

# Cellular Imaging

Research Administration  
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## Leica SP8 confocal and STED

Laser scanning confocal and super-resolution microscope system

### Excitation sources

- Lasers: 405 nm, 440 nm, white light laser (470 to 670 nm)
- STED lasers: 592 nm (continuous), 775 nm (pulsed)

### Objectives

- 10x/0.4 air, 20x/0.75 air, 40x/1.1 water, 63x/1.4 oil, 93x/1.3 glycerol, 100x/1.4 oil

### Detectors

- Spectral detectors (PMT and HyD) 410 to 750 nm
- Hamamatsu ORCA-Flash4.0LT (widefield for use with ablation software)

### Capabilities

- Confocal imaging of up to eight channels
- Z-stack acquisition
- Time lapse
- Large area acquisition with automatic image stitching
- Spectral unmixing
- Fluorescence multiplexing
- Fluorescence recovery after photobleaching, or FRAP
- Fluorescence resonance energy transfer, or FRET
- Digital light sheet imaging
- STED super resolution (approx. 50 nm in xy)
- Micropoint ablation

### Recommended uses

- Tissue sections
- Adherent cells
- Fly and worm embryos
- Adult worms
- FRAP/FRET
- Live imaging
- Imaging of unconventional fluorescent dyes
- Separation of spectrally close dyes
- Background removal
- STED super resolution
- Micropoint ablation
- Light sheet

#### LEARN MORE

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## General information

This inverted scanning confocal microscope uses optical methods to remove out-of-focus signal, thereby providing high contrast in focus images of thick fluorescent specimens. The Leica SP8 is a state-of-the-art confocal microscope that offers outstanding versatility and sensitivity for imaging the broadest range of dyes and specimens. The system is equipped with a white light laser that allows users to freely choose up to eight excitation wavelengths. The system is equipped with five detection channels, including three high-sensitivity/low-noise hybrid detectors. Hybrid detectors, in combination with the pulsed 440 nm and white-light lasers, also allow timegating for added spectral selectivity (for example, removal of autofluorescence). The system also includes Leica's digital light sheet system for fast and gentle imaging of live specimens. The system includes Leica's Lightning deconvolution modality (resolution approx. 130 nm), and an optional resonant scanner for high-speed imaging. Micropoint laser ablation is also available. The SP8 system is ready for fluorescence lifetime imaging, or FLIM, and stimulated emission depletion, or STED.

## Specifications

- Leica DMI8 inverted microscope stand with fast galvo z-stage
- Freely tunable spectral detection system, allowing the imaging of virtually any dye in the visible spectrum (410 to 750 nm)
- Five detectors, including three hybrid detectors
- Advanced Leica LAS acquisition software with automated features such as time and z acquisition, large area acquisition (tiling), and multi-point visiting
- Photoactivation and photobleaching (FRAP) experiments possible
- Stage-top incubators providing controlled temperature and atmosphere for live cell experiments can be used.
- Equipped with a high-power pulsed laser (MicroPoint) for cell ablation and wounding.