

LCS SPIM

CLEARED SAMPLE IMAGING

LCS SPIM – THE LIGHT-SHEET MICROSCOPE FOR LARGE CLEARED SAMPLES

Luxendo's **LCS SPIM** is a compact light-sheet microscope designed for very fast and very gentle 3D imaging of large optically cleared samples. Like the Luxendo MuVi SPIM CS, it combines the advantages of light-sheet fluorescence microscopy and of tissue clearing methods. Novel and unique solutions facilitate mounting and fast microscopy of much larger samples, rendering it a unique tool in its field.

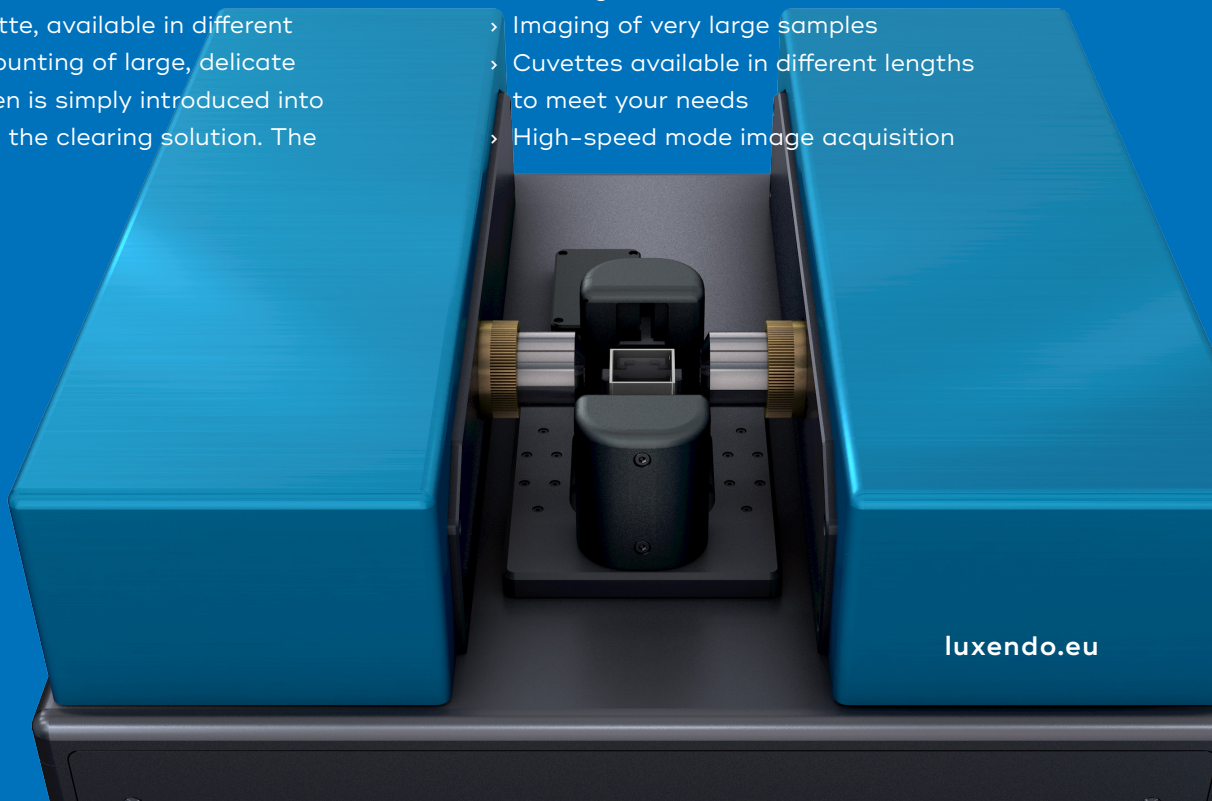
The basic configuration of the Luxendo **LCS** offers a cost-effective solution for cleared sample imaging. Based on a very versatile layout, the highly flexible upgrade options expand the performance of the system to increase speed and optical performance.

