Turn clarity into discovery

ZEISS Axio Imager 2

Upright Microscope Platform for Productive High-Resolution Imaging

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Seeing beyond

ZEISS Axio Imager 2

Upright Microscope Platform for Productive High-Resolution Imaging

Precision, efficiency and reliability are of the utmost importance in microscopy. The upright imaging platform ZEISS Axio Imager 2 was developed to meet the rigorous demands of scientists who require unparalleled imaging capabilities to explore the finest details of biological specimens.

Its superior optics for high-resolution imaging allows you to observe cellular structures and processes at unprecedented levels of detail. Whether you are conducting cellular biology studies, histological examinations, or cancer research, you can be ensured with the versatility and performance needed to enhance your research outcomes.

With customizable illumination systems, ergonomic design, and compatibility with a range of imaging techniques, ZEISS Axio Imager 2 is not just a tool but a vital partner in your scientific endeavors. Experience the fusion of innovation and functionality and elevate your research capabilities when details matter.

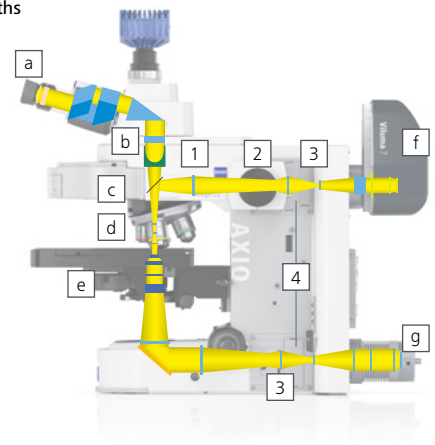
Optical Excellence

Highest Contrast and Resolution Across a Large Field of View

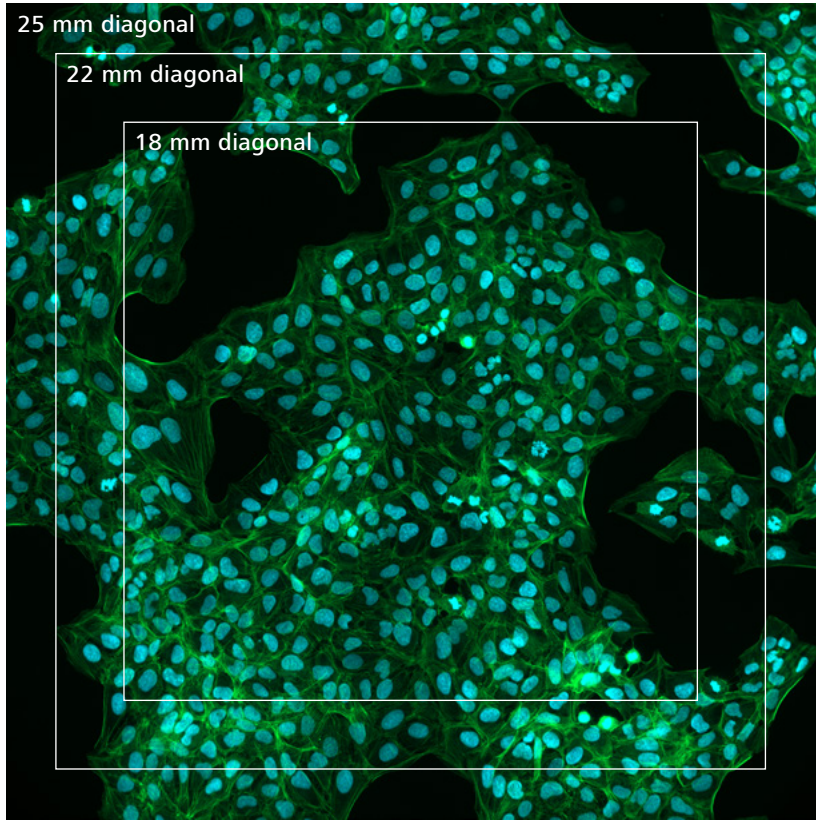
A stable imaging system with high-quality optics is essential to achieve the clarity and resolution required to understand biological processes. The fewer optical elements that move, the greater the system stability and data quality. The z-drive of ZEISS Axio Imager 2 features a 10 nm step size, ensuring precise focusing of your sample and maintaining its position. The stable imaging cell of this upright system was designed for a vibration-free proximity between the filter cubes, camera, and objective, ensuring highest image quality and reproducibility. The 25 mm field of view allows you to image larger areas of your sample faster. With ZEISS Axio Imager 2, you can rest assured that you have the best optics to support your research.

Transmitted and fluorescence beam paths
a) Eyepiece
b) Accessible interface to the ∞ space
c) Reflector turret (with push & click modules)
d) Objective
e) Condenser
f) Viluma 7 light source
g) VIS-LED 2 light source

Flexible interfaces
1) Accessible interface to the fluorescence infinity space
2) Apotome 3
3) Transmitted-light field diaphragm
4) Filter wheels



ZEISS Axio Imager 2 beam path design



High-performance optics with 25 mm field of view allow you to simply see more in every image. Detect more cells per shot or scan large areas faster for highest productivity.
U2OS cells stained with Phalloidin (green, actin) and Hoechst (blue, DNA), acquired using a Plan-Apochromat 20×/0.8 objective.

Ergonomic Excellence

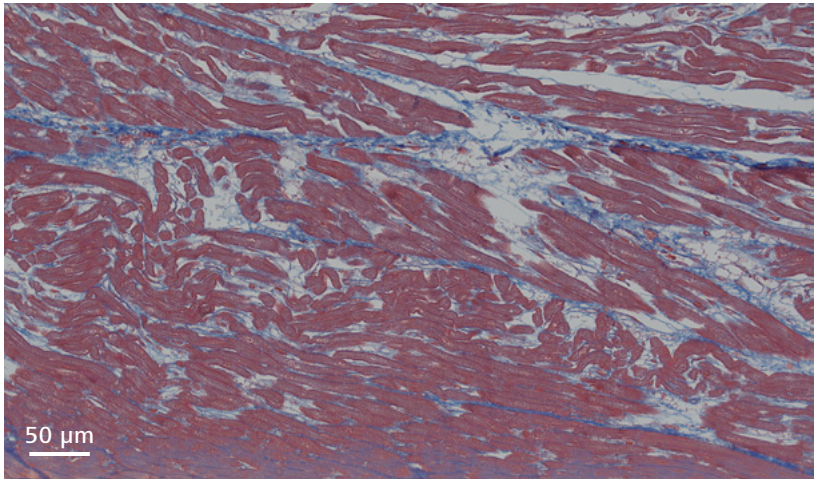
Human-Centered Design for Comfortable Observation

An upright microscope configuration is the most ergonomic for observing samples, as the eyepieces are positioned for comfortable viewing.

ZEISS Axio Imager 2 allows you to tailor the setup to your personal preferences with ergonomic phototubes, ensuring comfort during long-term use. The touchscreen TFT display and programmable buttons allow you to customize the microscope for quick access to frequently used functions or user-specific settings. When filters or objectives are changed, the new component is automatically recognized without the microscope being required to turned off. This prevents configuration errors and promotes efficient operation.

ZEISS Axio Imager 2 is also designed to work without a connected PC. With a smart Axiocam camera, you can display images on an external monitor or TV and save your images directly to a memory stick.

Ergonomic phototubes: Adjust ZEISS Axio Imager 2 to your personal preferences and observe your specimen without fatigue over extended periods of time.



Heart tissue section of C. capreolus *(Azan staining)*

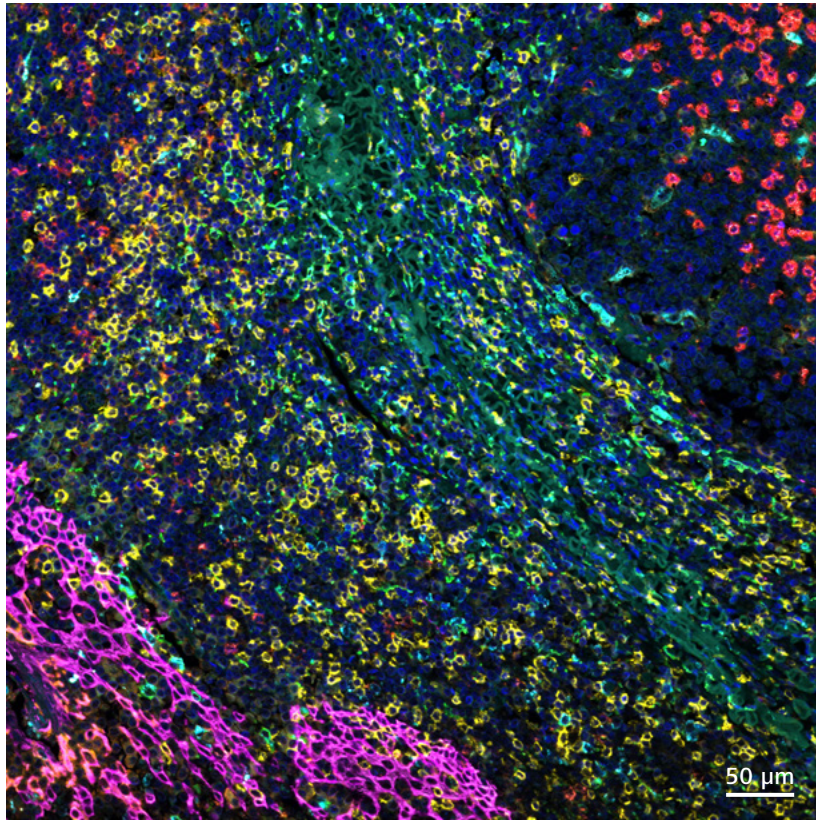
Modular Excellence

Custom Setups Designed for Efficient Imaging

A research microscope should offer flexible configuration options to meet your evolving scientific needs.

Thanks to its modularity and wide range of accessories, ZEISS Axio Imager 2 can be adapted to your application requirements with a high degree of freedom. It is compatible with fast and sensitive cameras of the ZEISS Axiocam portfolio as well as with cameras from other manufacturers. Choose from bright and efficient multi-LED light sources from the ZEISS Viluma family, or use third-party options, and pair them with up to 10 filter sets for maximum spectral flexibility. Combine various imaging contrasts, such as fluorescence and Differential Interference Contrast, or brightfield and fluorescence, to add the needed layers of information to your observations.

If you want to acquire high-quality optical sections, expand your configuration with Apotome 3 or an LSM 910/990 confocal—supplemented by an XL incubator for imaging at elevated temperatures if required.



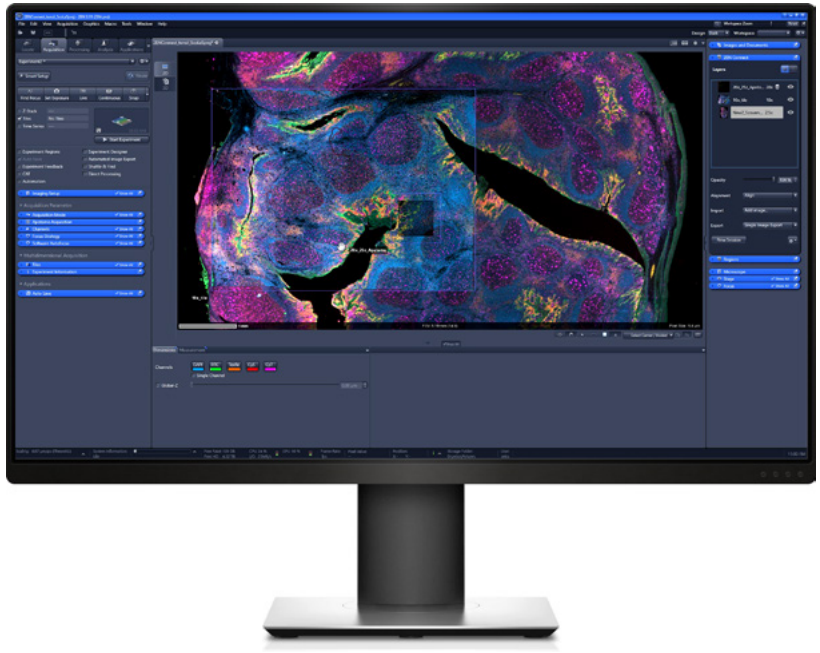
Optical section using ZEISS Apotome 3: fixed human tonsil sample stained with seven markers for tumor analysis (CD163, CD68, CD8, PD-L1, PD1, PANCK, and DNA), linear unmixed.

Workflow Excellence

Your Complete Solution from Sample to Knowledge

ZEN is your powerful software for efficient microscope operation in life science research. It combines a user-friendly interface without restricting your experimental freedom. ZEN offers you the flexibility to design multi-dimensional workflows the way you want. No matter what microscopy task you have, you will find intuitive tools and modules to assist you.

- Acquire images using smart automation.
- Process images with scientifically proven algorithms.
- Align and overlay all images.
- Visualize big data by GPU powered 3D engine.
- Analyze images via Machine Learning-based tools.
- Correlate between light and electron microscopes.
- Compress data without loss to speed up file transfer and save storage space costs.



Click here to view this video

Connect all your imagery: With the Connect Toolkit, you bring images and data from any system or modality together. You always keep the context and the overview about all data from your sample. Shown is as fixed human tonsil sample stained for DNA (blue), panCK (green), CD3 (orange), PD-L1 (red), CD68 (purple).

The ZEISS Axio Imager 2 Product Family

The Perfect Stand Tailored to Your Needs

The ZEISS Axio Imager 2 platform comprises four stand models. Select the level of motorization and performance that best suits your needs: a manual stand for observation, a motorized microscope for automated imaging, or an advanced laser-based microscope system for the highest research demands.

