

BIC Resources 2014

Genomics

1. Gene-Forge 3900 and Applied Biosystem 3900: two DNA synthesizers are each capable of producing 48 oligo in one run. These synthesize primers from length 20 bases up to 80 bases for use in cloning, mutation detection and gene expression experiments.
2. ABI 3500xl Genetic Analyzer – high sensitive analysis of oligonucleotide sequences for use in clone screening, genotyping, inherit disease, mutation detection and protein expression experiments.
3. Roche LightCycler 480 – high-throughput real-time PCR system for gene scanning assay, gene expression detection and genotyping.
4. Systec Media Prep and Plate Pourer (MP10) – pour agar plates as customer required, basically used in microbiology and molecular biology applications.
5. Agilent 1200 HPLC – used in conjunction with DNA synthesis to check the quality of oligonucleotides, and purify the DNA as needed for special applications.

Structural Biology/Proteomics

1. Rigaku 007HF X-ray Crystallography Generator – x-ray diffraction of protein crystals for use in molecular modeling and protein-protein interaction experiments.
2. AB Sciex 4000 QTRAP Mass Spectrometer – identification and quantitation of low molecular weight proteins and lipids from mixed samples.
3. Agilent 1200 HPLC – used in conjunction with the QTRAP to separate proteins from a mixed sample.
4. AB Sciex Voyager DSTR MALDI-TOF Mass Spectrometer – identification and quantitation of high molecular weight proteins; located in Department of Anatomy, Physiology and Genetics.
5. AB Sciex Q-TOF Tandem Mass Spectrometer – located in Department of Anatomy, Physiology and Genetics.
6. Agilent 1100 HPLC – used for protein analysis; located in Department of Anatomy, Physiology and Genetics. (Two instruments on-site)

Flow Cytometry

1. BD LSRII Flow Cytometer – multi-parameter analysis of cells and microscopic particles to determine Cell phenotype, DNA content, and biochemical properties. (Two instruments on-site)
2. BD FACSAriaII – multi-parameter cell separation to isolate populations of interest for immunology and neuroscience applications.
3. Luminex 100 – multianalyte bioassay detection for immunology and molecular biology applications.

Microscopic Imaging

1. Zeiss 710 Inverted Multiphoton Confocal Laser Microscope with Becker & Hickl FLIM Attachment – precision imaging of fluorescently labeled live and fixed cells for a wide variety of scientific applications.
2. Zeiss AxioExaminer.Z1 Upright Multi-photon Confocal Laser Microscope with Electrophysiology System – precision imaging and electrochemical analysis of live cells and tissues.
3. Zeiss AxioImager.M2 Upright Epifluorescent Microscope with MBF Stereology System – precise quantitation of fixed cells in tissue sections.
4. JEOL JEM 1011 Transmission Electron Microscope (TEM) precision imaging of unstained cells and tissues.
5. Leica UC6 Ultramicrotome with FC6 Cryo Attachment used in conjunction with TEM to obtain high-quality tissue sections.
6. Zeiss Pascal Inverted Confocal Laser Microscope - precision imaging of fluorescently labeled live and fixed cells.
7. Lica AF6000 Time-Lapse Imaging System – precision imaging of bright field or fluorescently-labeled live cells.

Translational Imaging

1. Siemens Inveon Positron Emission Tomography (PET) Scanner – live animal imaging for multiple applications.
2. Siemens Inveon Multimodality Computed Tomography (CT) Scanner - live animal imaging for multiple applications.
3. Bruker BioSpec 70/20 USR Magnetic Resonance Imaging (MRI) - live animal imaging for multiple applications.

Histopathology

1. Leica Autostainer XL – automated chemical staining of fixed tissue samples.
2. Leica CV5030 Robotic Coverslipper – used in conjunction with the Autostainer to generate histology slides.
3. Sakura Tissue-Tek VIP Tissue Processor – automated processing of fixed tissue samples.
4. Sakura Tissue-Tek TEC Tissue Embedder – paraffin embedding of fixed tissue samples.
5. Leica CM3050 S Cryostat – precision tissue sections for neuroscience applications.
6. Microm HM325 Microtome – cuts sections from paraffin-embedded tissue samples.
7. Hamamatsu NanoZoomer-RS Digital Slide Scanner – bright field and fluorescent digital scans of histology slides