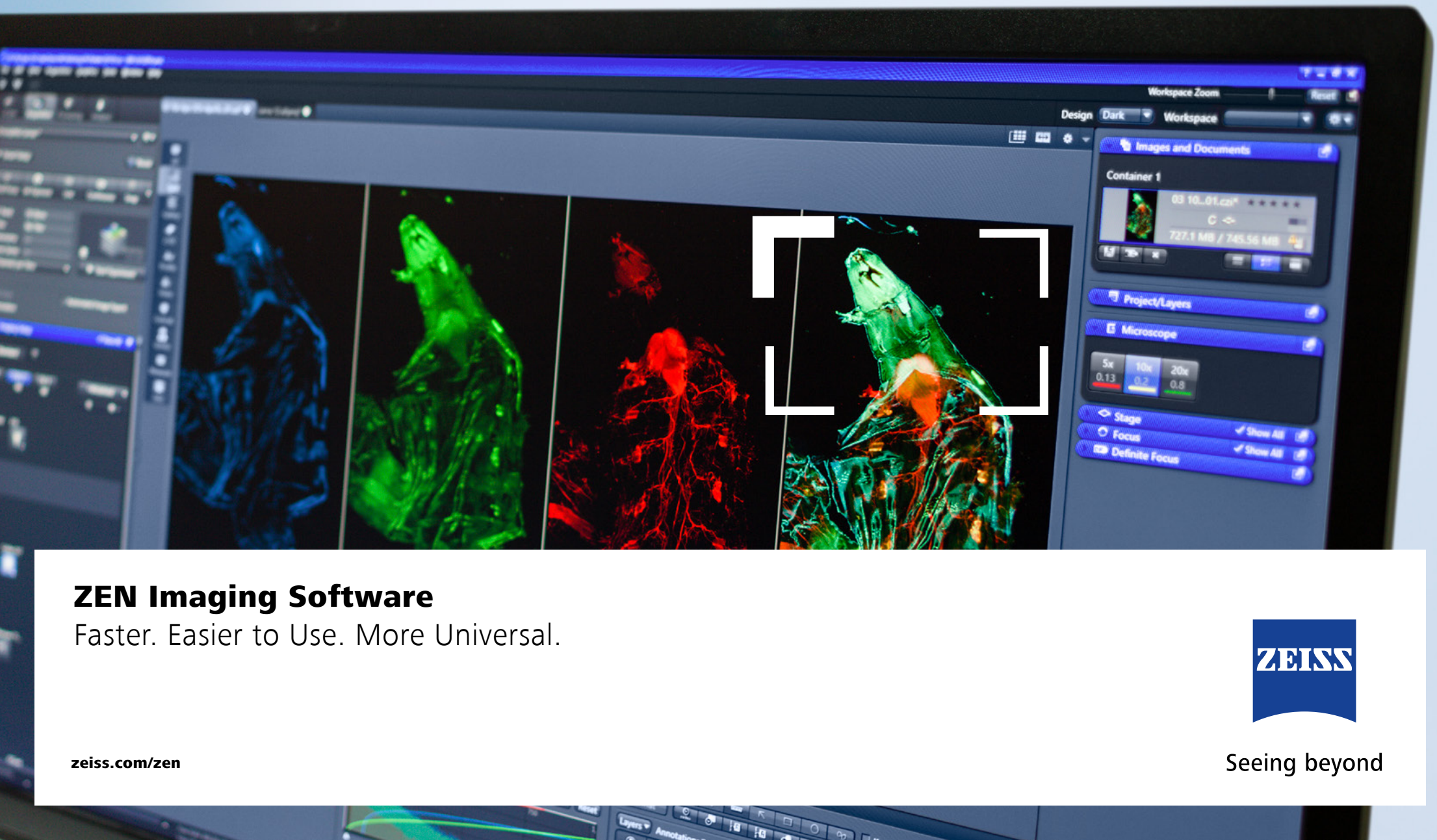
Your software for all imaging systems.



ZEN Imaging Software

Faster. Easier to Use. More Universal.

zeiss.com/zen

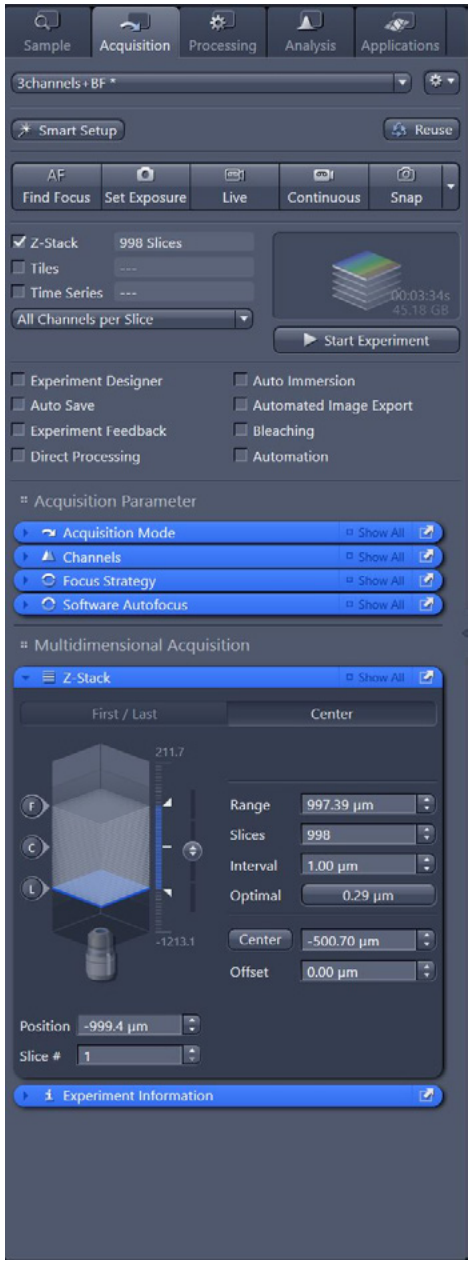
ZEISS

Seeing beyond

ZEN Shortens the Path to Your Goal

ZEISS Efficient Navigation—ZEN, for short – is the one user interface you will see on every imaging system from ZEISS. ZEN software leads you straight to the result, simply and quickly.

At all times you will see which options are available to you and which step is most appropriate to take next. ZEN makes it easy to operate any ZEISS imaging system correctly and intuitively, and to connect images and data from various other systems, too. As a result you'll save time, reduce costs for training and support, and get faster answers to your questions.



Simpler. More Intelligent. More Integrated.

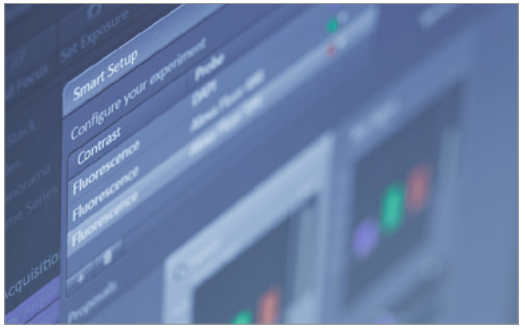
The essentials count –
focus on what you need.

ZEN controls all imaging systems from ZEISS so you can operate every one of your devices with the same convenient interface. ZEN imaging software arranges operating elements in such a way that it follows your workflow. Functions you use only rarely are hidden away – out of sight, but always just one click away when you need them. Any time ZEN can make a decision without your help, settings will be made automatically, but you can always override them for a specific imaging experiment. Very often, your scientific question can only be answered by combining complementary imaging methods. The ZEN universe of microscopes gives you reproducible data from different modalities. You learn more about your sample – with only one interface to experience.

Smart Setup: Select Fluorophone.
Acquire. Done.

Smart Setup is the intelligent control center at the core of ZEN. Select from a database of more than 500 dyes and ZEN will automatically apply all necessary settings for your imaging system. You don't need to know the components of your imaging system or fall back on the settings of other users. But that's not all. So long as you have one image from a previous acquisition, ZEN's powerful Re-use function lets you replicate an experiment precisely.

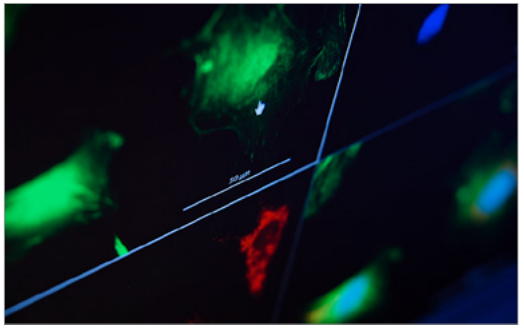
And that's just the start of ZEN's innovative features and wizard functions designed to make your most complex experiments a success.



