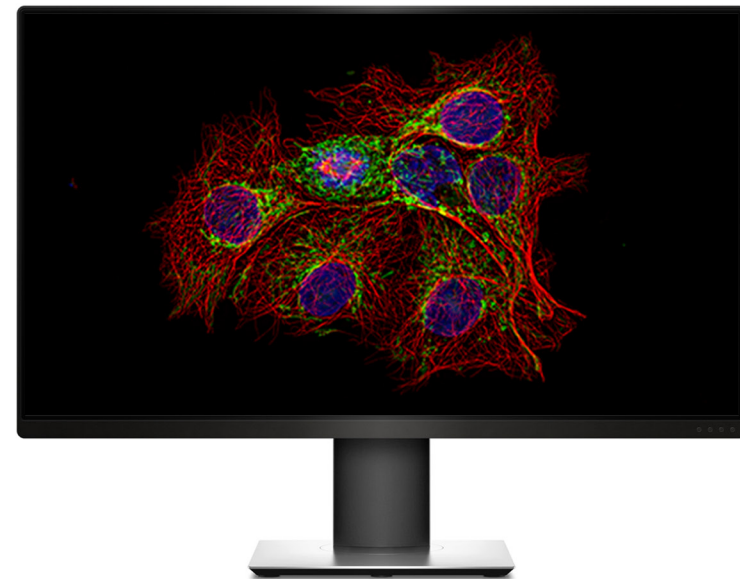


Start into your research from monolayers to organoids.



ZEISS Axiovert 7

Your inverted microscope for automated workflows in life science research

zeiss.com/axiovert



Seeing beyond

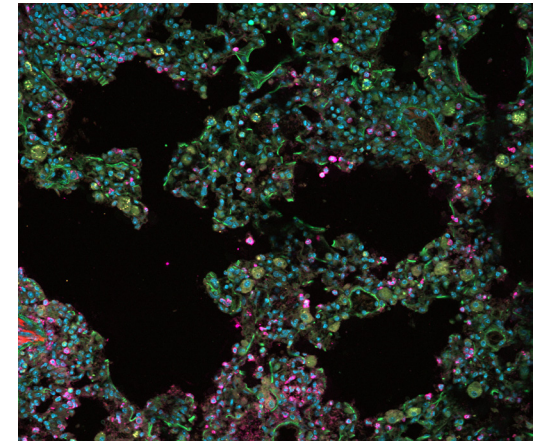
Your inverted microscope for automated workflows in life science research

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Are you looking for a powerful microscope for your lab? A microscope that is simple to use, delivers excellent image quality, and meets the needs of daily life science research? Of course you are! Having a high-quality, easy-to-use microscope is essential if you spend long hours working in the lab.

ZEISS Axiovert 7 inverted microscope is your ideal choice if it comes to automated workflows in life science research. You work with the ZEISS ZEN software and profit from Smart Acquisition and various analyzation toolkits. The instrument combines various contrast methods such as DIC, iHMC, and phase contrast, as well as multichannel fluorescence to help you work efficiently.

ZEISS Axiovert 7 delivers precise, multidimensional imaging for basic research assays and experiments. From mammalian cells or microorganisms to 3D tissue, animal or plant. With upgradable hardware and software, this microscope will be your reliable partner in the lab and evolve with your research.



Mouse lung tissue cross section. Red: tumor cells, green: macrophages, magenta: T cells, blue: cell nuclei. Sample courtesy of H. Ishikawa-Ankerhold, Ludwig Maximilian University, Munich (Germany).



Simpler. More intelligent. More integrated.

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Advance your research with a flexible, future-proof approach

Life science is a dynamic environment with ever-changing imaging requirements. Axiovert 7 offers extensive interfaces and upgradable hardware and software to meet both current and future needs. You analyze more microstructures and details. With compatible live cell incubation equipment, you can even use Axiovert 7 for long-term live cell imaging. Even as your research needs change, Axiovert 7 easily adapts.

Go for a cutting-edge, versatile microscope

From routine cell culture to complex research, Axiovert 7 fits seamlessly into your lab and workflow. With various contrast methods such as DIC, iHMC, and phase contrast, as well as multichannel fluorescence, you have the flexibility to explore a wide range of imaging applications. Thanks to the motor-driven focus control, the monochromatic LED-based Viluma light source, and the powerful ZEN imaging software, Axiovert 7 enables effortless multidimensional imaging and accelerates your daily life science research.

Work efficiently with accelerated microscopy

ZEISS Axiovert 7 is designed for speed, efficiency, and reliable results, helping you move from sample to image in minimal time. Simply focus on your sample, press Snap, and immediately save clear, high-quality images of your cell or tissue cultures.

Multichannel fluorescence images are automatically overlaid and include accurate scaling information stored directly in the image metadata. This streamlines documentation and analysis, ensuring consistent, reproducible results while keeping your workflow fast and focused.



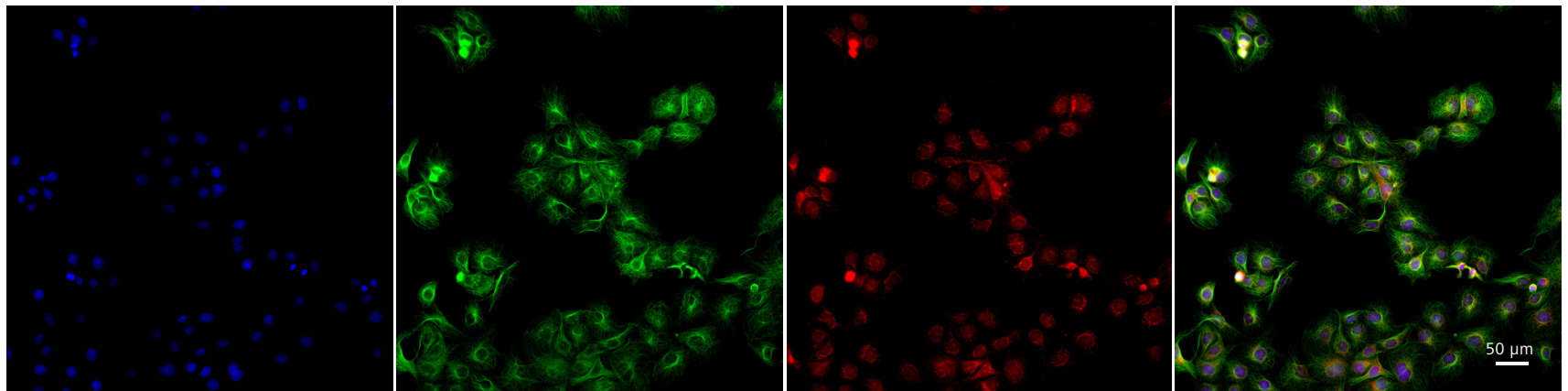
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Capture multichannel fluorescence images with a single click

ZEISS Axiovert 7 is equipped with a 6-position fluorescence reflector turret, giving you the flexibility to work with multiple fluorophores and fluorescence labels in your experiments. Likewise, the 6-position nosepiece allows quick, seamless changes for different experimental setups.

When combined with a high-performance LED light source such as ZEISS Viluma 5/7 or Colibri 3 as well as any ZEISS AxioCam mono camera, you can easily capture multichannel fluorescence data. Simply select the relevant channels, press Snap, and you will get an overlaid image that includes both multichannel fluorescence and transmitted light, complete with a scale bar.