ZEISS Axio Imager.A2
This manual stand is ideal for observation tasks. The ergonomic stand design features research-grade optics, allowing you to see even the finest details and the most accurate colors.

ZEISS Axio Imager.D2
This stand is suited for swift transitioning between observation and imaging. It can be equipped with a motorized reflector turret for automated multi-channel fluorescence imaging.

ZEISS Axio Imager.M2
This highly motorized stand enables the automatic execution of complex acquisition tasks. It performs automated scanning of large areas or creates 3D representations of your samples.

ZEISS Axio Imager.Z2
This stand incorporates the full capabilities of the Axio Imager 2 platform. For laser-based or cryogenic microscopy, its highest level of motorization enables the most complex workflows.

As your needs grow, you can always expand your ZEISS Axio Imager 2. The modular concept provides numerous defined and well documented interfaces. Upgrade new accessories from a broad portfolio of ZEISS solutions or third-party offerings.

The ZEISS Axio Imager 2 Product Family

As Much Motorization as Required

Partial motorization

If a fully motorized microscope isn't necessary for your work, you can opt for a partially motorized system like ZEISS Axio Imager.A2 or Imager.D2. These options provide the platform's flexibility along with excellent image quality and ergonomic design.

Advanced motorization

For more complex experiments, ZEISS Axio Imager.M2 and Imager.Z2 are equipped with various motorized features that allow for automated execution. Simply select the objective and dye you want to image, and the microscope will automatically adjust the settings for filters, light source, and camera. With the motorized DIC feature, you can say goodbye to tedious DIC adjustments. Powerful focus strategies ensure that your sample stays in focus while you scan large areas across multiple slides with a motorized stage for up to 8 slides. For optimal contrast and illumination conditions, the intelligent contrast manager automatically adjusts aperture and motorized luminous field diaphragm for both transmitted and reflected light. When combined with automatic color temperature adjustments, accurate and reproducible imaging is ensured.

Level of motorization →

ZEISS Axio Imager.A2
- Stage

ZEISS Axio Imager.D2
- Stage
- Reflector turret

ZEISS Axio Imager.M2
- Stage
- Reflector turret
- Tube lens turret
- Z-drive (25 nm step size)
- Nosepiece
- Transmitted light beam path
- Condenser

ZEISS Axio Imager.Z2
- Stage
- Reflector turret
- Tube lens turret
- Z-drive (10nm step size)
- Nosepiece
- Transmitted light beam path
- Condenser
- Transmitted light DIC
- Fluorescence beam path
- Luminous field diaphragm
- Fluorescence attenuator

Tailored Precisely to Your Applications

Pathology and Histology Examinations

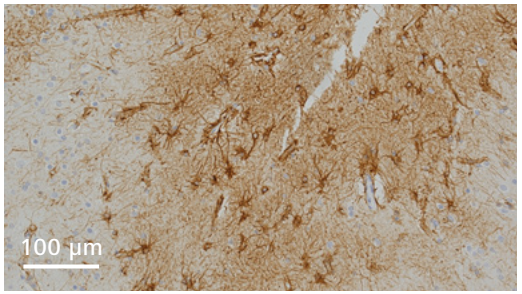
Experience unparalleled comfort and efficiency

Designed for the examination of biopsies, surgical specimens, and cytological preparations in clinical research, ZEISS Axio Imager 2 supports pathologists in characterizing cellular abnormalities and morphological changes associated with disease, while providing histologists with advanced tools to investigate tissue architecture and composition. Ergonomic design features, such as adjustable photo tube height and tiltable eyepieces, ensure optimal viewing angles while reducing strain during extended examinations. This is especially advantageous when meticulous attention to details is essential for accurate diagnoses and analyses. Enjoy the convenience of stand-alone capabilities that allow you to capture and analyze images without the need for a connected PC. This streamlined workflow enhances productivity, enabling faster decision-making, even in critical diagnostic processes across both fields.

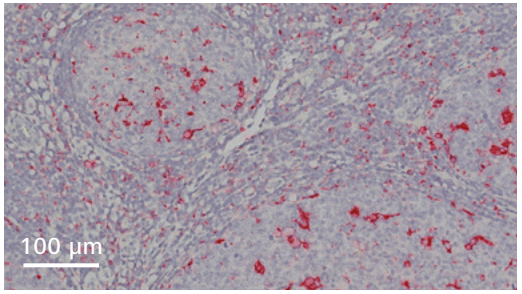
Exemplary configuration:

ZEISS Axio Imager.A2

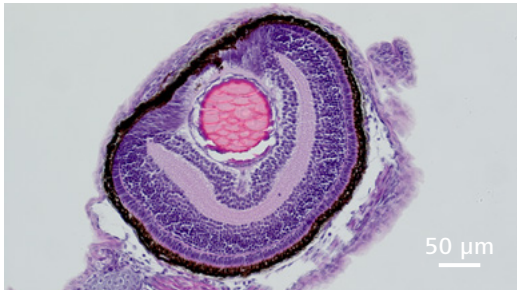
- 6× encoded reflector turret
- 6× encoded nosepiece HD DIC
- Ergonomic phototube
- Manual stage
- Objectives 5×, 10×, 20×, 40×, 63×, 100×
- Axiocam 212 color



Human brain tissue stained with anti-GFAP antibody (DAB, brown) to identify glia cells and hematoxylin counterstain.



Human tonsil tissue stained with anti-CD68 antibody (FastRed, red) to identify macrophages and hematoxylin counterstain.



Hematoxylin and eosin-stained section of an embryonic fisheye (Nothobranchius furzeri). *Sample courtesy of Annekatrin Richter, Leibniz Institute on Aging, Fritz Lipmann Institute e.V. (FLI), Jena, Germany.*

Tailored Precisely to Your Applications
Cell Biology Research

Unravel the complexity of cellular processes

With its advanced motorization, ZEISS Axio Imager 2 is an indispensable tool for cell biologists to meet the requirements of various sample types. Switch effortlessly between multiple fluorescence channels when observing gene expression patterns in cells and embryos to understand processes of cell differentiation and tissue formation. Rapidly capture images of multiple fluorescent markers over the 25 mm field of view using the motorized reflector when studying tumor microenvironments and cellular signaling pathways, cellular organization or cellular components such as cell organelles. Enhance contrast and resolution of specimens with Phase Contrast or Differential Interference Contrast (DIC), making it easier to visualize fine cellular structures without the need for staining.

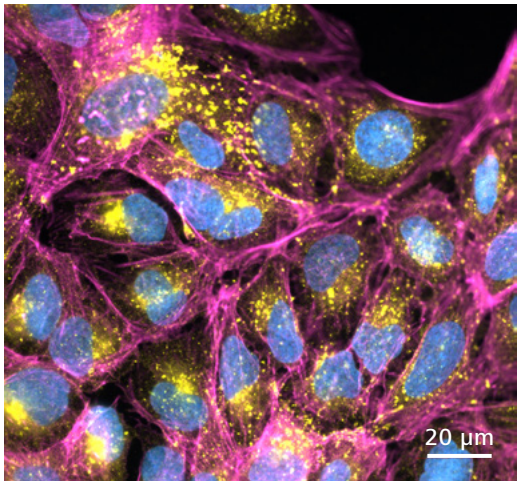
Exemplary configuration:

ZEISS Axio Imager.D2

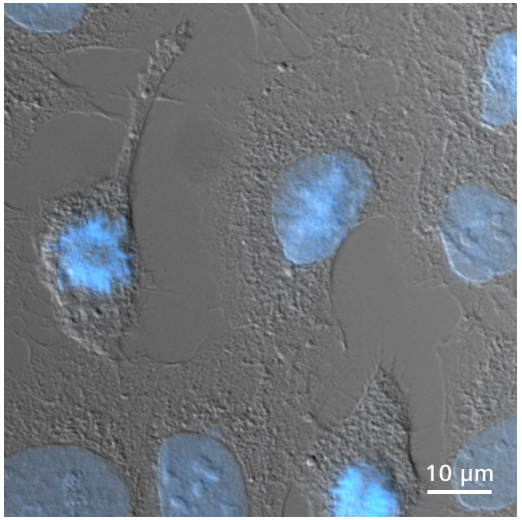
- 6× motorized reflector turret
- 6× encoded nosepiece HD DIC
- Manual stage
- Objectives 5×, 10×, 20×, 63×
- DIC, Phase contrast
- VIS-LED
- Axiocam 820 mono
- X-Cite Xylis

Software:

- ZEN



Fixed U2OS cells with stained lysosomes (yellow), DNA (blue) and actin (magenta).



Differential Interference Contrast (DIC) image of fixed U2OS cells. DNA counterstained with Hoechst (blue).

Tailored Precisely to Your Applications
Spatial Biology

Achieve precise imaging of multi-fluorescent samples

Accurate multi-color imaging is crucial for advancing spatial biology and the understanding of complex biological interactions in cancer biology, immunology, neurobiology, or developmental biology. Grasp the spatial distribution of various cell types and investigate how cells integrate within the context of a tissue, what their environment indicates about their behavior, their location, and the reasons for their presence. Illuminate across multiple fluorescent channels, while filters are switched automatically. Use Spectral Unmixing to separate overlapping signals and quantify their intensity, allowing for clear differentiation of various cell types within tissue samples. Visualize cellular components and their interactions to study organisms during critical stages of development. The large 25 mm field of view, scanning stage and focus control streamline your workflows, enabling acquisition of high-resolution images with various focal planes. Combined with state-of-the-art deconvolution algorithms, this capability is vital for examining morphological changes and gaining deeper insights into developmental processes.

Exemplary configuration:

ZEISS Axio Imager.M2

- Docking station with touchscreen TFT
- 6× motorized reflector turret
- 6× motorized nosepiece HD DIC
- Scanning stage
- Objectives 5×, 10×, 20×, 40×, 63×
- microLED
- Axiocam 820 mono
- Viluma 9

Software:

- ZEN
- Motorized Acquisition toolkit
- Deconvolution toolkit

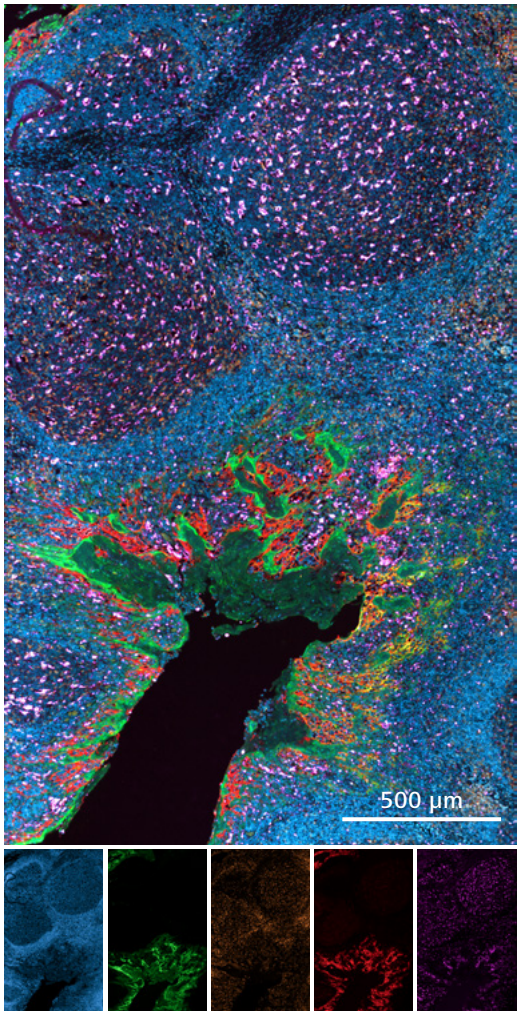


Image of fixed human tonsil sample stained for DNA (blue), panCK (green), CD3 (orange), PD-L1 (red), CD68 (purple). Spectral unmixing helps to separate the 5 dyes.

Tailored Precisely to Your Applications

Large-Area Tissue Scanning

Combine efficiency with exceptional imaging quality

In histology, cancer research and neurobiology, the need for automated scanning of large areas is paramount. Effortlessly map out large specimens with ZEISS Axio Imager 2, ensuring that no critical detail is missed. While in pathology, detailed imaging of tissue sections is crucial for identifying tumor margins and cellular characteristics, in developmental biology, entire embryos must be analyzed to study morphological changes. Benefit from advanced motorization, including a scanning stage capable of accommodating up to 8 slides simultaneously, enabling efficient and uninterrupted workflows. The automated scanning ensures that large specimens are captured with high resolution and contrast. With its precise focus control and integrated software, you can include image stitching and comprehensive data management. Additionally, by incorporating Apotome 3, create optical sections with enhanced contrast and resolution, as it effectively removes out-of-focus light. This results in clearer images that highlight specific features of interest, making it easier to analyze complex samples.