A Secure Format for Important Data.

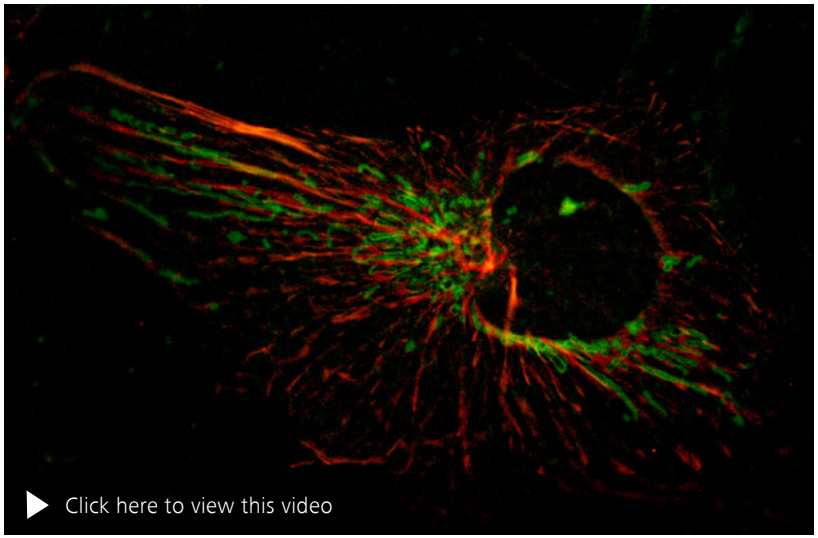
Data security gets top priority as ZEN stores each of your experiments with all its metadata. Using the data format .czi from ZEISS you can even process the huge amounts of data you will be acquiring with our fast 3D or automated imaging systems. ZEN lets you import images and data from 3rd-party microscope instruments so it stays at all times in the center of a homogenized processing-, analysis- and viewing- workflow across many different instruments.

In addition, you can always store your images – including metadata – as OME-TIFF, the image format specification of the Open Microscopy Environment, to facilitate cross-platform image data exchange.

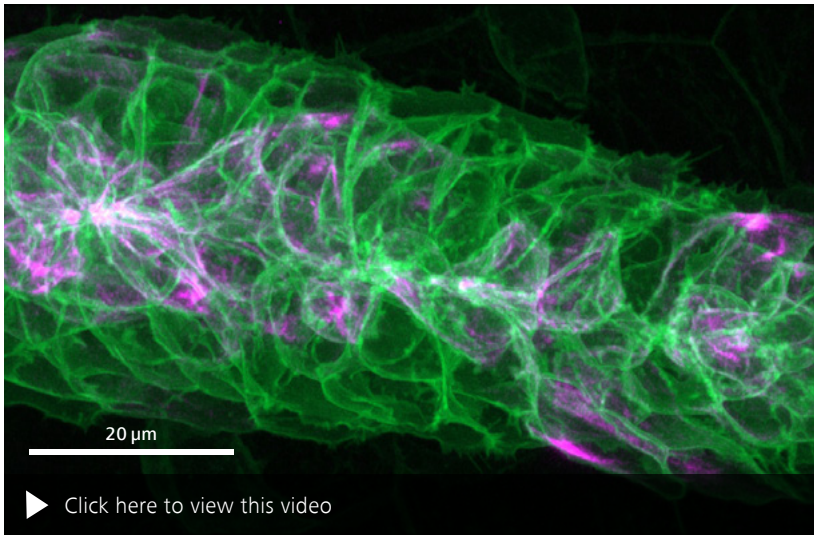


ZEN at Work

Time Lapse Imaging



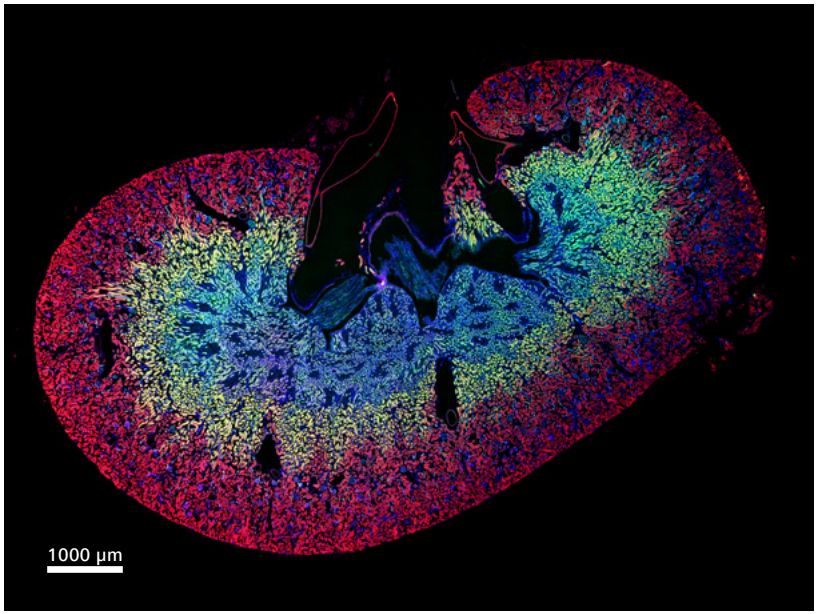
Living cell with mitochondria in green and microtubule tips in red (EB3). ZEN allows to gain insights into fast dynamic cellular processes while providing you with tools to process your data in the same familiar user interface.



Lateral line primordium migration and deposition of immature neuromasts in a Zebrafish embryo (Danio rerio).Maximum intensity projection of 155 z-planes, acquired with Airyscan 2.
Mebranes in green, actin in violet.
ZEN allows you to observe your specimen longer and under more natural conditions than ever before, as it precisely controls acquisition in widefield or LSM modes. No photons are wasted and images are processed and restored to yield the highest signal to noise ratio.
Sample courtesy of J. Hartmann and D. Gilmour, EMBL, Heidelberg, Germany

ZEN at Work

Large Area imaging

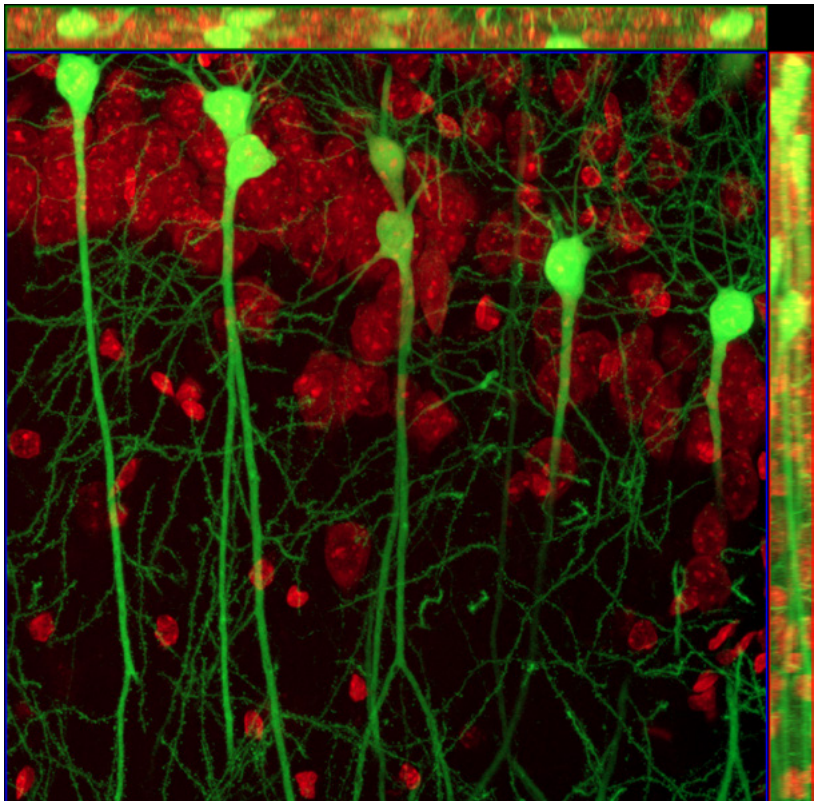


Tiled image of a mouse kidney section with four labels. ZEN provides you with the best strategy to optimize sample focus across large areas at high resolution. You get better images in shorter time.

