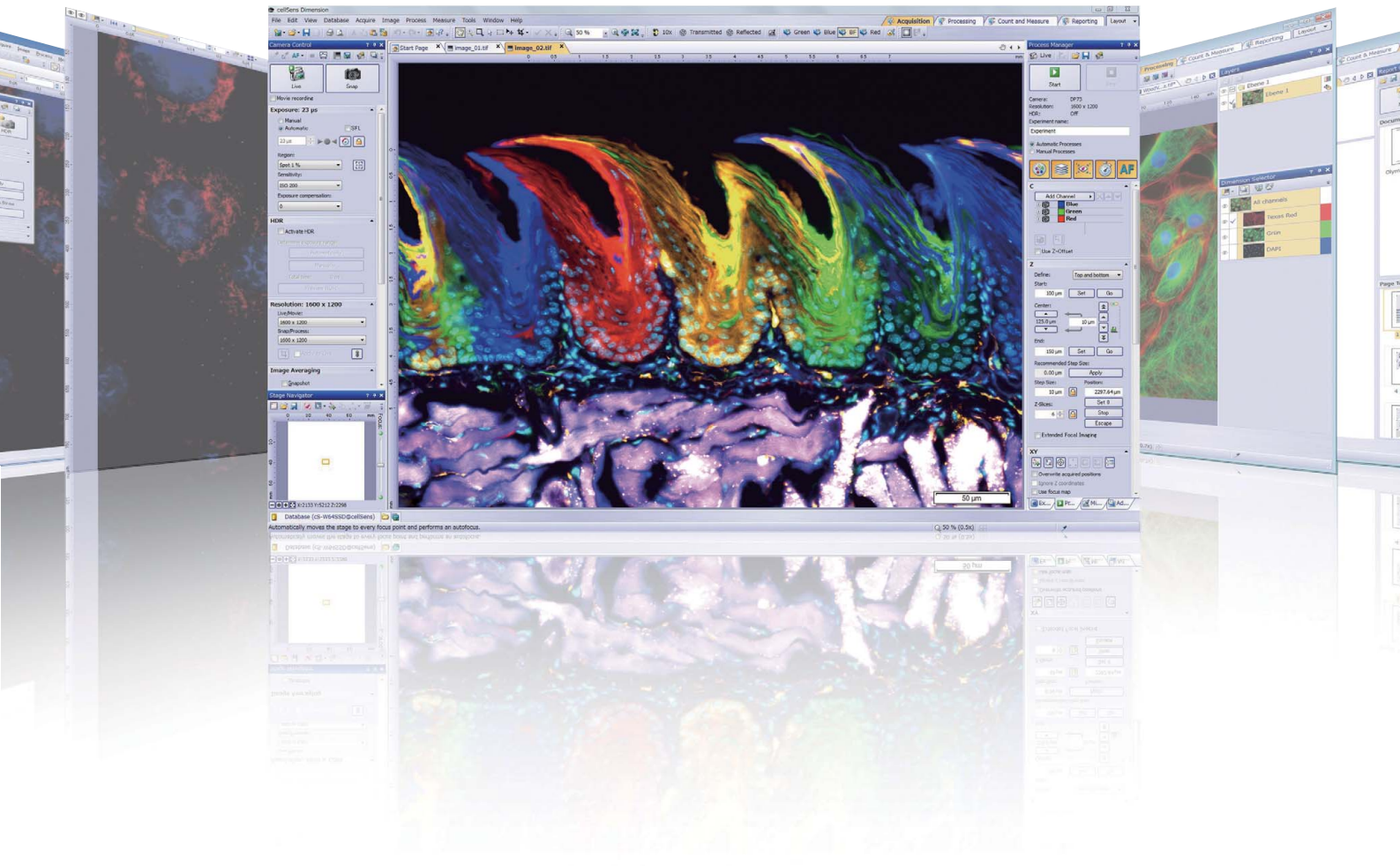
OLYMPUS®

Imaging Software

cellSens

Intuitive Operation. Seamless Workflow.



*Not for clinical diagnostic use.

