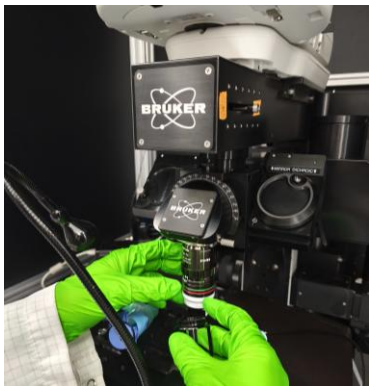
IBEC
Institute for Bioengineering of Catalonia

Core Facilities

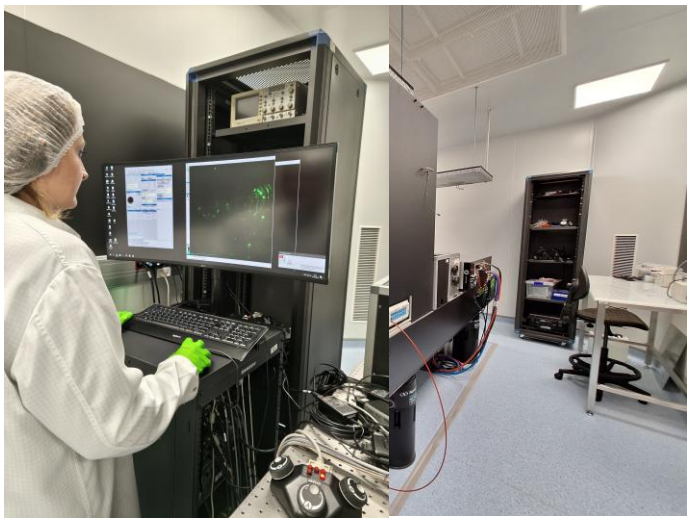
Biolmaging

Manufacturer
Bruker / Class V / Evident

Model
Customized



Vertical Multiphoton Intravital Microscope



Vertical multiphoton microscope for the stimulation and obtaining of intravital fluorescence images.

Applications:

- **Study of biochemical processes** from brain activity to cancer infections, and their treatment, with precision of micrometres to a depth of millimetres within the tissue and under strictly physiological conditions.
- **In vitro testing** (slices of brain or other tissues, primary cultures of neurons or dissociated cells, cell lines, spheroids, organoids)
- **In vivo testing** of new synthetic compounds (fluorescent, bioactive and therapeutic, activity sensors, organic nanoparticles as optical tracers and therapeutic agents, photoactivated compounds through one, two, or three photon stimulation).

Technical specifications:

Multiline pulsed laser for multiphoton stimulation

- Laser Outputs:
  - Output 1: 1100–1300 nm tunable, <50 fs pulse, >3 W power, >3 µJ energy at 1 MHz
  - Output 2: 700–900 nm (2-photon range), <100 fs pulse, >1.5 W power, >0.150 µJ energy at 10 MHz
  - Output 3: 1700 nm fixed, <65 fs pulse, >4 W power, 4 µJ energy at 1 MHz

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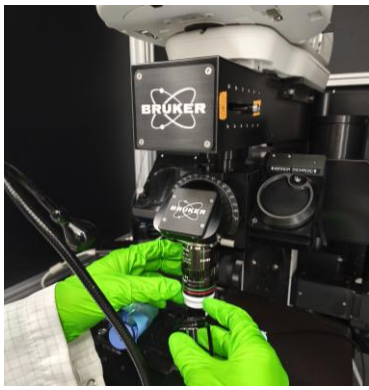
BioImaging



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Vertical Multiphoton Intravital Microscope

Ultima Investigator Plus Laser Scanning Microscope

- Multiphoton Imaging system on an upright in vivo base. Scanner, base and Platform designed to include a single set of galvanometers to provide raster scan Imaging.
  - 6 mm X-Y galvanometer pair
  - Epi-fluorescence illuminator
  - Motorized Z-focus
  - Single objective nosepiece with one rotational axis for Imaging of non-horizontal surfaces and volumes
  - Dual close-proximity detectors
  - Hight-speed shutter mount for Hamamatsu 10770 PMT – High-efficiency detection module
  - Dual emission filter. Emission with 70nm and 50nm bandwidths and at 525nm and 595nm central wavelengths, respectively.
- Laser input optics, to route and attenuate an ultrafast laser for scanner imaging.
- Beam Splitting Optics (620 – 1000 nm, 850 nm centered).
- Laser input optics-3P path
- Tabletop dichcroics, 1030nm highly dispersive ultrafast mirror.
- Tabletop optical beam switch with two mirrors.
- Objective Dovetail, M25 threads-0.75, mONPm piezowalk actuator stage
- Light box cover / Faraday cage

Multiphoton Objective Lens

- 25x / NA 1 / WD 4 mm
- Water immersion
- High level of transmittance >70%, depending on the wavelength, within the range of 400-1700 nm

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AGENCIA ESTATAL DE INVESTIGACIÓN

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