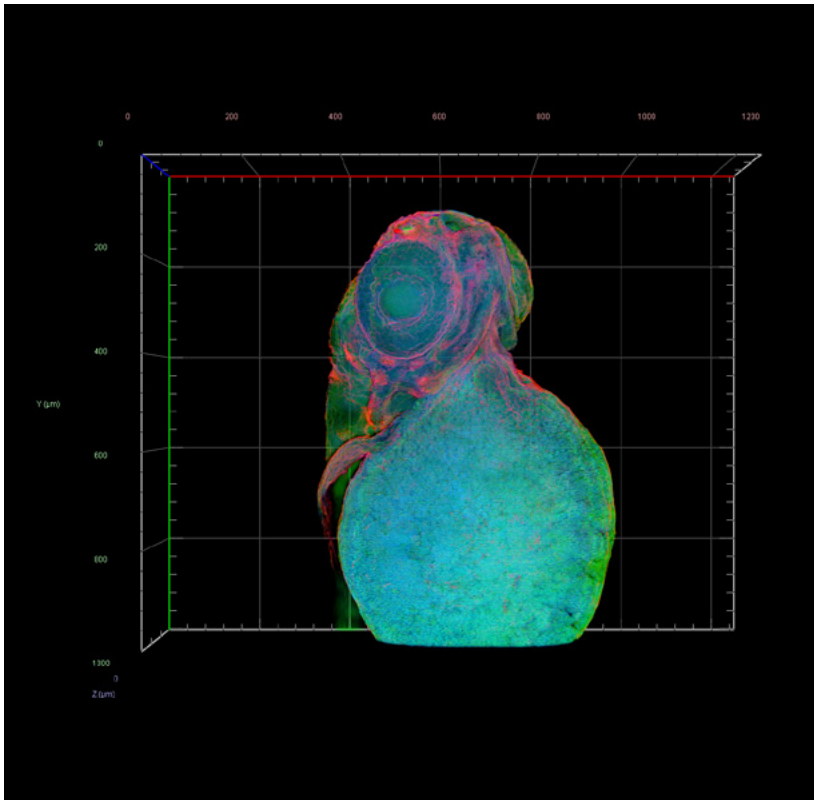
Brightfield images of a tissue section acquired using Live Panorama. ZEN automatically takes images and stitches them, while you navigate the area of interest on your sample.

ZEN at Work

3D Imaging



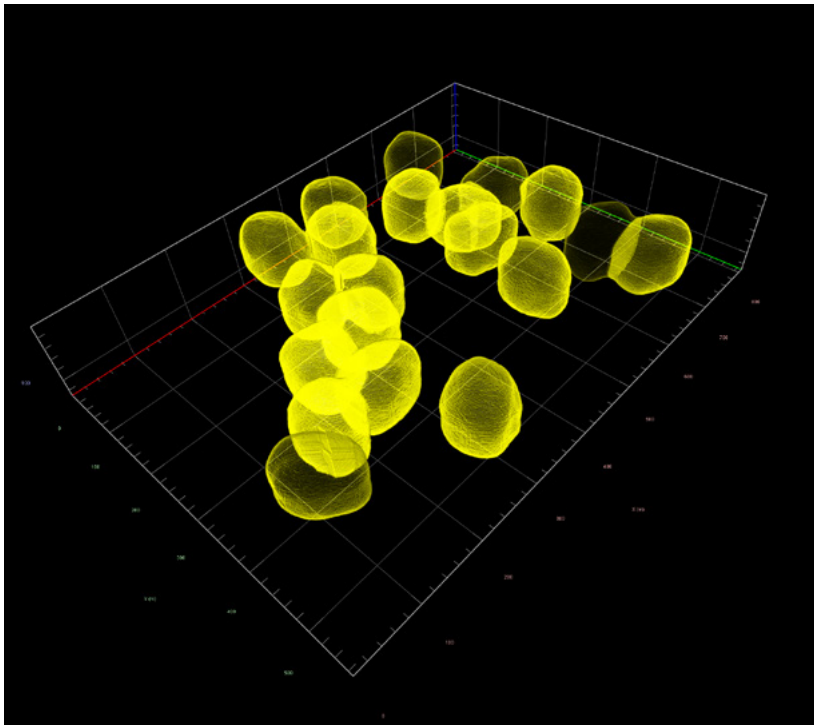
Ortho view of mouse brain slice, acquired with LSM 900.
Z-stack of the hippocampus area of a brain slide with neurons (green) and nuclei (red)
ZEN assists you in finding the perfect spot in your sample and effortlessly handles large files so that you can always concentrate on examining your data.



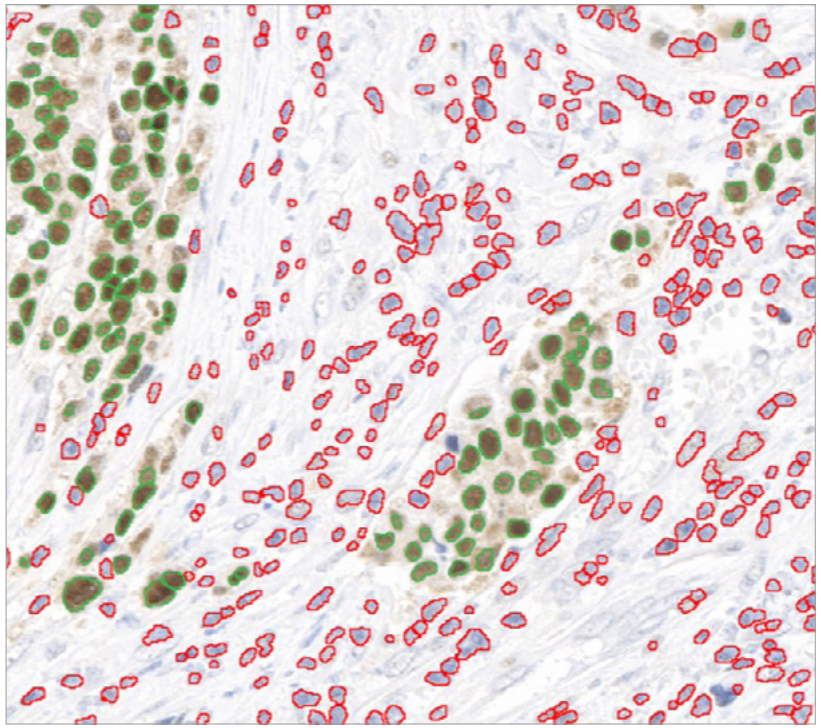
3D rendering of a Zebrafish embryo. Deconvolved Apotome Z-Stack.
With its powerful viewing and processing options ZEN gives you the insights into your specimen that you need to draw conclusions and to plan further experiments.

ZEN at Work

Image Analysis



A 129 slice z-stack of cell nuclei, fully segmented and quantified, using APEER on-site in ZEN.

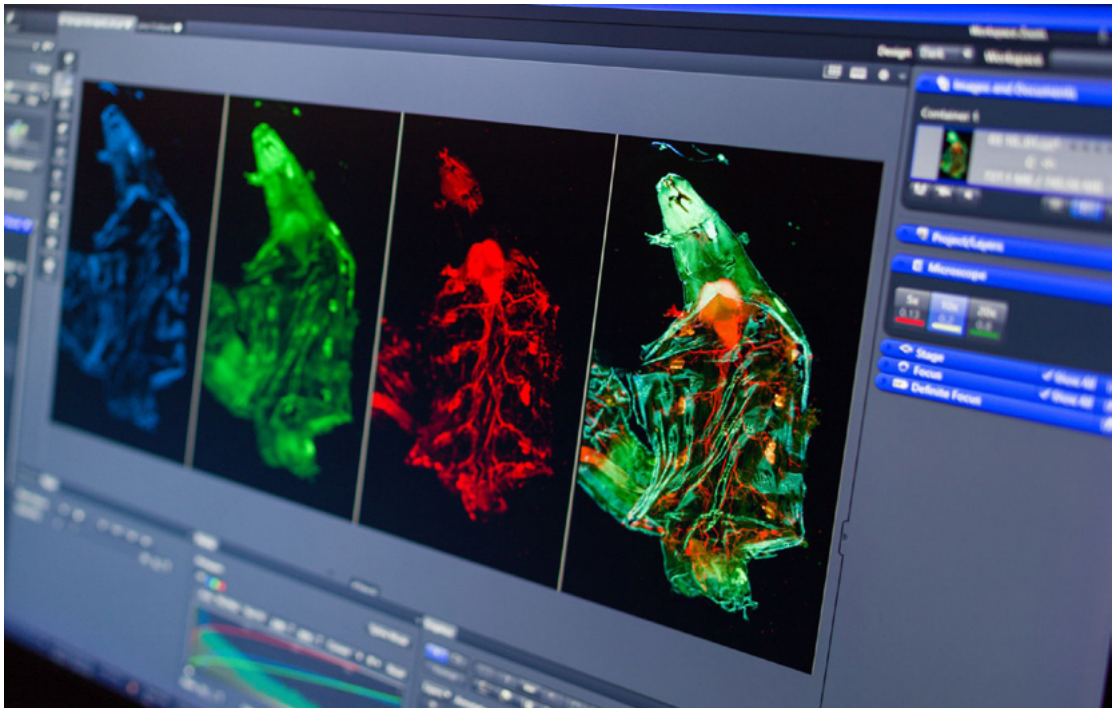


Counting of DAB-positive (brown with green outline) cells in tissue sections and calculation of percentage of total cells (blue and brown): 36 %.