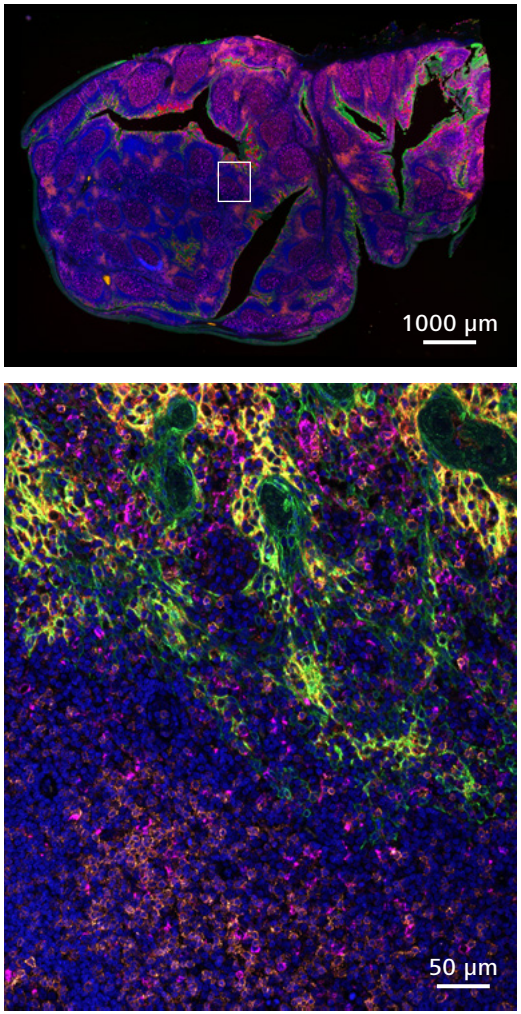
Exemplary configuration:

ZEISS Axio Imager scan

- 10× motorized reflector turret
- 6× motorized nosepiece HD DIC
- Scanning stage for up to 8 slides
- Objectives 5×, 10×, 20×, 63×
- DIC, Phase contrast
- VIS-LED
- Axiocam 820 mono
- Axiocam 305 color
- Viluma 7
- Apotome 3

Software:

- ZEN
- Motorized Acquisition toolkit



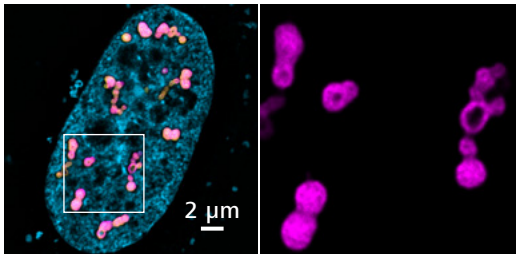
Top: Tiled overview image of human tonsil sample stained for DNA (blue), panCK (green), CD3 (orange), PD-L1 (red), CD68 (purple). Bottom: Detailed view acquired with ZEISS Apotome 3.

Tailored Precisely to Your Applications

High-Resolution 3D Imaging

Explore the depth of your sample with optical sectioning

The ability to visualize biological samples in three dimensions is crucial for understanding complex structures and functions. ZEISS Axio Imager 2 employs cutting-edge optical sectioning techniques like Deconvolution and Apotome Plus, allowing you to capture high-resolution images at various depths within your sample. Create reliable optical sections and resolve details down to 180 nm lateral resolution. Map neural networks and study complex biological systems, such as the layered structures of plant roots and leaves or the intricate networks within microbial biofilms. For rapid imaging and analysis of cellular structures and organelles, e.g., upon drug treatment, the user-friendly ZEN interface streamlines the 3D imaging process, allowing efficient data capture and analysis. Integrating high-resolution 3D sample acquisition into your research unlocks new possibilities for understanding biological complexities.



U-2 OS cells transiently expressing RFP-PML (magenta) and EGFP-SUMO (yellow) were DNA counterstained with DAPI (blue). Images were processed using Apotome Plus, revealing the sphere-shaped architecture of a subset of PML bodies. Sample courtesy of P. Hemmerich, Leibniz Institute on Aging – Fritz Lipmann Institute e.V. (FLI), Jena, Germany.

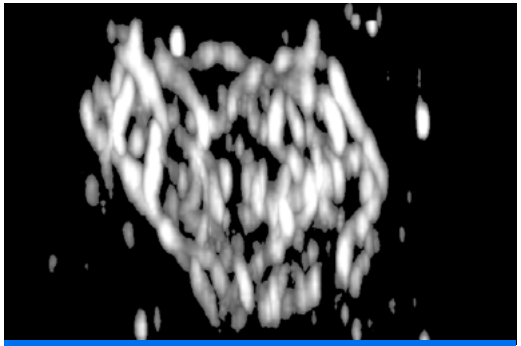
Exemplary configuration:

ZEISS Axio Imager section

- 10× motorized reflector turret
- 6× motorized nosepiece HD DIC
- Scanning stage
- Objectives 5×, 10×, 20×, 63×
- DIC, Phase contrast
- VIS-LED
- Axiocam 820 mono
- Viluma 7
- Apotome 3

Software:

- ZEN
- Motorized Acquisition toolkit
- Apotome Plus



Click here to view this video

Apotome Plus processed z-stack of Chromosomes of A. Thalina *stained with REC8. Sample courtesy of S. Durand, MPI for Plant Breeding, Germany.*

Tailored Precisely to Your Applications
Cryogenic Widefield and Confocal Microscopy

Image the near-to-native state

ZEISS Axio Imager 2, the light microscope of choice for the ZEISS Correlative Cryo Workflow, can be equipped with the Linkam cryo stage CMS196V4. Configure a widefield system with Apotome 3 to acquire 3D datasets, or a confocal system with LSM Airyscan for sensitive high-resolution cryogenic imaging. The hardware is designed to prevent devitrification and ice contamination during imaging. Objectives ranging from 5× to 100× support imaging from overview to high resolution. Various illumination methods provide extra information about ice thickness and sample quality. Both the LSM and the widefield microscope are multipurpose tools that can be converted quickly from cryo to room temperature experiments without compromising image quality.

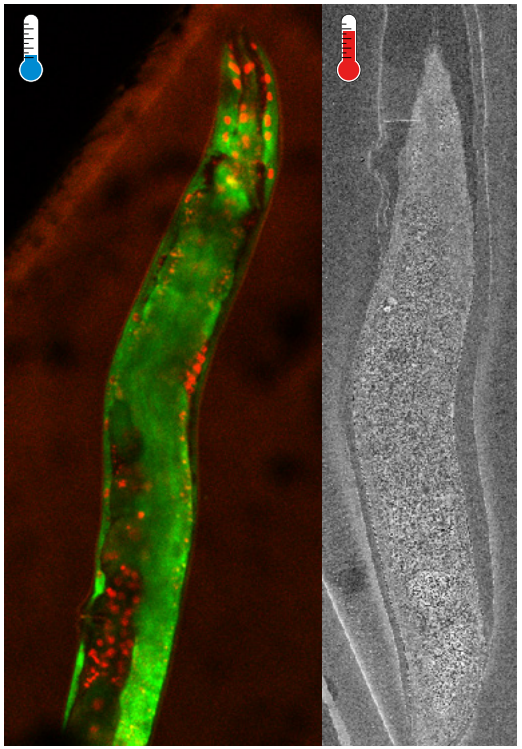
Exemplary configuration:

ZEISS Axio Imager.Z2 with LSM 990

- 6× motorized reflector turret
- 6× motorized nosepiece HD DIC
- Objectives 5×, 10×, 20×, 40×, 100×
- Cryo microscopy stage CMS196 set for vitrified samples:
  - Continuous process for LN2 filling of sample chamber, improved drift stability
  - Integrated motorized XY stage
  - User interface: Joystick touchscreen panel
  - Autofill LN2 dewar with smart features
  - Interchangeable bridge

Software:

- ZEN
- Advanced Acquisition toolkit
- Connect toolkit
- ZEN EM Processing Toolbox
- SmartSEM including Smart FI
- Cryo Drift Reduction Module

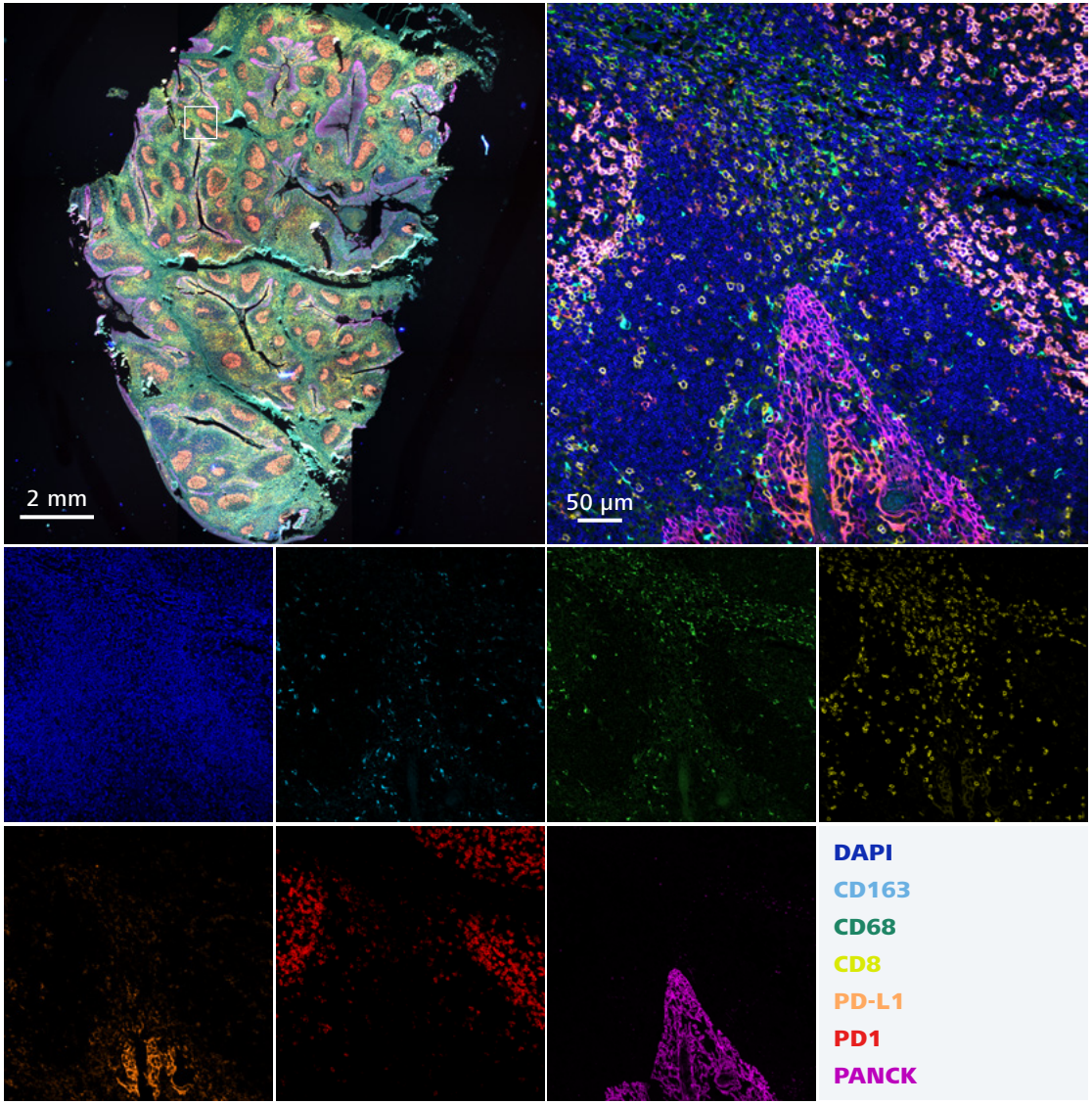


Condensed metaphase genome of an early embryo in a C. elegans *worm. Left: The worm was imaged under cryogenic temperature with an LSM / Airyscan system before freeze substitution. Right: The embedded and stained worm was then imaged with ZEISS Crossbeam.*

ZEISS Axio Imager 2 at Work

Spatial biology unveiled: a 7-color staining approach to tumor micro-environments in tonsil tissue

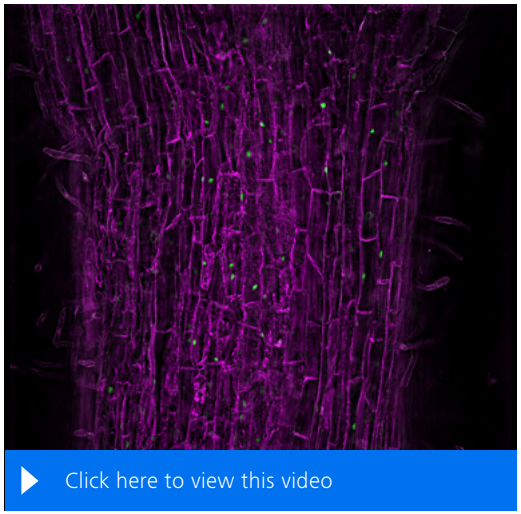
In cancer research, understanding the spatial distribution and interaction of various cellular markers is crucial for unraveling the complexities of tumor microenvironments. In this study, the spatial distribution of seven markers for tumor analysis (CD163, CD68, CD8, PD-L1, PD1, PANCK, and DNA) was investigated in a human tonsil sample. An overview image (top left) facilitates navigation within the extensive tissue area. Spectral unmixing was employed to effectively separate the seven dyes, ensuring accurate identification of each marker. Regions of interest were defined for detailed imaging. Z-stacks were acquired using ZEISS Apotome 3. An optical section of region 1 is presented here (top right), along with single-channel images (bottom), offering a clear visualization of the marker distribution.