Nuclei (blue), microtubules (green), mitochondria (red), and multichannel overlay (right) in Cos-7 cells. Objective lens: Plan-Apochromat 20x/0.8.

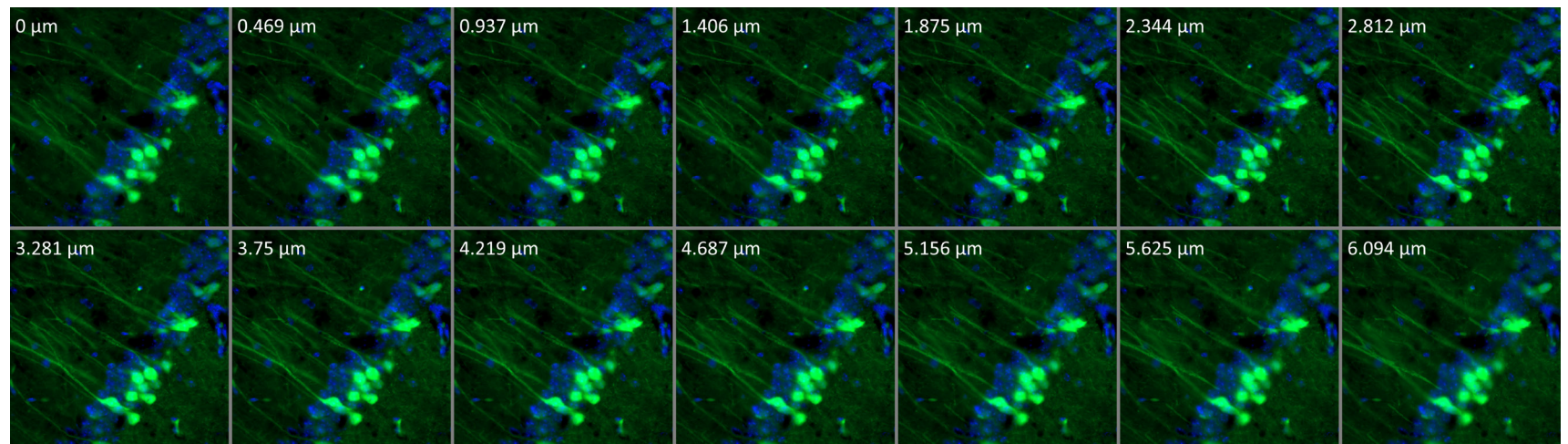
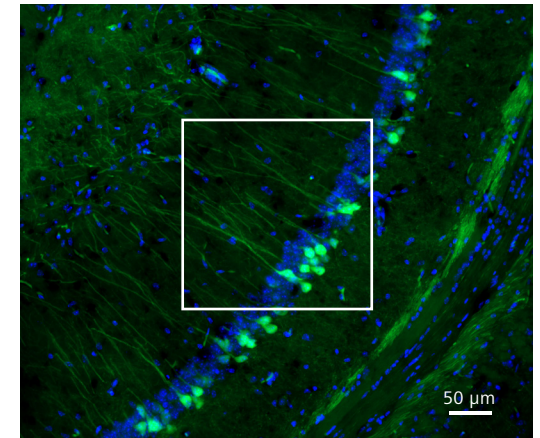
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Capture complete information of tissue samples

If your work involves tissue studies, for example in neuroscience or oncology, you may need to observe or capture images at different Z-axis planes to avoid missing critical information.

With Axiovert 7 automated Z-axis scanning and extended depth of focus, you can quickly obtain images from multiple layers or combine them into one image containing all the information needed to support your next decisions.



Mouse brain tissue Z-axis sequence (bottom, partial view) and Z-axis maximum intensity projection (top). Blue: cell nuclei, green: neuron.
Objective lens: Plan-Apochromat 20x/0.8.

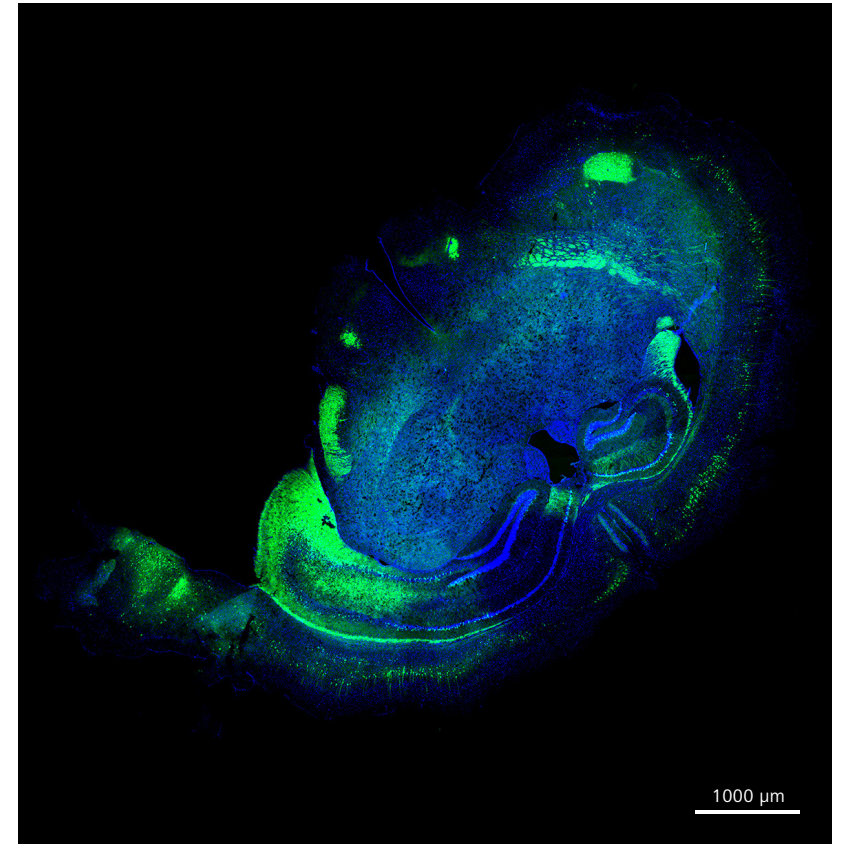
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Effortlessly capture virtual whole slide images

If you need to scan tissue or large in size biological samples in the lab, Axiovert 7 with a motorized stage is the ideal solution for scanning whole slide images (WSI).

Axiovert 7 automatically focuses on different areas of the sample and also allows you to manually verify and adjust the support points of the focused image, building an accurate focus map that ensures high-quality scanning results.



Whole section of mouse brain tissue. Blue: cell nuclei, green: neuron.

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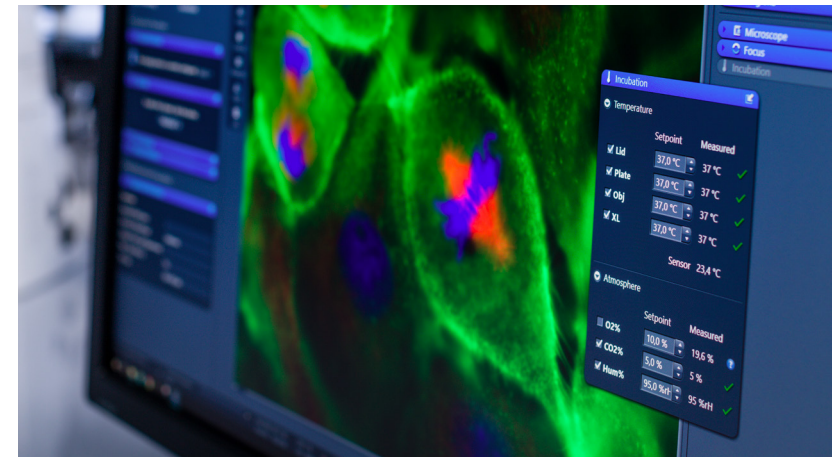
Stable environmental control and living cell observation

A stable focus plane is essential for long-term living cell observation and remains a major challenge. With the automated focus function of Axiovert 7, rapid focus can be achieved at every observation point, which ensures a stable focus plane throughout time-lapse.

