



Mass Spectrometry: Metabolomics



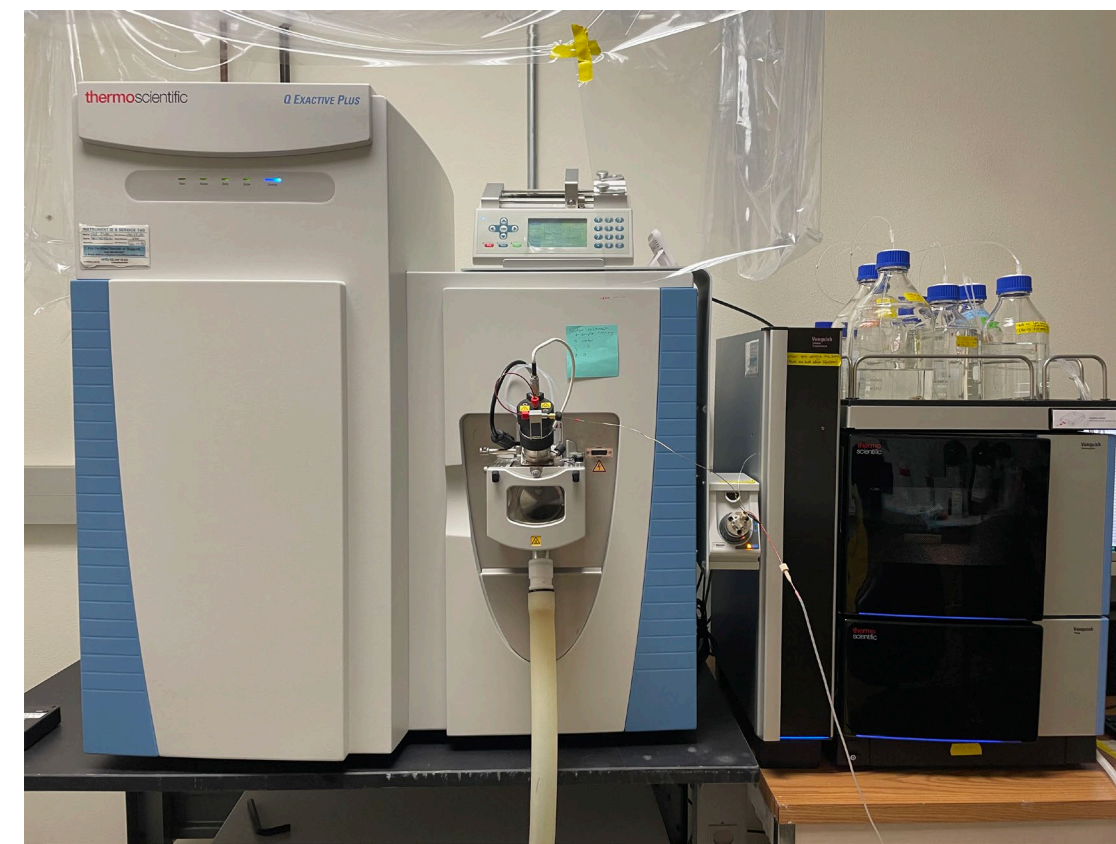
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Director, Metabolomics MS



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Manager

Instrumentation (Liquid Chromatography Mass Spectrometers)

Q-Exacte Plus Hybrid Quadrupole-Orbitrap Mass Spectrometer coupled Vanquish HPLC and UHPLC Systems



Orbitrap Exploris 480 Mass Spectrometer coupled Vanquish HPLC and UHPLC Systems (Installation ongoing)

