



Bar-Ilan  
University

# The Scientific Equipment Center

The Mina & Everard Goodman Faculty of  
Life Sciences,  
Bar-Ilan University, Israel



**EXPERTISE  
& INNOVATION**

# EXPERTISE & INNOVATION



The center consists of five units:

- Light Microscopy
- Next Generation Sequencing and Molecular Biology
- Flow Cytometry
- Chromatography and Spectrometry
- *In Vivo* imaging and Histology

**L**ocated in the center of Israel, the Scientific Equipment Center of the Faculty of Life Sciences at Bar-Ilan University provides a wide range of services for our academic researchers, as well as users from other institutions and industry.

Our center's advanced, state-of-the-art instrumentation is at the forefront of scientific endeavor, and supports the most demanding applications.

Our highly skilled and experienced staff of PhDs offers professional technical support in experiments, operation of the equipment, and then processing and analysis of the results. We also offer training for independent, long-term work.

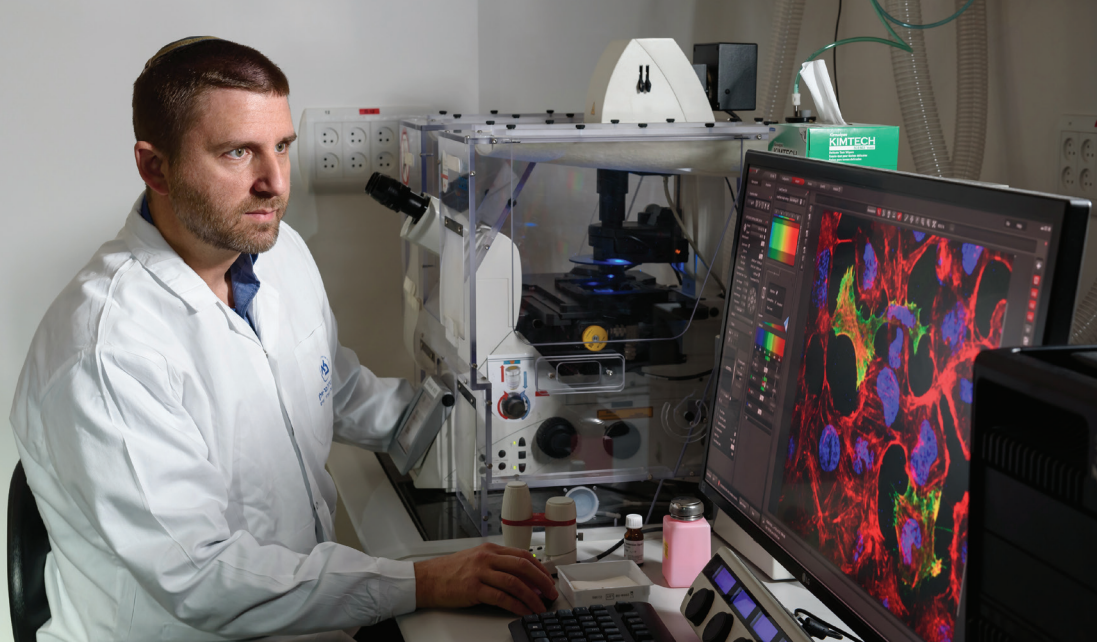
## Light Microscopy Unit

The Light Microscopy Unit is equipped with some of the finest microscopes available, encompassing confocal, widefield, and live imaging. We provide A-to-Z service, training, and assistance to users throughout the entire research process, including project planning, microscope selection and use, image processing, and data analysis.

### Equipment:

Confocal microscopes:  
These microscopes reach high resolution and can perform tomography for 3D visualization.

- Leica SP8 Hyvolution (with live imaging)
- Leica SP8 with STED super-resolution (white light laser, 4 detectors)
- Olympus FV1000 (4 lasers, 4 detectors)



#### Widefield fluorescent microscopes:

- Leica SP8 TIRF, 4-laser scanner, CMOS, (with live imaging)
- Leica M205 stereoscope (with high resolution camera, 7x-320x)
- Olympus CellSens (with live imaging)
- Zeiss Observer Z1 (with live imaging)
- Zeiss Axioimager (color and greyscale cameras)

#### Imaging workstations (all licenses current):

- Imaris 3D analysis
- Huygen deconvolution
- Leica LAS X 3D analysis

#### NGS and Molecular Biology Unit

The NGS and Molecular Biology Unit offers a broad range of services for high-throughput sequencing experiments, including experimental design, library preparation, and sequencing.

