Biochemistry Shared Research Instrumentation

**Location:** MCW TBRC, second floor

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Learn more about Biochemistry Shared Research Instrumentation

**Overview**

The Biochemistry Department maintains several instruments for isolation and physical characterization of biomolecules and detection of their interactions. All are located on the second floor of the TBRC and include:

- **Jasco J-710 Circular dichroism spectropolarimeter**  
  The Jasco J-710 circular dichroism (CD) spectropolarimeter is equipped with a thermally regulated sample compartment. Monitoring of the far-UV and/or near-UV CD spectra can provide valuable information about the secondary structure, thermal stability, or conformational state of a protein.

- **Photon Technologies Inc. QuantaMaster™ spectrofluorometer**  
  The QuantaMaster™ spectrofluorometer is outfitted with dual excitation and emission monochromators for high sensitivity, a thermally regulated sample compartment, and Glan Thompson polarizers for fluorescence anisotropy measurements. The instrument is suitable for emission/excitation scanning experiments, fluorescence experiments requiring synchronous scanning of the excitation and emission monochromators, time based fluorescence measurements, fluorescence resonance energy transfer experiments and fluorescence anisotropy measurements.

- **MicroCal VP - Isothermal Titration Calorimetry**  
  The MicroCal VP-ITC is capable of measuring heat evolution as little as 0.4 nanoJ/sec. This instrument is suitable for the studies of protein-ligand and protein-protein interactions and provides the biochemists with reliable measurements of binding constants in the range of $10^3$-$10^9$ M$^{-1}$ as well as the enthalpy and stoichiometry of interactions. ITC is a preferred technique to demonstrate the interaction between newly discovered binding partners in vitro.

- **Perseptive Biosystems Voyager DE-Pro MALDI mass spectrometer**  
  The matrix-assisted laser desorption ionization (MALDI) mass spectrometer is used for routine mass determination of peptides, proteins and other macromolecules.
• **Promega Maxwell-16 robot**
  This benchtop instrument provides fast automation of routine DNA, RNA or protein extractions resulting in reproducible yields and purity. Parallel multi-channel operation permit automated purification of milligram yields of up to 16 different recombinant proteins in less than one hour.

• **Molecular Devices Flexstation 3 microplate reader**
  This benchtop instrument is a 5-mode microplate reader for use in a wide range of biochemical- and cell-based assays for basic research and drug discovery. This instrument is equipped with an 8-channel pipettor for 96-well-based assays based on absorbance, fluorescence intensity, fluorescence polarization, luminescence, and time-resolved fluorescence assays. It has high-efficiency tunable monochromator optics and a dedicated photomultiplier tube for luminescence assays.

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