

OPAL



Omics and Precision AGRICULTURE LABORATORY

OPAL is a **first-of-its-kind** lab in Canada and one-stop-shop for the complete analyses of microbial, plant and animal samples for the agriculture and agri-food sectors.

Our Mission

To **create, discover, understand and deploy** new genetic variation and traits to benefit the agriculture and agri-food sectors.

Our Goals

To **lower costs and increase the value** of the services received by stakeholders, and to encourage enhanced scientific collaboration.

Our Purpose

OPAL provides state-of-the-art **genomics, phenomics and bioinformatics services, combined with the latest imaging and precision agriculture technologies** - to deliver crystal clear analyses for the agriculture and agri-food sectors.



Growing science for life

GIFS | GLOBAL INSTITUTE
FOR FOOD SECURITY

Nutrien - a Founding Partner



We are **open**
for **business.**

Learn more about OPAL at opal.gifs.ca
Email: partnerwithus@gifs.ca

Our Capabilities

Genomics Platforms

APPLICATION AREA	ACTIVITY	PLATFORM
Next-Generation Sequencing	Whole Genome	Illumina NovaSeq 6000
	Metagenomics	Illumina MiSeq Illumina NovaSeq 6000
	Small Genomes	PacBio Sequel IIe
	Chromatin Conformation Capture (Hi-C)	Illumina NovaSeq 6000
Long-read sequencing	HiFi reads	PacBio Sequel IIe
	Nanopore sequencing	Oxford Nanopore PromethION Oxford Nanopore MinION
Functional Genomics & Epigenomics	RNA-Seq	Illumina NovaSeq 6000
	ChIP-Seq	Illumina NovaSeq 6000
Genotyping	SNP genotyping	Quantitative Real-Time PCR
	Genotyping by Sequencing (GBS)	Illumina NovaSeq 6000

Other sequencing needs? Email us at partnerwithus@gifs.ca to learn how we may help.

Phenomics Platforms

Digital phenotyping

- Unmanned Aerial Vehicles (UAV): drones, fixed wing
- Ground support vehicle for UAV transport and operation
- In-field platforms for high resolution imaging
- PlotVision: Image data processing pipeline and machine learning feature resolution

Sensor technology

- Multi-spectral
- High spatial resolution RGB
- Thermal imaging

Flow Cytometry

- Microbial, plant, animal reproductive analyses

Bioinformatics

Data acquisition and analysis

- Large data storage (2PB) and compute (3TB RAM/GPU)
- Genome assembly and annotation, transcriptomics and epigenomics
- Genome visualization tools
- Linkage Analysis and GWAS, quantitative traits (QTL)

