# Recommended system requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Processor</strong></td>
<td>Intel Core i7-6700K or equivalent, 4.0 GHz, 4-core, 8-thread processor.</td>
</tr>
<tr>
<td><strong>Memory</strong></td>
<td>8 GB RAM or more, 16 GB RAM recommended.</td>
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<tr>
<td><strong>Storage</strong></td>
<td>1 TB or more, 2 TB recommended.</td>
</tr>
<tr>
<td><strong>Operating System</strong></td>
<td>Windows 10 64-bit, Windows 11 64-bit, MacOS 10.15 or later.</td>
</tr>
</tbody>
</table>

## Compatible image formats

- Read only: GIF, PSD (Adobe Photoshop), TIFF (DF-BSW, FSX100, MetaMorph), OIF/OIB (Fluoview format), Cell, STK (MetaMorph), MRC
- Read and write: JPEG, JPEG2000, TIFF, BMP, AVI, PNG, VSI (Virtual slide image)

## cellSens functions

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>View</strong></td>
<td>3D view, Z-stack view, multi-view, multi-plan view, multi-color view.</td>
</tr>
<tr>
<td><strong>Image Acquisition</strong></td>
<td>Live imaging, Multimode imaging, Time-lapse imaging, Long Exposure imaging.</td>
</tr>
<tr>
<td><strong>Image Processing</strong></td>
<td>Deconvolution, Unmixing, Image stitching, Image alignment.</td>
</tr>
<tr>
<td><strong>Image Analysis</strong></td>
<td>Object analysis, Classification, Phase analysis.</td>
</tr>
</tbody>
</table>

# Products with confirmed functionality

- Olympus Microscope
- Sharp Digital Microscope, Sharp Nano Iris Microscope
- Andor Camera iXon X3 897, iXon Ultra 897, Zyla4.2 (Camera-link), Zyla5.5(USB3.0)
- High-End Camera
- Photometrics Camera CoolSNAP HQ2
- Sutter Light Source Lambda DG4
- Lumen Dynamics Light Source X-Cite 120 PC, X-Cite
- CoolLED Light Source precisExcite (pE-1, pE-2)
- Vincent Associates Shutter Uniblitz shutter (VCM-D1, VMM-D1, VMM-D3)

## Image data courtesy of:
- NanoCells, MDU, Department of Stem Cell Pathology, Kanazawa Medical University

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© 2022 OLYMPUS CORPORATION. All rights reserved. Specifications and appearances are subject to change without any notice or obligation on the part of the manufacturer.
Olympus cellSens gives you a simpler way to work. Enjoy full control over the user interface, with functions that are where you want them, when you need them. Seamless operation, from image capture to report creation means more results with less effort. Spend less time with your software. Have more time for research.

ADD SIMPLICITY TO EXPERIMENT DESIGN...
LEAVE MORE TIME FOR RESEARCH

Image Capture
Capture multi-color, time lapse, and z-stack images with ease. Just select the appropriate capture button, add relevant parameters, and click “Start”. The Process Manager or Experiment Manager make it easy to capture multidimensional image.

Viewing and Processing
Automatically view your data in the colors and layout you choose. Take advantage of an array of advanced image processing functions, such as stitching, extended focus, deconvolution, and unmixing.

Measurement and Analysis
Make measurements using an intuitive interface. cellSens offers region of interest, phase analysis, and cell count capability. Export raw measurement data to MS Excel or a cellSens workbook with a single click.

Collaboration and Communication
Actively collaborate with colleagues and coworkers with special tools including Database and Reporting functions. These functions make it simple to manage, share, and distribute your own image and data reports.

Microscopy Research With a Personal Touch
With microscope optics pushing the boundaries of resolution and size at all magnifications and microscope design enabling new techniques, it is important to be able to efficiently capture and process the images produced. In addition, an increasing number of researchers are imaging using a microscope and it is therefore essential that imaging and analysis are both flexible and user-centric. The Olympus cellSens software family fulfills all these requirements with its unique personalization concept.
Convenient Operation

It’s Time to Get Personal
Olympus has been at the forefront of microscopy for over 90 years and has developed microscopes and systems for a broad spectrum of applications. As a result, we know that each researcher has individual requirements that can’t all be met by fixed solutions. The cellSens software family consists of three packages, all featuring a peerless user-definable interface. As a result, each user can define what they want cellSens to show them within the defined work areas.

Dynamic Interface
Creating an efficient workflow requires careful definition of the tasks and tools at each stage. With the cellSens platform’s dynamic GUI, the same is true—the tools you need for each stage are clearly available, without clutter or the need to search. Olympus has created a number of interface layouts, which are developed with capabilities appropriate to the users needs.