ZEN at Work

ZEN controls your microscope system, processes and analyzes your images, and displays your data in the way you need it, no matter whether you are using it for applications in cell biology, neuroscience, developmental biology or any other field of research. The possibilities are almost limitless. Examples include, but are not restricted to:

- Imaging cellular movements or subcellular trafficking in 3D over time with maximum acquisition speed.
- Visualizing cytoskeletal dynamics with highest precision.
- Carrying out photobleaching experiments and FRAP analyses.
- Performing functional imaging of cellular signal transduction with high spatial and temporal resolution.
- Performing confocal live cell imaging with highest temporal, spectral and x-, y- and z-resolution.
- Carrying out fixed-endpoint or live-cell assays in multi-well plates, on chamber slides and many other multi-sample carrier types.
- Scanning your microscope slides in fluorescence and brightfield with the highest possible speed and focus stability.
- Analyzing signal intensity, object morphology and event counts in multi-dimensional images



Your Flexible Choice of Components

ZEN system

The software package for all imaging systems, including laser-based 3D imaging systems.

ZEN pro

Controls all imaging systems except laser-based 3D systems.

ZEN desk

Supports your offline analyses, processing and visualization.

ZEN lite

The free basic version of ZEN with Axiocam control that can be further extended with specific modules.

ZEN SEM

The basic software for correlative modules that allows image acquisition on the SEM.

Your Flexible Choice of Components

ZEN lite is based on the powerful ZEN microscopy software in both looks and functions. However, unlike the full versions – ZEN desk, ZEN system and ZEN pro – its functionality is only basic.
ZEN lite does not need a dongle or a license. A number of selected, paid-for modules are available to expand it.

Basic capabilities	Limited functionality compared to full versions of ZEN: ■ Axiocam camera driver for use of all Axiocam cameras. ■ Support for the acquisition of individual images (SNAPs).
	Movie Recorder enables films to be acquired very simply with Start and Stop (interval setting and duration setting are not possible).
	Special optional ZEN lite modules may be added to the configuration although in some cases these must be paid for.
	Various manual microscope components (objective, optovar, camera adapter) may be configured to generate a theoretical scaling.
Functional scope of ZEN lite	Graphical user interface can be switched between bright and dark design to adapt to ambient brightness.
	User interface offers step-less scaling and zooming for optimal adjustment to the screen size.
	All functional elements can be displayed either in a reduced- or full-sized mode.
	Interactive measurement: length, contour-based measurement data (area, box, perimeter, gray values).
	Live panorama, for the automatic acquisition of Tile images on manual or motorized stages.
	Panorama, for manual acquisition of Tile images on manual stages
	Manual Extended Focus (EDF) capability.
	Management, visualization and printing of metadata and images.
	Fixed configuration as well as adjustable configuration of menu bars.
	Export into OME-TIFF (image format specification of the Open Microscopy Environment which enables the exchange of microscopic image data).
	Export into ZVI, BMP, GIF, JPG, PNG, TIFF, HDP image formats and export into AVI and Windows Media video formats. Batch export of images and videos.
	Image import (LSM, ZVI, BMP, TIF F, JPG, GIF, PNG) and function to convert images (TIFF, JPG, BMP) into CZI format.
	Scale bars and text annotations.
	Post-processing: standard operations for image optimization (contrast, brightness, gamma, colors, smoothing, sharpening, geometric corrections, background subtraction).
	Viewing: Image file browser, Gallery View, up to three independent image containers, image Comparison View, Channel View.
	Histogram and profile measurements.
	Basic 3D View (CPU-based rendering).
	Info View for metadata.
	Functions for working with data tables: filtering and sorting of tables.
	ZEN Connect workspace with Project-based file architecture: Zoom in from the full macroscopic view of your sample down to nanoscale details. Combine data from any image source and view multiple layers with adjustable transparency. Manual alignment of images allows correction of xy-shift, rotation, re-scaling, shearing and mirroring.

Your Flexible Choice of Components

General Features of ZEN pro and ZEN system
Graphical user interface can be switched between bright and dark design to adapt to ambient brightness.
User interface offers step-less scaling and zooming for optimal adjustment to the screen size.
All functional elements can be displayed either in reduced- or full-sized mode.
Full integration with ZEISS microscopes that can be configured in MicroToolbox 2011, Axiocam cameras (hardware-triggering supported, except for AxioCam IC and ERC5) and additional components.
Interactive and automatic control of the individual motorized microscope components.
Transfer of information from the encoded component into the software.
Complex acquisition experiments can be configured, saved and reloaded.
Movie Recorder enables films to be acquired very simply with Start and Stop (interval setting and duration setting are not possible).
Sequence of acquisition dimensions can be selected (depending on active dimensions).
Hardware settings can be created with the help of a graphical light path.
Sequences of commands can be easily combined to create hardware settings: ■ Contains the SmartSetup function for the fully automatic creation of experiments to acquire multichannel fluorescence and transmitted light images using motorized systems. ■ Image acquisition with b/w, color, high-resolution and high-sensitivity cameras, b/w images with up to 16 bits, color images with up to 3× 16 bits.
Display parameters can be adjusted without changing the pixel values.
Assignment of geometric scalings is fully automatic when acquiring an image (depending on the microscope configuration).
Acquisition history is recorded and saved as metadata in CZI image format. This format has been developed in consideration of the standards of the OME-TIFF and OME-XML format of the Open Microscopy Environment. This allows far-reaching compatibility with the Bio-Formats Reader of the Open Microscopy Environment.
Acquired images are automatically saved in CZI or other image formats (including metadata).
Saving in CZI format is also possible in compressed form.
Full integration into the Windows multi-user functionality (separation of user data and program installation, user-specific configurations, etc.).
Configuration options for the graphical user interface enable creation of menu bars, saving of workplace configurations and definition of properties of standard graphic elements.
Export into OME-TIFF (image format specification of the Open Microscopy Environment which enables the exchange of microscopic image data).
Export into ZVI, BMP, GIF, JPG, PNG, TIFF, HDP image formats and export into AVI and Windows Media video formats. Batch export of images and videos.
Image import (LSM, ZVI, BMP, TIFF, JPG, GIF, PNG) and function to convert images (TIFF, JPG, BMP) into CZI format.
A software wizard can change the dimensions of multidimensional images.
Navigator window.
Interactive measurement: length, contour-based measurement data (area, box, perimeter, gray values), angle.
ZEN Connect workspace with Project-based file architecture: Zoom in from the full macroscopic view of your sample down to nanoscale details. Combine data from any image source iand view multiple layers with adjustable transparency. Manual alignment of images allows correction of xy-shift, rotation, re-scaling, shearing and mirroring.

Your Flexible Choice of Components

ZEN system also contains the functionality of these modules:

- ZEN Module Measurement
- ZEN Module Multi Channel
- ZEN Module Panorama
- ZEN Module Manual Extended Focus
- ZEN Module Image Analysis
- ZEN Module Time Lapse
- ZEN Module Z Stack
- ZEN Module Extended Focus
- ZEN Module Autofocus
- ZEN Module Colocalization
- ZEN Module Spectral Unmixing (LSM only)
- ZEN Module 3Dxl, powered by arivis®

Plus:

- Axiocam Control
- Laser-Module Control
- Simple Movie Recorder
- APEER Connector *
- Fast Acquisition
- Dual Camera
- Apotome.2 control

ZEN system can be extended with many optional ZEN modules. An overview is given in the following section.

