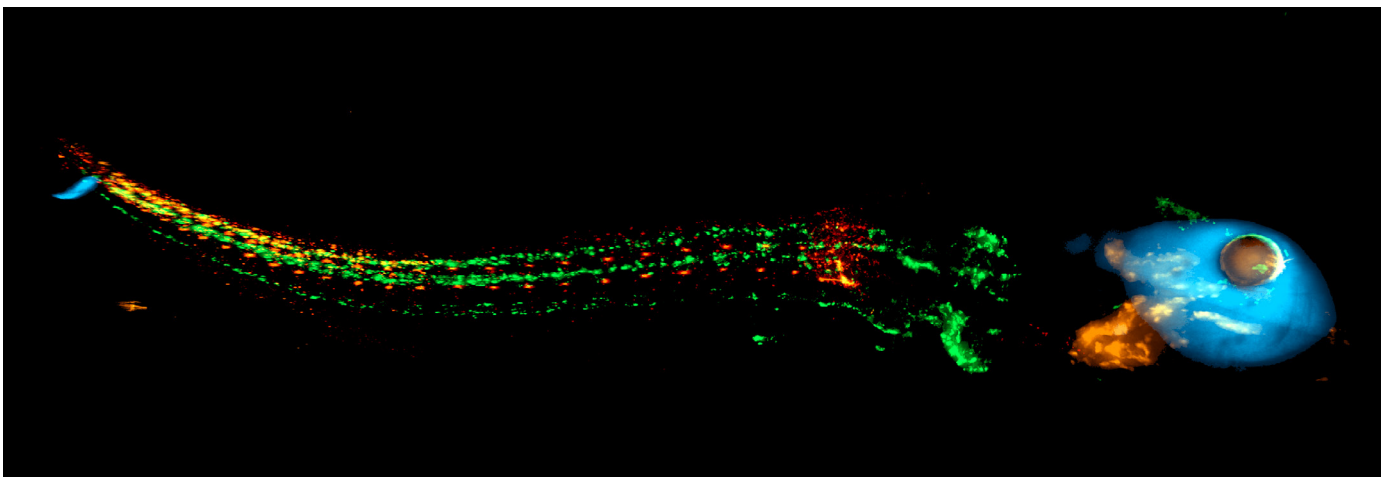


Creating crisp sections of thick samples with ease

ZEISS Microscope Bundle for Optical Sectioning



*Transgenic zebrafish larvae at 4 days post fertilization with neuronal and glial cells labeled with Hoechst, Alexa488, Alexa546, Alexa647.
Image Courtesy of Hanna Reuter, Leibniz Institute on Aging – Fritz Lipmann Institute, Jena Germany*

Optical sectioning is used to efficiently create crisp images of thick samples by removing out-of-focus light. While hardware-based technologies such as confocal laser scanning microscopy or Apotome are sophisticated, powerful and robust, software-based solutions can provide additional features to further improve image quality at high acquisition speeds. Used with or without additional hardware, they can be an attractive solution to easily convert a classic wide-field microscope into a microscope for optical sectioning.

The ZEISS Bundle for Software-based Optical Sectioning

The system bundle was designed to image optical sections of various sample types like organoids, tissues, or plant cells with high resolution and fast acquisition speed. The components form the ideal solution for fast acquisition and efficient data evaluation.

Hardware

The microscope is equipped with AI Sample Finder for fast experiment startup and efficient navigation. The Colibri 7 light source with seven excitation wavelengths and filter sets covering the entire visible range combine highest spectral flexibility with low phototoxicity. The sensitive and fast camera AxioCam 705 completes the system with high resolution, high frame rates, and a large field of view.

Software

The perfectly matched selection of modules, all integrated into ZEN, ensures efficient workflows from image acquisition to data evaluation. Process your images directly after acquisition using one or several functions like deconvolution, deblurring or denoising. With the 3D Toolkit, precise 3D renderings can be created, allowing to inspect and export your data with ease. The community-based APEER platform lets you to create evaluations customized for your specific application. In APEER, a broad selection of evaluations commonly used in microscopy lower the entry barrier for best usability.