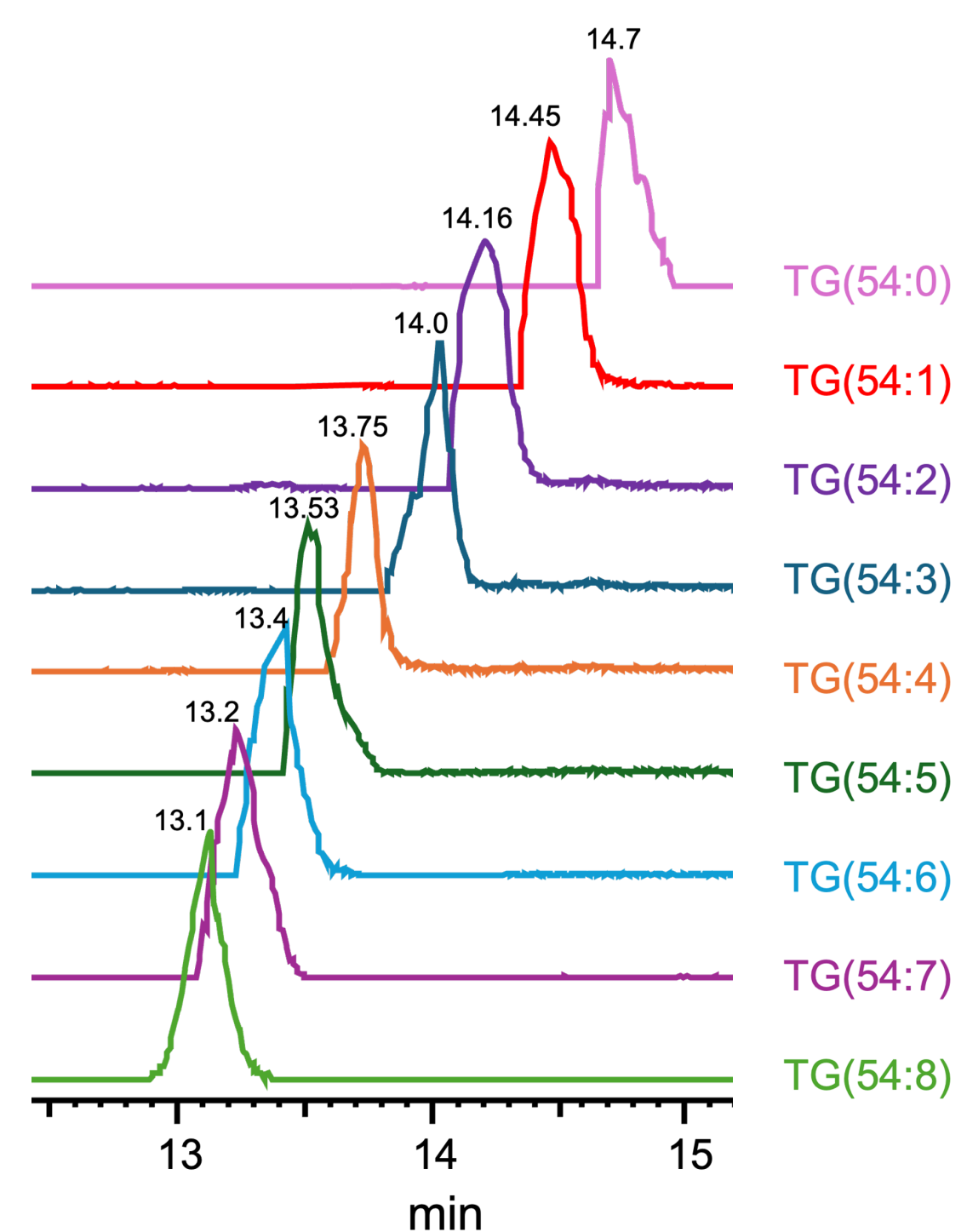


These state-of-the-art LC-MS instruments provide exceptional **sensitivity** and **resolution**, which enable detailed analysis of metabolites, lipids, and stable isotope tracing in biological samples. These capabilities are critical for both metabolic profiling and quantitative analyses in diverse research areas.