Simplified Experiment Design—More Time for Research

Using a mix of software programs for your imaging tasks makes your workflow unnecessarily complicated. cellSens imaging software puts the tools you need for image acquisition, processing, analysis, and sharing in one place, making your workflow more efficient.

cellSens software offers a user-friendly interface that combines ease of use with power and flexibility. Choose the version that best suits your application or upgrade in the future as your needs change.

cellSens Entry

Suitable for lab workers or researchers who primarily undertake single-shot acquisition, cellSens Entry offers simple layouts that make it easy for you to find the tools you need. For collaboration, Conference Mode maximizes images that appear on the screen when streaming on a wireless network while annotation tools make it easy to highlight areas of interest and work collaboratively with colleagues around the world.

Additional Modules (Optional)

- **Instant Multiple Image Alignment (MIA):** Instant MIA enables you to create high-resolution, whole-slide images in real time simply by moving the controls of your microscope's manual stage.
- **Encoded Device:** Support for encoded devices (objectives, light intensity, etc.) for easy setting recall.
- **Interactive Measurement:** Draw a polyline, rectangle, or circle on top of your image, and the software gives you measurement data, which you can export to a spreadsheet.

cellSens Standard

If your experiments involve fluorescence imaging, cellSens Standard is a cost-effective imaging solution. With all the features of Entry, cellSens Standard adds:

- **Image Overlay:** Essential for fluorescence, the ability to overlay multiple images helps you see the whole picture.
- **Manual Object Counting:** Use your mouse to click on objects, and the software automatically counts it for you.

Additional Modules (Optional)

- **Count and Measure:** For any image, you can perform segmentation analysis by defining objects based on a range of morphological or intensity characteristics, and the software will identify all of the similar objects. The data are presented in a chart—when you click on a data point, that object will be highlighted in the image.

cellSens Dimension

Our most advanced microscope imaging solution, cellSens Dimension includes the standard features of Entry and Standard and adds a host of additional functionality for researchers engaged in complex imaging experiments.

Standard Inclusions

- **Third-Party Hardware:** Supports a wide variety of third-party cameras, stages, filter wheels, etc.
- **Graphical Experiment Manager (GEM):** GEM is a flexible drag-and-drop interface that makes organizing complex experiments easier—acquire multichannel, Z-stack, and time-lapse images across one or more sample positions.
- **Basic Image Analysis:** The software provides colocalization and intensity plots over time. The results are shown in a straightforward chart that helps make it easy for you to recognize related variables.
- **Macro Manager:** Macro Manager allows you to execute routine processing and analysis with just one-click. These Macro commands can also be applied to multiple images.

Additional Modules (Optional)

- **Well Plate Navigator:** The navigator automatically scans and acquires images from standard and custom well plates. Navigating to the center of any well is as simple as one click.
- **3D Deconvolution:** While many image processing programs can be slow, 3D Deconvolution features GPU processing so that the process is completed quickly. More than just simple deblurring, this feature reconstructs your image to deliver improved resolution, contrast, and dynamic range. We offer the most popular deconvolution algorithms as well as algorithms that are customized for Olympus products to maximize the capabilities of your imaging system.
- **Ratio Analysis:** Online ratio analysis enables you to obtain ratio measurements from your images as they're being acquired.
- **Object Tracking:** Visualize the path an object takes across the field of view, such as during wound healing.

Whether you work in a lab setting or are conducting complex experiments as part of your research, cellSens software can be tailored to your workflow. Having all of the tools you need in one place helps you get results quickly.

