



Answers for Science.  
Knowledge for Life.™



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## Case Study

### Project Goal

To create techniques with the ability to detect subtle changes in metabolism as a key to understand cell homeostasis. While metabolomics offers an instant snapshot of the content of cellular metabolites, it does not provide details on the dynamic interaction between them to holistically assess the flows of cellular metabolism.

### The Challenges

Central carbon metabolism especially the glycolysis and gluconeogenesis pathways contain:

- Many isomers
- Competing mass isobars
- Shared, common daughter ions
- Challenges in ionization chemistry

### The Solution

An LC-MS/MS solution facilitated the quantitation of a large number of metabolic reactions with a high degree of accuracy and specificity.

### The Outcomes

Utilizing a metabolic flux analysis shows that metabolites from the glycolysis and gluconeogenesis pathway can be easily resolved and quantified using the right technologies. The combination of SelexION® DMS coupled with the QTRAP® system created a powerful workflow to resolve complex metabolic information to achieve an unprecedented high degree of accuracy and specificity.

“To holistically assess the flows of cellular metabolism, traditional metabolomics isn’t enough. We need powerful tools like LC-MS, combined with enhancing technologies like DMS and cutting-edge techniques like Flux. SCIEX tools and solutions are key to our success in resolving complex metabolic information.”

#### Type of Organization

Education Institution and research organization

#### Goals

Understanding intracellular and inter-tissue metabolic flux associated with metabolic human disease.

#### Applications

Metabolomics, metabolic flux, fluxomics

#### SCIEX products

- QTRAP® 5500 and QTRAP® 6500 Systems
- SelexION Differential Mobility Spectrometry (DMS)

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