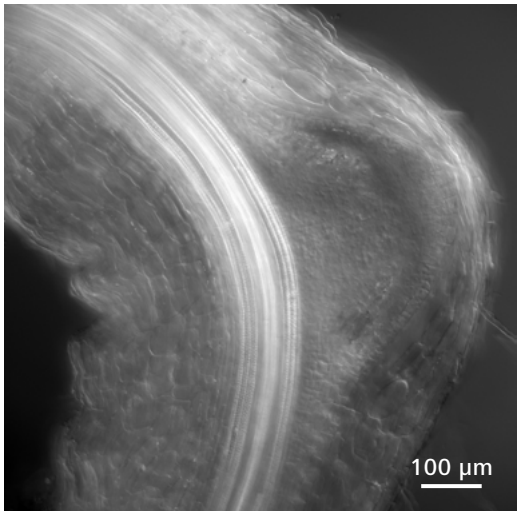


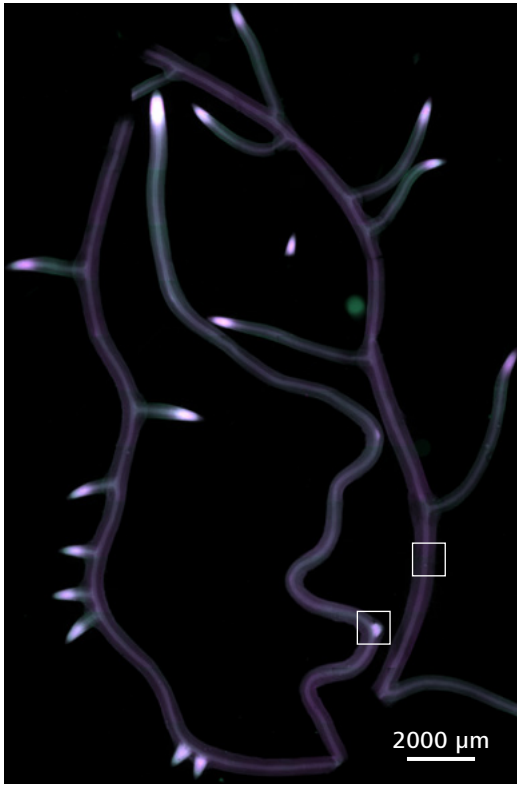
ZEISS Axio Imager 2 at Work

Advancing plant biology: Investigating Nod Factor Receptor activity in plant roots

By utilizing fluorescent markers, researchers can gain insights into the spatial and temporal aspects of cellular processes and interactions in plant roots, enhancing our understanding of plant development and symbiotic relationships. In particular, understanding Nod Factor Receptor (NFP) activity can help improve agricultural practices by enhancing the efficiency of biological nitrogen fixation. Here, roots of *Medicago truncatula* expressing a membrane marker fused with the fluorescent proteins tdTomato (magenta) were imaged. In addition, green nuclear signal (StayGold) indicates promoter activity of NFP. A tiled image overview was first generated (top right), utilizing the 25 mm field of view which allows to scan large areas with up to 50% less tiles. For a detailed view, a z-stack was acquired and deconvolved to reduce out-of-focus light and improve the contrast of the images (bottom left). This helps to identify single cells with active NFP. Structures of a root meristem giving rise to lateral root formation was observed with Differential Interference Contrast (DIC) (bottom right).







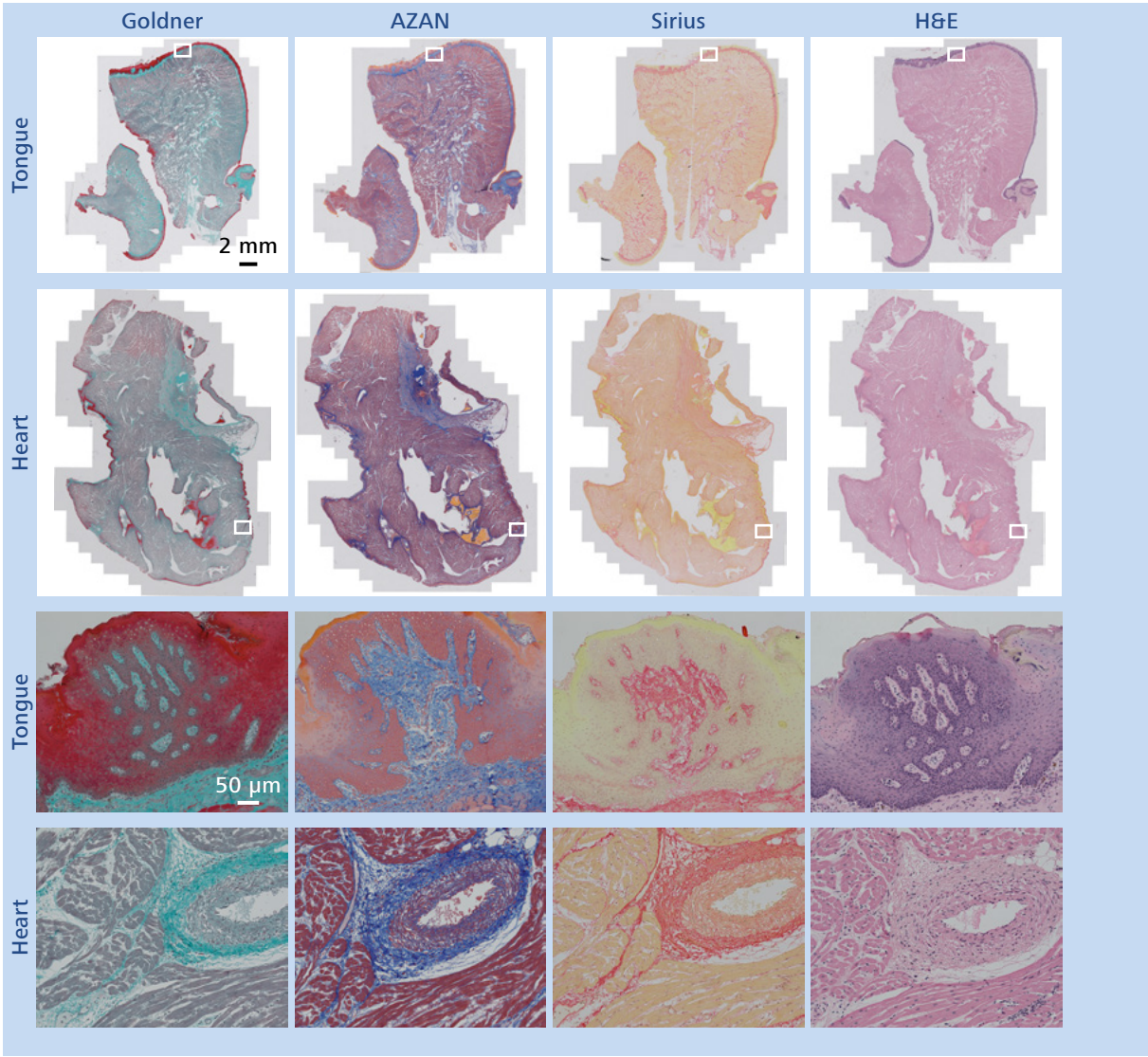
Sample courtesy of T. Timmers, Max Planck Institute for Plant Breeding Research, Germany.

ZEISS Axio Imager 2 at Work

Streamlining tissue analysis: automated medium-throughput imaging of heart and tongue histology

To investigate structural and functional aspects of tissues in physiological and pathological studies, the simultaneous processing of multiple samples with high data quality is crucial. Automated medium-throughput imaging plays an important role here and enables efficient and detailed examinations of tissue sections.

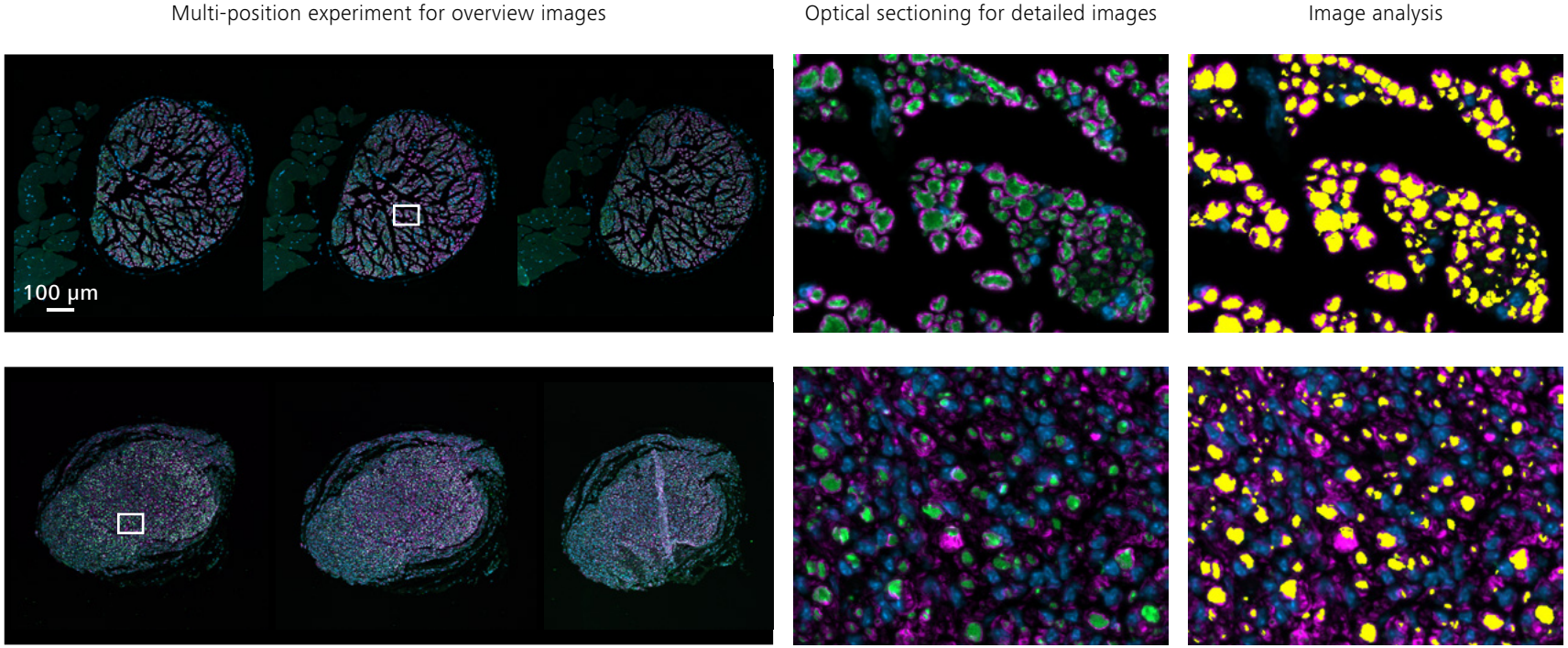
A set of 8 slides, consisting of 4 slides with heart tissue and 4 slides with tongue tissue of *Capreolus capreolus*, were examined in one experiment using an 8-slide holder. Overview images were acquired with a 10× objective and immediately stitched together through Direct Processing. Detailed images of areas of interest, such as vessels within the heart muscle and taste buds on the tongue, were subsequently acquired using a 20× objective. The Connect toolkit facilitated smooth navigation through all tissue sections and acquisitions. Goldner, AZAN, and Sirius are different trichrome stains, all used to visualize cell nuclei, cytoplasm, and collagen fibers. H&E (Hematoxylin and Eosin) is a standard stain for general tissue morphology.



ZEISS Axio Imager 2 at Work

Optimizing tissue imaging: Optical sections for analysis in nerve regeneration studies

Nerve regeneration studies are a cornerstone of neuroscience research, driving innovations that have the potential to transform the treatment of nerve injuries and related conditions. By exploring the unique regenerative capabilities of peripheral nerves, researchers can ultimately contribute to the field of neurology and rehabilitation medicine. Here, nerve regeneration was evaluated in a disease model of neurofibromatosis type 2 (NF2) (bottom) compared to intact, non-regenerating nerves (top). Mouse tissue sections of sciatic nerves were labeled for axons (green) and Schwann cells (magenta), nuclei were counterstained with DAPI (blue). With the help of a multi-position experiment, overviews of all sections were generated. Optical sectioning using structured illumination with ZEISS Apotome 3 allowed to efficiently minimize out-of-focus light to create brilliant optical sections. After image acquisition, the acquired data was analyzed in ZEN obtaining valuable and quantifiable data about the labeled axons per section (segmentation in yellow).

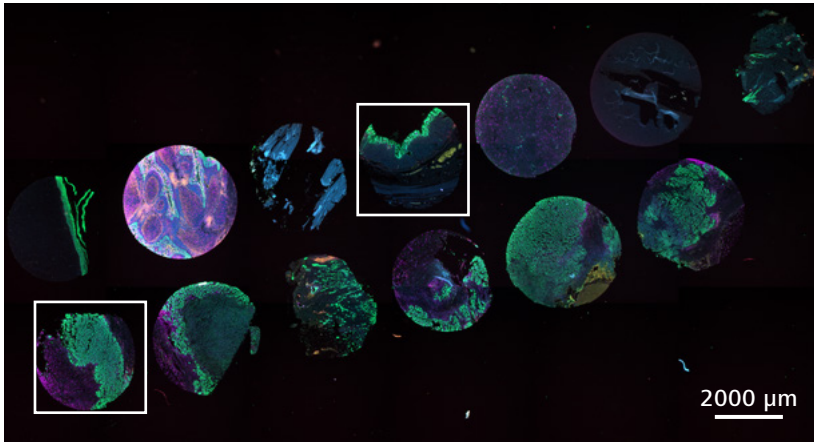


Sample courtesy of Morrison Lab, Leibniz Institute on Aging – Fritz Lipmann Institue (FLI), Jena, Germany.