Axiovert 7 can be easily configured with environmental control components, such as temperature, humidity, and CO₂ concentration. Environmental control is also integrated into the ZEN software, allowing you to quickly set parameters and individually adjust each component to maintain cell conditions and obtain accurate research results.



Environmental control provides a wide range of accessory options covering temperature, humidity, gas concentration, and multiple carriers.



All environmental controls are fully integrated into the ZEN software to help you quickly and flexibly set parameters for living cell experiments.

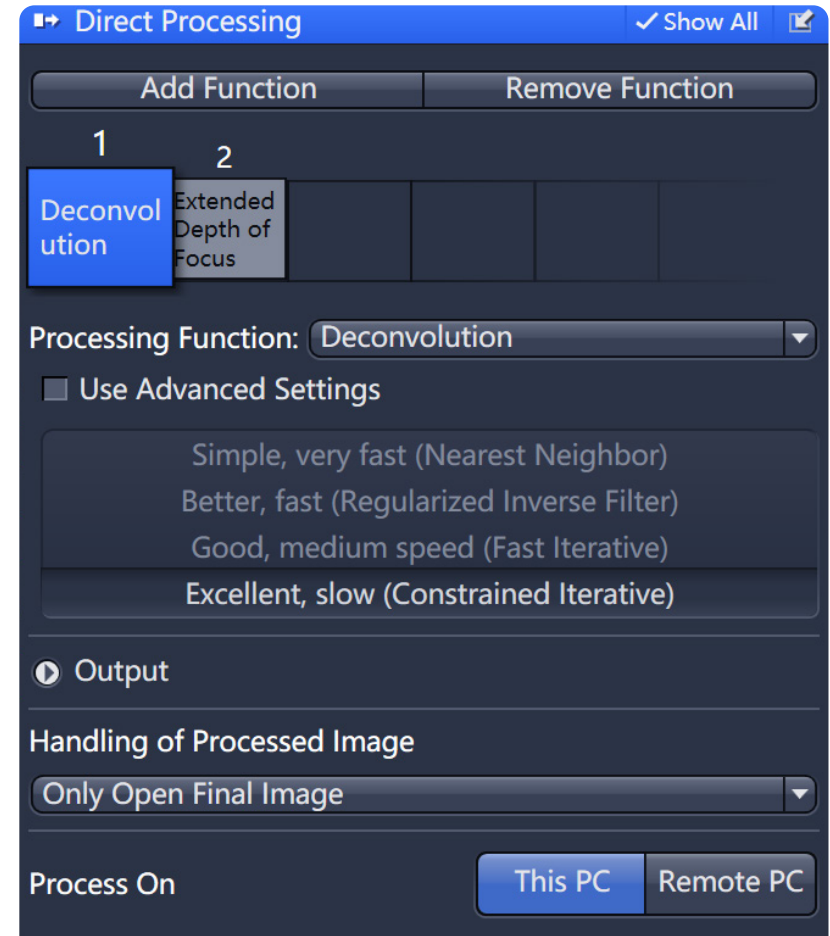
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Automated and efficient synchronized data processing workflow

In many cases, advances in modern microscopy and the growing demand for multidimensional imaging have made data structures more complex and image processing more time-consuming. Therefore, in complex research experiments – such as deconvolution, extended depth of focus, and time-lapse studies – efficiently managing imaging workflows while providing real-time feedback on sample conditions remains a challenge.

ZEISS ZEN software provides an intuitive, efficient, and intelligent workflow for image acquisition and data processing. The Direct Processing module effectively improves performance during simultaneous image acquisition and processing. With an intuitive interface and multiple image-processing functions, you can flexibly design your experiments and generate publication-ready data with a single click, even for complex studies.



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Fast and gentle LED illumination

Light source requirements vary depending on the experiment. Your research may require multiple excitation channels for multicolor imaging, or you may wish to excite fluorophores at maximum intensity to reduce exposure time and increase speed or throughput.

ZEISS Colibri 3 delivers the right wavelength and intensity to excite fluorescent dyes and proteins in a gentle way. You switch effortlessly between the channels for UV, blue, green and red excitation.

ZEISS Viluma 5 and 7 use state-of-the-art LED technology to produce a visible spectrum that matches or exceeds conventional white light sources. Narrow-band LED excitation minimizes crosstalk while enhancing imaging contrast and signal-to-noise ratio (SNR). LED illumination is the ideal choice for gentle live cell imaging. It only emits within narrow spectral ranges, which eliminates unnecessary ultra-violet leakage that can damage cells.

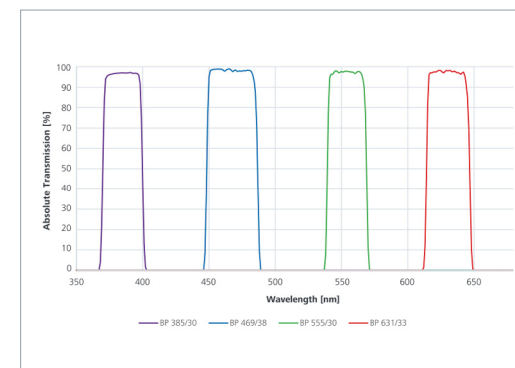
Your Viluma light source accommodates LEDs of various wavelengths and intensities. Viluma 7 provides seven individually adjustable excitation wavelengths, while Viluma 5 offers 4 different LEDs for sample excitation. In addition, the Viluma light source delivers stable illumination without pre-heating once activated. Fully integrated into the ZEN Imaging Software, it offers ultra-fast switching, with LEDs that turn on and off within microseconds to protect your samples. This accelerates imaging speed and extends lamp life.



Viluma 5 mounts securely on the microscope base, no alignment or fiber optics required.



The Viluma 5/7 light control console offers flexible switching across LED wavelengths with precise intensity adjustment.



Viluma 5 offers 4 monochromatic excitation wavelengths centered around the most common dyes and fluorescent proteins.