ZEN pro also contains the functionality of these modules:

- ZEN Module Measurement
- ZEN Module Multi Channel
- ZEN Module Panorama
- ZEN Module Manual Extended Focus

Plus:

- Axiocam Control
- Simple Movie Recorder
- APEER Connector *
- Fast Acquisition
- Dual camera
- Apotome.2 control

ZEN pro can be extended with many optional ZEN modules. An overview is given in the following section.

Specific features of ZEN desk

ZEN desk can be equipped with optional modules for image processing and analysis. This includes basic ZEN functionality and the modules of an existing ZEN system license (except for image acquisition).

ZEN desk contains the functionality of these modules

- ZEN Module Measurement
- ZEN Module Image Analysis
- ZEN Module Extended Focus
- APEER Connector *

ZEN desk can be extended with the following ZEN modules:

- ZEN Module Advanced Processing & Analysis
- ZEN Module Physiology (Dynamics)
- ZEN Module 3Dxl, powered by arivis®
- ZEN Module Deconvolution
- ZEN Module Colocalization
- ZEN Module Macro Environment
- ZEN Module Intellesis
- ZEN Module Intellesis & Image Analysis
- ZEN Module 3rd-party Import
- ZEN Module Connect
- ZEN Module Connect 2D Add-on
- ZEN Module Connect 3D Add-on
- ZEN Module Confocal Topography (LSM only)
- ZEN Module Direct Processing
- ZEN Module FRAP Efficiency Analysis
- ZEN Module FRET

* The APEER Connector in ZEN Blue allows easy uploading and retrieval of data directly from within ZEN Blue. It is also possible to select a workflow on the APEER platform which will use the selected image data from ZEN directly as Input for a workflow. The APEER Connector runs in the cloud while the module APEER on-site allows execution of APEER modules on premises.

Technical Specifications

● Included in ZEN (blue edition)
○ Optional in ZEN (blue edition)

Product/Option		ZEN lite	ZEN desk	ZEN pro	ZEN system
Basis	ZEN	●	●	●	●
Devices	Control of Axiocams	●		●	●
	PMT Control				●
	Other Cameras			○	○
	Laser- / Lasermodule-Control				●
	Microscope Control			●	●
Acquisition	Multi Channel	○		●	●
	Time Lapse	○		○	●
	Z Stack			○	●
	Manual Extended Focus	●		●	●
	Autofocus			○	●
	Tiles & Positions			○	○
	Panorama	●		●	●
	Experiment Designer			○	○
	Correlative Array Tomography			○	○
	Connect	○	○	○	○
	Connect 2D Add-on	○	○	○	○
	Guided Acquisition			○	○
	Counting				○

Note:
ZEISS LSM specific modules are not listed here.
Please refer to the respective Product Infos of LSM 9 family.

Technical Specifications

● Included in ZEN (blue edition)
○ Optional in ZEN (blue edition)

Product / Option		ZEN lite	ZEN desk	ZEN pro	ZEN system
Processing	Extended Focus		●	○	●
	Deconvolution		○	○	○
	Basic 3D Deconvolution		●	●	●
	3Dxl, powered by arivis®		○	○	●
	Spectral Unmixing *		●		●
	Colocalisation		○	○	●
	Direct Processing		○	○	○
Analysis	Measurement	○	●	●	●
	Macro Environment		○	○	○
	Image Analysis	○	●	○	●
	Advanced Processing & Analysis		○	○	○
	FRAP Efficiency Analysis		○		○
	FRET		○		○
	Physiology (Dynamics)		○	○	○
	Third-Party Import	○	○	○	○
	Intellesis	○	○	○	○
	Intellesis & Image Analysis		○	○	○
	APEER on-site	○	○	○	○
	Confocal Topography		○		○

Notes:
ZEISS Elyra 7 is supported by ZEN (black edition)
(co-installation with ZEN (blue edition) is possible on the same computer). ZEISS Lightsheet 7 is supported by ZEN (black edition).

Note:
ZEISS LSM specific modules are not listed here.
Please refer to the respective Product Infos of LSM 9 family.

* requires co-installation of ZEN (black edition)

Your Flexible Choice of Components

ACQUISITION:

ZEN Module Multi Channel

Acquire fluorescence and transmitted light images in independent channels:

- Technically unlimited number of independent channels for reflected light and transmitted light techniques.
- Fully automatic generation of the required microscope setting for a channel with possibility of adjusting the setting manually for the channel.
- Independent exposure times and shading-corrections for each channel.
- Supports simultaneous acquisition of two channels using two synchronized cameras.

ACQUISITION:

ZEN Module Z Stack

Acquire z-stacks with the help of a motorized focus drive:

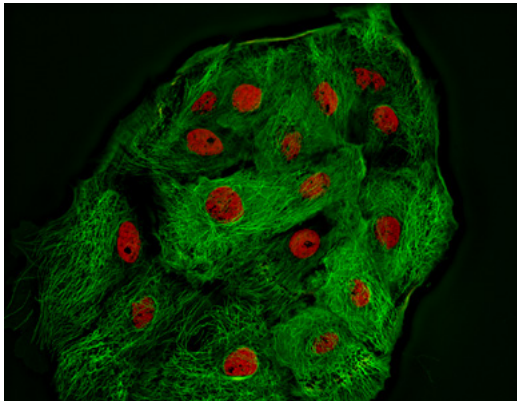
- Definition of the z-stack in first and last or center mode.
- Z-stack limited only by the travel range of the system and minimum increments.
- Optimum Distance button sets the correct increment to satisfy the Nyquist criterion.
- Integrated Z-drive backlash compensation for maximum precision.
- Z-stack can be acquired at relative or absolute focus positions in the experiment.

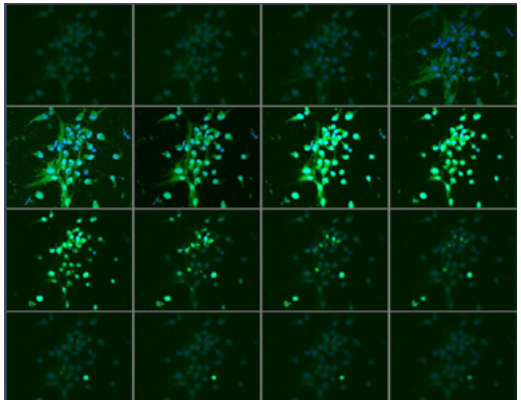
ACQUISITION:

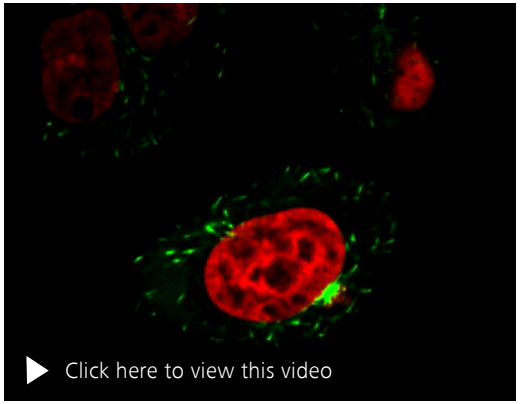
ZEN Module Time Lapse

Acquire images over a period of time:

- Images acquired at maximum possible speed.
- Definition of intervals between images, total acquisition duration and number of time points.
- Acquisition can be interrupted to analyze images already acquired or change the experiment parameters.
- Experiment size is limited only by free space on the hard drive.
- Time series can be started and stopped manually, at fixed times, after a waiting period or by input (trigger) signal.







Your Flexible Choice of Components

ACQUISITION:

ZEN Module Manual Extended Focus*

Generate images manually with no limit on depth of field:

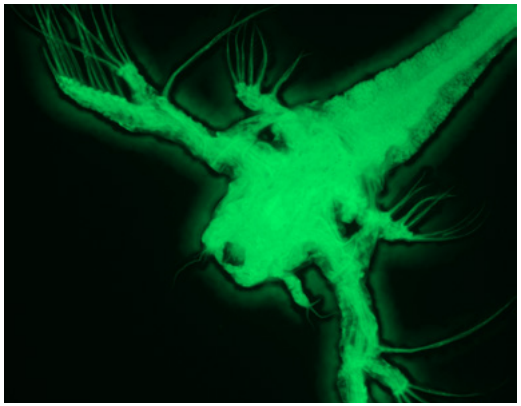
- Extract sharp details from individual images at various focus positions and combine them into an image with extended depth of field.
- Works with images acquired interactively. Images can be added to the intermediate result via a time interval function or key function.
- Wavelet algorithm allows use in transmitted light, reflected light and fluorescence.

