

Services offered – Metabolomics core facility

Instruments available for self-service utilization

For internal users only. Fees are available on [core facility website](#).

Seahorse XF24 analyzer (Agilent Technologies) ¹
HPLC-UV / fluorescence (1260, Agilent Technologies) ²
Refrigerated centrifugal evaporator (CentriVap, Labconco)
Bead-beater tissue homogenizer (Precellys; 0.5mL, 2mL or 7mL tubes)

¹ This instrument will no longer be available from fall 2021, after expiration of the last sensor cartridges produced. Technical support from the manufacturer (e.g. for a repair) is already limited for this model.

² HPLC system includes a quaternary pump, an autosampler, a UV/Vis DAD, a fluorescence detector and a fraction collector.

Service of targeted metabolomic assays

Fees are available on [core facility website](#).

Short-chain fatty acids (9 metabolites)	
Analytes:	Acetic, propionic, butyric, isobutyric, valeric, isovaleric , caproic, lactic and succinic acids
Material:	Feces (≥ 10 mg); plasma (20 μ L)
Quantification:	Quantitative (for metabolites in bold fonts) or semi-quantitative ³ analysis
Publications:	El-Far M <i>et al.</i> Front Immunol. 2021 (accepted) Constante M <i>et al.</i> Front Microbiol. 2017 (doi: 10.3389/fmicb.2017.01809)

Bile acids (6 metabolites)	
Analytes:	Cholic (CA), deoxycholic (DCA), chenodeoxycholic (CDCA), ursodeoxycholic (UDCA), glycodeoxycholic (GDCA) and glyoursodeoxycholic (GUDCA) acids
Material:	Feces (≥ 10 mg); plasma (20 μ L)
Quantification:	Quantitative analysis

Central carbon metabolism (35 metabolites)	
Analytes:	AMP, ADP, ATP, adenosine, GMP, GDP, GTP, NAD, NADH, NADP, NADPH, cAMP, cGMP, acetyl-CoA, malonyl-CoA, acetoacetyl-CoA, HMG-CoA, citrate/isocitrate (not discriminated), malate, succinate, alpha-ketoglutarate, fumarate, oxaloacetate, lactate, pyruvate, acetoacetate, leucine, glutamine, glutamate, aspartate, arginine, oxidized glutathione, reduced glutathione, DHAP, glycerol-3-phosphate, phosphoglycolate
Material:	Tissue (≥ 10 mg); cells in culture (10^6)
Quantification:	Relative ⁴ or semi-quantitative ³ analysis
Publications:	Cassim S <i>et al.</i> Cell cycle 2018 (doi: 10.1080/15384101.2018.1460023) Cassim S <i>et al.</i> Oncotarget 2018 (doi: 10.18632/oncotarget.25525) Mugabo Y <i>et al.</i> J Biol Chem. 2017 (doi: 10.1074/jbc.M116.763060) Mugabo Y <i>et al.</i> Proc Natl Acad Sci U S A. 2016 (doi: 10.1073/pnas.1514375113)

Amino acids (23 metabolites)	
Analytes:	Alanine, arginine, asparagine, carnitine, citrulline, cystine, glycine, glutamate, glutamine, histidine, isoleucine, leucine, lysine, methionine, ornithine, phenylalanine, proline, serine, taurine, threonine, tryptophane, tyrosine, valine
Material:	Plasma (10 μ L); cells in culture (10 ⁶)
Quantification:	Relative ⁴ or semi-quantitative ³ analysis

Neurotransmitters (7 metabolites)	
Analytes:	Acetylcholine, epinephrine, norepinephrine, dopamine, GABA, glutamate, glycine, serotonin
Material:	Plasma (20 μ L); tissue (\geq 10mg)
Quantification:	Relative ⁴ or semi-quantitative ³ analysis
Publications:	Riché R <i>et al.</i> JCI Insight. 2018 (doi: 10.1172/jci.insight.124642)

Biocrates MxP[®] Quant 500 kit (630 metabolites)	
Analytes:	See https://biocrates.com
Material:	Plasma (10 μ L)
Quantification:	Quantitative ³ analysis

Method development – please contact metabolomique.cr.chum@ssss.gouv.qc.ca	
Material:	Plasma; tissue; cells in cultures; feces
Examples of methods developed at the core facility:	<ul style="list-style-type: none"> • Sphingosine-1-phosphate dans des îlots de Langerhans; • Acide kaïnique dans des embryons de poisson zèbre; • dNTPs dans des lymphocytes triés (FACS);

³ Results provided as absolute amount (*e.g.* nmol/mg material), calculated from a standard curve. The analysis is considered quantitative when a stable isotope-labeled internal standard is used for every metabolite assessed and semi-quantitative when only one or some internal standards are used.

⁴ Results expressed as fold over a control condition or relative to the most elevated value (% maximum).

Equipments

Instrument	Manufacturer	Model	Self-service equipment
LC-MS/MS (QQQ)	SCIEX	4000 QTRAP	No
LC-MS/MS (QQQ)	SCIEX	QTRAP 6500	No
LC-MS (Q-TOF; exact mass) Coupled to SelexION	SCIEX	TripleTOF 6600	No
HPLC with abs & fluorescence detectors	Agilent	1260	Yes