Tailored precisely to your applications

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Typical applications	Tasks	ZEISS Axiovert 7 offers
Label-free live cell cultures	Evaluate and document cell culture status	<ul style="list-style-type: none"> ■ PlasDIC or phase contrast for high-resolution imaging in plastic dishes ■ Objective lenses featuring a long working distance and correction collar deliver high contrast and resolution ■ Sample substrates and stages compatible with large cell culture flasks ■ Large-field imaging (field of view: 23 mm)
Transfected live cell cultures	Evaluate and document transfection rate and transfection stability	<ul style="list-style-type: none"> ■ Gentle fluorescence excitation using Colibri 3, Viluma 5 and 7 ■ High-sensitivity monochrome camera
Reproductive or adherent cells and cell cultures	Mechanical cell manipulation (e.g., injecting reproductive cells), dye or bioactive substance injection	<ul style="list-style-type: none"> ■ Phase contrast, improved Hoffmann modulation contrast (iHMC), and differential interference contrast (DIC) ■ Compatibility to common 3rd party micromanipulators
Fixed and stained cellular samples or tissue cross sections	Capture whole samples or multiple selected sample areas	<ul style="list-style-type: none"> ■ High-precision motorized stage ■ Multiple support points to generate an accurate focus map ■ Large-format camera to increase whole-tissue scanning speed
Fixed immunofluorescence labeled tissue or cell culture samples	Identification, quantification and qualification of cell types, cell, tissue and protein markers in 2D and 3D samples	<ul style="list-style-type: none"> ■ High-precision Z-axis drive for multilayered imaging ■ Multiple sample holders designed for different sample substrates
Multi-labelled living tissue cross sections, organs, organoids, spheroids, or cell cultures	Long-term observation of physiological and morphological parameters in 2D and 3D	<ul style="list-style-type: none"> ■ Objective lens for live cell imaging ■ Long working distance objective ■ Incubator, carbon dioxide, and oxygen control* ■ Camera adapter for large-field imaging ■ Rapid multicolor illumination with Viluma 5 and 7
Microbiomes, bacteria and yeast cultures	Identification and characterization of cell wall, cell cycle and host-parasite interaction	<ul style="list-style-type: none"> ■ Plan-Apochromat 100×/1.4 Oil ■ Plan-Apochromat 150×/1.35 Glyc DIC Corr

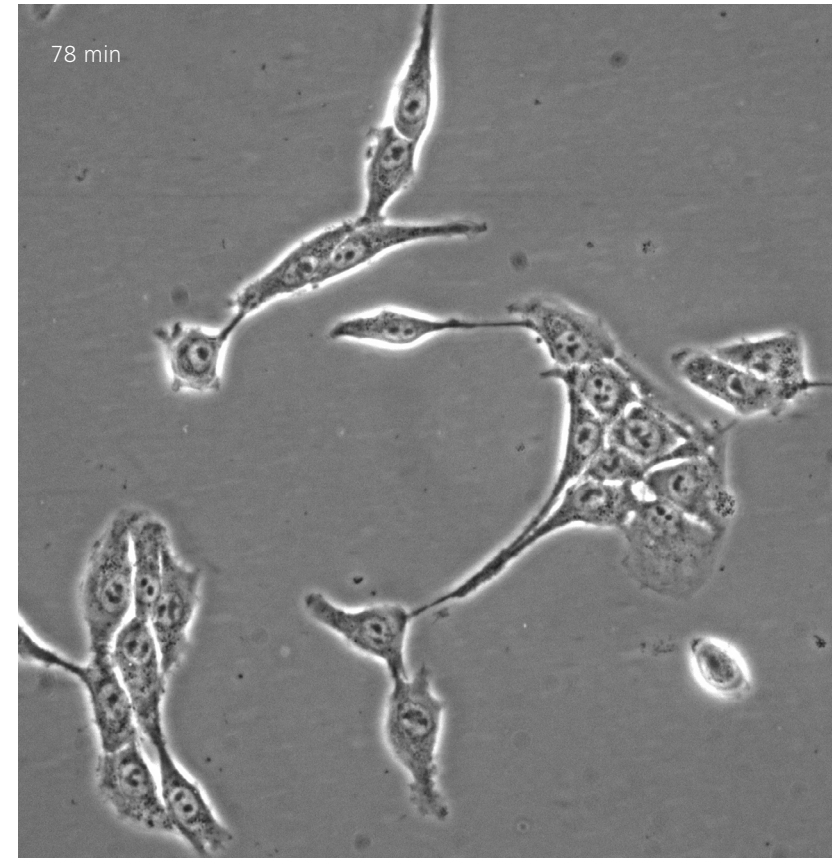
* only for research use

ZEISS Axiovert 7 at work

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Label-free living cell cultures and observation

Cell cultures are essential for nearly all cell biology experiments. Regular monitoring and maintenance are required for your cell cultures. Using Axiovert 7, you can quickly check your cells due to intelligent imaging functions and record long-term cellular dynamics without worrying about environmental interference.



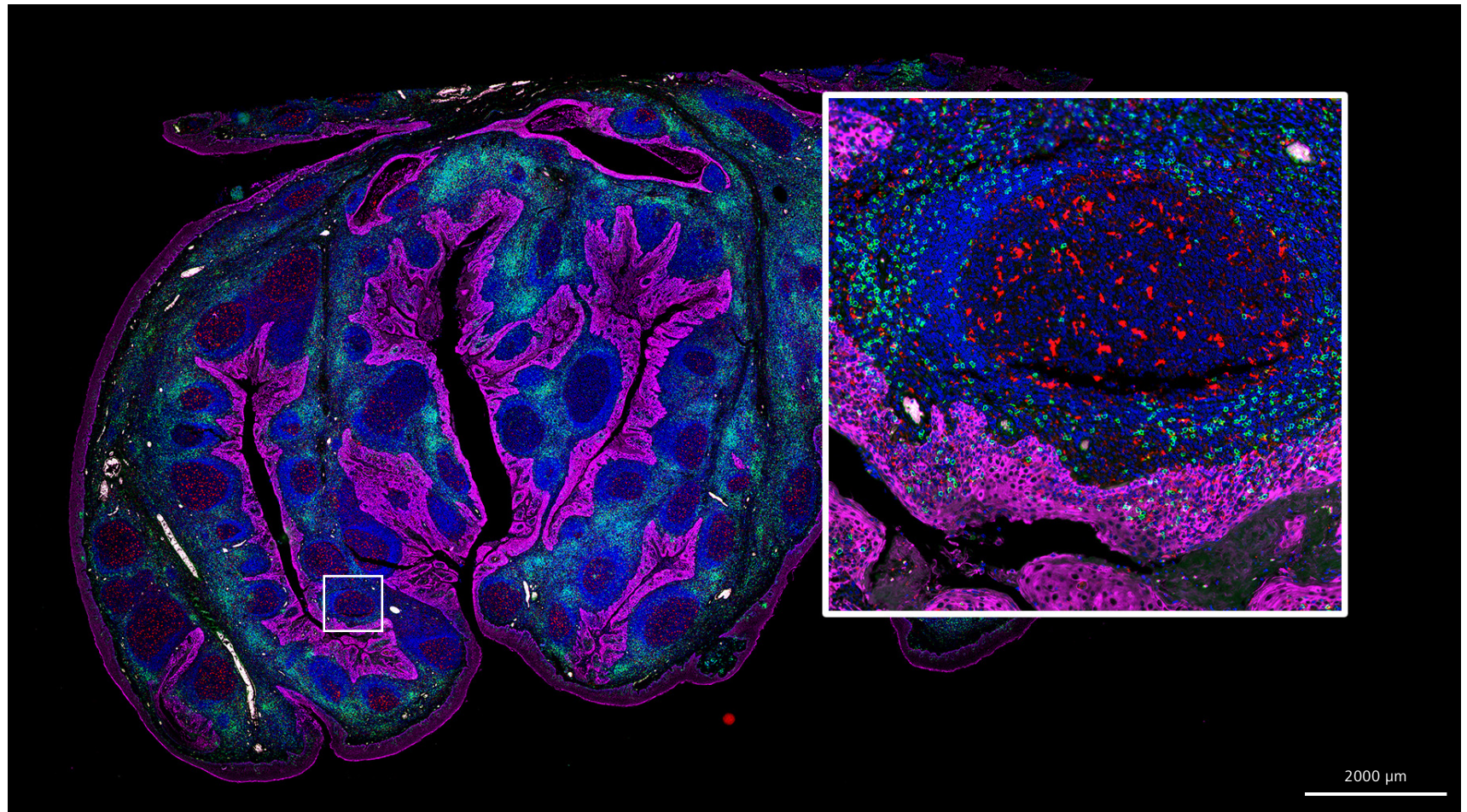
Long-term recording of mouse pancreatic cancer Panc02 cells, refocused and imaged every 2 min.
Objective lens: LD Plan-Neofluar 40x/0.6 Corr Ph2.