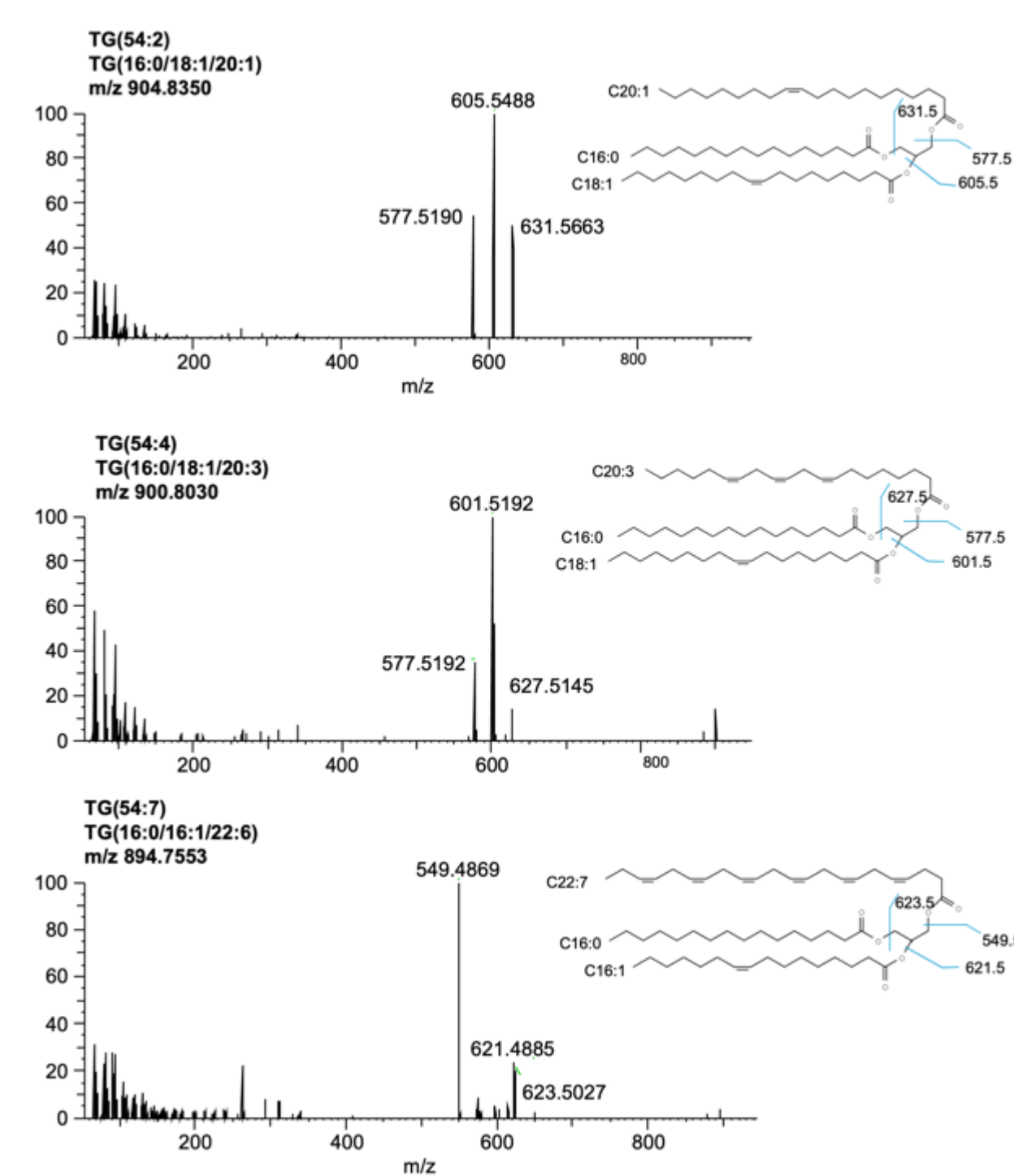
- **QE Plus:** Features ultra-high resolution and sensitivity, suitable for intricate metabolomics and lipidomics profiling.
- **Exploris 480:** Enhanced speed and sensitivity for high-throughput applications, provides accurate and robust data.

Lipidomics: lipid metabolite changes & biomarkers

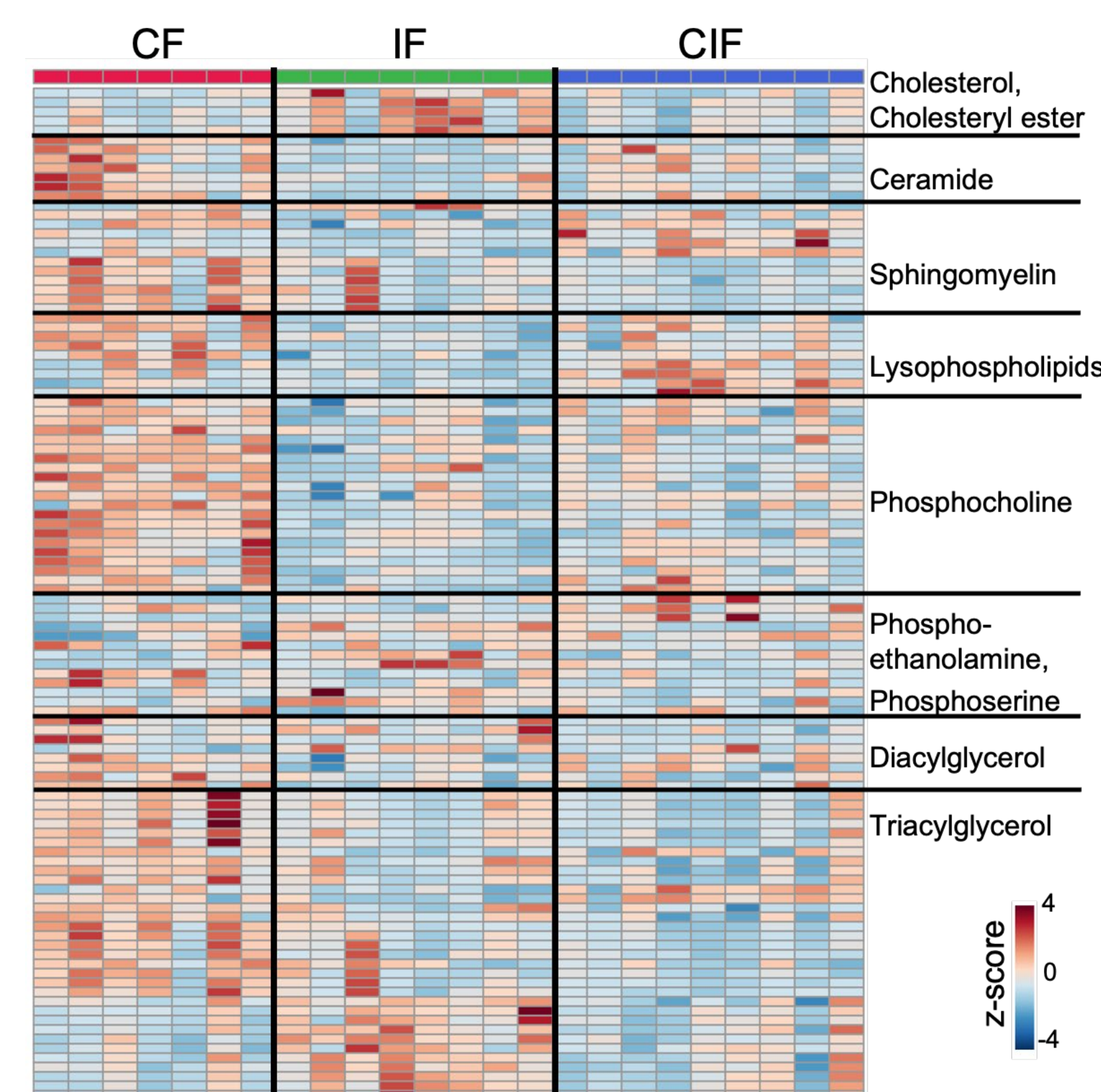
Lipid separation using reversed-phase LC



