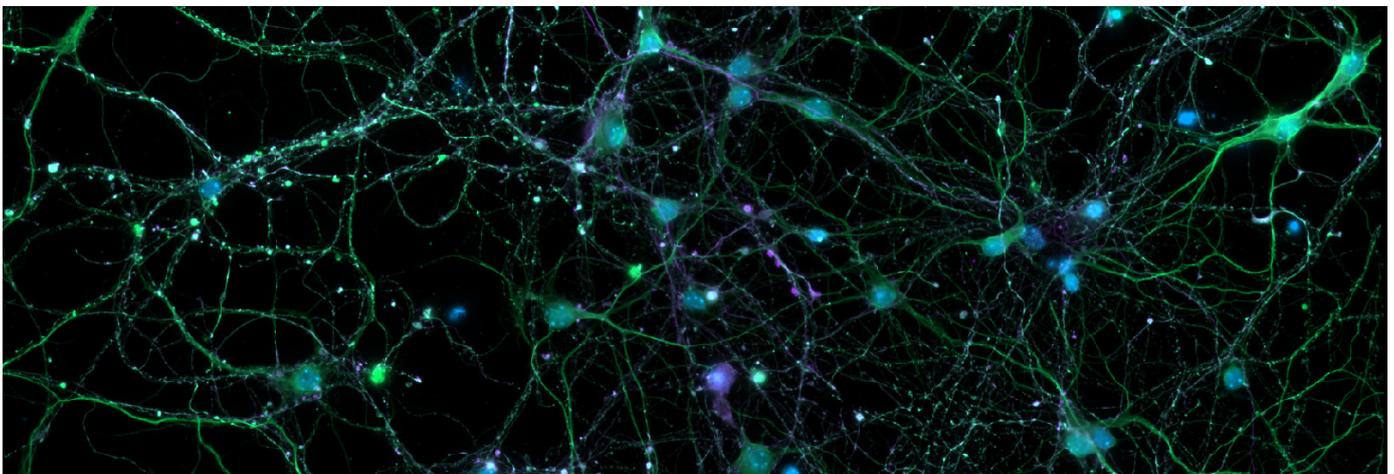


Capture & Evaluate Dynamic Processes

ZEISS Axio Observer *live* for Imaging Living Samples



Cortical neurons stained for DNA, microtubules and microtubule-associated proteins. Sample courtesy of Laura Behrendt, Fritz Lipmann Institute

Collecting and analyzing imaging data from live samples presents numerous added complexities in comparison to fixed samples. Beyond the need to replicate *in vivo* conditions for your sample on the microscope stage, there is a delicate balancing act required in choosing a perfect compromise in data collection method while keeping the sample alive. This method must effectively capture the dynamic processes you aim to observe in high resolution while minimizing any disruption to the integrity of your sample.

ZEISS Axio Observer *live* provides you with an efficient workflow for data collection that is specifically designed with stable environmental controls for your samples while providing the highest possible imaging quality, even at different temperatures. Incubators

typically restrict the access to your sample, making formerly simple tasks like positioning, focusing and generation of an overview image more complicated. AI Sample Finder performs these tasks with the push of a button. Application of immersion media to your water immersion objectives is performed in less than a second without changing focus, stage position, or disturbing the incubation chamber for independent, automated imaging. Environmental parameters are automatically recorded so that you can be confident that the observed dynamics are not caused by fluctuating temperature or atmosphere.

Additionally, ZEISS Axio Observer *live* is equipped with advanced software tools for streamlined analyses of large, multivalued timelapse experiments. The Molecular Quantification Toolkit analyzes large time series for changes in intensity,

and calculates and visualizes ratio-metric measurements typical for calcium and FRET imaging. The environmental data is stored together with the image data, ensuring full traceability. The Bio Apps Toolkit enables out-of-the-box cell counting, confluency measurements, spot detection, and gene/protein expression with AI-based segmentation to convert images to quantitative data.

Whether you study stem cell differentiation, cell migration, or any dynamic molecular processes occurring within living samples, ZEISS Axio Observer *live* can provide you with the imaging solution you need from reliable data acquisition of your delicate samples through to complex data analyses that unravels new insights in your research.

Axio Observer *live*

The Bundle Components

Microscope

- Axio Observer 7
- Scanning stage 130 × 100
- Mot. condenser NA 0.55
- Definite Focus 3
- AI Sample Finder
- Autoimmersion Module
- Dual filter wheel mot.

Light source / camera

- Colibri 7
- Filter sets LED SBP, 91, 112
- AxioCam 820 mono

Objectives

- EC Plan-Neofluar 5×/0.16
- Plan-Apochromat 10×/0.45
- Plan-Apochromat 20×/0.8
- LD LCI Plan-Apochromat 40×/
1.2 Imm Corr DIC

Environmental control

- Glass Lid CO₂/O₂ heated
- Temperature Controller
- Gas Mixer CO₂
- Heated Plate K with 3 Inserts

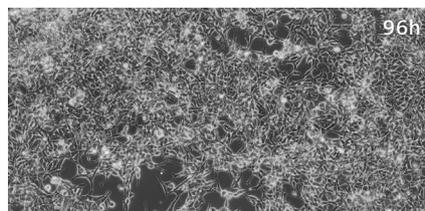
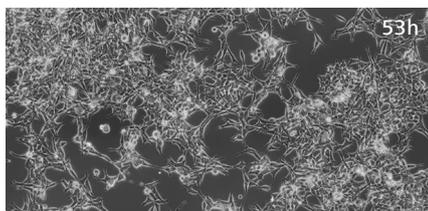
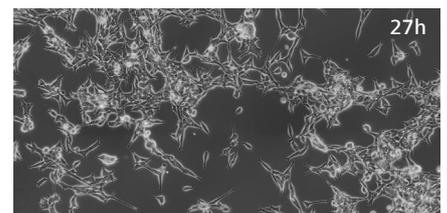
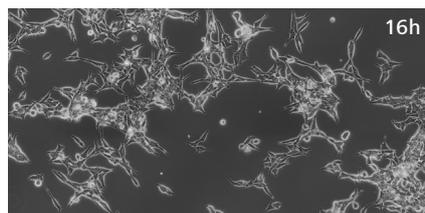
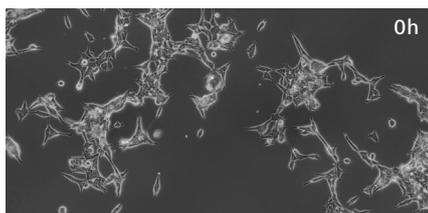


Workstation

- Z6 Workstation with 128 GB RAM and
nVidia Quadro RTXA5000 24 GB

ZEN software packages

- ZEN Toolkit Motorized Acquisition: Acquire images and control motorized components in multi-dimensional experiments.
- ZEN Toolkit 2D: Create flexible automatic measurement programs for the analysis of your 2D images.
- ZEN Toolkit Molecular Quantification: Investigate diverse dynamic and molecular interaction phenomena of diverse specimens.
- ZEN Toolkit Deconvolution: Sharpen your images with mathematically exact deconvolution and make previously unknown structures visible by increasing your image contrast and resolution.



▶ [Click here to view this video](#)

HEK 293 cells imaged with phase contrast microscopy. Long-term time lapse recording of 3×3 tiles with 240s interval.



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Seeing beyond