



TMIC The **Metabolomics** Innovation Centre

Metabolomics, Natural Resources and the Environment

Metabolomics provides a comprehensive snapshot of the chemical processes that are occurring in a system at any given moment. In biological systems, this means a complete picture of endogenous and exogenous outcomes linking environmental influences to physiological influences.

By providing information on thousands of chemicals or detailed information on specific chemical classes or metabolic pathways, metabolomics can help address some of the most challenging issues researchers are facing in natural resources, resource management and environmental protection. The incredible detail metabolomics provides cannot be paralleled. No other tool can deliver as much information on how different stimuli or conditions impact an organism or the environment.

About Us

The Metabolomic Innovations Centre (TMIC) is Canada's only national metabolomics platform, and the largest of its kind. We support a wide range of state-of-the-art metabolomics technologies, databases and bioinformatics tools. TMIC provides a single-source destination for access to leading metabolomics experts and extensive technological capabilities for service, collaboration, and technology development.

As a core facility rooted in universities across Canada, TMIC offers the best of both academia and industry. Our experts are at the forefront of metabolomics research and are continually finding ways to improve, expand and optimize their services. As a business, we are able guarantee quality, reproducibility and high customer-service standards.



TMIC ADVANTAGE

- Identification of up to 10,000 chemicals in biological samples
- Multiple analytical platforms to provide the highest level of metabolome coverage for comprehensive studies
- Network of Canada's leading metabolomics experts with >\$26 million in state-of-the-art metabolomics infrastructure
- Leverages internationally recognized expertise in multiple application areas, including chemistry, biology, NMR, mass spectroscopy, statistics & bioinformatics, quantitative analyses and lipidomics
- Ability to analyze low sample volumes and high throughput testing



Our Services

Unique methods and tools developed by our scientists allow TMIC to offer high throughput, low cost and extremely comprehensive metabolomics services. We offer a wide range of core services for discovery research, analysis of biological pathways, nutrient and mineral profiling, quantitative phenotyping and response to environmental stressors. Our technologies are compatible with a wide range of sample matrices, including air, water, soil, biofluids, bacteria, algae, plant and animal tissue, and insects.

Example applications

- Bioproduct studies, including optimized environments and compositions
- Toxins and exposures analysis
- Wastewater management and water quality assessment
- Quantitative phenotyping of biological, environmental and microbial samples
- Measuring of gene-environment interactions (effects of drought, stress, pollutants, chemical treatments)
- Measuring the outcome of genetic experiments/perturbations
- Identifying chemical responses to environmental stressors including physical (light, temperature, pressure) and chemical (pesticides, drugs, microorganisms)
- Forest health and pest interactions
- Volatile emissions or liquid products from bacteria in the environment or bioreactors
- Plant-pest interactions and pheromones
- Metal analysis
- Development of customized methods and novel approaches to meet our clients' needs



CONTACT US

Jennifer Reid

Business Development Manager

The Metabolomics Innovation Centre

jennifer.reid@ualberta.ca

(403) 501-8091

www.metabolomicscentre.ca