MS² for identification



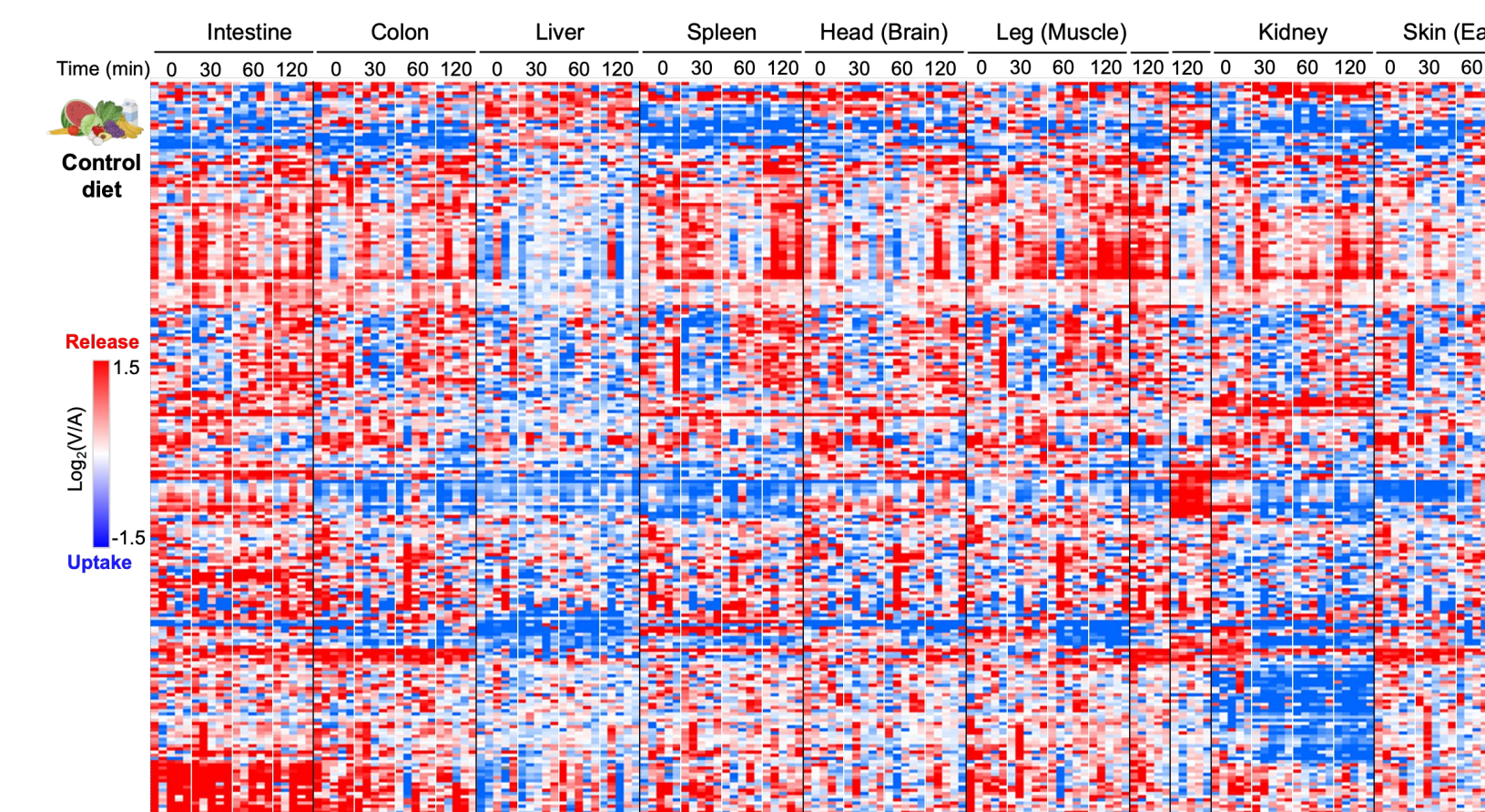
Lipid profiling : bile acid, acyl carnitine, cholesterol, cholesterol ester, ceramide, sphingomyelin, phospholipid, and mono-, di- and tri-glycerides



