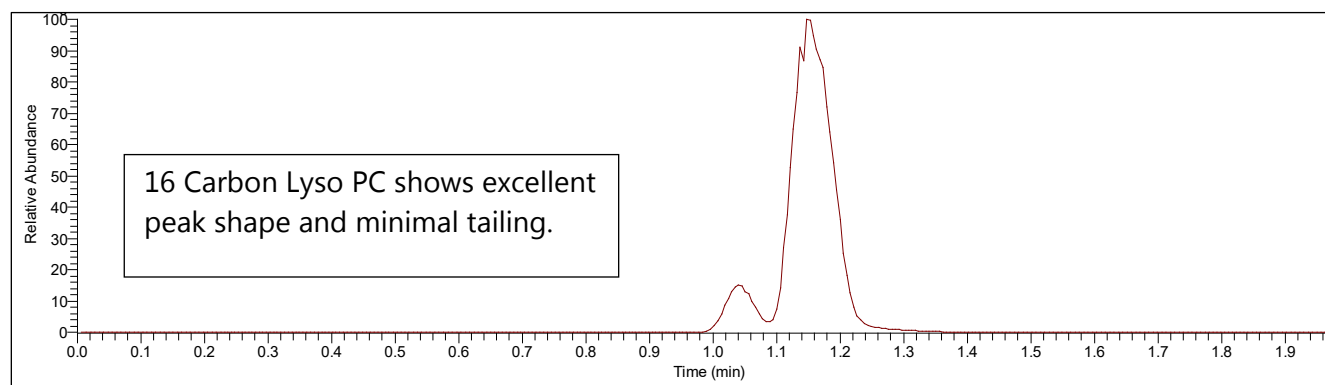
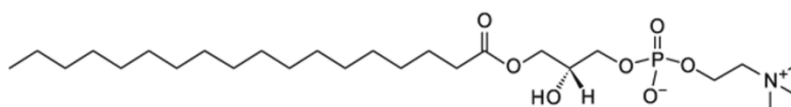
Lipidomics Study Using a Monodisperse Fully Porous Particle Column

In typical lipid LC methods, the mobile phase contains a significant percentage of IPA (isopropyl alcohol), due to the hydrophobic nature of the specific lipid classes. This allows the lipids to partition in and out of the stationary phase to effectively improve chromatographic performance.

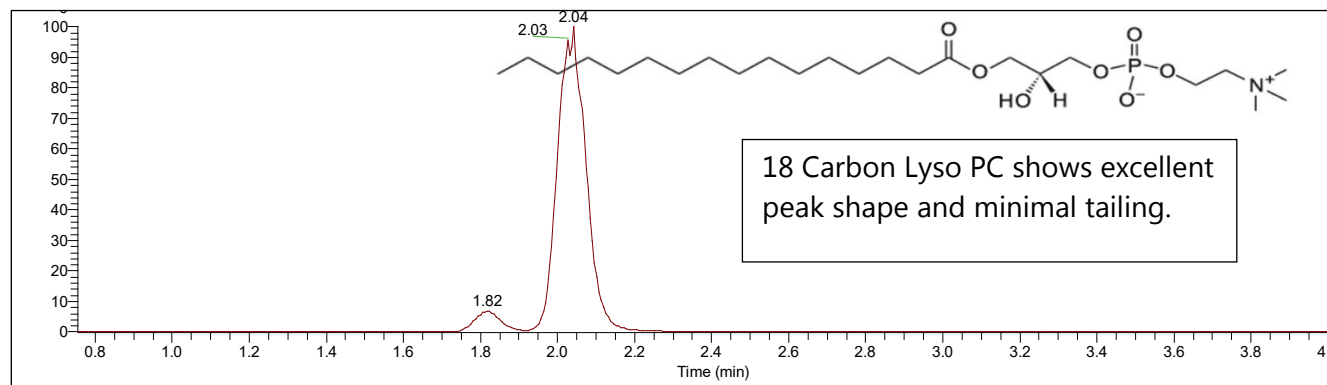
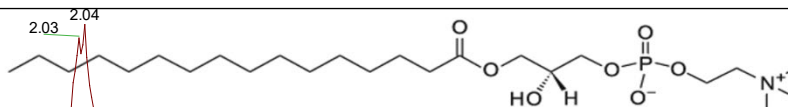
Evosphere C12 was chosen for this study because the C12 ligand provides a strong hydrophobic environment to retain and discriminate different lipid species from each other.

