

# Genomics and Proteomics Unit / Microscopy/Animal Tissue Culture Core Facility

(4-32, 4-35, 4-38, 4-54 and 4-56 Agriculture/Forestry Building)

**About the Facility-**Agricultural Genomics and Proteomics Unit (AGP Unit) is a centralized resource of sophisticated equipment and technologies and services and assist researchers to facilitate integration of latest genomic technologies in their research and teaching programs. Users are provided training on equipment, and project consultation, including experimental design, protocol development, data analysis and interpretation. These services are available for academic and non-academic users.

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## Equipment and Resources

### *Sequencing, Gene Expression, PCR, Genotyping, DNA/RNA extraction and QC analysis*

- Droplet Digital PCR (BioRad) - Consists of automated droplet generator, droplet reader, C1000 thermal cycler, plate sealer and Data analysis via QuantaSoft software
- Real time PCR instruments - ABI Quantstudio 6; Quantstudio 3; ABI Viia 7 (96- or 384-well block); and StepOne Plus (96-well block); For Fluorescent probes /Dyes assays, Primer design analysis software available
- MiSeq - For targeted sequencing, targeted gene expression, metagenomics, and small genome sequencing
- Agilent 4150 and 2200 Tape Station, Bioanalyzer - QC analysis of RNA and DNA- low and High Sensitivity
- Thermocyclers (96-well) for standard PCR
- Nanodrop One; 1000; 2000C; 8000 - For DNA and RNA quantification
- MicroPulser Electroporator (Bio-Rad) for transformation of bacteria, yeast, Agrobacterium and other microorganisms
- FastPrep-24 5G/; Qiagen TissueLyzer; Mini-BeadBeater-16 Cell disruptor - For disruption of multiple biological samples - microbial, yeast, fungi, animal and plant tissue culture cells
- *S3e cell sorter Flow Cytometer (BioRad)*- For sorting cells expressing fluorescent proteins such as eGFP, DsRed, and mCherry, Lasers 405, 488, 561, and 640 nm
- QIAcube - Automated purification of DNA, RNA, or proteins using QIAGEN spin-column (12 samples per run)

### *Imaging*

- Typhoon scanner-Fluorescent, Chemiluminescent and Storage phosphor imaging
- Chemidoc Imaging system

### *Plate Readers* - For ELISAs, Picogreen assays, Protein Assays, Enzyme Kinetics, Fluorescent Proteins

- Spectramax M3 - Multi-Mode Microplate reader, UV-Visible, Fluorescence, and Luminescence, Reads cuvettes, 96- and 384-well microplates
- Victor multilabel plate reader (Perkin Elmer)

### *Microscopy lab*

- Confocal microscope FV 3000- macro-to-micro imaging, super resolution microscopy, and quantitative data analysis, Lasers 405, 488, 561, and 640 nm
- Zeiss AX10 Imager- Camera: Axio CAM HRm; Filters: UV, Blue and Green excitation; Fluorescence, Bright field, Phase Contrast, Darkfield, DIC; Software : Axio Vision 4.6
- Zeiss Primo Star- Camera - Photometrics cool snap cf; Software: MetaMorph 7.0; Zeiss Stereo microscope Stemi 508

### *Animal tissue culture facility* (Contact- Heather Vandertol-Vanier, [hav2@ualberta.ca](mailto:hav2@ualberta.ca))

The animal cell culture facility contains all equipment necessary to perform cell culture experiments, including CO<sub>2</sub> incubators, biosafety cabinets, inverted microscopes, liquid nitrogen storage for cell cultures, centrifuge, water baths, pipet aids, media bottles and pumps to use to sterile filter culture medium.

### *Other common instruments*

**Centrifugation-** Avanti High Speed centrifuge, Plate centrifuge, refrigerated microcentrifuge

**Gel electrophoresis-** Nucleic acid and Protein, power supplies

Autoclaves, shakers, incubators and speed vac