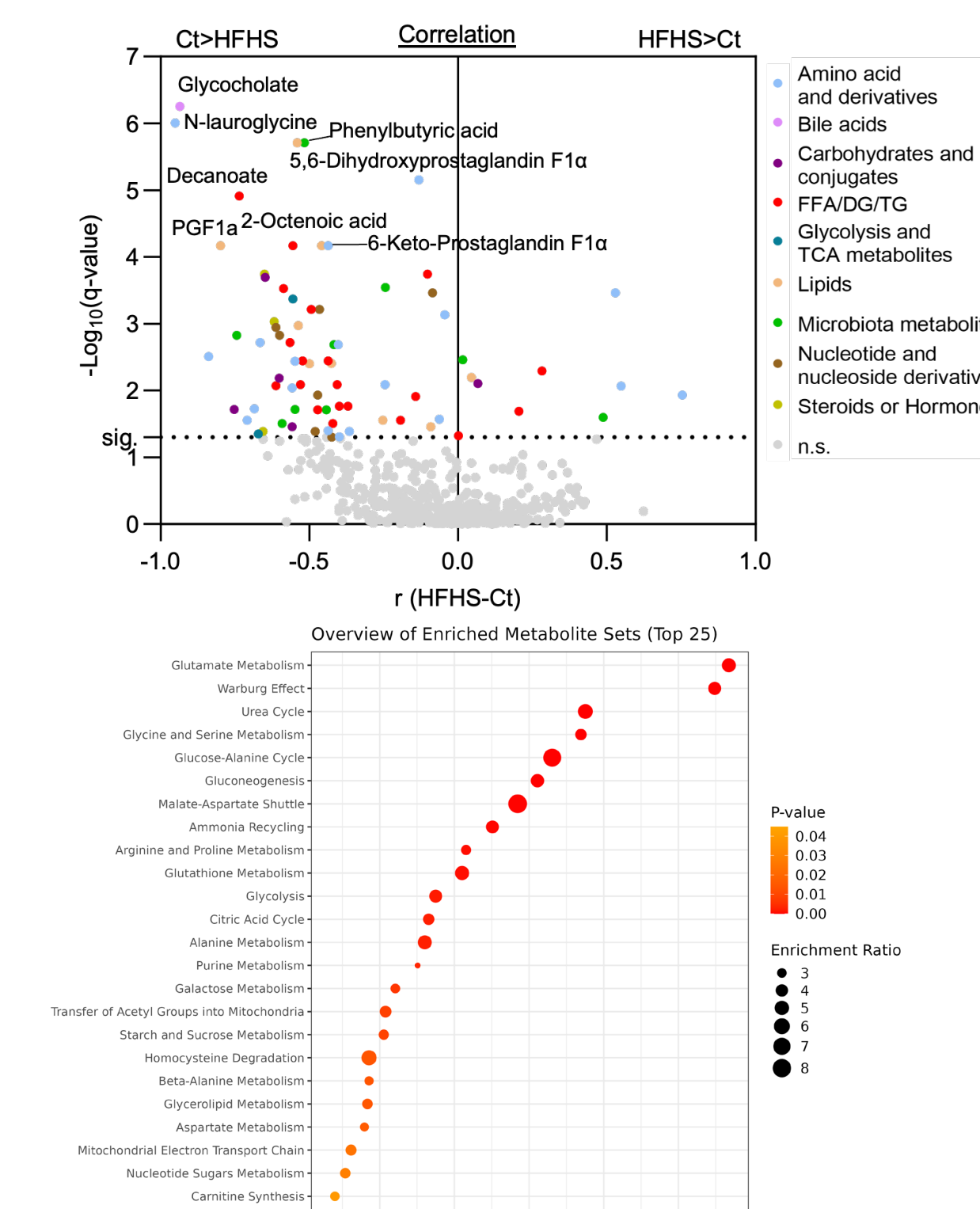
Metabolomics: soluble metabolite changes & biomarkers