We have NextSeq and MiSeq Illumina sequencers, in addition to complementary equipment, such as Covaris, Qubit, Tapestation, digital dPCR, and Real-Time PCRs.

#### Main Services:

- Library preparation (DNA, RNA, sRNA etc.)
- Sequencing – MiSeq – 1-25 M reads; NextSeq – up to 400 M reads





## Flow Cytometry Unit

The Flow Cytometry Unit offers researchers basic and advanced flow cytometric services. Flow cytometry is a popular analytical cell-biology technique that utilizes light to count and profile cells in a heterogeneous fluid mixture. This technique enables measuring cells in solution as they pass by the instrument's lasers at a rate of 10,000 cells per second. The sorters are capable of separating cells into tubes or plates according to defined parameters.

The unit supports investigators in the important experimental planning phase, and in acquisition, analysis of flow cytometric data, and cell sorting experiments. Our team members also provide training and are available for consultations throughout the project period. In particular, they assist in interpreting data with both FlowJo and Modfit flow-cytometry analysis software.

## Equipment:

There are three types of flow cytometers available in the unit:

- Cell sorters – FACS Aria III with 5 lasers and FACSAria III with 4 lasers.
- ImageStream imaging cell analyzer – This instrument is capable of simultaneously imaging multiple brightfield and fluorescence channels together with flow cytometry data, and then perform multiparametric quantification analysis
- Cell analyzer BD LSRFortessa with 4 lasers.

## Chromatography and Spectrometry Unit

Our state-of-the art Macromolecular Interaction Facility features highly advanced analytical equipment.

Our Biacore T100 - Surface Plasmon Resonance (SPR) biosensor provides analysis of antibody-



antigen interactions (affinity constants, association and dissociation kinetics, and epitope mapping), and receptor-ligand interactions. Our new Monolith NT.115 MST detector complements SPR and is used to measure biomolecular interactions and binding mechanisms. This technique is highly sensitive to any change in molecular properties, allowing for a precise quantification of molecular events independent of the size or nature of the interacting partners, capable of measuring dissociation constants down to 1 picomolar.

We also offer advanced chromatography services. Our staff can develop and implement qualitative and quantitative HPLC methods for nucleotides/nucleosides, antibiotics, organic acids and antioxidants.

Using deep knowledge of modern chromatography, including RP-HPLC, IEC, HIC, HILIC, and mixed modes, we rapidly achieve robust analytical solutions for our customers' most challenging requirements.

## **In Vivo Imaging and Histology Units**

The *In Vivo* Imaging and Histology Units offer a high standard of services related to imaging and histological techniques.

The units provide training and access to the equipment, producing fast and accurate results.

### **The *In Vivo* Imaging unit equipment:**

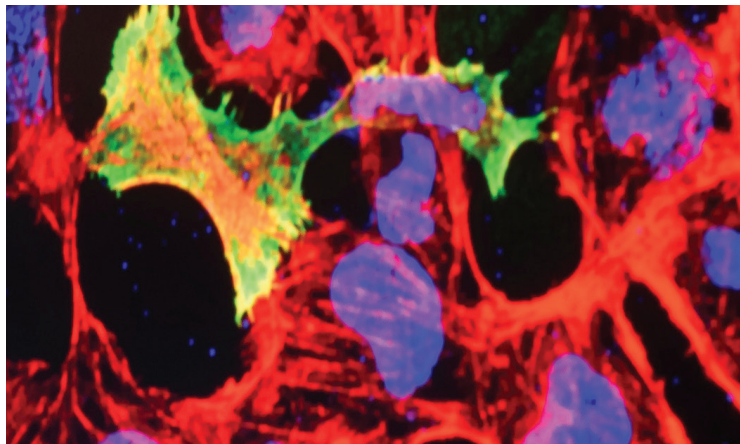
- MRI M2 for small animals (aspect imaging)
- X-RAD 320 Biological X-ray irradiator (PXI)
- Maestro II (CRi) - In Vivo optical (fluorescence) imaging system

### **The Histology unit services**

- Preparation of paraffin-embedded samples
- Sectioning of paraffin-embedded fresh and frozen samples
- Histological staining and immunohistochemical staining of paraffin-embedded and frozen samples

### **The Histology unit equipment**

- Paraffin-embedding machine
- Microtome 2035 Biocut
- Cryostat CM-1950





To discuss your specific needs, please contact us:

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