SMALL MOLECULE QUANTIFICATION AND METABOLOMICS

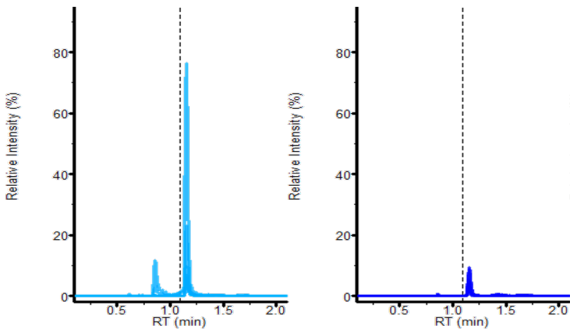
ANALYTICAL QUANTIFICATION OF SMALL MOLECULES

Small molecules are molecules with a typical molecular weight range of 50–6,000 Da. This size regime includes a large fraction of the bioactive molecules related to human health, in addition to the vast majority of medical drugs. Small molecule analysis is typically performed using mass spectrometry. At iFyber, we use a combination of high accuracy mass spectrometry coupled with liquid chromatography techniques and analytical standards to provide extremely sensitive and powerful analytical quantification services for a host of applications.

METABOLOMICS

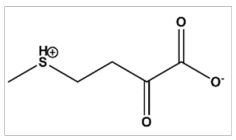
Metabolomics is the study of small molecules at the whole metabolome scale. Using high accuracy mass spectrometry, we are able track tens of thousands of small molecules simultaneously across different conditions. Similar to proteomics, this analysis can be used to identify important small molecules that may be upregulated or downregulated over the course of a disease state or in response to a targeted treatment. Using differential analysis followed by structural characterization, we can identify metabolites or compounds that show robust and statistically significant changes across conditions. Metabolomic studies are valuable in understanding the responses of certain tissues to a treatment and in the discovery of new biologically active small molecules that could be used in targeted therapies or diagnostics.

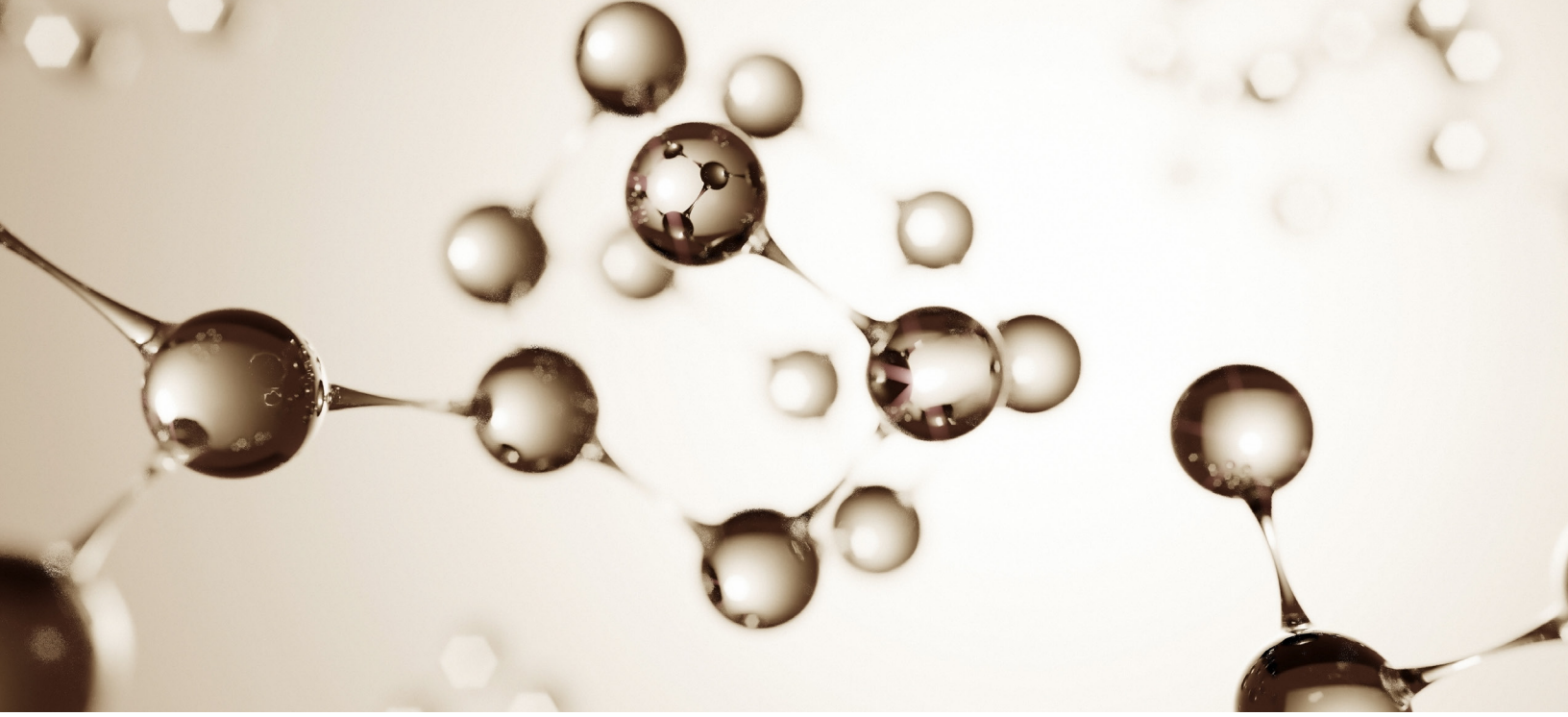
LCMS CHROMATOGRAMS



DIFFERNTIAL ANALYSIS

STRUCTURAL INSIGHTS





WHY PERFORM A SMALL MOLECULE OR METABOLOMIC STUDY?

If you need to quantify known compounds in your production process, characterize bioactives within your product, or require insights into a particular biological process, small molecule or metabolic studies can be a powerful tool to advance R&D or product development. Our experience in the targeted quantification of compounds and metabolites can be leveraged to perform analytical quantification of most compounds.

If your goal is discovery an untargeted metabolomics analysis can sieve through hundreds of thousands of molecules to pinpoint the most relevant metabolites/compounds for a given biological process and/or determine how your product impacts key chemical markers.

HOW CAN IFYBER HELP?

iFyber provides consulting, data collection, and analytic services that are tailored to your project. If your project requires you to measure a small molecule as part of R&D, iFyber can help you analytically quantify compounds in your samples.

Similarly, if you seek novel small molecules that are biologically active, we can help you develop methodologies to analyze complex samples using metabolomics and devise a strategy to identify and test metabolites of interest.

EXAMPLE APPLICATION AREAS / MARKETS

- Discovering bioactive compounds and biomarkers in:
  - o Oncology
  - o Wound care
  - o Genetic disorders
  - o Diagnostics
  - o Other medically relevant biological processes
- Analysis of residual compounds in medical devices
- Bioavailability studies
- Metabolism and detoxification studies

iFyber is a preclinical research organization offering customized services to companies that operate at the interface of chemistry, microbiology, and materials science. iFyber is unique. We pride ourselves on providing access to top scientists and creatively solving problems with quick turnaround times.

THINK OF IFYBER AS:

- Consultants with a laboratory to back up ideas with data
- An academic lab, solving R&D problems on corporate or start-up timelines
- A testing lab that develops new methods tailored to clients' products and services
- An extension of your quality, regulatory, and R&D teams

For more information on iFyber's services: www.ifyber.com | info@ifyber.com | 607.374.8868