

Seeing beyond

Enable your LSM with gentle instant volume imaging.

Lightfield 4D upgrade for LSM 9 Series Systems

Employ light-field microscopy for instant volumetric imaging to study organism dynamics at up to 80 volumes per second, while preserving full spatiotemporal information. This approach enables the acquisition of thousands of volumes over time without harming living samples, and allows multiple positions of organisms, organoids, or spheroids to be captured in a single run. The unique one-snap-one-volume acquisition can also be seamlessly combined with any other imaging mode of your ZEISS LSM 9-series system.

zeiss.com/lightfield-4d



Benefits & Application

- High-speed physiological and neuronal processes captured in 3D
- Gentle observation of entire organisms over extended periods of time
- Accelerated collection of information on large samples with multiple labels
- Innovative experimental design through high-speed volume imaging combined with all the possibilities of LSM

ZEN Microscopy Software

Unlock the full potential of ZEN's features, delivering improved precision, stability, better user experience, and new possibilities for imaging and data analysis.

- Acquire images using smart automation
- Process images with scientifically proven algorithms
- Visualize big data by a GPU powered 3D engine
- Analyze images via Machine Learning-based tools

ZEISS arivis Pro

Achieve quantitative and reproducible results by automation of image analysis and visualization pipelines. Use pre-configured analysis pipelines and standard assays or build customized workflows to achieve specific goals. Boost your productivity for these and more analyses:

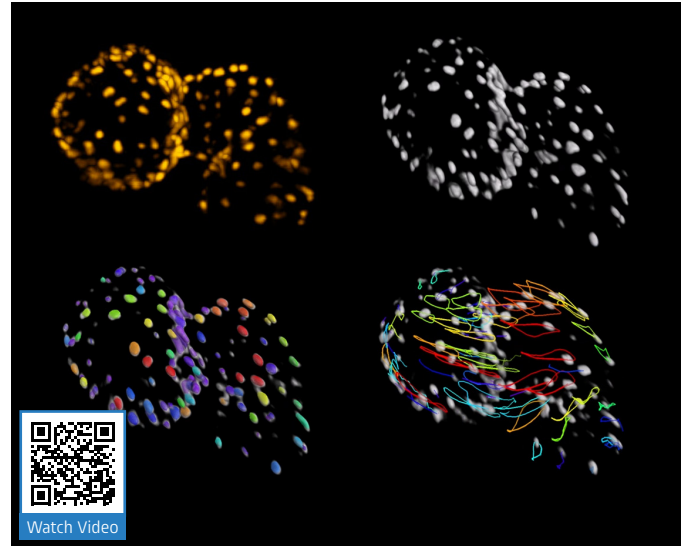
- Advanced 3D analysis
- High content analysis
- Tracking and lineage
- Neuron tracing

Eligible for a Lightfield 4D upgrade on the camera port:

- LSM 900 on Axio Observer 7
- LSM 910 on Axio Observer 7
- LSM 980 on Axio Observer 7
- LSM 990 on Axio Observer 7

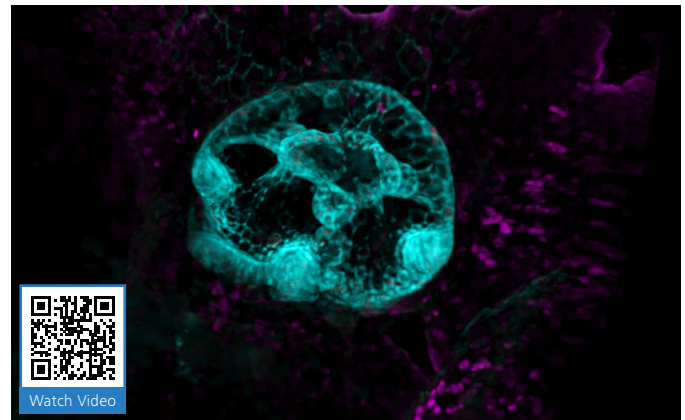
Contact your local ZEISS representative to check additional requirements and for more information.

Investigating the morphology and cardiac wall movement of the developing zebrafish heart

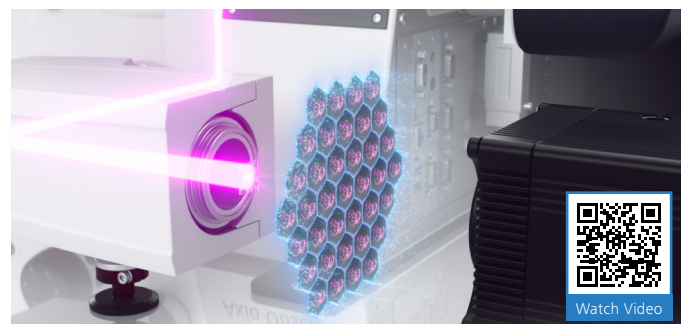


mCherry expression in cardiomyocytes acquired with ZEISS LSM 990 Lightfield 4D and Plan-Apochromat 20x/0.8 Air. Volume size: $723 \times 723 \times 430 \mu\text{m}^3$, exposure time 12 ms for 1.2 seconds in total. Sample courtesy of Stone Elworthy and Emily Noël, School of Biosciences, University of Sheffield, UK. Data acquired at Wolfson Light Microscopy Facility in the School of Biosciences at the University of Sheffield.

Long-term imaging of sensitive processes: Zebrafish ear undergoing developmental morphogenesis



Zebrafish embryo, timelapse movie of developing otic vesicle, 2–3 days post fertilization, otic epithelial labelled with GFP-CAAX, nuclei with RFP. Every 2 minutes, volumes of 4 different zebrafish embryo ears were imaged over the course of 16 hours. Courtesy of Tanya Whitfield, Sarah Baxendale, School of Biosciences, University of Sheffield, UK. Data acquired at the Wolfson Light Microscopy Facility, University of Sheffield.



Carl Zeiss Microscopy GmbH
07745 Jena, Germany
microscopy@zeiss.com
www.zeiss.com/lightfield-4d