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Tissue cross sections with fixed fluorescence labels

Exploring and studying the tumor microenvironment involves labeling multiple cellular phenotypes as well as performing whole section imaging on the tumor tissue. With panoramic digital imaging, scientists can precisely quantify spatial relationships among cells and gain deeper pathological insights.



Whole-slide scanning of human tonsil tissue stained with the AlphaXTSA kit*; sample courtesy of Aikefa (Beijing) Biotechnology Co., Ltd. Green: CD8 (a T cell marker), red: CD68 (a macrophage marker), magenta: Panck, an epithelial cell marker. Objective lens: Plan-Apochromat 20x/1.0.8.

*Sample was obtained by overlaying channels after three scans.

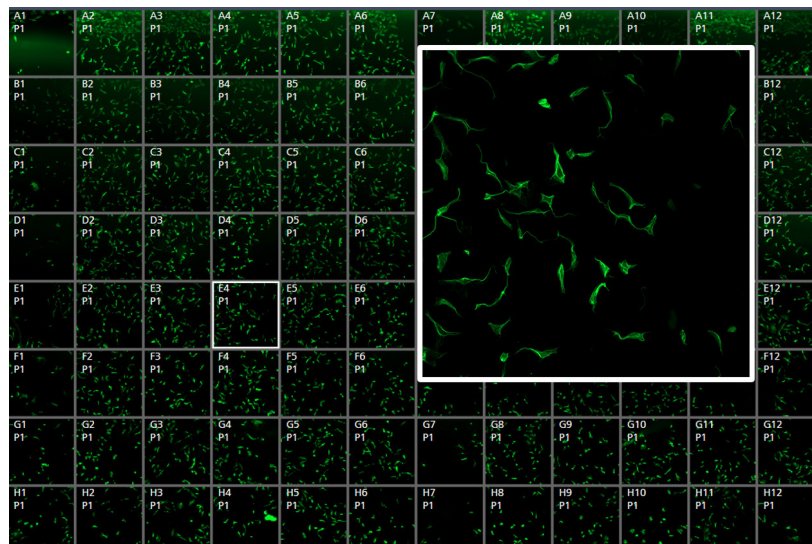
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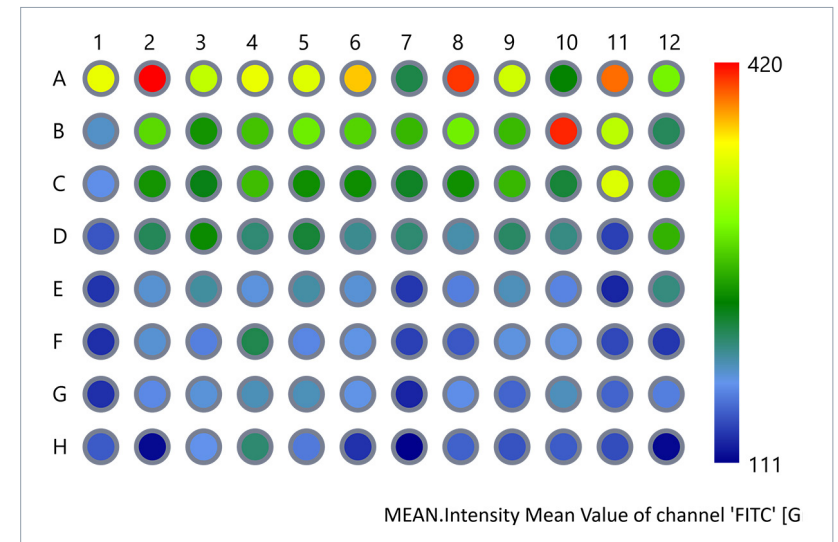
Rapid screening and analysis of microplates

In high-throughput screening experiments, ZEISS Axiovert 7 and ZEN software allow microplate experiments to be set up flexibly and enable automated multiwell imaging and screening workflows. You can step away entirely and return later to review your data.

Moreover, you can quickly analyze and obtain research results. Various data visualization options often enable direct interpretation of the results.



Automated rapid screening of fixed cells in a 96-well microplates, capturing one image per well.



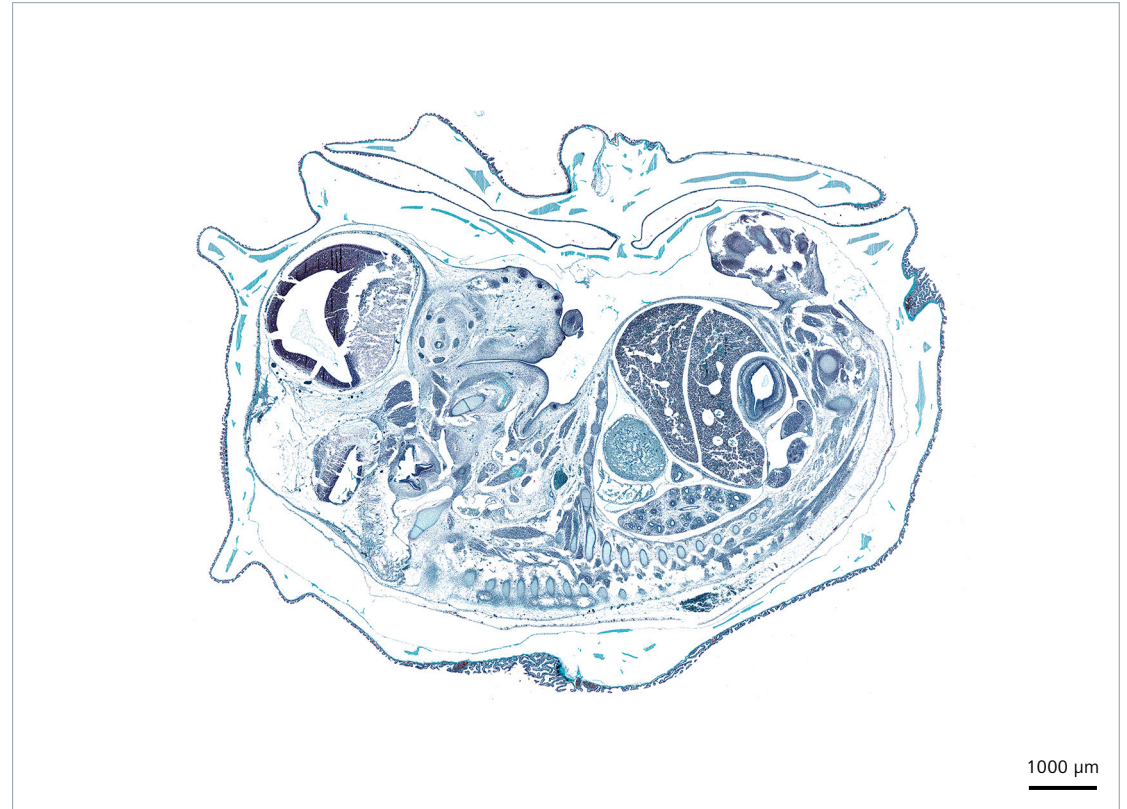
Using the Image Analysis module, quickly analyze cellular fluorescence intensity in each well and display it as a heat map to help you interpret the results.