Hydrophilic Interaction Liquid Chromatography (HILIC) analysis

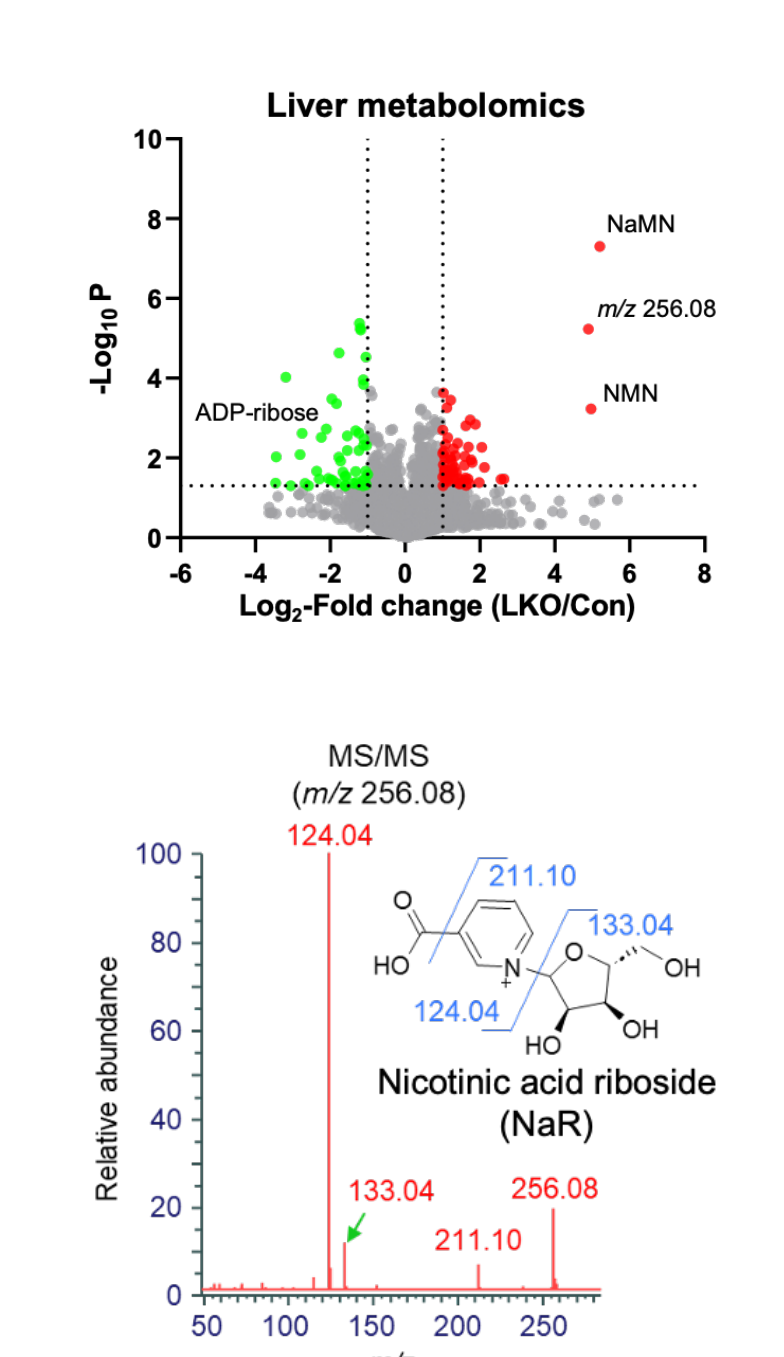
- Detected 20,000~ molecules in multiple biological samples
- Identified 2000~ metabolites based on in-house-library and MS² analysis



