

Equipment

- Molecular biology
- Bioinformatics
- Immunology, cell culture and analysis
- Cryopreservation
- Sterilization and water purification
- Microscopy
- Miscellaneous

Molecular biology equipment

Genetic analyzers

Two fluorescence capillary ABI Genetic analyzers for DNA sequencing and genetic analysis:

- ABI 3130xl 16 capillary is a low throughput sequencer/genetic analyzer.
- ABI 3730 48 capillary is a medium throughput sequencer/genetic analyzer.

Microarray equipment

- Miltenyi 'a-hyb' automated hybridization system.
- PIQOR manual hybridisation chamber.
- Axion 4000B laser scanner with data acquisition and analysis software.

Microfluidics-based platform

Agilent 2100 Bioanalyzer for 'lab-on-a-chip' analysis of DNA, RNA, proteins and cells.

Oligonucleotide synthesizer

ABI 3900 DNA Oligonucleotide synthesizer and a Savant SC Speed Vac Concentrator for use in oligonucleotide purification.

PCR Thermocyclers

48 thermocyclers for PCR amplification including:

- Six ABI Gene Amp 9800 Fast PCR Systems.
- Nine MJ Research PTC100 PCR Systems.
- Four MJ Research PTC 150 Minicycler.
- Two Techne TC512 FTC51FD2 gradient PCR Systems.
- Two Veriti 9901 96 Well Fast gradient Systems.
- Sixteen ABI Gene Amp 9700 PCR Systems.

Real Time PCR

ABI 7500 Real Time PCR System for quantitative PCR assays.

Liquid Handling Robotics

Two robotic workstations used for high-throughput liquid handling:

- Beckman Biomek NXP Automation Work Station.
- Beckman Biomek 2000 Automation Work Station.

Nucleic acid Prep Station

ABI 6100 Nucleic Acid Prep Station for high-throughput extraction of DNA or RNA from a range of sample types including whole blood and cell cultures.

Sample Preparation Systems

Two systems for rapid sample homogenization and extraction of DNA, RNA and proteins:

- 2000 Spex Certiprep GenoGrinder.
- FastPrep-24 Sample Preparation System.

Proteomics

Ettan IP Gphor3 2-D gel electrophoresis system for analysis of proteins.

Spectrophotometers

Nine spectrophotometers for measurement of cell densities, and the concentration and purity of nucleic acids and proteins:

- One Cecil Spectrophotometer.
- Two Smart SpecTM Plus Spectrophotometers.
- Two Spectronic LR45227 20 Genesys Spectrophotometer.
- One Beckman DV-50 Spectrophotometer.
- Two Pharmacia LKB Gene Quant II 80-2105-98 RNA/DNA Spectrophotometers.
- One Nanodrop ND-1000 Spectrophotometer.

Chromatography

One Pharmacia LKB chromatography system for protein purification and analysis.

Bioinformatics equipment

High Performance Computing cluster

Sixty-four core AMD Opteron Linux cluster capable of running both 32- and 64-bit applications. In total the system has 72 GB of memory and more than 3 terabytes of disk space. An Exabyte 221L tape library handles backups. Six additional Linux and Mac OS X servers for hosting databases, web services and other specialized software applications and software development.

Computer Training Room

Dedicated computer-training room with 18 dual-boot (MS Windows/Linux) computers.

Immunology, cell culture and analysis equipment

Haematological analysis

Equipment for blood analysis:

- Cobas Helios.
- ABC (Animal Blood Counter).
- Sysmex poch-100iv Diff AUTO Haematology Analyzer.

Laminar Flow cabinets

Equipment for cell culture work:

- Eighteen Gelaire Flow Laboratories Laminar Flow Cabinets.
- Four Hepaire Laminar Flow Cabinets.
- Two KBN Horizontal Laminar Flow Cabinets.
- Five EdgGard Laminar Flow Cabinets.

Biological Safety cabinets

Six Biological safety cabinets for culture work with pathogenic organisms:

- Five Gelaire (Class II) BSB 4A Safety Cabinets.
- One Hitachi SCV Class II Safety Cabinet.

Cytometry

Two FACS machines for analysis of fluorescence labeled cells in immunological assays and for measurement of ploidy in plant and animal cells:

- Becton Dickinson 8 Color FACSCanto II Flow Cytometer.
- FACStar system.

Microplate readers

Two plate readers for the determination of optical densities in Elispot and ELISA assays:

- Transtec 1300 Elispot reader.
- Immunoskan MS-352, reader used for ELISA assays.

Scintillation counters

The Hub has two liquid scintillation counters that are used for measuring gamma and beta ionizing radiation on radio-labeled cells in immunological assays.

- TopCount NXT Microplate Scintillation & Luminescence Counter.
- Trilux Microbeta Scintillation Counter.

Fermentation

New Brunswick Bioflo 3000 laboratory scale (10 litre capacity), batch continuous bioreactor for fermentation and cell culture.

Cryopreservation equipment

Liquid nitrogen storage

114 liquid nitrogen storage tanks used for ultra-cold storage of biological materials:

- Four 18 XT liquid nitrogen tanks.
- Six 35 VHC liquid nitrogen tanks.
- Sixty-two Super 30 liquid nitrogen tanks.

- Forty one Super-30A liquid nitrogen tanks.
- One Statebourne Biosystem 36 liquid nitrogen storage tank.
- Six Taylor Wharton LABS-80K liquid nitrogen tanks.

Deep Freezers

25 freezers (-80oC) for storage of biological samples:

- Six Electrolux MRF freezers.
- Sixteen New Brunswick freezers.
- One Sanyo MD190AT freezer.
- Two Nihon CL 6 freezers.

Sterilization and water purification equipment

Autoclaves

Six autoclaves for sterilization of media, solutions, glassware and biological waste:

- Two Matachana self steam generating sterilizers.
- One Little Sister bench top autoclave.
- One LMS autoclave.
- One Getinge sterilizer.
- One B&T 225EH self steam generating sterilizer.

Water Purifiers

Four water purification systems for the production of ultra-pure water:

- Millipore Elix10 water purification system.
- Millipore Elix5 water purification system.

- Millipore Milli-Q ultra-pure water purification system.
- Perelab Option S15 water purification system.

Microscopy equipment

Microscopes

199 microscopes:

- One hundred and eleven Leitz Compound microscopes.
- Thirty six Wild Heerbrugg microscopes.
- Thirty one Zeiss microscopes.
- Eighteen Nikon microscopes.
- Two Leica S111Z/S115 microscopes.
- One Zeiss Axio Imager.

Miscellaneous equipment

Fume Hoods

Twelve fume chambers for chemical safety procedures (six ducted and six ductless hoods).