IBEC
Institute for Bioengineering of Catalonia

Core Facilities

Microscopy

Manufacturer
LightMachinary Inc.

Brillouin Microscopy System

Brillouin microscopy

Cutting-edge imaging technology, designed for non-invasive, label-free high-resolution mechanical characterization of biological samples and advanced materials. This system combines confocal microscopy with an integrated spectrometer to deliver unparalleled sensitivity and accuracy in measuring viscoelastic properties at the microscale.

Applications:

- Biomechanics and cell mechanics
- Material science and hydrogel characterization
- Tissue engineering and regenerative medicine

Key features:

- Integrated spectrometer for real-time Brillouin frequency shift analysis.
- High spatial resolution for detailed mechanical mapping of cells, tissues, and materials.
- Non-destructive and label-free technique preserving sample integrity during measurements.

Technical specifications:

- Laser source:
  - Excitation with a CW at 660 nm
- Hyperfine Spectrometer:
  - Resolution: 2 pm in a 1 nm window around the laser peak
- Inverted microscope:
  - Nikon Ti2-E fully motorized
  - Brightfield illumination
  - Objectives: 20x and 40x
  - motorized 6 place fluorescence filter cube turrets with 4 channel multi-LED light source
  - Camera Orca Flash 4, sCMOS with Auto alignment.
- Spatial resolution:
  Mapping of mechanical properties with up to 1 µm resolution

Equipment financed by:

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