Metabolomics and pathway analysis



Identification of interesting molecule using MS²

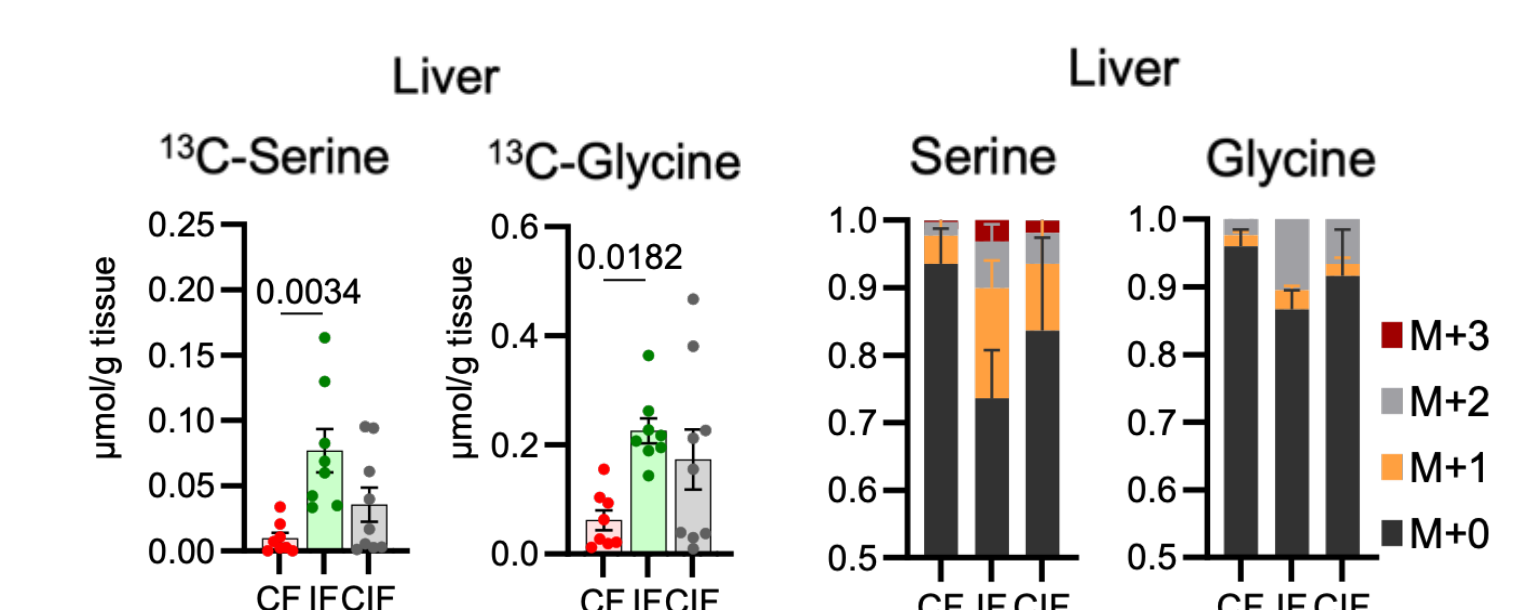
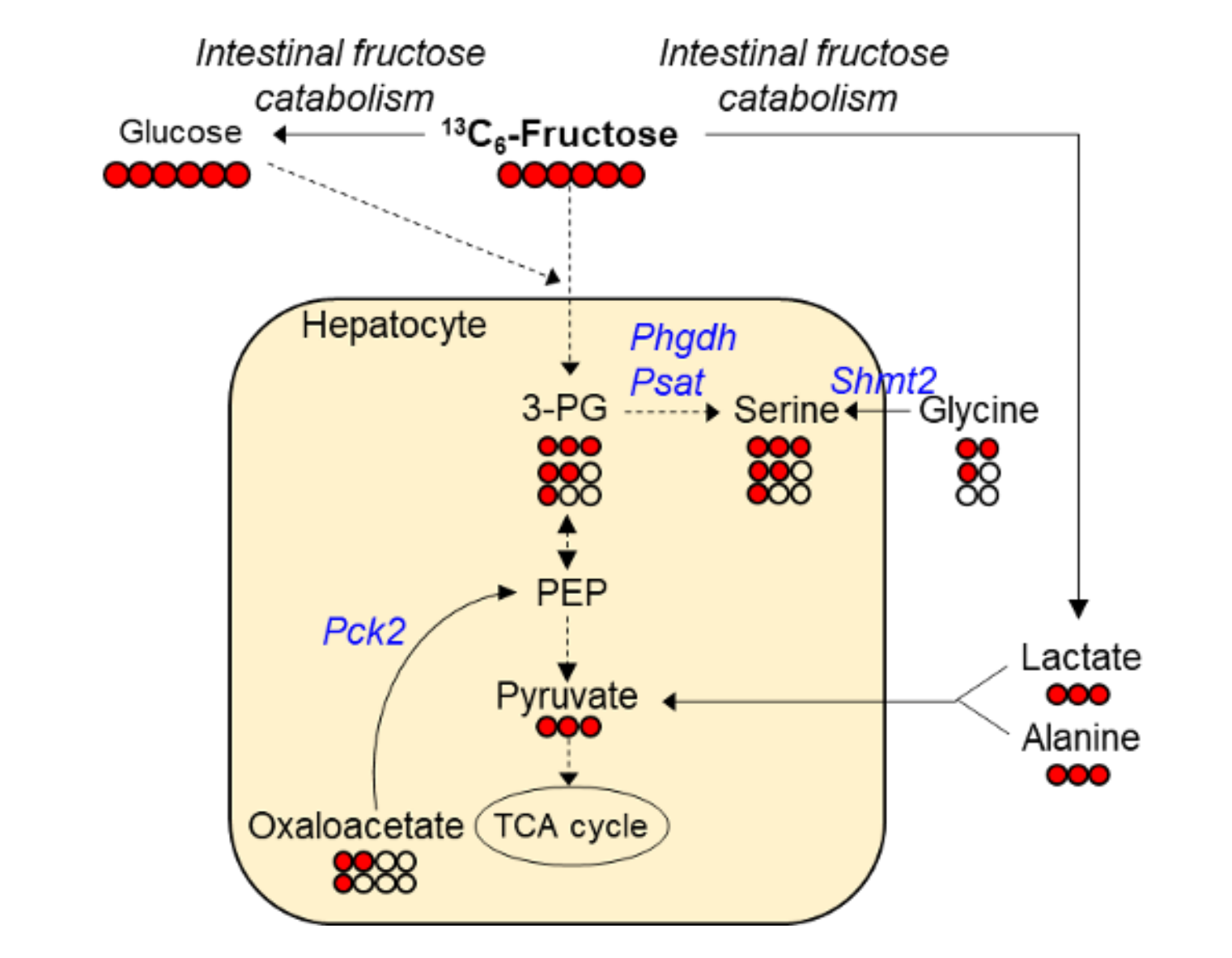