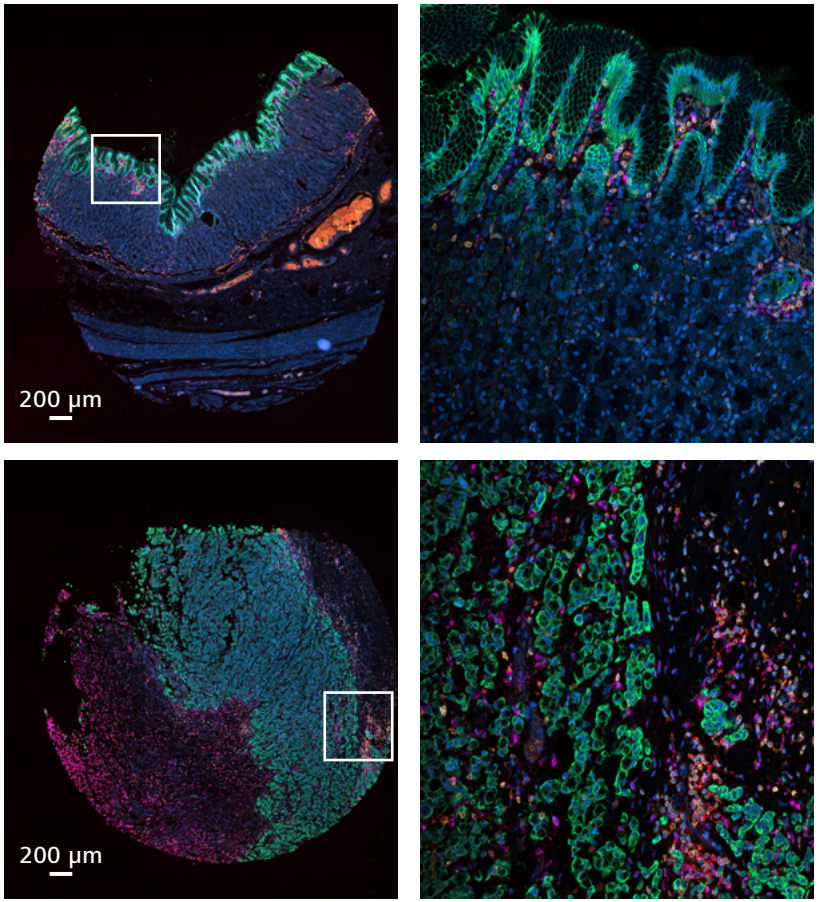
ZEISS Axio Imager 2 at Work

Exploring tumor biology: Discoveries from tissue microarray (TMA) imaging

TMA offer a powerful tool for high-throughput analysis, allowing researchers to simultaneously screen multiple tissue samples under uniform experimental conditions. Here, a TMA of 13 tissue stamps was screened using the following set of markers for tumor analysis: panCK (FITC), CD3 (TRITC), PD-L1 (Cy5), CD68 (Cy7), and DNA (DAPI). These markers provide insights into tumor-immune interactions and may help to find potential therapeutic targets.



An overview image was generated to facilitate navigation between sample areas (2.5× objective, 3×6 tiles). The Connect toolkit enabled seamless navigation through all tissue sections and acquisitions.

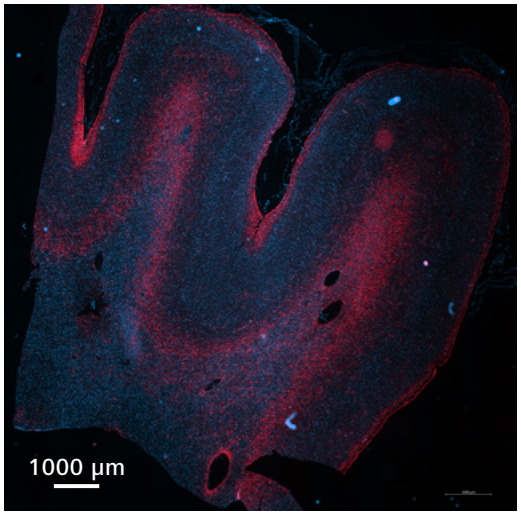


For each tissue stamp, a tiled overview image was generated (10× objective, 3×3 tiles, left). Regions of interest were subsequently defined for detailed imaging (20× objective, optical sectioning with ZEISS Apotome 3, right). Examples show human stomach tissue (top) and human breast tissue (Ductal Carcinoma In Situ, bottom), revealing the expression of the markers in context.

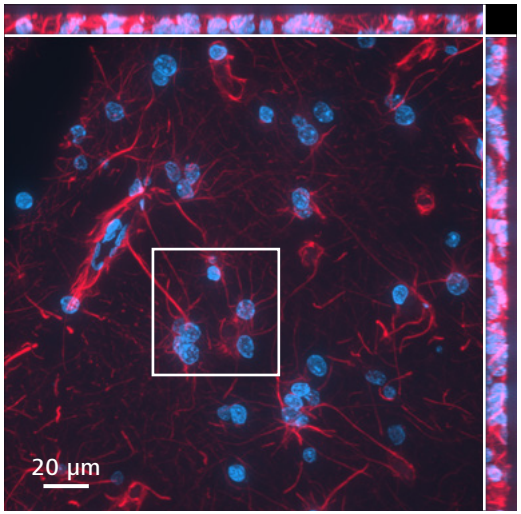
ZEISS Axio Imager 2 at Work

Neurobiology decoded: High-resolution insights into brain tissue

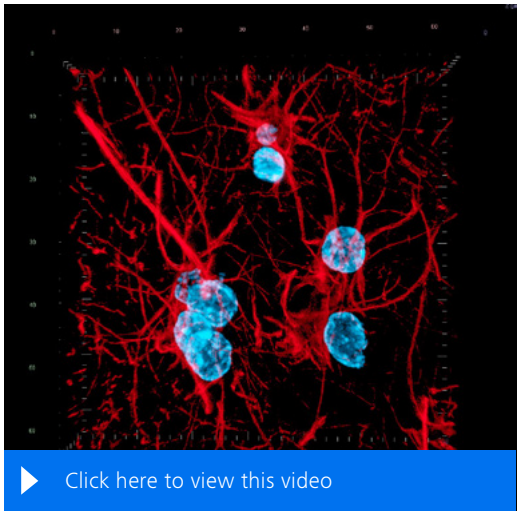
In neurobiology, the visualization and analysis of cellular structures in human brain tissue is fundamental to understanding the complex interactions that underpin brain function and pathology. This is particularly relevant in neurodegenerative research, where identifying changes in cellular populations and protein expression can provide insights into disease mechanisms. Glial cells, marked by Glial Fibrillary Acidic Protein (GFAP), are of particular interest because they play a critical role in maintaining neuronal health and responding to injury. In this study, an overview image of human brain tissue stained with anti-GFAP antibody (red) to identify glial cells, along with DNA counterstain (blue), was generated. An optical section of a tissue region of interest was produced using structured illumination with ZEISS Apotome 3. This efficiently removes out-of-focus light (orthogonal maximum projection shown). Furthermore, the shape and arrangement of a set of glial cells was further analyzed with ZEISS Apotome Plus, resulting in a high-resolution 3D image with confocal-like quality.



Overview image acquired with a 10× objective



ZEISS Apotome 3: Optical sectioning

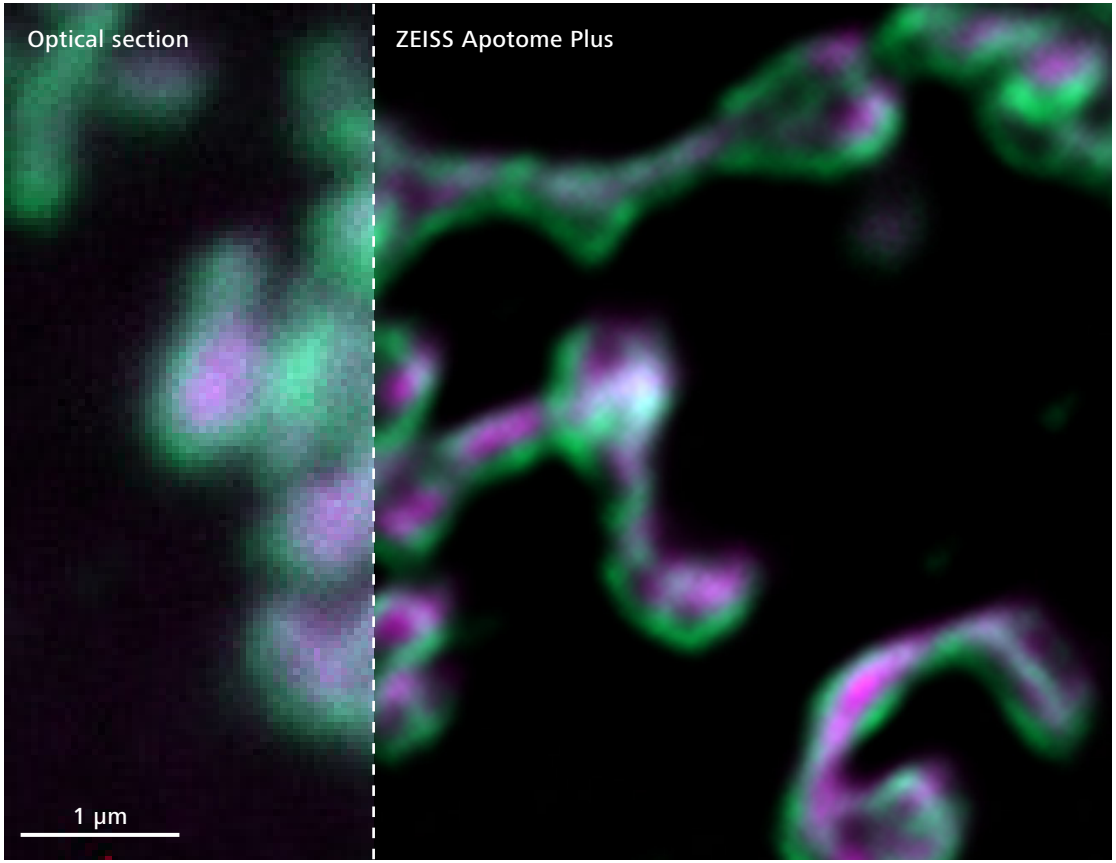


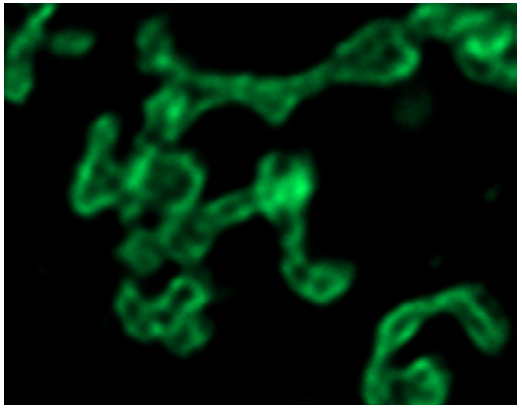
ZEISS Apotome Plus: High-resolution 3D image

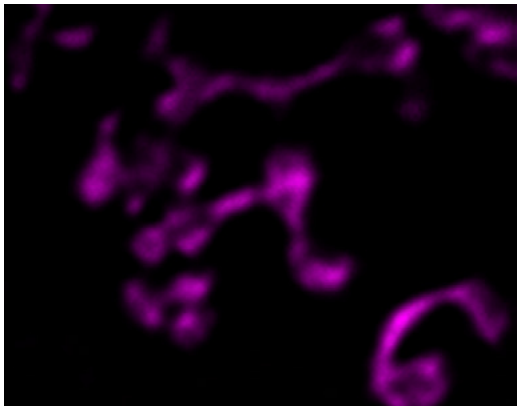
ZEISS Axio Imager 2 at Work

High-resolution optical sectioning in cell biology: Advancing mitochondrial research

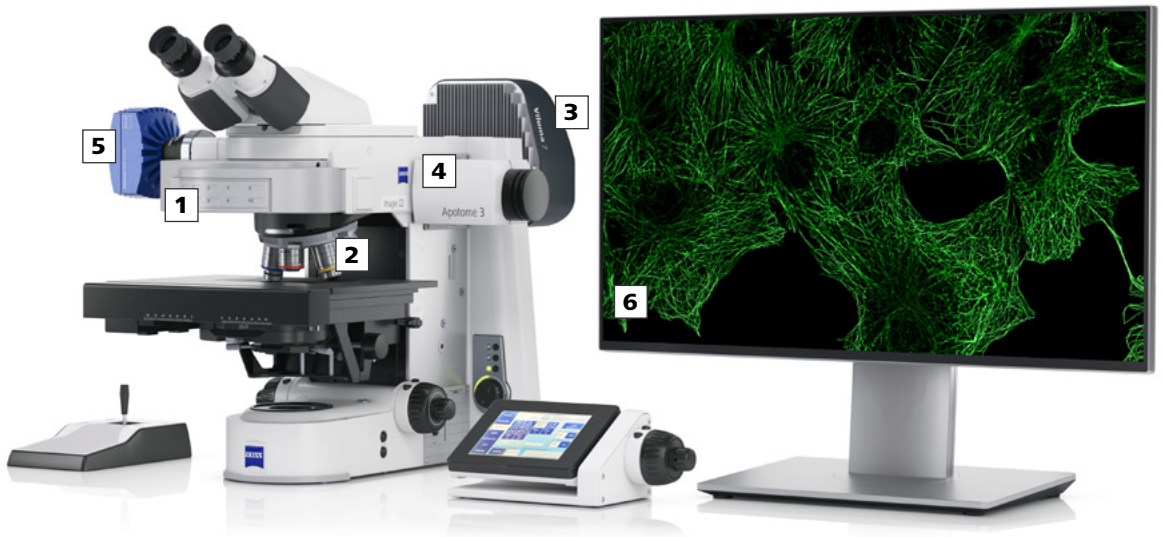
To accurately visualize and differentiate the intricate details of mitochondrial morphology and membrane integrity, advanced imaging methods are essential. By utilizing mitochondria outer membrane and inner mitochondria staining, researchers can gain valuable insights into the structure, function, and dynamics of mitochondria, enhancing our understanding of their critical roles in cellular biology and disease processes. ZEISS Apotome Plus offers excellent optical sectioning at high resolution to separate the expression of TOMM20-mEmerald (green) and the localization of MitoTracker Red CMXRos (magenta) in mitochondria, here in U2OS cells.