Image

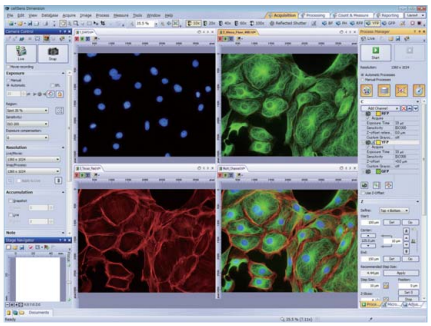
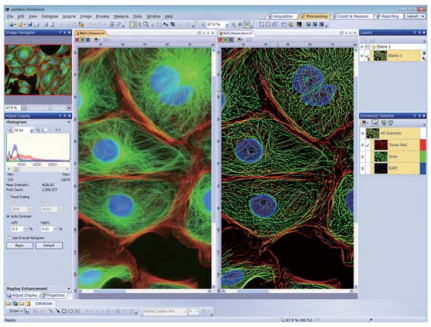


Image Capture

The software makes it simple to acquire images in many ways. Whether you're capturing a single image or imaging in five dimensions (XYZTλ), you can accomplish your work using a single software package. All your camera controls are conveniently grouped in one user-friendly toolbar.

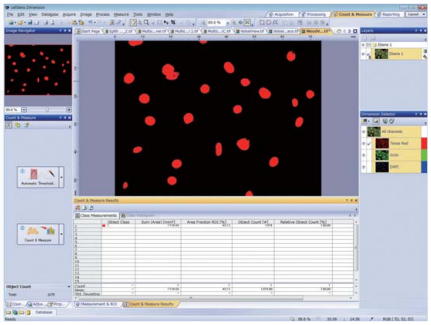
Process



Viewing and Processing

Get the most out of the images you capture. Prepare your images for analysis with powerful tools such as deconvolution, background subtraction, flatfield correction, image stitching, spectral unmixing, and various Z-stack displays (including maximum intensity projections).

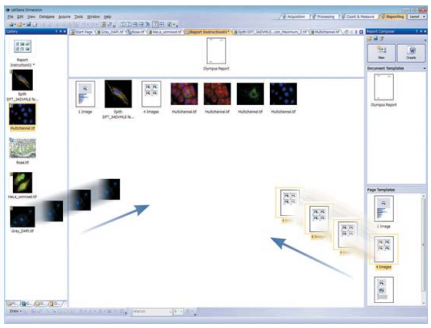
Analyze



Measurement and Analysis

The software's analysis tools enable you to extract all the available data from your images so that you can quantify them for your research. Use the data to generate simple or complex statistics and make confluency measurements. You can also set up active export to Excel® for further data analysis. No matter the type of analysis, the original images remain unaltered, which is important for the integrity of your research.

Report



Collaboration and Communication

Customizable database and reporting solutions enable active collaboration with colleagues and coworkers. These functions make it simple to manage, share, and distribute images and analysis.

cellSens Functions

✓ : Included functions / : Optional solutions

		DIMENSION	STANDARD	ENTRY
Layout	User experience customization	✓	✓	✓
View	Overlay multiple images	✓	✓	
	Document groups for side-by-side image comparison	✓	✓	✓
	Movie playback	✓	✓	✓
	Tile view (multiple images in a single data set shown side-by-side)	✓	✓	✓
	Slice view for orthogonal plane viewing of 3D or time-lapse data sets	✓		
	Voxel viewer for isosurface and volumetric rendering of 3D and 4D data sets	✓		
Image Acquisition	Snap/movie acquisition	✓	✓	✓
	Time-lapse at specified interval	✓	✓	
	Automated multi wavelength	✓	✓	
	Z-stack	✓		
	Multidimensional (XYZT and wavelength)	✓		
	Graphical Experiment Manager	✓		
	Manual panoramic imaging (Instant MIA and Manual MIA)	✓	Manual Process	Manual Process
	Multiposition visitation and stage navigator	Multiposition	Multiposition	
	Automated panoramic imaging (auto MIA, requires motorized stage)	Multiposition	Multiposition	
	Instantly create EFI image (manual or motorized Z)	✓	Manual Process	Manual Process
	Simultaneous multicolor imaging (requires two identical cameras** or image splitter)	✓		
	Live deblurring	✓		
	High dynamic range imaging (HDRI)	✓		
	Multiwell plate acquisition	Well Plate Navigator and Multiposition		
Image Processing	Geometry/combine/filter processing	✓	✓	
	Fluorescence unmixing	✓		
	Brightfield unmixing	Count & Measure		
	Deblurring (No/Nearest Neighbor, Wiener Filter)	✓		
	Kymograph	✓		
	2D deconvolution	✓		
	3D deconvolution (constrained iterative deconvolution with GPU processing)	CI Deconvolution		
Image Analysis	Region and line measurements	✓	✓	
	Phase analysis	✓		
	Object analysis and classification	Count & Measure	Count & Measure	
	Interactive measurement	✓	✓	✓*
	Intensity plot over time/z	✓		
	Colocalization	✓		
	Object counting (manual)	✓	✓	
	Object tracking	Tracking and Count & Measure		
	Online ratio and kinetics	Ratio/FRET		
	Ratio analysis (offline)	✓		
	FRET analysis	Ratio/FRET or Life Science Analysis		
	FRAP analysis	Photo Manipulation or Life Science Analysis		
	Cell count and confluency measurements	✓	Confluency Checker	
Documentation and Collaboration	Automatically compose MS Word reports	✓		
	Database image and data management solution for microscopy	Database Core	Database Core	
	Open database and load records/documents from database	Database Client	Database Client	Database Client
Remoting	Remote live image viewing	NetCam	NetCam	