The 3 μm particle was chosen to show the power of the monodisperse fully porous particle material, as it delivers UHPLC performance at half sub-2 μm typical back pressures. Further, IPA is more viscous than typical ACN/H₂O mobile phase mixtures, thus a larger highly efficient particle becomes even more appropriate to ensure lipid characterization is not limited by system pressure.

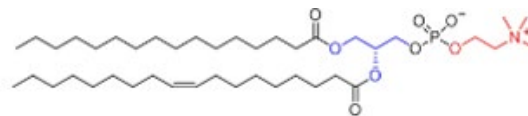
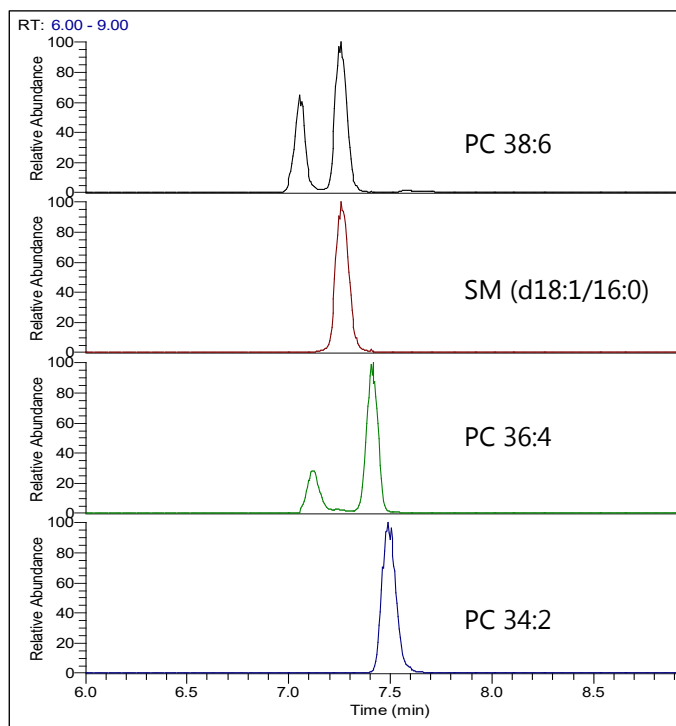
Lyso PC 16:0



Lyso PC 18:0

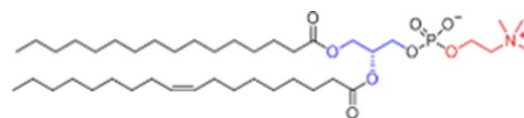
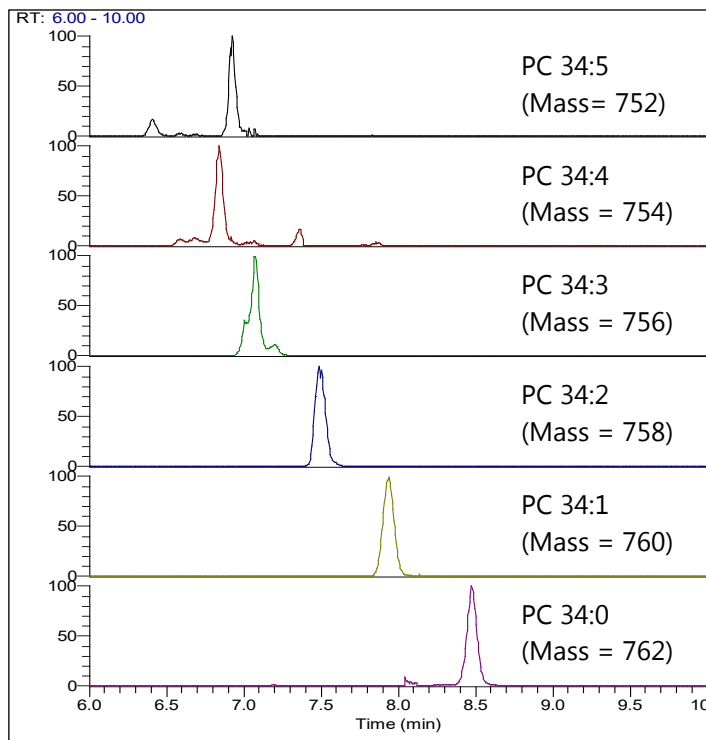