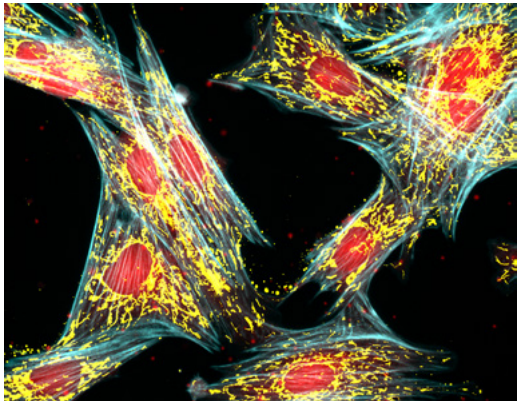
ACQUISITION:

ZEN Module Autofocus

Determine the optimum focus position of the specimen:

- Works in transmitted light, reflected light and fluorescence.
- Calibration-free operation for all objectives and filter sets.
- Options for adjusting the quality, search area and sampling rate of the autofocus to the application.
- Autofocus can be activated automatically during the experiment at defined time intervals and channels, and at predefined tile positions or individual positions.





* included for free in all ZEN versions

Your Flexible Choice of Components

ACQUISITION:

ZEN Module Panorama*

Generate precise, high-resolution overview images from manually-acquired 2D individual images:

- Acquire overlapping individual multi channel images interactively and combine them to form a panorama image on microscopes with an encoded or motorized stage.
- 3D panorama images can be acquired on stands with a motorized Z-drive.

ACQUISITION:

ZEN Module Tiles & Positions

Generate precise, high-resolution images through automatic scanning of predefined regions and positions of a sample:

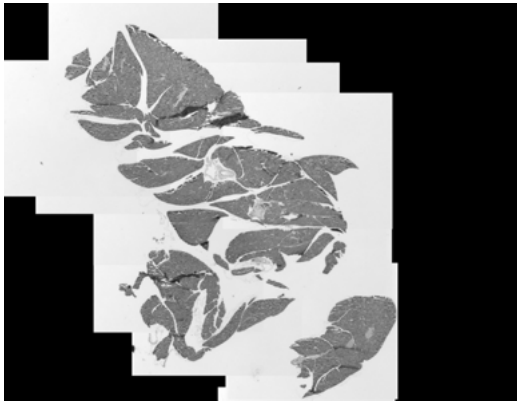
- Regions of tile images and individual positions can be combined freely.
- A motorized stage allows automatic scanning of specimens.
- Overlapping individual images can be combined into an overview image using “stitching” algorithms.
- Select from predefined or generate your own multiwell plates, multi-chamber slides, slides and dishes.

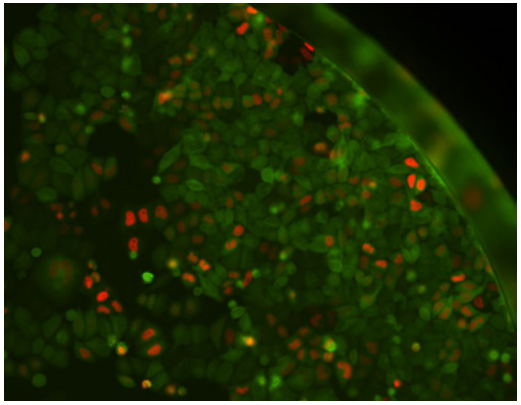
ACQUISITION:

ZEN Module Experiment Designer

Configure inhomogeneous acquisition experiments:

- Support for all experiment dimensions: time series, Z-stacks, tile images and channels.
- Operation via a simple graphical interface using four different types of experiment blocks along a timeline: Acquisition blocks, Execute blocks, Pause blocks and Interaction blocks.
- Synchronous or asynchronous control of hardware actions during the course of the experiment.
- Definition of a number of iteration loops.





* included in all ZEN versions for free

Your Flexible Choice of Components

PROCESSING/ANALYSIS:

ZEN Module Deconvolution

Use 3D deconvolution algorithms to enhance your 3D image stacks:

- Efficient multi CPU-based processing and highly efficient processing on graphics cards.
- Improvements in resolution down to 120 nm (depending on imaging system).
- Compatible with conventional widefield, Apotome, Lightsheet Z.1, confocal or multiphoton microscopes.
- Choice of four primary methods, plus more than 15 published methods (e.g. Richardson-Lucy) can be employed by changing the parameters.

PROCESSING/ANALYSIS:

ZEN Module Direct Processing

Use acquisition time productively to perform time consuming image processing tasks:

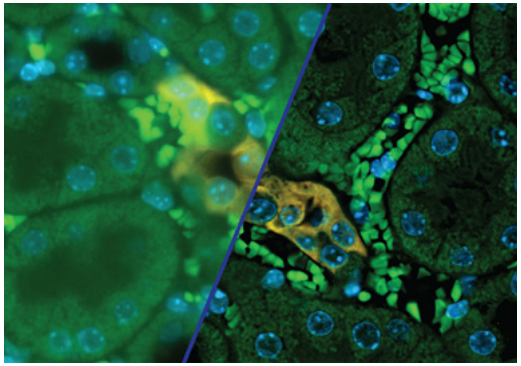
- Set up a communication between acquisition and the processing computers.
- Define Direct Processing directly in the ZEN Acquisition tab as part of an experiment.
- Supports Deconvolution and Airyscan Processing modules.
- Multiple acquisition computers can use one processing PC.

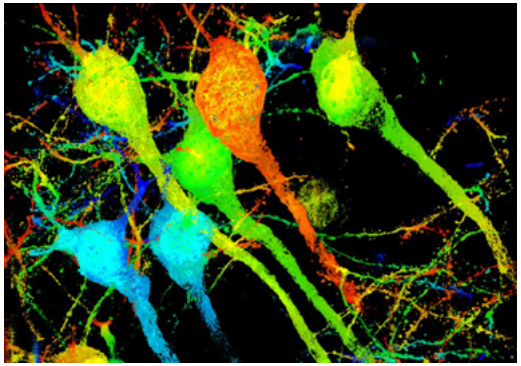
PROCESSING/ANALYSIS:

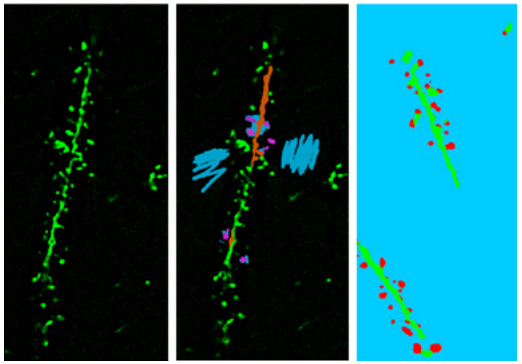
Intellesis

Enable machine-learning algorithms to segment images, using pixel classification:

- Perform image segmentation by simply labelling what will be segmented.
- Supports multidimensional datasets including z-stacks and multi channel.
- Imports image formats such as CZI, OME-TIFF, TIFF, JPG, PNG and others.
- Create predefined image analysis settings to use inside the ZEN measurement framework.







Your Flexible Choice of Components

VISUALIZATION:

ZEN Module 3Dxl*

Visualize 3D/4D image stacks:

- Display 3D volume models using efficient ray tracing technology.
- 3Dxl is suitable for rendering extremely large images.
- Displays up to 6 channels and time series (“4D rendering”)
- Choice of four rendering methods: Shadow, Transparency, Surface and Maximum Intensity Projection, with up to three clipping planes.
- Mixed mode rendering for combination of Surface and Transparency rendering.
- Generate animations.