Your Flexible Choice of Components



1 Microscope

- Axio Imager.A2 / Axio Imager.A2 LED
- Axio Imager.D2
- Axio Imager.M2 / Axio Imager.M2p
- Axio Imager.Z2
- Depending on stand version:
  - Light Manager and Contrast Manager
  - Encoded or motorized tube lens turret, available magnifications: 1.25×, 1.6×, 2.5×; 4×
  - Reflector turret: 6× encoded, 6× or 10× motorized
  - Nosepiece: 6× or 7× encoded or motorized
  - Automatic Component Recognition (ACR)

2 Objectives

- C-Apochromat autocorr
- C-Apochromat
- LD LCI Plan-Apochromat autocorr
- alpha Plan-Apochromat
- Plan-Apochromat
- EC Plan-Neofluar
- N-Achroplan

3 Illumination

- Multi-LED light sources ZEISS Viluma 5/7/9
- White light LED light source X-Cite Xylis II

4 Imaging Systems

- Apotome 3
- LSM 910 with Airyscan 2
- LSM 990 with Airyscan 2
- Cryogenic imaging

5 Accessories

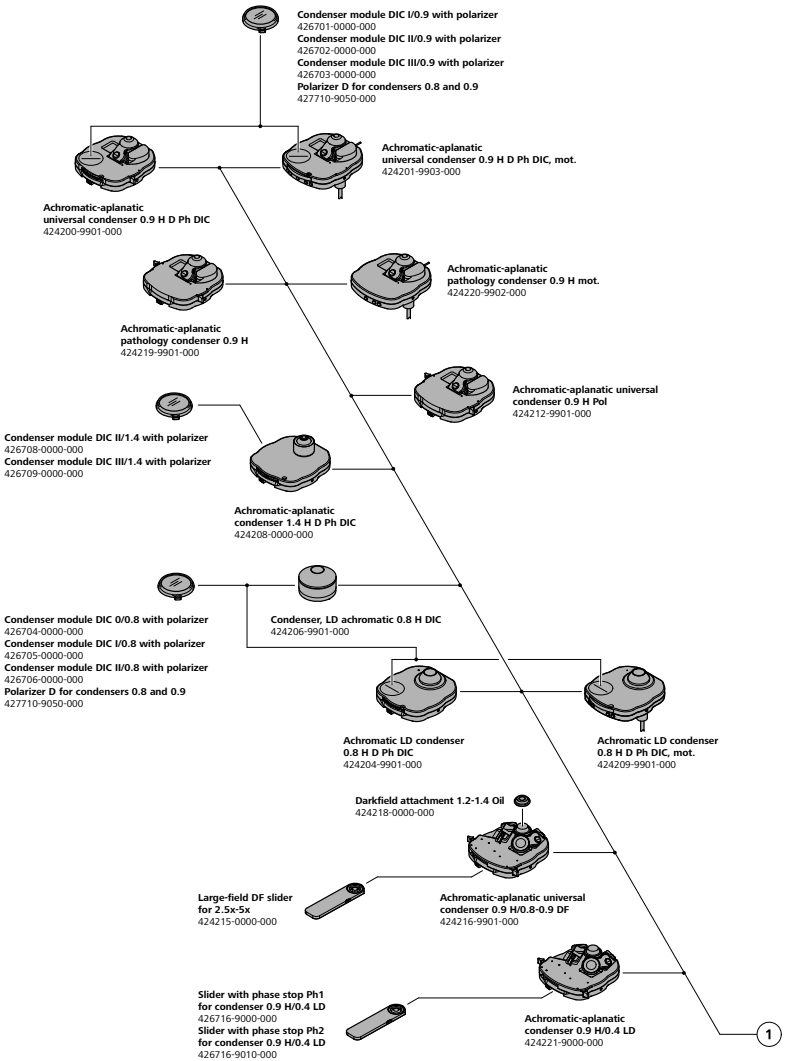
- High precision, high speed motorized scanning stages and manual stages
- Adjustable dual camera adapter Duolink
- ZEISS Axiocam microscope cameras and a wide range of high-end third-party cameras

6 Software

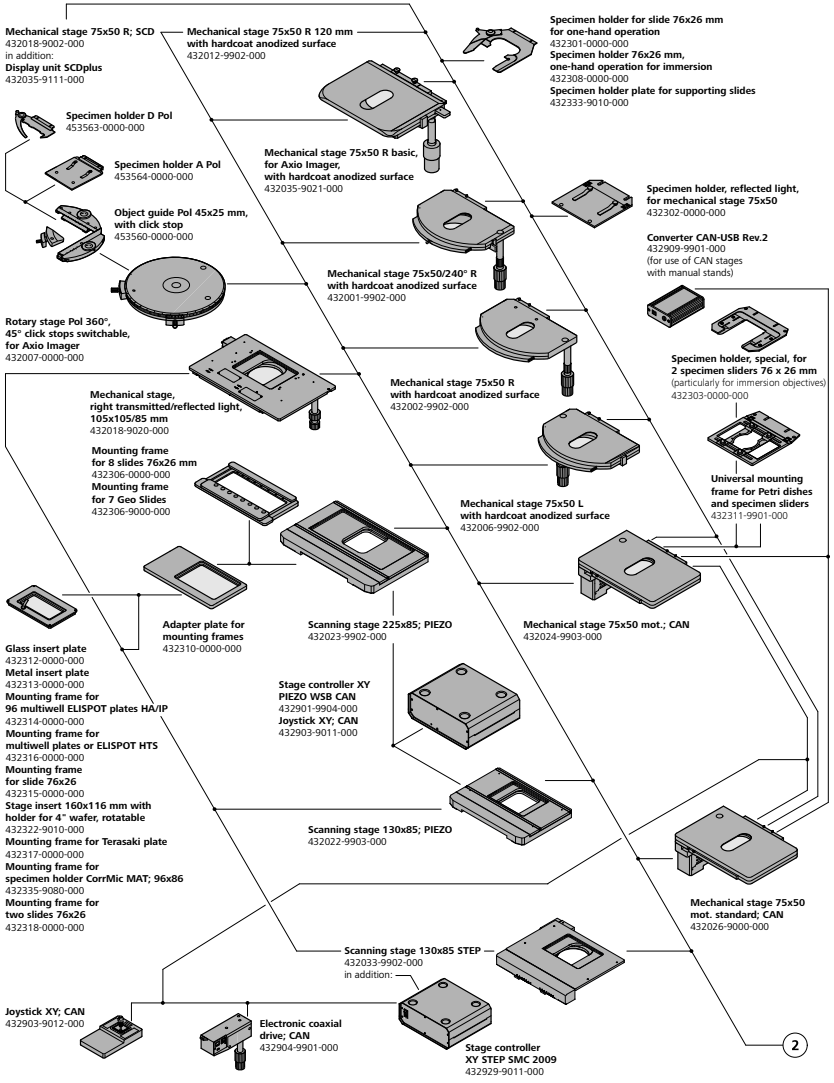
- ZEN, configured according to your Axio Imager 2 configuration and application requirements
- Recommended ZEN toolkits:
  - Motorized
  - Deconvolution
  - Connect
  - AI

System Overview

Condensers

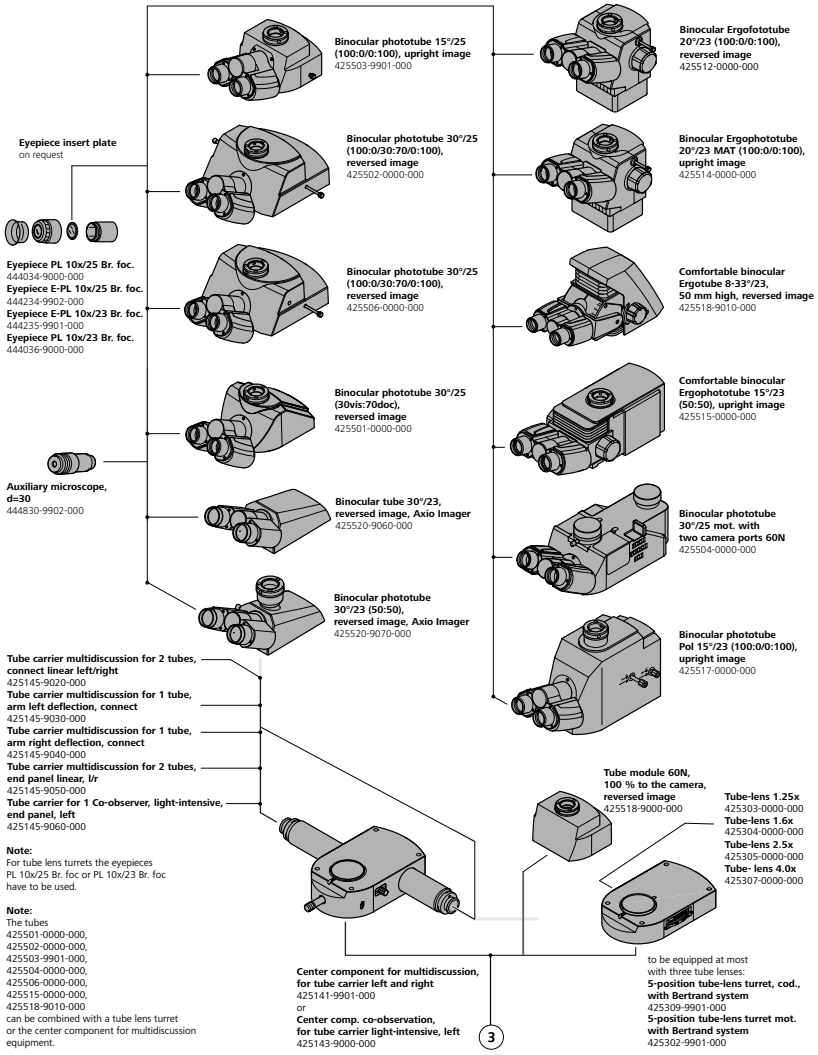


Microscope Stages

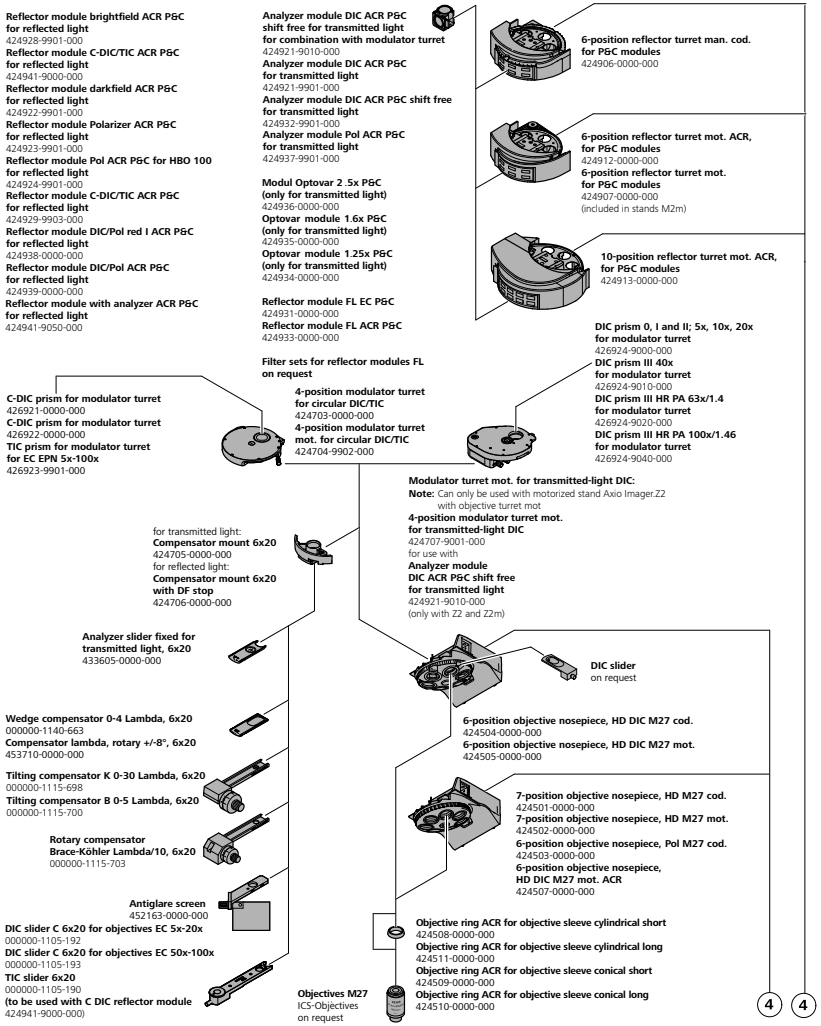


System Overview

Tubes, Eyepieces

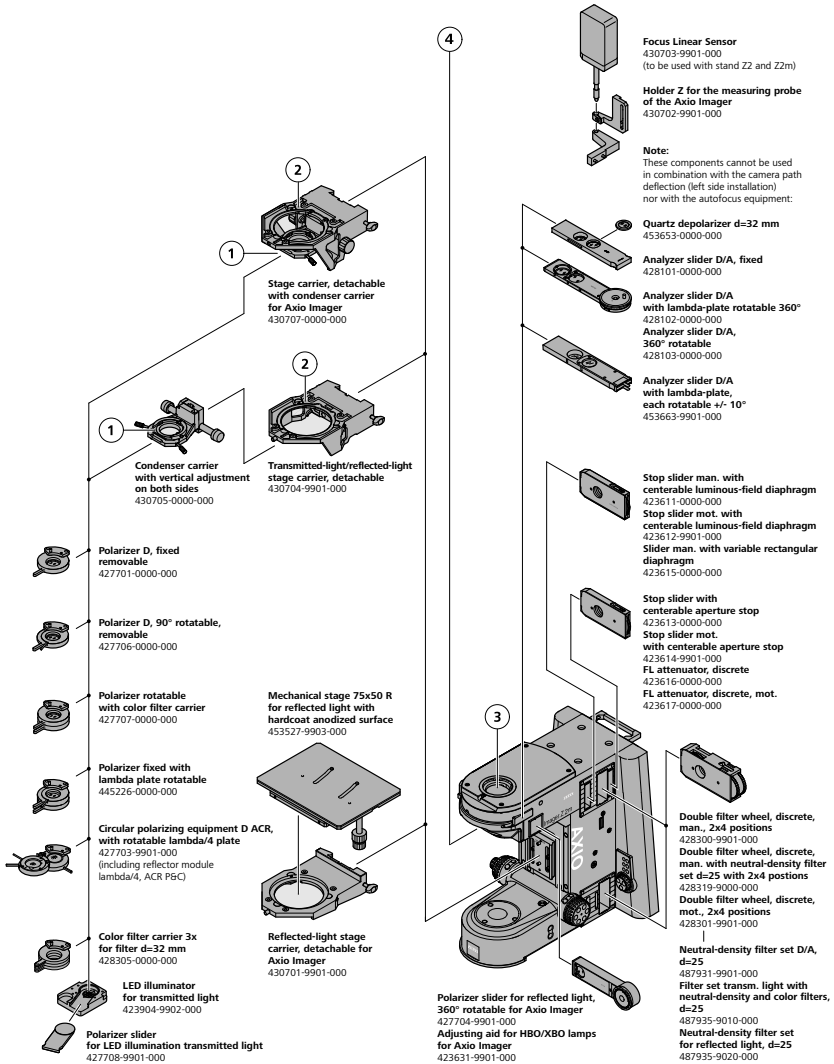


Reflector and Modulator Turrets, Nosepieces, Contrast Modules and Sliders, Compensators