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Stained tissue cross sections

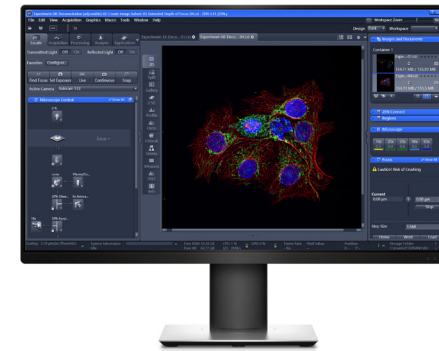
Stained tissue cross sections are essential in biomedical research and require extensive documentation and analysis. With Axiovert 7, you can additionally use a ZEISS AxioCam color camera to achieve high-quality imaging or panoramic scanning of stained samples.



Crossmon-stained mouse embryo. Objective lens: EC Plan-Neofluar 20x/0.5, microscope camera: ZEISS AxioCam 512 color.

Your flexible choice of components

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1 Microscope

- Axiovert 7 RL
- Axiovert 7 RL TL

2 Objective lens

- LD A-plan
- LD Plan-Neofluar Corr
- EC Plan-Neofluar
- Plan-Apochromat

3 Illumination system

- LED white light source with software control
- Rapid multicolor LED illumination systems
- Differential interference contrast (DIC), PlasDIC, phase contrast, and improved Hoffman modulation contrast (iHMC)

4 Recommended cameras

- AxioCam 212 color
- AxioCam 203 mono
- AxioCam 305 mono
- AxioCam 705 mono
- AxioCam 712 mono
- AxioCam 820 mono

5 Accessories

- High-precision motorized scanning stage or manual stage
- Multiple living cell culture instruments (heated sample holders, multiple stage holders, heating plates, carbon dioxide, and oxygen control)*
- 3rd party micromanipulation equipment compatible

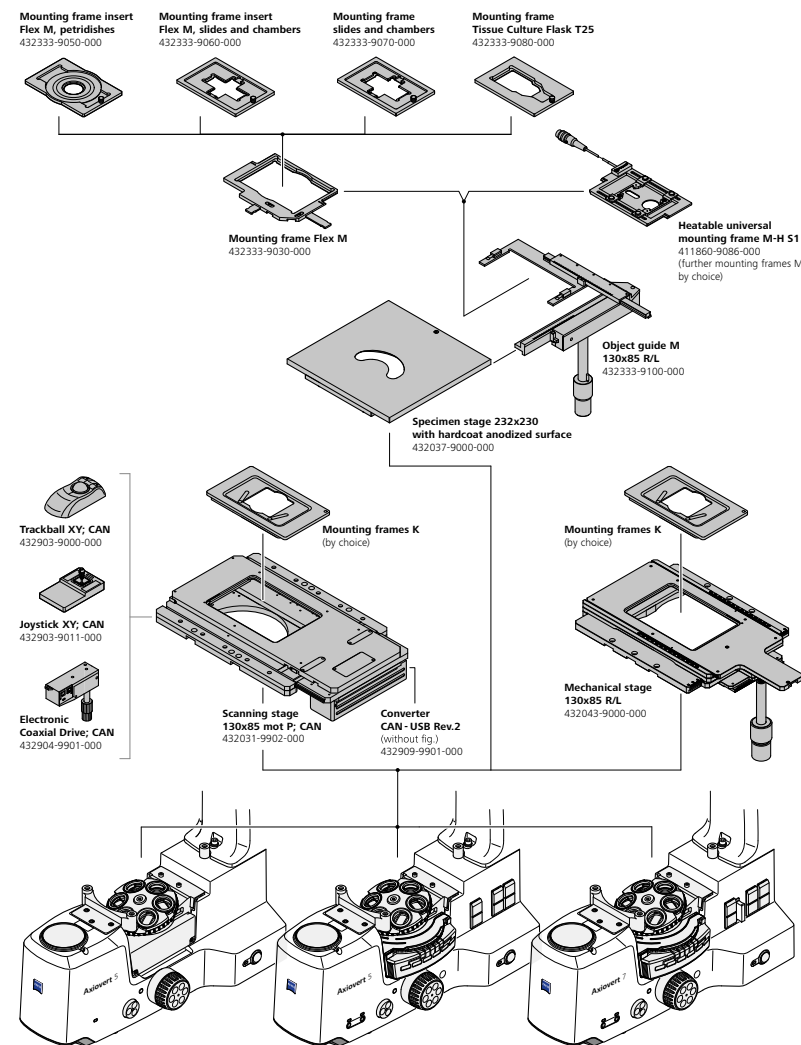
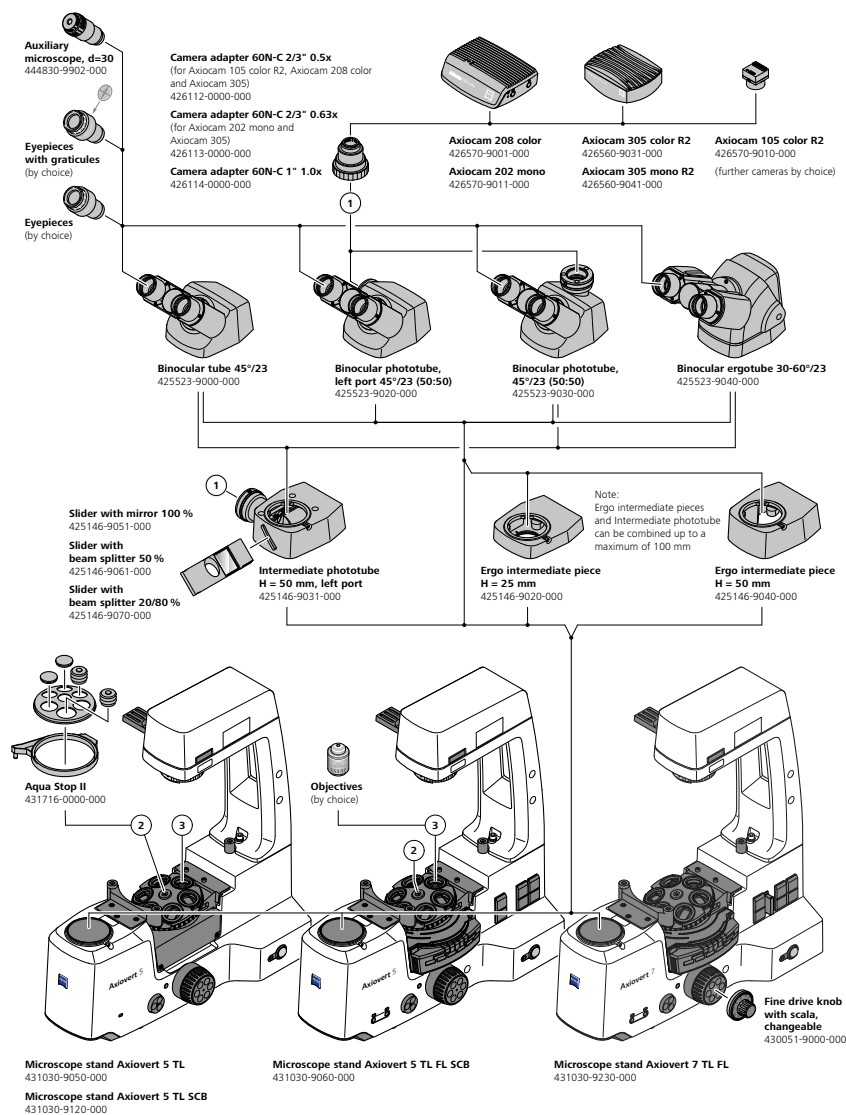
6 Software and recommended modules