PROCESSING/ANALYSIS:

ZEN Module Colocalization

Quantify colocalization in two channels:

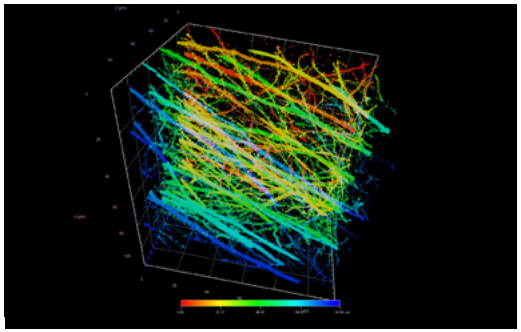
- The gray value pixel distribution is displayed in two channels with the help of a scatter plot with four quadrants. Link scatter plot, image and data table.
- Draw multiple regions into the image. Data table shows measured values dynamically for both the entire image and the individual regions.
- Display and export 17 measured values in a data table that can be exported for further analysis.

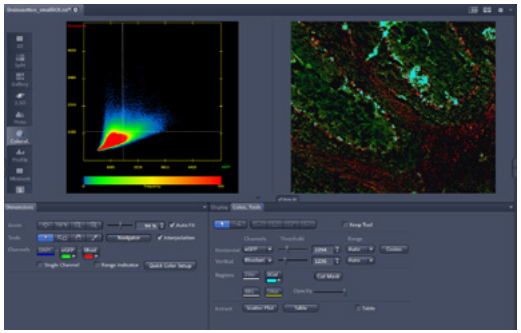
PROCESSING/ANALYSIS:

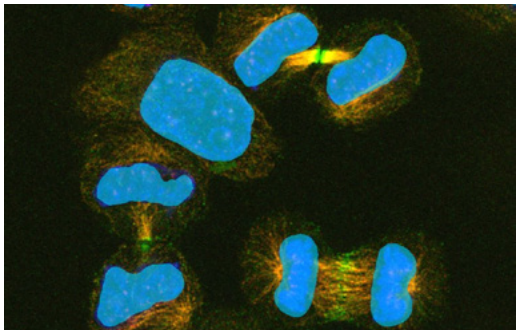
ZEN Module Image Analysis

Use a software wizard to create an automatic measurement program:

- Click on reference objects or use the automatic threshold for object segmentation. Automatic object separation.
- Define classes and subclasses, and set up segmentation of intracellular objects.
- Measure geometric and intensity parameters of individual objects or in the entire image.
- Display measurement data in tables, lists and graphs, and link between data tables, objects on images and graphs.
- Compatible with ZEN Intellesis.







* powered by arivis

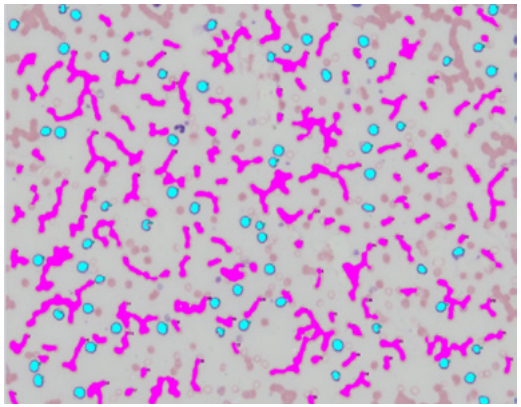
Your Flexible Choice of Components

PROCESSING/ANALYSIS:

ZEN Module Advanced Processing & Analysis*

Extend the possibilities of Image Analysis

- Add more collections of image processing functions: Edges, Arithmetics, Morphology, Segmentation and Binary.
- Includes the Feedback-Experiments function: Enables customization of image acquisition to perfectly fulfill the needs of the application. Predefined observables and actions can be used via drag&drop in an editor.

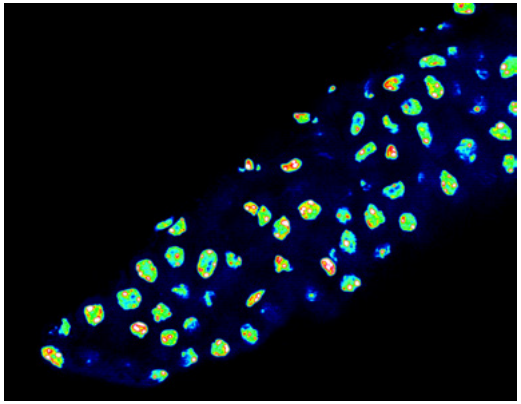


PROCESSING/ANALYSIS:

ZEN Module Physiology (Dynamics)

Use an interactive and flexible way to measure fast ion fluctuations such as intracellular calcium in living specimens:

- Supports imaging with single wavelength (e.g. Fluo-4) and dual wavelength dyes (e.g. Fura-2).
- Allows online ratio calculation and ratio image display.
- Flexible charting and image display. Online and offline data table display with data export functionality.
- Uses definable switches for online annotations and change of acquisition speed. Pausing and refocusing are possible via a live camera view.
- Freely configurable TTL triggers.

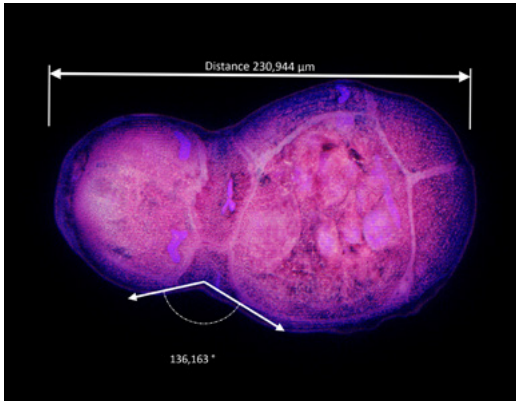


PROCESSING/ANALYSIS:

ZEN Module Measurements**

Perform interactive measurements

- Measure morphological parameters of interactively defined contours: area, orientation angle, perimeter, diameter, center of gravity, radius of circle with equal area, shape factor, bounding box, projections, etc.
- Measure intensity values for rectangles and contours.
- Free configuration of all interactive measurement tools displays desired parameters in tables, lists or graphs.
- Option for interactive measurement in online images.



* requires the ZEN Module Image Analysis

** always included in ZEN system/pro

Your Flexible Choice of Components

PROCESSING/ANALYSIS:

ZEN Module Correlative Array Tomography (CAT)

Image ultrathin serial sections automatically in widefield and scanning electron microscopes:

- Regions of interest defined manually in one section will be automatically propagated to all following sections.
- Selected regions of interest can be imaged in light and electron microscopes.
- The 2D image sequences are aligned into a 3D z-stack, resulting in a correlative data set combining information from the light and electron microscopes into one image volume.

ACQUISITION/PROCESSING:

ZEN Module Connect*

Extend the basic functionality of ZEN Connect with a sample-centric workflow for acquiring and correlating light or electron microscope images:

- Interactive control of stage movement from the ZEN Connect workspace.
- Imports images into projects.
- Exports merged project view as image or fly-through video.
- Imports 3rd-party microscopy images powered by Bioformats.

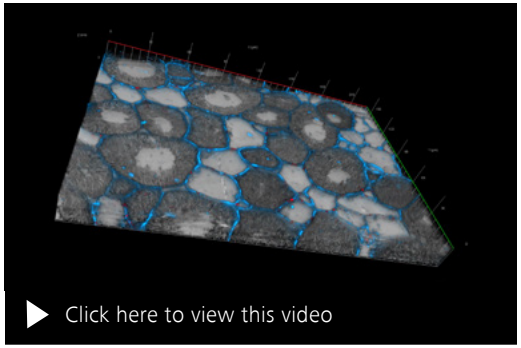
* Add-ons to extend functionality of ZEN Connect available. For more information, please see separate product info.

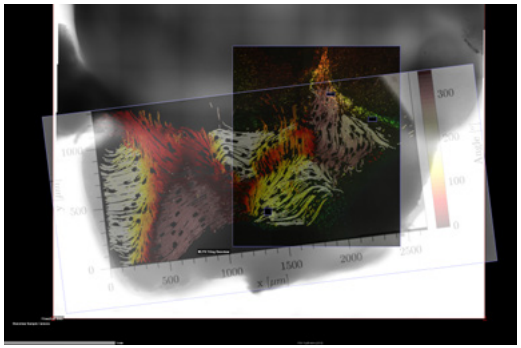
PROCESSING/ANALYSIS:

ZEN Module 3rd-party Import

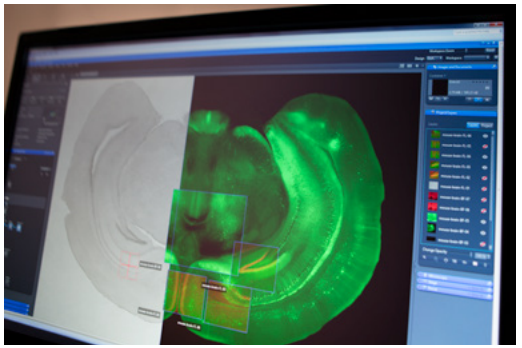
Import 3rd-party microscopy images into ZEN:

- Imports 3rd-party images in native format including extraction of relevant metadata.
- Supports metadata extraction depending on the original format (powered by Bioformats).