* Three points angle, four points angle, arbitrary line, closed polygon, polyline and perpendicular line only. Interactive measurement option is needed to add other measurement tools and make exporting Excel spreadsheets possible.
**Supported cameras: iXon3 897, Zyla 5.5 (USB 3.0), Zyla 4.2 (USB 3.0/CamLink), Neo, iXon Ultra 888, ImagEM X2, ORCA-Flash 4.0 (V2/V3), Prime 95B, Prime BSI.

Products with Confirmed Functionality

			DIMENSION	STANDARD	ENTRY
Olympus	Camera	DP21, DP22, DP26, DP27, DP73*1, DP74*3, DP80*1	✓	✓	✓
	Microscope	BX43, BX53, BX63, BX61, BX61WI, IX83, IX73, IX81, SZX16A	✓	✓	
		IX81-ZDC, IX81-ZDC2, IX3-ZDC, IX3-ZDC2	✓		
	Peripherals	BX-DSU, IX3-DSU, IX2-DSU, U-CBF	✓		
	Motorized XY Stage	BX3-SSU, IX3-SSU	Multiposition	Multiposition	
Olympus Soft Imaging Solutions	Camera	XM10, XC10, XC30, XC50, UC30, UC50, UC90*2, LC20, LC30, SC30, SC50, SC100, SC180	✓	✓	✓
	Peripherals	cellTIRF (multiline, single line), MT20, USB-ODB converter, Real Time Controller (U-RTC and U-RTCE), U-FCB, U-STC	✓		
Hamamatsu	Camera	ORCA R2, ORCA 03, ORCA 05, ORCA ERG, ORCA-Flash 2.8, ORCA-spark, ImagEM, ImagEMX2, ORCA-Flash 4.0 V2, ORCA-Flash 4.0 V3, ORCA-Flash 4.0 LT, ORCA-Flash 4.0 LT PLUS	✓		
	Image Splitter	W-View Gemini	✓		
Q-Imaging	Camera	MicroPublisher 3.3 RTV, MicroPublisher 5 RTV		✓	
		Monochrome: Exi Blue/Aqua, QIClick Retiga Exi/SRV/2000R/2000RV/4000R/4000RV/6000	✓		
		Color : Exi Aqua	✓		
		OptiMOS, Rolera Thunder	✓		
Photometrics	Camera	CoolSNAP HQ2	✓		
		Evolve 512 Delta, Prime (PCI-Express), Prime 95B, Prime BSI	✓		
	Image Splitter	Dual View DV2 / QuadView QV2	✓		
Andor	Camera	iXon X3 897, iXon Ultra 897, iXon Ultra 888, iXon Life 888, iXon Life897, Zyla4.2/Zyla4.2 PLUS (Camera-link, USB3.0), Zyla5.5 (Camera-link 10tap, USB3.0), Neo	✓		
Jenoptik	Camera	ProgRes C3, ProgRes C5	✓	✓	
Vincent Associates	Shutter	Uniblitz shutter (VCM-D1, VMM-D1, VMM-D3)	✓	✓	
CoolLED	Light Source	pE-1, pE-2, pE4000	✓		
Excelitas	Light Source	X-Cite 120 PC, X-Cite exacte, X-Cite XLED1, X-Cite110LED, X-Cite120LED, X-Cite XYLIS, X-Cite TURBO	✓		
Lumencor	Light Source	SOLA SEII, SEII 365, Spectra X	✓		
Sutter	Light Source	Lambda DG4	✓		
	Shutter, FW, Z-drive	Lambda 10-3/10-B	✓		
Prior	Motorized XY Stage	ProScan (I, II, III) , Optiscan II, III	Multiposition		
	Shutter, FW, Z-drive	ProScan (I, II, III) , Optiscan II, III	✓		
	Piezo Z (Control via Real Time Controller)	NanoScanZ NZ100	✓		
Ludl	Motorized XY Stage	Mac 6000	Multiposition		
	Shutter, FW, Z-drive	Mac 6000	✓		
Objective Imaging	Motorized XY Stage Controller	Oasis 4i	Multiposition		
	Z-drive Controller	Oasis 4i	✓		
Märzhäuser	Motorized XY Stage	Tango, Pilot Stage	Multiposition		
	Z-drive Controller	Tango			
Physik Instrumente	Piezo Z (Control via Real Time Controller)	PIFOC P-721	✓		
Applied Scientific Instrumetation	Motorized XY Stage	MS-2000	Multiposition		
	Z-drive Controller	MS-2000	✓		
National Instruments	Digital TTL Device	NI USB-6501	✓		
Yokogawa	CSU	CSU-X1, CSU-W1	✓		

