

- TriVersa NanoMate is the latest in chip-based technology from Advion that combines the strengths of liquid chromatography, mass spectrometry, fraction collection, and chip-based infusion in one integrated system. It allows researchers to obtain more information from their complex samples than with LC/MS alone.

*"We have built our lab around the TriVersa NanoMate."*

## Max Planck Institute of Molecular Cell Biology and Genetics Dresden, Germany



Dr. Andrej Shevchenko  
Research Group Leader

Research focus: Proteomics  
Lipidomics

Mass spectrometers:  
Thermo LTQ Orbitrap XL  
Thermo LTQ Orbitrap Velos  
Thermo TSQ Vantage  
AB SCIEX QTRAP Pulsar i

Customer since: 2004

No. of TVNM: 3

### Recent Publications

Orm family proteins mediate sphingolipid homeostasis  
Breslow, D.K.; Collins, S.R.; Bodenmiller, B.; Aebersold, R.; Simons, K.; Shevchenko, A.; Ejsing, C.S.; Weissman, J.S.; Nature. 2010 Feb 25;463(7284):1048-53.

Global analysis of the yeast lipidome by quantitative shotgun mass spectrometry  
Ejsing CS, Sampaio JL, Surendranath V, Duchoslav E, Ekroos K, Klemm RW, Simons K, Shevchenko A: Proc Natl Acad Sci U S A 2009, 106:2136-2141.

**Q:** What is the focus of your lab's research?

The laboratory is split 50/50 between proteomics and lipidomics research. While working on protein analysis, such as identifying protein interaction networks or characterizing the proteomes of organisms that are related very distantly to organisms with sequenced genomes, we also attempt to better quantify the lipidome of various organelles, cells and tissues.

**Q:** What are your primary research goals?

In lipidomics, we forge the alliance with developmental biology. The primary goal of the group is to combine lipidomics with developmental biology. As organisms grow and develop from a single cell, newly differentiated tissues require their own unique membrane lipid composition. We hope to characterize these tailored changes to better understand how inherited defects in lipid metabolism cause disease. We are equally interested in lipidomes of membrane microdomains and the biological significance of its remarkable complexity.

**Q:** Why did you incorporate the TriVersa NanoMate into your laboratory?

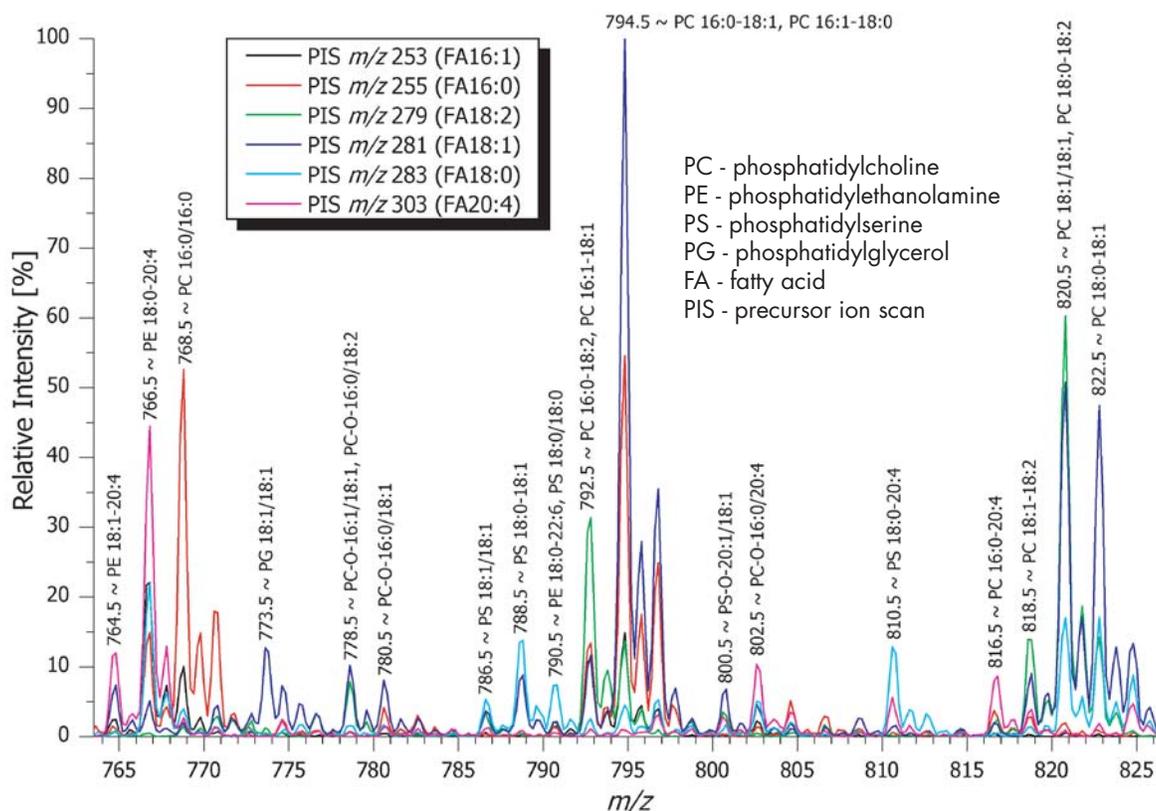
We had a need for the automated nanoflow direct-infusion capabilities. Shotgun lipidomics relies on low and stable flow rates, and the TriVersa NanoMate has this demonstrated ability. We have purchased three additional instruments, because they allow us to rapidly switch between lipids and proteomic analysis.

## Lipid Analysis

Fast, reproducible, and automated lipid analysis using chip-based nanoelectrospray infusion

- Quantify and identify individual lipid species
- Consistent profile response from reproducible chip-based spray with up to 400 analyses per chip
- No sample-to-sample carryover
- Fast and automated analysis compared to conventional nanoelectrospray

Overlaid Precursor Ion Spectra Using Chip-based Infusion in Combination with Multiple Precursor Ion Scanning on a QSTAR Mass Spectrometer



Lipid profile of mouse intestine. Glycerophospholipid species were detected by multiple precursor ion scanning for fatty acid fragment ions. Peak identification was performed using prototype Lipid Profiler software (AB SCIEX). Analysis was performed by Christer S. Ejising.