



In early 2003, Kansas lipid researchers established the Kansas Lipidomics Research Center. The Center's Analytical Laboratory, located at Kansas State University, opened in November 2003. The Laboratory provides a range of mass-spectrometry-based lipid analytical services to K-State scientists and to scientists from around the world.

Lipidomics is the branch of metabolomics in which non-water-soluble metabolites are studied. Metabolomics or metabolic profiling is an emerging, comprehensive research strategy to study the functions and levels of metabolites in relation to the function of genes and their proteins.

Some goals of lipidomics:

- To determine specific lipid compositional changes occurring in organismal or cellular responses
- To determine the function of genes involved in lipid metabolism or signaling
- To diagnose the physiological state of an individual organism
- To identify and utilize biomarkers

Kansas Lipidomics Research Center

<http://www.ksu.edu/lipid/>

KLRC Analytical Laboratory

The Kansas Lipidomics Research Center's Analytical Laboratory utilizes electrospray ionization (ESI) tandem mass spectrometry (MS) to perform fast, comprehensive lipid profiling. We offer characterization and quantification of phospholipid and galactoglycerolipid molecular species from crude solvent extracts of living tissues. We can handle plant, yeast, and animal samples.

Lipid profiling (2019 price per sample) \$65.92*

*There is a discount of 34.2% for researchers at universities in the State of Kansas.

We strongly recommend that 5 or more biological replicates of each sample are analyzed. For more details, see:

https://www.k-state.edu/lipid/analytical_laboratory/prices/index.html

Other services include:

- Fatty acid analysis
- Sterol analysis
- Accurate mass analysis for structural elucidation
- Other metabolite and lipid analysis (please inquire)



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Instrumentation

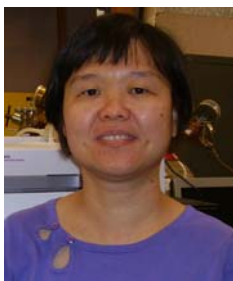
- ESI-triple quadrupole MS/MS with StepWave technology (Waters Xevo TQ-S)
- ESI-triple quadrupole MS/MS with differential ion mobility and linear ion trap (Sciex 6500+)
- ESI-triple quadrupole MS/MS (Applied Biosystems API 4000)
- ESI-triple quadrupole MS/MS with ion trap capability (Applied Biosystems Q-Trap)
- ESI-quadrupole/time-of-flight hybrid MS/MS (Applied Biosystems Q-STAR Elite)
- Gas chromatograph/MS with CI/EI (Agilent)
- Gas chromatograph/MS with EI and GC/FID capability (Agilent)
- Advion chip-based ESI sample introduction
- Mini-PAL and other autosamplers



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Pam Tamura
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Specializing in ESI-MS and Accurate Mass



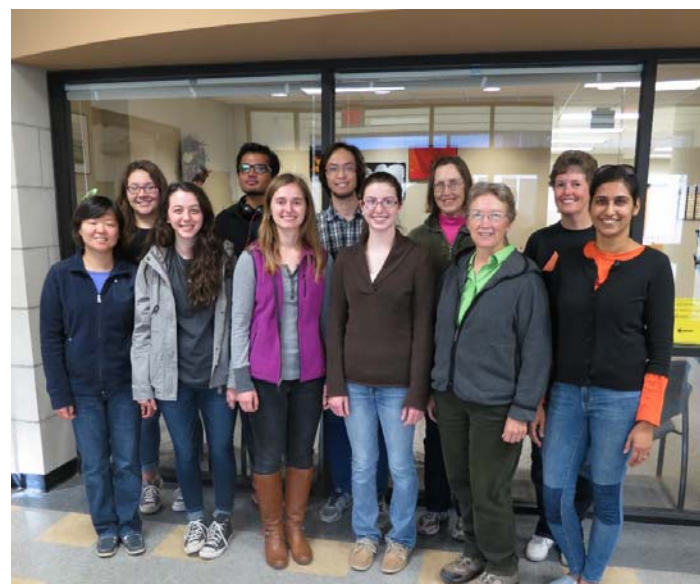
Libin Yao
Research Assistant: lbyao@ksu.edu
Specializing in GC-MS

KLRC's Mission

The mission of the Kansas Lipidomics Research Center is four-fold:

- The Analytical Laboratory provides comprehensive, quantitative profiling of lipid molecular species with high sample throughput, using mass spectrometric technologies.
- The Technology Development Component works to expand lipid profiling and other metabolomic capabilities.
- The Scientific Research Component promotes collaborative research among lipid scientists and provides training opportunities for postdoctoral, graduate, and undergraduate students.
- Data processing software LipidomeDB Data Calculation Environment was developed in conjunction with scientists at the University of Kansas (KU).

Support for the KLRC is from National Science Foundation (NSF), the Kansas NSF EPSCoR program, Kansas Technology Enterprise Corporation, the Kansas IDeA Network for Biomedical Excellence (National Institutes of Health), Kansas State University, user grant support, and user fees.



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