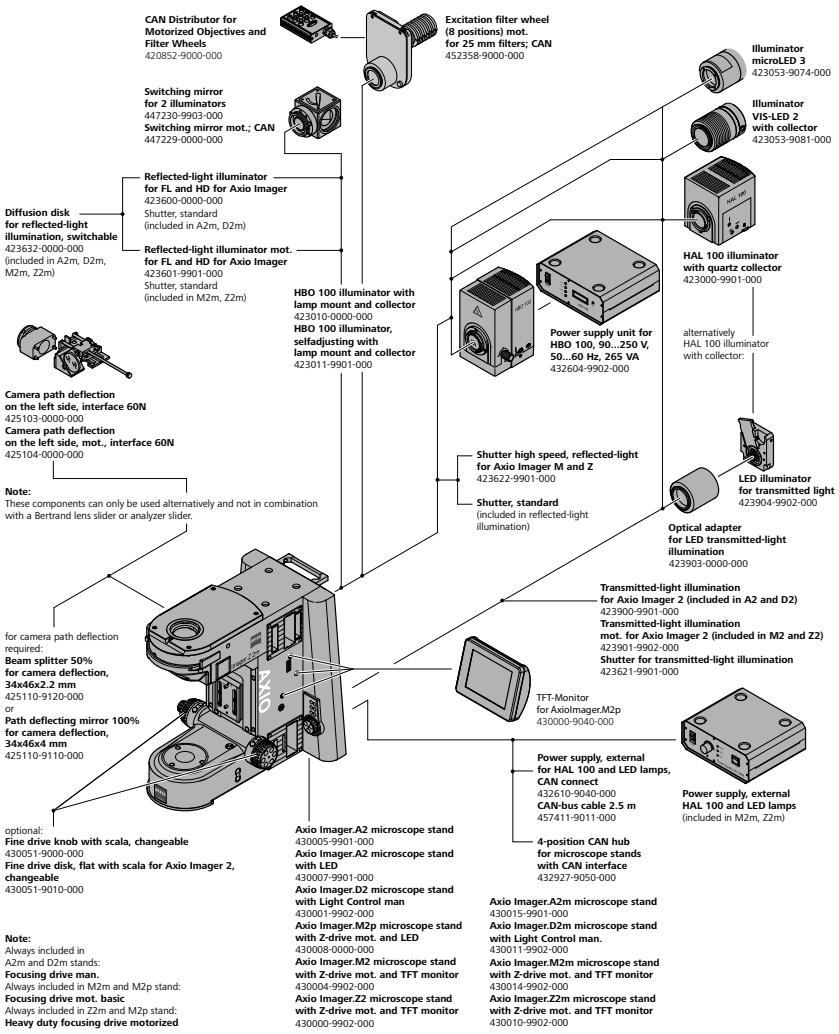


System Overview

Stage Carriers, Sliders, Filters

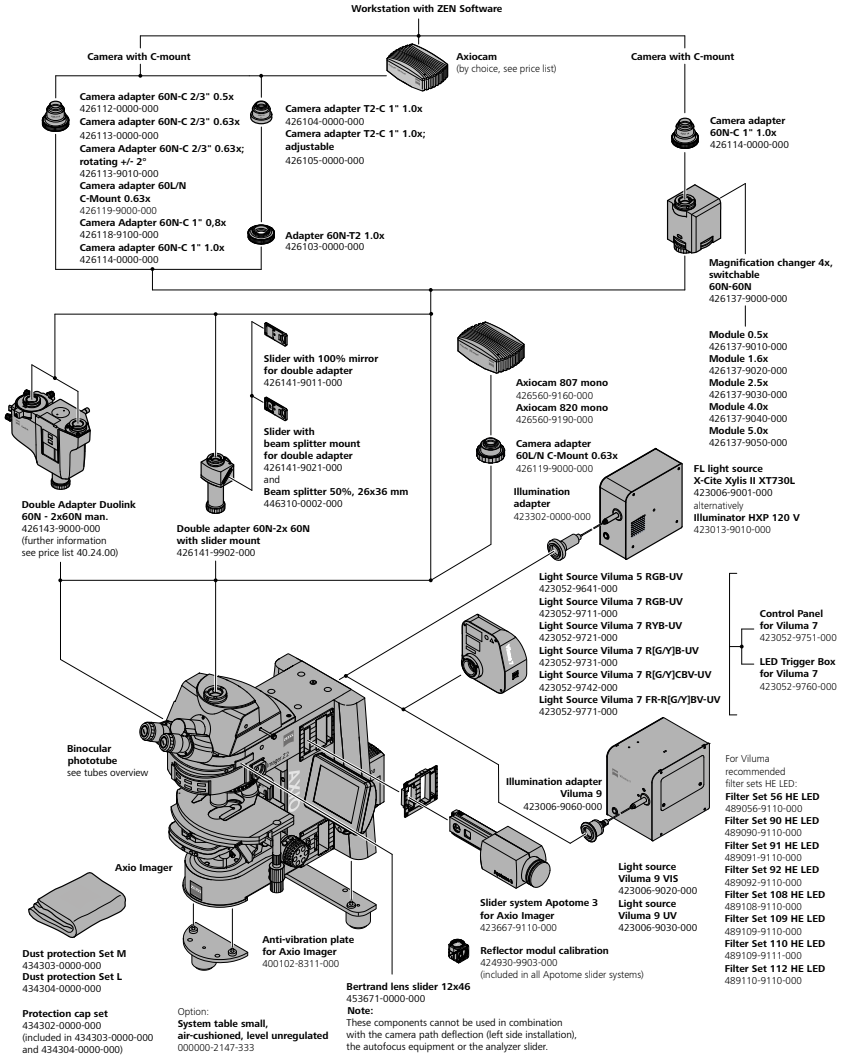


Stands, Illumination



System Overview

Documentation, Fluorescence Illumination



System Overview

	Option / comment	A2 LED	A2	M2p	M2	D2	Z2
Microscope stand	coded	+	+	–	–	+	–
	motorized	–	–	+	+	○*	+
Coding	Readable by PC	+	+	+	+	+	+
Display	TFT display	–	–	○	+	–	+
	Docking station	–	–	○	+	–	+
Light Manager		+	+	+	+	+	+
Contrast manager		○	○	○	○	○	○
Automatic component recognition	Nosepiece ACR	–	–	–	○	–	○
	Reflector turret ACR	–	–	–	–	○	○
Tube lens turret	5 positions, coded with Bertrand system (tube lenses: 1.25×, 1.6×, 2.5×, 4.0×)	○	○	○	○	○	○
	5 positions, motorized with Bertrand system (tube lenses: 1.25×, 1.6×, 2.5×, 4.0×)	–	–	○	○	–	○
Reflector turret	6 positions, coded	○	○	○	○	○	○
	6 positions, motorized	–	–	○	○	○	○
	6× motorized ACR	–	–	–	–	–	○
	10× motorized ACR**	–	–	–	–	○	○
Objective nosepiece	6× coded POL	○	○	–	○	○	○
	6× coded HD DIC	○	○	–	○	○	○
	6× motorized HD DIC	–	–	–	○	–	○
	6× motorized HD DIC ACR	–	–	–	○	–	○
	7× coded HD	○	○	+	○	○	○
	7× motorized HD	–	–	–	○	–	○
	motorized****	–	–	–	○	–	○
Modulator turret for transmitted light – DIC	motorized****	–	–	–	–	–	○
Attachable stage carrier with condenser carrier	0 mm – 25 mm	+	+	+	+	+	○
Attachable stage carrier for detachable condenser carrier	0 mm – 45 mm	○	○	○	○	○	○
Attachable reflected-light stage carrier	0 mm – 63 mm	–	○	–	○	○	○
Transmitted-light illumination	manual	–	+	–	–	+	–
	motorized	–	–	–	+	–	+
Illuminator transmitted-light	LED transmitted–light on condenser carrier	+	○	+	○	○	○
	microLED, VIS-LED, HAL 100	–	○	–	○	○	○
Transmitted light double filter wheel	manual	–	+	–	○	○	○
	motorized	–	–	–	○	–	○
Reflected-light illumination	manual***	○	○	○	○	○	○
	motorized***	–	–	–	–	–	○

System Overview

	Option / comment	A2 LED	A2	M2p	M2	D2	Z2
Illumination system incident-light	VIS–LED, microLED, Viluma 5/7/9, HXP 120 V, HBO 100, X–Cite Xylis II	○	○	○	○	○	○
Reflected-light luminous-field diaphragm	manual	○	○	○	○	○	○
	motorized	–	–	–	–	–	○
Reflected-light aperture diaphragm slider	manual	○	○	○	○	○	○
	motorized	–	–	–	–	–	○
Reflected-light double filter wheel	manual	○	○	○	○	○	○
	motorized	–	–	–	–	–	○
FL Attenuator	manual	○	○	○	○	○	○
	motorized	–	–	–	–	–	○
Reflected-light / transmitted-light selection	manual	+	+	–	–	+	–
	Software	–	–	+	+	–	+
Mixed light with extra power supply	external power supply	+	+	–	–	+	–
	external power supply, CAN	–	–	+	+	–	+
Focus (z-axis)	manual	+	+	–	–	+	–
	motorized, 25 nm	–	–	+	+	–	–
	High-performance focus (motorized, 10 nm)	–	–	–	–	–	+
Focus linear sensor	–			○	○		○
Apotome	–	○	○	○	○	○	○
Power supply	External	–	–	+	+	–	+
	Internal	+	+	–	–	+	–
Mechanical CAN stages	motorized****	○	○	○	○	○	○
Scanning stages	Piezo	○	○	○	○	○	○
	DC/stepper motors	○	○	○	○	○	○
Fast z-piezo operation	With manual stage	○	○	○	○	○	○
	With scanning stage	○	○	○	○	○	○
Phototubes	Binocular phototube 15°/25 (100:0/0:100), upright image						
	Binocular phototube 30°/25 (30vis:70doc), reversed image	○	○	○	○	○	○
	Binocular phototube 30°/25 (100:0/30:70/0:100), reversed image						
Motorized tubes	Binocular phototube 30°/25 (100:0/30:70/0:100), reversed image with motorized eyepiece shutter	–	–	○	○	–	○
	Binocular phototube 30°/25 mot. with two camera ports (100:0/30:70/0:100)	–	–	○	○	–	○

System Overview

	Option/comment	A2 LED	A2	M2p	M2	D2	Z2
Ergotubes and Ergophototubes	Binocular Ergophototube 20°/23 (100:0/0:100), reversed image variable, continuous vertical adjustment 44 mm	○	○	○	○	○	○
	Phototube Ergo 6–25°/23 (100/100), upright image						
	Comfortable binocular Ergotube, reversed image variable, continuous angle adjustment 8–33° and vertical adjustment 50 mm						
	Comfortable binocular Ergophototube 15°/23 (50:50), upright image variable, continuous horizontal and vertical adjustment of the binocular component						
Condensers	Manual: Achromatic-aplanatic pathology condenser 0.9 H Achromatic-aplanatic universal condenser 0.9 H D Ph DIC Achromatic-aplanatic condenser 1.4 H D Ph DIC Achromatic LD condenser 0.8 H DIC Achromatic LD condenser 0.8 H D Ph DIC	○	○	○	○	○	○
	Motorized: Achromatic-aplanatic condenser 0.9 H mot. pathology Achromatic-aplanatic universal condenser 0.9 H D Ph DIC, mot. Achromatic LD condenser 0.8 H D Ph DIC, mot	–	–	○	○	–	○

\+ = Included in stand
○ = Optional
– = Not possible
* = Motorized (6-position and 10-position) reflector turret may be used.
** = ACR function not available with Axio Imager D2.
*** = All reflected-light illumination systems come with a motorized shutter.
For fluorescence applications, this may be replaced optionally by a high-speed shutter.
**** = USB/CAN converter 432909 is required for use on Axio Imager A2 LED, A2 and D2.
***** = Motorized only if used with an objective nosepiece.

