



Answers for Science.
Knowledge for Life.™



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Case Study

Project Goal

We apply integrated quantitative lipidomics approaches (targeted and non-targeted) developed in-house to unravel subtle changes behind a myriad of biological phenomena from an extensive array of organisms. Our central focus lies in investigating lipid-centric mechanisms underlying major diseases threatening public health, including diabetes, dementia, as well as various forms of cardiovascular complications.

The Challenges

- To maximize metabolite coverage and quantitative accuracy while cutting down analytical time
- Develop analytical workflows that can accommodate a complex range of biological matrices by streamlining sample pre-treatment procedure and utilizing the improved selectivity of MRM3 functions
- To derive biologically meaningful patterns from big data generated from omics, via:
 1. Pathway-oriented methods covering critical branches connecting the metabolism of lipids & non-lipid metabolites
 2. Tailored bioinformatics approaches allowing direct and quick data visualization of pathway disturbances.

The Solution

Riding on the enhanced sensitivity and increased scan speed of the latest generation of mass spectrometers from Sciex, we develop rapid, sensitive and high throughput LC-MS/MS approaches allowing accurate, reliable and reproducible quantitation of a comprehensive library of metabolites poised for biological discovery.

The Outcomes

- Use omics to drive research at both the bench and bedside.
- A semi-quantitative analytical workflow covering more than 7000 lipids from over 20 subclasses in the common model organism *Caenorhabditis elegans* for forwarding metabolic and lipid research.
- An extensive and sensitive quantitative workflow for low volume human plasma/serum samples that allows high throughput monitoring of subtle changes in more than 1000 lipids and other metabolites for use in clinical studies.

“We have always been confident in the sensitivity and reproducibility of SCIEX instruments as we have seen them develop from the first member to the latest additions.”

Type of Organization

Core facility and advanced technologies center within the Institute of Genetics and Developmental Biology (IGDB). Executive director/ chief scientist of Lipidall, a high-tech spinoff company supported by the IGDB.

Goals

Empowering life sciences and clinical research via developing state-of-the-art omics approaches.

SCIEX Products

- QTRAP® 6500+
- QTRAP® 5500
- TripleTOF® 5600+

“Support from the SCIEX team, especially field service helps our research to move with minimal delays.”

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