Phospholipids



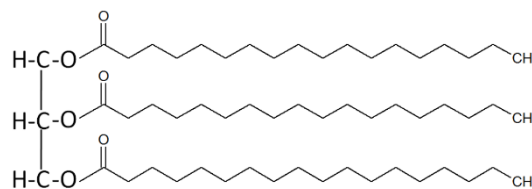
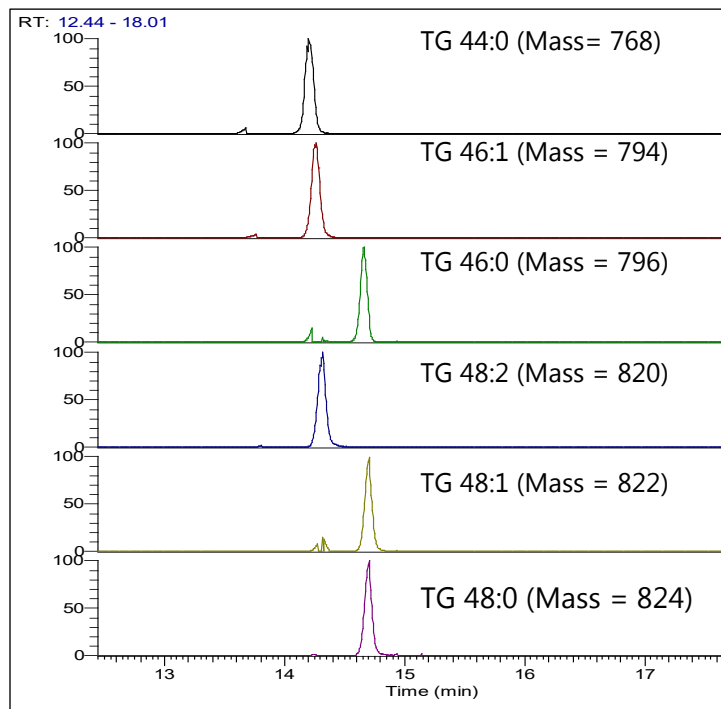
Phospholipids show higher intensity peaks.

PCs with Different Degrees of Unsaturation



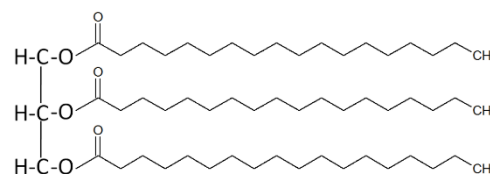
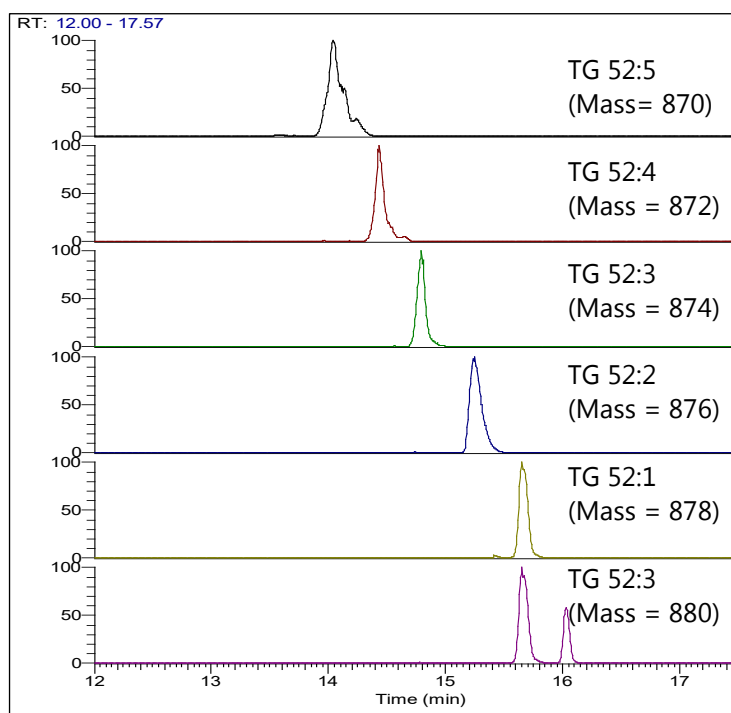
Phosphatidylcholine is able to separate different degrees of unsaturation.