- ZEN, recommended toolkits:
Tiles & Positions, Deconvolution
- ZEN core, recommended toolkits:
GxP toolkit

* only for research use

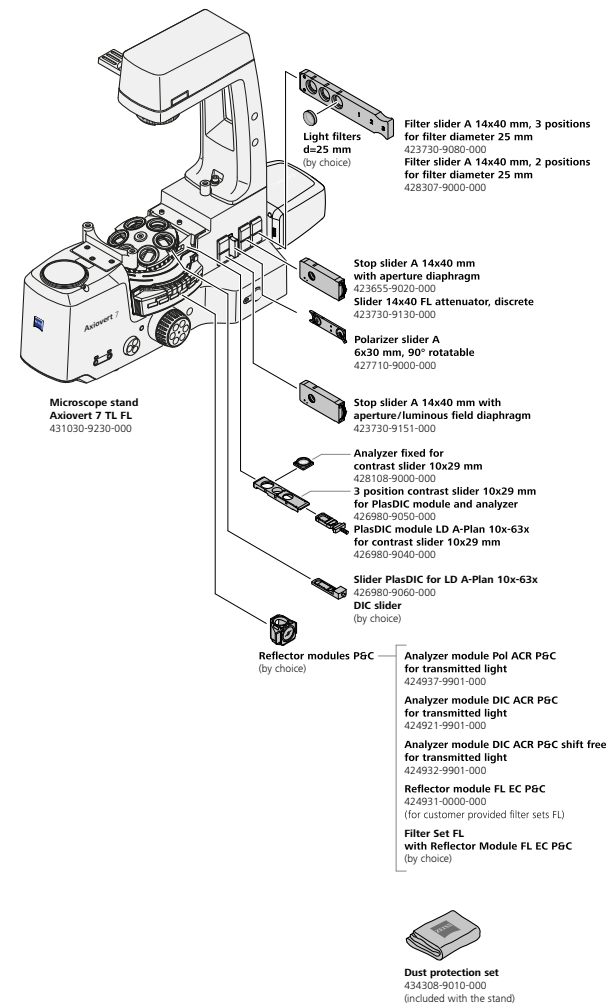
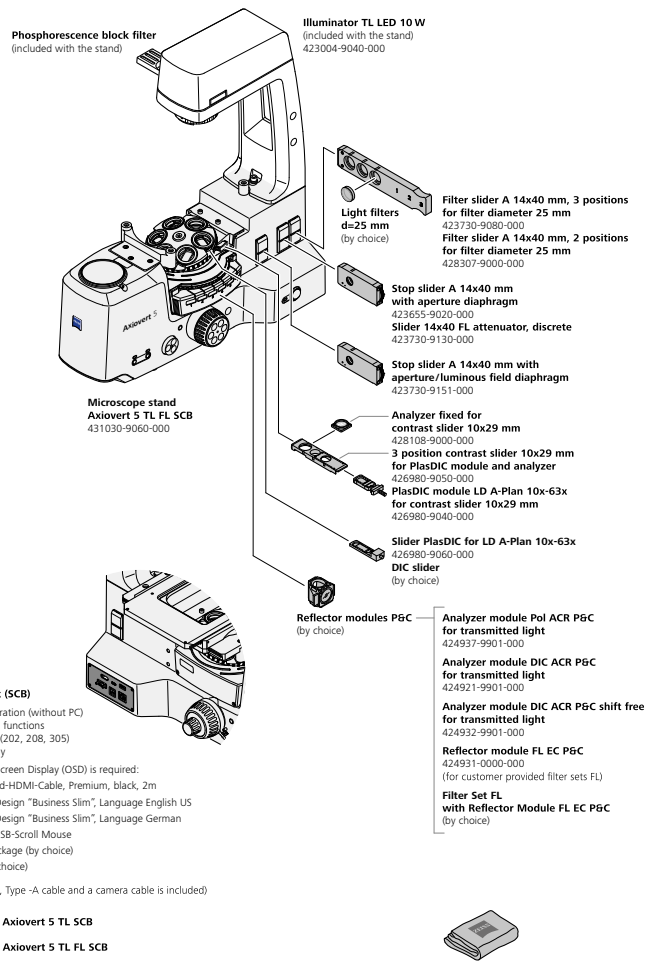
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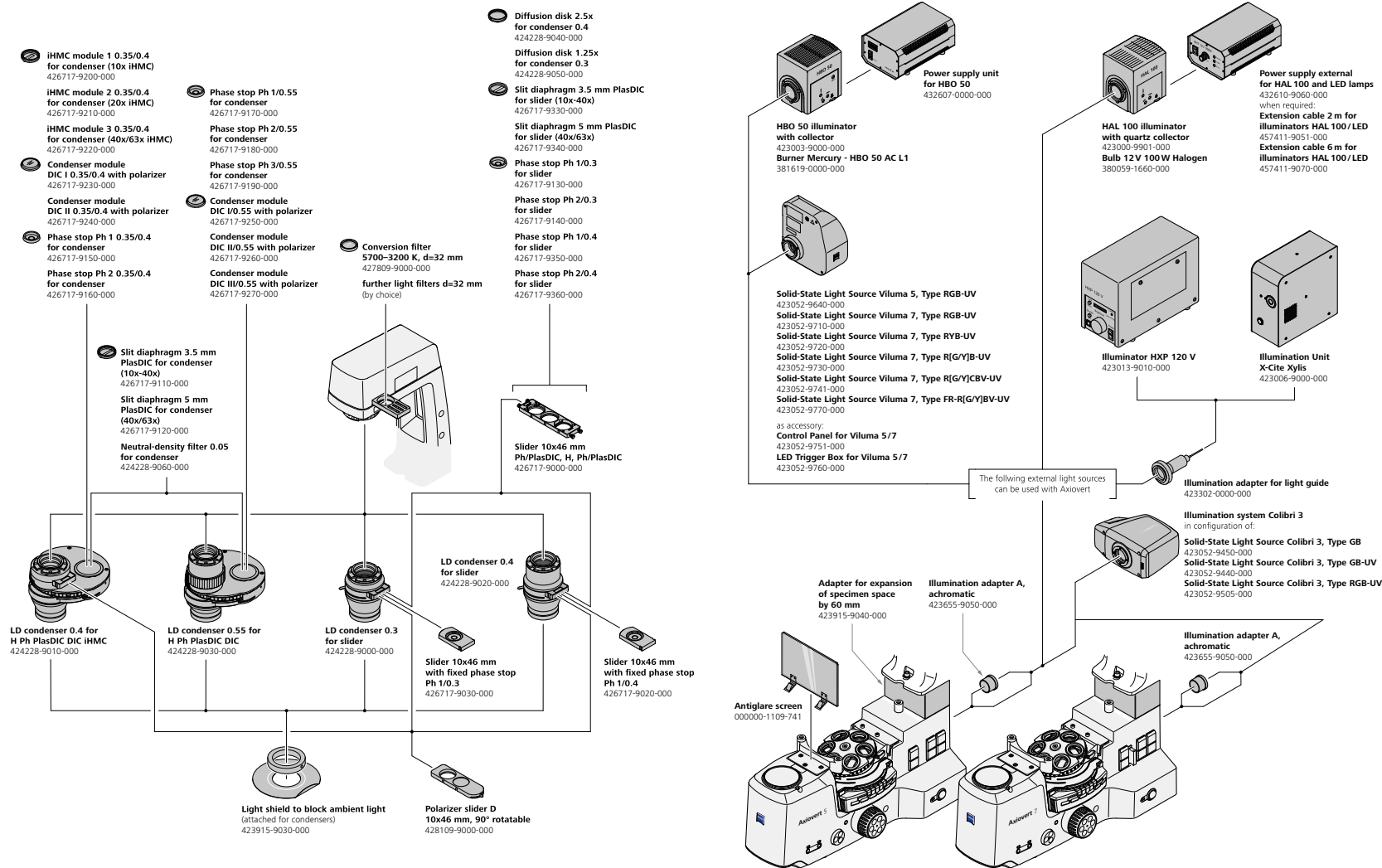
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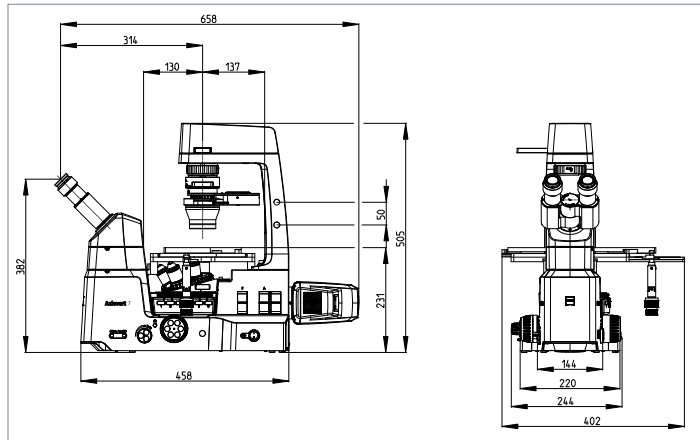
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Weight and dimensions