*1 DP73/80 supports only Windows 7/8.1/10 64-bit. *2 UC90 is not available in some areas. *3 DP74 does not support Windows 8.1/10 32-bit.

Compatible image formats

Read and write	JPEG, JPEG2000, TIFF, BMP, AVI, PNG, VSI, PSD (Adobe Photoshop), Big TIFF, OIR (FLUOVIEW format)
Read only	GIF, OIF/OIB (FLUOVIEW format), Cell, STK (MetaMorph), MRC (Medical Research Council)

System requirements

OS*	Microsoft Windows 10 Pro (32-bit/64-bit) Microsoft Windows 8.1 Pro (32-bit/64-bit) Microsoft Windows 7 Ultimate/Professional (32-bit/64-bit) with SP1
OS Language	English, Simplified Chinese, Japanese, German, Russian (Entry and Standard) and Italian (Entry and Standard)
CPU	Intel Core i5, Intel Core i7, Intel Xeon Recommended for high-speed image acquisition: QuadCore
RAM	4GB for general applications, 8GB or more is recommended for high-speed image acquisition
Graphics Card	1280 x 1024 (min. 1024 x 768) monitor resolution with 32 bit video card with separate graphics memory (no integrated graphics processor with shared memory)
Port	USB 2.0 port to connect devices to the system FireWire A to connect devices to the system (BX61, IX81, SZX2-MDCU, IX3-DSU etc...) Serial (RS232) to connect devices to the system (BX61, IX81, SZX2-MDCU etc...) Additional PCI/PCIe slots as necessary to connect third-party peripherals (principally third-party cameras) with proprietary interface cards
HDD	1 GB for installation Recommended for high speed image acquisition: Solid State Drive (SSD)
Drive	DVD drive (Read: DVD-R DL)
Web Browser	Recommended: Microsoft Internet Explorer 11

*cellSens Dimension and Dimension Desktop are only compatible with the 64-bit OS.

Software version update

Version update is available for 1 year following software activation and revision update is always available.
Update licenses are available and provide access to the latest version of cellSens regardless of installation date.

Image data courtesy of:
Hiroo Ueno, Ph.D. Department of Stem Cell Pathology, Kansai Medical University (cover page)

- **OLYMPUS CORPORATION is ISO14001 certified.**
- **OLYMPUS CORPORATION is ISO9001 certified.**

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