Courtesy of G. Eichele, Department of Genes and Behavior, Max Planck Institute for Biophysical Chemistry, Göttingen, Germany



Your Flexible Choice of Components

PROCESSING/ANALYSIS:

ZEN Module FRAP Efficiency Analysis

Analyze FRAP/FLIP or similar time series acquisitions:

- Analyzes time series acquisitions with bleach events to determine the half time of recovery / decrease of fluorescent signals.
- Supports mono or bi-exponential fit algorithms including options for background correction and correction of imaging-induced photobleaching.
- Possibility of evaluating grouped ROIs.

PROCESSING/ANALYSIS:

ZEN Module FRET

Analyze FRET datasets:

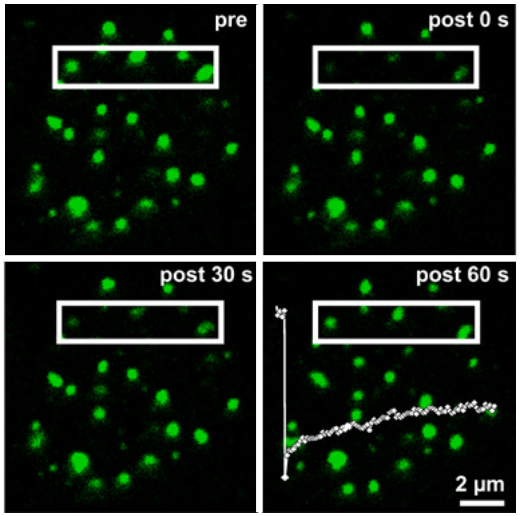
- Supports Sensitized Emission and Acceptor Photobleaching.
- Includes a special FRET view with calculation of control parameters and a color-coded display of the resulting images as well as the intensity changes of selected image regions.
- Supports the most common methods: Gordon, Xia, Youvan.

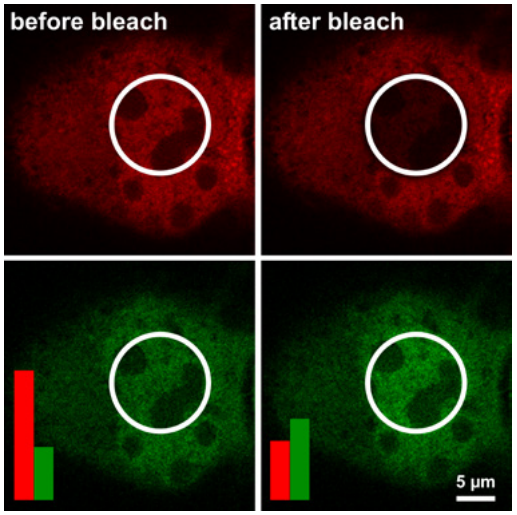
ACQUISITION/PROCESSING/ANALYSIS:

ZEN Module Macro Environment

Customize and automate ZEN with a selected set of commands:

- Integrated Development Environment (IDE) includes editor, debugger and recorder.
- Macro Interface generates simple Macro Code as well as Macros with loops and branches.
- Supports the Python language.
- Experts can extend the functionality by including additional libraries.





Your Flexible Choice of Components

PROCESSING:

ZEN Module Extended Focus

Generate images with no limitation of depth of field

- Extraction of the sharp details from individual images at various focus positions and combination into an image with high depth of field.
- Processes Z-stacks that have already been acquired.
- Wavelet algorithm allows use in transmitted light, reflected light and fluorescence

ACQUISITION / PROCESSING / ANALYSIS:

ZEN Module Guided Acquisition*

Enables automatic and targeted acquisition of objects of interest

- Saves acquisition time and storage space by focussing the image acquisition on user defined objects of interest.
- Combines an acquisition experiment, that creates an overview over the sample with an image analysis step and another acquisition experiment, that records the sample at higher resolution and more dimensions.

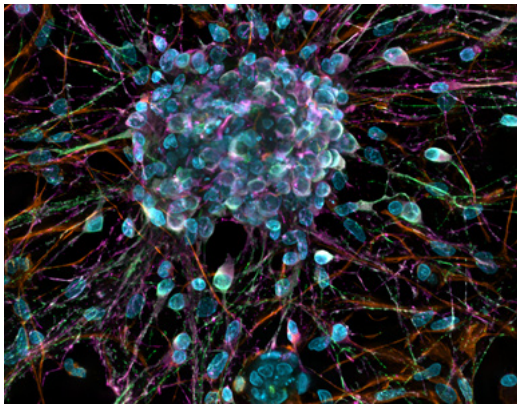
PROCESSING / ANALYSIS:

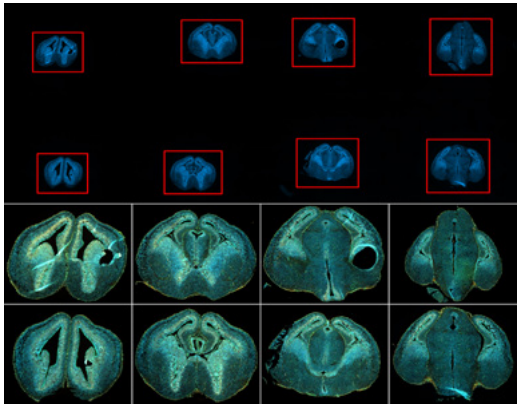
ZEN Module APEER On-site

Connects to the cloud based image analysis platform APEER and lets you customize ZEN for your specific application.

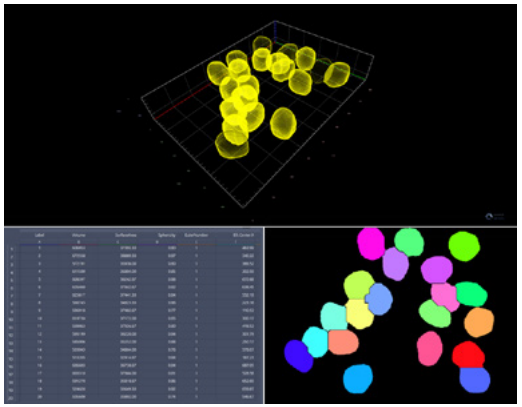
- Enables additional processing and analysis features and workflows in ZEN
- Executes customized and open-source image analysis functions in ZEN (on-site), provided via APEER, the cloud-based image processing platform**

Contact us: apeer-solutions@zeiss.com





* requires ZEN module Image Analysis



** If you need support developing customized solutions, we have a team of data scientists to rapidly develop applications using traditional and machine learning tools.

Count on Service in the True Sense of the Word

Because the ZEISS microscope system is one of your most important tools, we make sure it is always ready to perform. What's more, we'll see to it that you are employing all the options that get the best from your microscope. You can choose from a range of service products, each delivered by highly qualified ZEISS specialists who will support you long beyond the purchase of your system. Our aim is to enable you to experience those special moments that inspire your work.

Repair. Maintain. Optimize.

Attain maximum uptime with your microscope. A ZEISS Protect Service Agreement lets you budget for operating costs, all the while reducing costly downtime and achieving the best results through the improved performance of your system. Choose from service agreements designed to give you a range of options and control levels. We'll work with you to select the service program that addresses your system needs and usage requirements, in line with your organization's standard practices.

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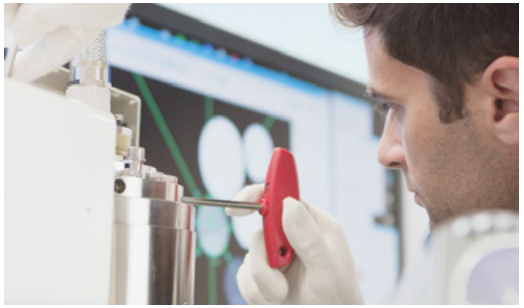
Your ZEISS microscope system is designed for a variety of updates: open interfaces allow you to maintain a high technological level at all times. As a result you'll work more efficiently now, while extending the productive lifetime of your microscope as new update possibilities come on stream.



Profit from the optimized performance of your microscope system with services from ZEISS – now and for years to come.

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