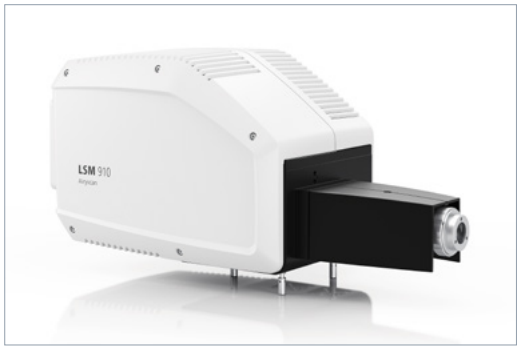
Expand Your Possibilities

As your needs grow, your ZEISS Axio Imager 2 grows with you, forming the basis for a number of enhancements. Like every system from ZEISS, open interfaces and a modular architecture guarantee the seamless interaction of all components now and in the future. These include:

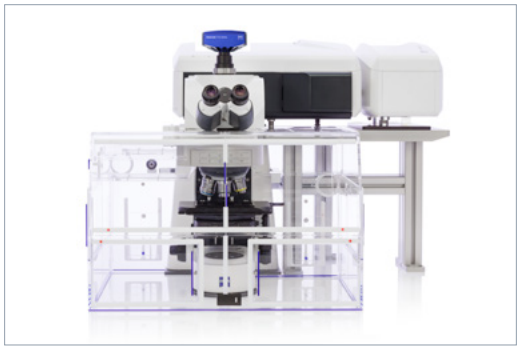
Choose the right objectives for your application from a broad portfolio of lenses.

Enhance your microscope with a light source of the ZEISS Viluma family. The flexible and efficient LED light sources allow to screen and image your delicate fluorescent samples very gently. You profit from stable illumination and extremely long lifetime of the light source.

Select a microscope camera with the sensitivity, resolution and imaging speed you need.



Expand your system with a range of complementary 3D imaging methods.



Combine your Axio Imager 2 with stable incubation options for imaging at elevated temperatures.

Create reliable optical sections and high-resolution 3D renderings with Apotome 3.

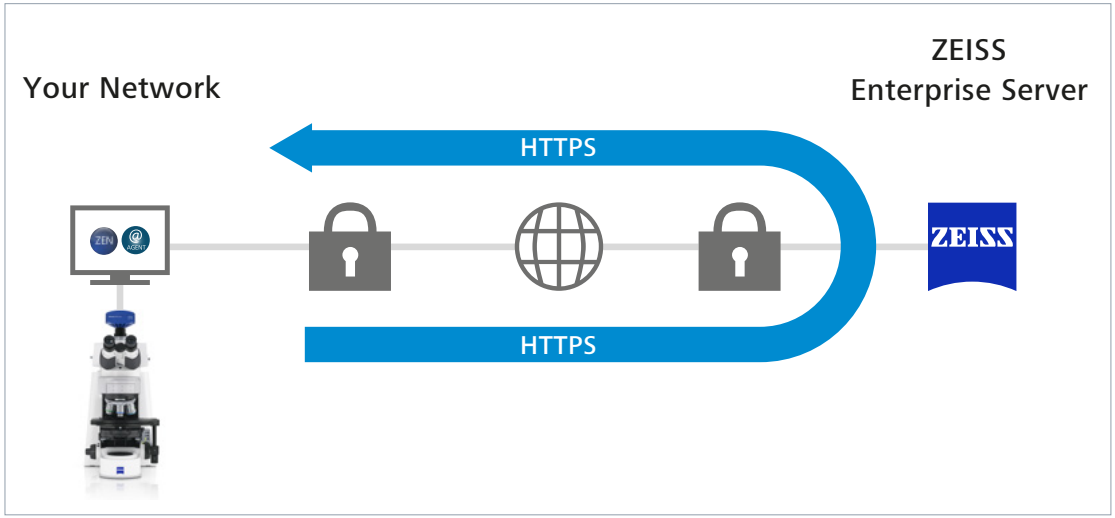
Expand Your Possibilities

ZEISS Predictive Service
Maximizes System Uptime

Once connected to your network and activated, this advanced technology will automatically track the health status of your instrument and collect system log files in the background to improve remote diagnosis.

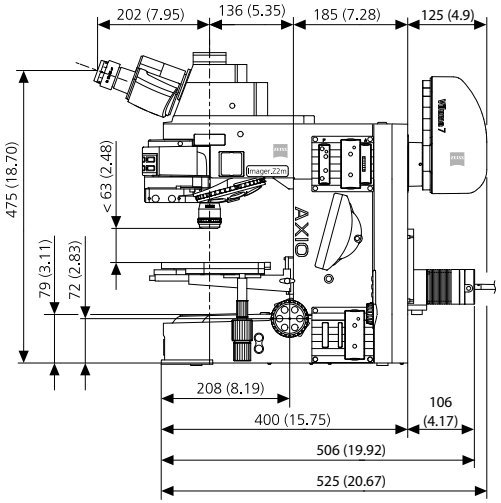
Relevant technical data such as operating hours, cycle counts or voltages are periodically monitored via a secure connection to our data center. The ZEISS Predictive Service application evaluates the performance of your microscope as system data can be received and analyzed.

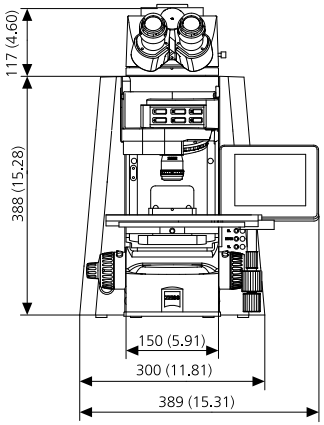
Our support engineers will diagnose any issues by analyzing data on the Enterprise Server – remotely and without interruption to your operation.



- **Maintain highest system availability**
  Increase your uptime through close monitoring of the system's condition as remote support can often provide immediate solutions.
- **Data security**
  Ensure highest data security standards using well established technologies like PTC Thingworx and Microsoft Azure Cloud. No personal or image data is uploaded, only machine data.
- **Fast and competent support**
  Use secure remote desktop sharing to easily get an expert connected.
- **Optimum instrument performance**
  As the status of your system is monitored, necessary actions can be planned before they become urgent.

Technical Specifications





Dimensions (width × depth × height)	
Axio Imager 2 stand, manual with Viluma 7	approx. 300 mm × 648 mm × 505 mm
Axio Imager 2 stand, motorized with Viluma 7 and TFT display	approx. 390 mm × 648 mm × 505 mm

Weight	
Axio Imager 2, coded / motorized (dependent on equipment)	approx. 18 kg to 40 kg

Ambient conditions		
Transport (in packaging)	Permissible ambient temperature	–40 °C to +70 °C
Storage	Permissible ambient temperature	+10 °C to +40 °C
	Permissible relative humidity (no condensation)	max. 75% at 35 °C
Operation	Permissible ambient temperature	+10 °C to +40 °C
	Permissible ambient temperature for operation with X-Cite XYLIS II	+15 to +30 °C
	Permissible ambient temperature for operation with Viluma 9	+10 to +30 °C
	Permissible relative humidity	max. 75% at 35 °C
	Atmospheric pressure	800 hPa to 1060 hPa
	Altitude	max. 2000 m
	Pollution degree	2

Technical Specifications

Operating data for coded Axio Imager 2, equipped with an integrated power supply or motorized Axio Imager 2 using the VP232-2 external power supply	
Operating environment	Closed room
Protection class	I
Electrical safety	in compliance with IEC 61010-1 including CSA und UL directives
Overvoltage category	II
Radio interference suppression	in accordance with EN 55011 Class A
Noise immunity	in accordance with IEC 61326-1
ZEISS Axio Imager 2 complies with the EMC emission and immunity requirements of IEC 61326-1. Emission compliance is class A (acc. to CISPR 11 / DIN EN 55011, equipment of group 1).	
Line voltage for integrated power supply	100 V to 127 V and 200 V to 240 V ±10 %
	Line voltage conversion is not required!
Line voltage for external power supply VP232-2	100 V to 240 V ±10 %
Line frequency	50 Hz – 60 Hz
Power consumption of coded Axio Imager 2	max. 300 VA
Power consumption of motorized Axio Imager 2	max. 190 VA

Ballast unit HBO 100	
Operating environment	Closed room
Protection class	I
Line voltage	100 VAC … 240 VAC
Line frequency	50 Hz – 60 Hz
Power consumption when HBO 100 is used	155 VA

Fuses in accordance with IEC 127	
Axio Imager 2 microscope stand, coded	T 5.0 A / H / 250 V, 5×20 mm
Power supply VP232-2 for Axio Imager 2, mot.	T 4.0 A / H / 250 V, 5×20 mm
Ballast unit HBO 100	T 2.0 A / H, 5×20 mm

Technical Specifications

Axio Imager 2, coded		
Stand with manual stage focusing	Coarse drive	2 mm/revolution
	Fine drive	0.2 mm / revolution; 2 µm increment
	Lifting range	max. 25 mm
	Height stop	mechanically adjustable
Achromatic-aplanatic universal condenser 0.9 H D Ph DIC with	swivel-type front lens, achromatic-aplanatic 0.9 DIC,	
	for objective magnifications Vobj. < 10×	front lens 0.9 swiveled out
	for objective magnifications Vobj. ≥ 10×	front lens 0.9 swiveled in
	8-position turret disk	
Objective change	coded	via 6-position or 7-position nosepiece, HD or HD DIC M27
Changing the contrast method	coded	via 6-position reflector turret

Axio Imager 2, motorized		
Stand with motorized stage focusing:	Step size of stepper motor	25 nm (Axio Imager.M2)
		10 nm (Axio Imager.Z2)
	Rapid lowering/lifting of stage	10 mm
	Lifting range	25 mm
	Height stop	electronic
	Focusing speed	variable
Achromatic-aplanatic universal condenser 0.9 H D Ph DIC, mot. with	swivel-type front lens, achromatic-aplanatic 0.9 DIC,	
	for objective magnifications Vobj. < 10×	front lens 0.9 swiveled out
	for objective magnifications Vobj. ≥ 10×	front lens 0.9 swiveled in
	8-position turret disk	
Objective change	coded / motorized	via 6-position or 7-position nosepiece
Changing the contrast method	coded / motorized	via 6-position or 10-position reflector turret
	manually / motorized	via DIC modulator turret
High-performance focus for scanning stages		applicable for specimens weighing up to 5 kg

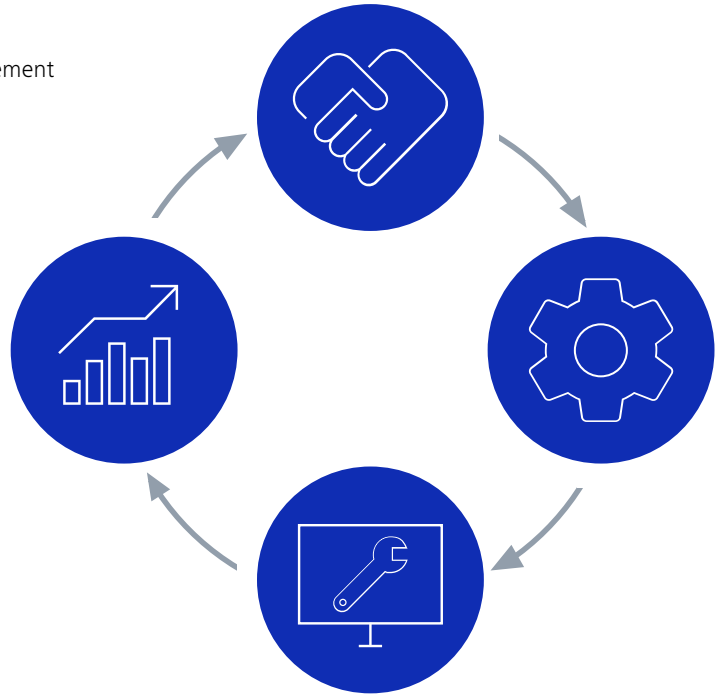
Optical risk group classification acc. to DIN EN 62471:2009	
X-Cite XYLIS II	Risk Group 3 (high risk)
Viluma 5/7	Risk Group 3 (high risk)
Viluma 9	Risk Group 3 (high risk)
HXP 120 V	Risk Group 2 (moderate risk)
HBO 100	Risk Group 2 (moderate risk)
microLED 3	Risk Group 2 (moderate risk)
VIS-LED 2	Risk Group 2 (moderate risk)
HAL 100	Risk Group 1 (low risk)

ZEISS Service – Your Partner at All Times

Your microscope system from ZEISS is one of your most important tools. For over 175 years, the ZEISS brand and our experience have stood for reliable equipment with a long life in the field of microscopy. You can count on superior service and support – before and after installation. Our skilled ZEISS service team makes sure that your microscope is always ready for use.

Procurement

- Lab Planning & Construction Site Management
- Site Inspection & Environmental Analysis
- GMP-Qualification IQ/OQ
- Installation & Handover
- IT Integration Support
- Startup Training



Operation

- Predictive Service Remote Monitoring
- Inspection & Preventive Maintenance
- Software Maintenance Agreements
- Operation & Application Training
- Expert Phone & Remote Support
- Protect Service Agreements
- Metrological Calibration
- Instrument Relocation
- Consumables
- Repairs

New Investment

- Decommissioning
- Trade In

Retrofit

- Customized Engineering
- Upgrades & Modernization
- Customized Workflows via ZEISS arivis Cloud

Please note: Availability of services depends on product line and location

Get in touch:
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