

Ultramicroscope

Pioneering ideas* from the last century with today's technical concepts for:

Whole brain imaging at cellular resolution
3D high speed imaging without bleaching
High throughput phenotype screening

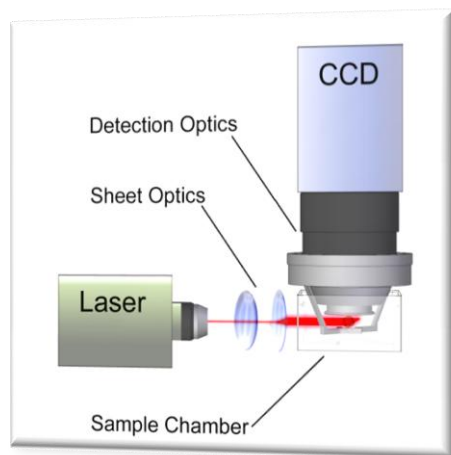


With LaVision BioTec's Ultramicroscope, you can handle samples even a centimeter in size, yet with sub-cellular resolution. Based on a technique originally developed for particle analysis in 1903*, it has been refined *this* century for optical sectioning of large biological samples.

*H. Siedentopf and R. Zsigmondy,
Ann. Phys. 10, 1-39 (1903)

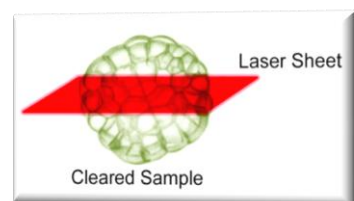
Principle of Operation

LaVision BioTec's Ultramicroscope utilizes a thin sheet of light to excite biological samples while the fluorescence light is detected with a CCD-equipped microscope perpendicularly to the illuminated area. By moving the sample through the sheet and taking pictures at each depth, one generates a 3D image at cellular resolution in whole organs, using fluorescent proteins, fluorescent dyes or autofluorescence!



Applications

To date juvenile mouse brain, complete mouse embryos as well as whole fruit flies have been successfully analyzed. A few articles have yet been published based on sheet illumination of biological samples, so the field is open! Whether you want to chart neuronal networks, characterize phenotypes, study vascularization, or something else as yet untested, this is the emerging technology for you!



The Ultramicroscope can be customized to your application! Please ask for: high speed cameras, incubation chambers for in vivo work and high resolution optics.

Specifications

Detector	CCD Camera LaVision Imager Compact QE 12 frames/s @ 1392 x 1024 pixel (others on request) 8 position motorized filter wheel (optional)
Excitation Optics	Sheet illumination (Uni- or Bidirectional) Thickness 3 - 40 μm Width 0.1-10 mm
Detection Optics	Macro Zoom Lens Magnification: 1.26-12.6x Numerical Aperture: 0.5 Working Distance: 10 mm Field of View: 0.7-7 mm (others on request)
Light Source	400-700 nm Laser (optional)
Sample Chamber	Cuvette on motorized xyz stage Travel range: 10 x 10 x 10 mm ³
Dimensions	540 (W) x 700 (H) x 550 (D) mm ³ Weight 47 kg (without controller and laser)