The **Mass Spectrometry Core** provides comprehensive services, supporting a wide range of applications in metabolomics, lipidomics, and stable isotope tracing. Our expertise allows researchers to gain in-depth insights into metabolic processes, paving the way for advances in metabolic health and disease research.

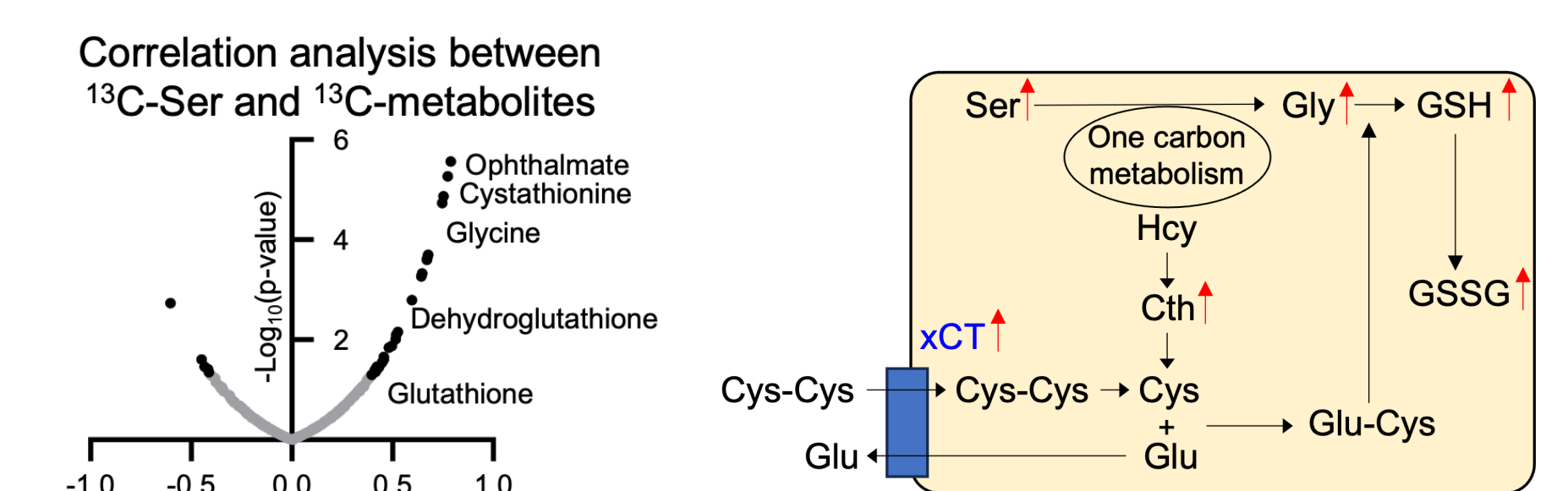
Contact Information: For more information about our services or to collaborate with the Mass Spec analysis, please reach out to us at choljang@uci.edu

Non-radioactive Stable Isotope Tracing: metabolic flux analysis

Metabolic pathway tracing (metabolic fates, pathway activities)



Integrated analysis of metabolic networks



Quantifying organ-specific metabolic flux