Dimensions	658 × 402 × 505 (length × width × height, unit: mm)
Weight	13 kg

Ambient conditions

Operating temperature range with indicated performance (24 hours daily, regardless of on/off status)	5 – 40 °C
Relative humidity	At 40 °C, < 80 %
Atmospheric pressure/Altitude	800 – 1060 hPa/Altitude ≤ 2000 m
Pollution degree	2

Power supply connection

Nominal AC voltage	L/N/PE 100–240 VAC ± 10 %
Nominal frequency	50/60 Hz
Max. current	1.4 A
Set values for microscope stand	24 VDC, 5 A
Protection class	IP20 (IEC 60529)
Overvoltage category	II

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Stand	
Optical system	ICS2, infinite chromatic aberration and contrast correction
Field of view	23 mm
Nosepiece	6× nosepiece, encoded, fully compatible with DIC sliders
Reflector turret	6× reflector turret, encoded
Focusing	Motorized drive; 13 mm focusing range (with adjustable focus stop adjustment)
Contrast methods	BF, PH, FL, PlasDIC, DIC, iHMC, POL
Condenser	LD-condenser 0.3 with slider, WD=72 mm; LD-condenser 0.4 with slider, WD=53 mm; LD-condenser 0.4 H Ph PlasDIC DIC iHMC, WD=53 mm; LD-condenser 0.55 H Ph PlasDIC DIC, WD=30–38 mm
Stage	Manual or high-precision motorized stage
Light source	
Transmitted light illumination	10 W white light LED, average lifetime > 60,000 hours
Fluorescence illumination	Colibri 3: available wavelengths (nm) 385, 469, 555, 631 Viluma 5/7: available wavelengths (nm) 385, 469, 505, 555, 591, 631, 735; average lifetime > 15,000 hours;
Fluorescence illumination control panel	Switchable LED wavelengths and on/off control, with 1 % precision brightness adjustment, optional
Objective lens	
Objective lens types	A variety of long working distance and coverslip-corrected objective lenses are available
Objective lens magnification range	1.25× – 100×
Ergonomics	
Snap/Workflow button on the stand	Positioned on both sides of the stand for ergonomic operation; can be used with ZEISS Axiocam for image capture and workflow initiation
Image acquisition	
Intermediate phototube (eyepiece: camera)	Slider options: 0:100/100:0; 50:50/100:0; 20:80/100:0
Camera	Multiple ZEISS color and monochrome Axiocam family cameras are available
Additional accessories	
60 mm extended sample space	Optional
Protects the objective lenses, nosepieces, and microscope from exposure to liquid	With Aqua Stop II
Cell culture instrument	Heated sample holders with humidity, carbon dioxide, and oxygen control
Software and optional modules	
System control and image acquisition	ZEN, ZEN core
Digital sectioning	Deconvolution toolkit, including Nearest Neighbor, Regularized Inverse Filter, Fast Iterative, Constrain Interactive, and other algorithms; GxP toolkit

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.

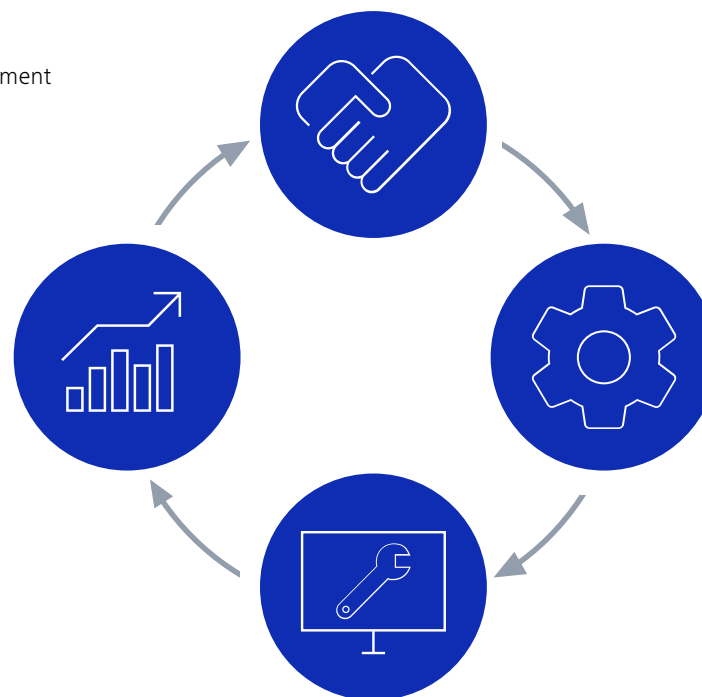
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Procurement

- Lab planning & construction site management
- Site inspection & environmental analysis
- GMP qualification IQ/OQ
- Installation & handover
- IT integration support
- Startup training

New investment

- Decommissioning
- Trade-in



Operation

- Predictive service remote monitoring
- Inspection & preventive maintenance
- ZEISS Software maintenance agreements
- Operation & application training
- Expert phone & remote support
- ZEISS Protect Service Agreements
- Metrological calibration
- Instrument relocation
- Consumables
- Repairs

Retrofit

- Customized engineering
- Upgrades & modernization
- Customized workflows via ZEISS arivis Cloud software



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