Triglycerides with 44-48 Carbons

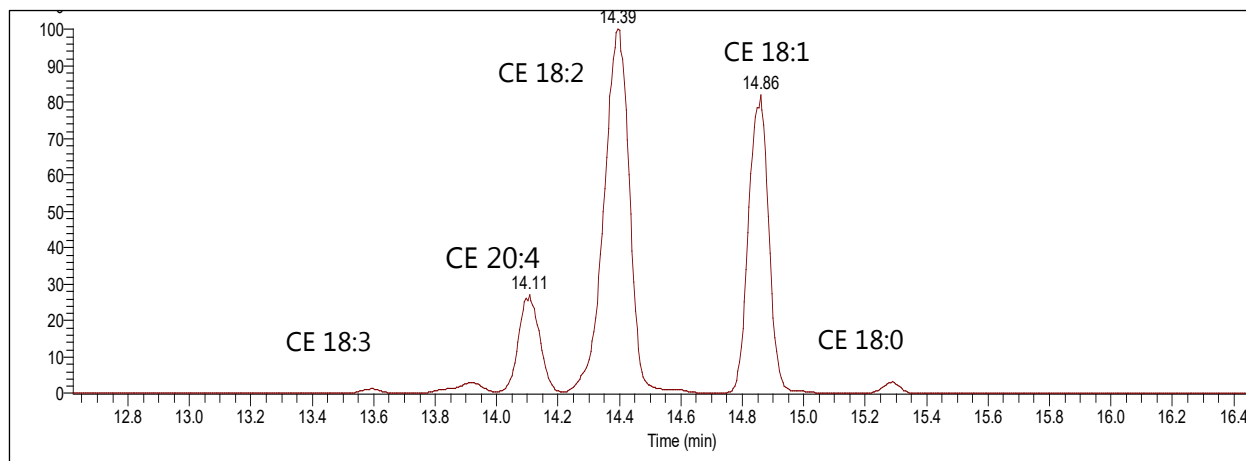


Triglycerides with different degrees of saturation are well separated with excellent peak shapes as compared to traditional methods.

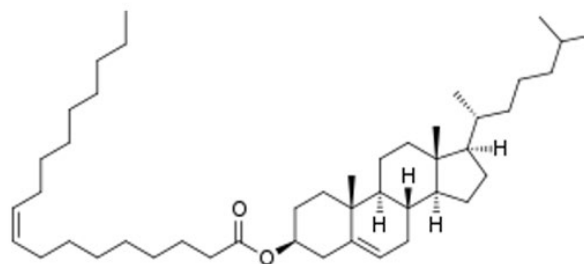
Triglycerides with 52 Carbons



Cholesterol Esters



Cholesterol Esters are separated with excellent peak shapes as compared to traditional methods.



For technical support or applications contact:

info@mac-mod.com

For more information visit:

www.mac-mod.com

For all supply in North America and Canada please contact MAC-MOD Analytical

Tel: 800-441-7508

info@mac-mod.com