ZEISS Microscopes for Optical Sectioning

The Bundle Components

Microscope

- Axio Observer 7 (inverted)
- Axio Imager 2 (upright)
- Scanning stage 130 × 100
- Mot. Condenser NA 0.55¹ / NA 0.9²
- AI Sample Finder¹

Light source / camera

- Colibri 7
- Filter sets HE LED 90, 91, 112
- AxioCam 705 mono

Objectives

- EC Plan-Neofluar 5×/0.16¹
- Fluor 5×/0.25²
- Plan-Apochromat 20×/0.8
- Plan-Apochromat 63×/1.4 Oil

Workstation

- Z6 Workstation with 128 GB RAM and nVidia Quadro RTX6000 24 GB

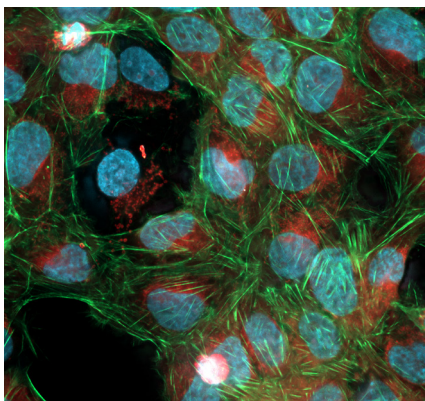
¹Axio Observer 7, ²Axio Imager 2



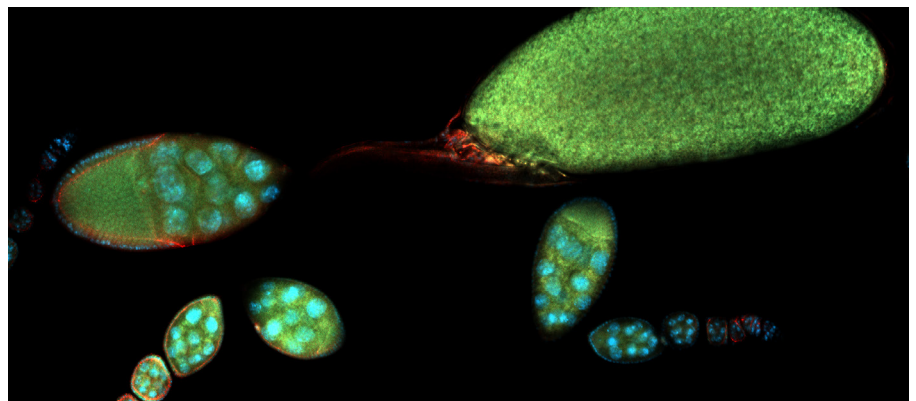
Depending on your application needs, you can either choose an inverted configuration based on ZEISS Axio Observer 7 (left) or an upright configuration based on ZEISS Axio Imager 2.

ZEN software packages

- Base Acquisition: Acquire multi-channel and timelapse images, perform standard data evaluation and export.
- Motorized Acquisition: Acquire z-stack, tile scan, and multi-position images with software autofocus, extended depth of focus processing, and direct processing.
- Deconvolution Toolkit: Enhance 3D image stacks with deconvolution algorithms.
- Connect Toolkit: Visualize data from different modalities for best overview and correlation.
- 3D Toolkit: Visualize 3D/4D image stacks.
- Bio Apps: Perform out-of-the-box cell counting, confluency measurement, spot detection, and gene/protein expression with AI-based segmentation and tailored result presentation.



U2OS cells having nuclei stained with DAPI (blue), actin fibres stained with Alexa488 (green) and mitochondria stained with MitoTracker™ Red (red).



Drosophila egg chambers of different stages stained with DAPI (blue), Alexa488 (green) and Alexa555 (red). Sample Courtesy of Vanessa Weichselberger, University Freiburg, Germany.



microscopy@zeiss.com
www.zeiss.com/widefield-bundles



Seeing beyond