Rosalind & Morris Cancer Institute, McGill University
401A Cancer Pavilion: 1160 Pine Avenue West, Montréal
Mission

Act as an extension of McGill researchers’ laboratories by providing analytical expertise, high quality and reproduceable metabolic phenotyping.

**Services**
LC/MS, GC/MS and NMR based targeted & untargeted services
-- In-vivo respiration analysis

**Custom Services**
Developing custom MS and NMR methodologies for validation or specific metabolite targeting.

**Applied Innovation**
Collaborating to create new technologies & methodologies with OMG team members

**Training**
Teaching investigators how to collect and analyze their own metabolic data
MIR - Metabolomics Innovation Resource at the Rosalind & Morris Goodman Cancer Institute

2x LC-QQQ, 2x LC-QTOF, 2x GC-MS, SFC

XFe96, XFe24, Xfp
Who are we?

**Dr. Daina Avizonis** (Facility manager – NMR, LC/MS, GC/MS)
Ph.D. in Physical Chemistry from the University of California (San Diego). She brings expertise in NMR, LC-NMR/MS, LC-MS, GC-MS and Stable Isotope tracer analysis.

**Luc Choiniére (GC/MS & BioNova)**
B.Sc. in Biology from McGill University. He brings over 30 years expertise in GC-MS.

**Mariana Russo (LC/MS)**
M.Sc. in Analytical Chemistry from Concordia University. She brings expertise in LC-MS, GC-MS and Stable Isotope Tracer Analysis.

**Cian Monnin (LC/MS)**
M.Sc. in Biochemistry from Concordia University. He brings expertise in LC-MS, LC-MS based lipidomics, and Stable Isotope Tracer Analysis.

**Bozena Samborska (seahorse)**
M.Sc. in Molecular Cellular biology from Guelph University. She brings expertise in metabolism and helps support the Seahorse platform. She is a research assistant in L. Kazak laboratory.
The Challenge: Metabolite chemistry

- Volatility
- Wide dynamic range
  - Millimolar → Femtomolar
- Hydrophobicity / polarity
- Mass range
  - Gasses → Lipids
- Chemical (in)stability
- Isomers
Stable isotope tracer analysis

- **Glucose**
  - Nucleotides
- **3-PG**
  - Serine → Glycine
- **PEP**
- **Pyruvate** → Lactate
- **Ac-CoA**
- **OAA**
- **Malate**
- **Succinate**
- **Glutamate**
- **Glutamine**
- **Citrate** → **Fatty Acids**

- **U-$^{13}$C Glucose**
- **U-$^{13}$C Glutamine**
- **Unlabeled Carbon**

**TCA Cycle**
We are here!!

**Funding**
- Breast Cancer Quebec
- The Terry Fox Foundation
- Genome Quebec
- Canadian foundation of Innovation
- Fraser Foundation
- GCI
- Faculty of Medicine Reserve fund (CORRSF)