A quartz crystal cuvette, available in different lengths, facilitates mounting of large, delicate samples. The specimen is simply introduced into the cuvette filled with the clearing solution. The

motorized sample stage for positioning and stack acquisition and the programmable optics concept for fast 3D scanning of the light-sheet through the sample ensure that the sample remains unperturbed during the imaging experiment while achieving the highest acquisition speed.

The **LCS SPIM** is optimized for 3D imaging of large tissue structures, crucial when studying nervous system networks, when analyzing organ development or when investigating tumor structure and tumorigenesis in oncology. It enables

- › Imaging of optically cleared tissues, e.g. whole mouse brains, organs
- › Compatibility with a broad variety of clearing solutions
- › Imaging of very large samples
- › Cuvettes available in different lengths to meet your needs
- › High-speed mode image acquisition

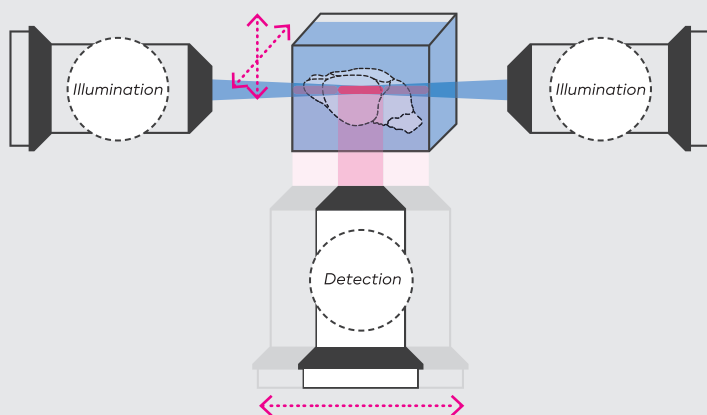


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SPECIFICATIONS

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OPTICAL CONCEPT

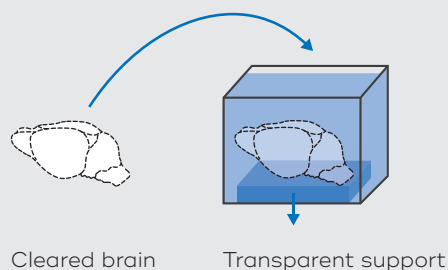


Two aligned light-sheets, shedding light from opposing directions on the sample

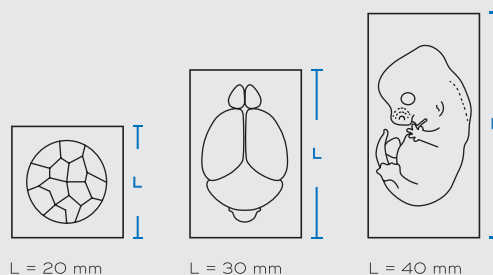
- › Minimized sample movement
- › Unprecedented imaging speed
- › Illumination objectives: Two Nikon 4x 0.2 NA air objective lenses
- › Detection objective: One Olympus 4x 0.28 NA air/dry objective lens
- › Upgradability to the Fast Imaging Mode

SAMPLE CHAMBER

A) Sample mounting

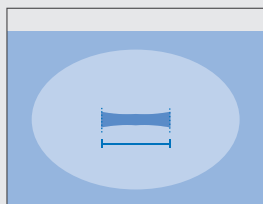


B) Exchangeable chamber in various sizes



FAST IMAGING MODE

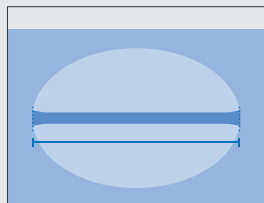
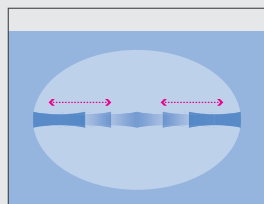
A) Basic configuration



— = FOV

- › Axial scanning for an extended FOV
- › Reduction of shadowing effects

B) Fast imaging configuration



— = FOV

- › Removable quartz crystal cuvette
- › Compatibility to a broad range of clearing solutions
- › Easy sample mounting
- › Different cuvette sizes:
 - Length: 20 to 40 mm
 - Height: 20 mm
 - Width: 20 mm
- › Refractive index range: 1.33–1.57
- › Ease of cleaning and maintenance