- Acquisition Layout—for selecting between different acquisition processes and adjusting the camera settings
- Processing Layout—for post-acquisition functions such as image processing, execution of measurements, collection of data, presentation of resulting statistics
- Count & Measure Layout—for manual and automated measurement and object counting
- Reporting Layout—for generating reports to document and share results.
- Create Layout—a user can define his or her own layout in various arrangements

Camera Control Panel
The most important microscope component that requires software control when imaging is the digital camera. Modern cameras feature a number of functions that can be changed to enhance or perfect an image, for example, exposure time and pixel binning. The cellSens Entry and Standard packages control such features on all Olympus digital microscopes and cameras. The Dimension package, in addition, controls such features on high-end research cameras as well. As a result, scientists can maximize the quality of their images.

Dark Application Skin
The Dark Application Skin reduces computer monitor-generated ambient light and allows cellSens users to adapt to darkened environments; icon contrast remains high for easy recognition and quick selection.

Create Flexible Workflow Toolbars for Repetitive Operations
cellSens lets you create custom toolbars for your most frequently used functions and then save them to the My Functions window. Custom buttons are also easy to use, with convenient tab access that further enhances workflow efficiency. Furthermore, appearance of each toolbar in the My Functions window can be customized by choosing an icon and/or text from Button Appearance window.

Graphical Experiment Manager (GEM)
GEM enables the design of complex experiments by simply dragging and dropping icons onto the canvas.

Arrange Windows as You Like
Organize the tools and windows for the job at hand to create a functional layout that works best for you.

Display Only Those Functions You Need on the Toolbar
Common Functions can be Grouped in a Single Tab
All necessary functions are placed where you want, when you need them. Layout tabs allow easy selection of functions according to your workflow. For instance, display camera control features in your Acquisition layout, and then remove them from view when you switch to the Processing layout.

Display or Hide Windows as You Require, or Use Auto-hide for Clean Operation

Need Help? Online Help is Just a Click Away

# EMPOWERED TO DO WHAT YOU WANT

## What Researchers Wanted

<table>
<thead>
<tr>
<th>Feature</th>
<th>Our Solutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complex experimental procedure with flexible design</td>
<td><strong>Graphical Experiment Manager (GEM)</strong>&lt;br&gt; <strong>Well Plate Navigator</strong>&lt;br&gt; <strong>Intensity Analysis</strong>&lt;br&gt; <strong>Deconvolution</strong>&lt;br&gt; <strong>Macro Manager</strong></td>
</tr>
<tr>
<td>Flexible well plate image capture</td>
<td></td>
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<tr>
<td>Intensity analysis</td>
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<tr>
<td>Improved image detail</td>
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<tr>
<td>Unified task order management</td>
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</tbody>
</table>

## What Medical Researchers Wanted

<table>
<thead>
<tr>
<th>Feature</th>
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<tr>
<td>Function for retaining intact observed images</td>
<td><strong>Retention of intact observed images</strong>&lt;br&gt; <strong>Cell counting by hands</strong>&lt;br&gt; <strong>Object Counting</strong></td>
</tr>
<tr>
<td>Live/Snapshot function with White Balance Adjustment</td>
<td></td>
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<tr>
<td>Panoramic Imaging</td>
<td><strong>Panoramic Imaging</strong>&lt;br&gt; <strong>Image Comparison (simultaneous image windows)</strong>&lt;br&gt; <strong>Particle Analysis</strong></td>
</tr>
<tr>
<td>Simultaneously monitoring of multiple images</td>
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<tr>
<td>Nuclei counting with variable thresholding</td>
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Kei Ito, Ph.D., Institute of Molecular and Cellular Biosciences, University of Tokyo
AN ARRAY OF EASY-TO-USE FUNCTIONS
TO TURN RESEARCH FINDING INTO COMPELLING PRESENTATIONS

Image Capture
Graphical Experiment Manager (GEM)
Achieve a high flexibility in the design of experiments, with capabilities such as changing imaging conditions. Furthermore, using the High-end Device Solution provides compatibility with image splitting and piezo devices helps simultaneous two-color imaging and high-speed z-stack image acquisition.

Well Plate Navigator
The Well Plate Navigator Solution allows you to automatically scan and acquire images from different plate formats, either standard or customized. All acquired images can be saved into a structured database for easy access, together with their well position and user comments. Settings for imaging conditions can also be varied for individual wells, by column, by row or arbitrarily.

Extended Focus Imaging
By recording image data while the user gradually focuses through its sample the EFI function automatically creates a single all-in-focus image. This EFI process can be fully automated when cellSens Dimension is integrated into a motorized microscope. Such EFI composites can also be created by combining collections of previously captured images.

Capture Multidimensional Images
In combination with a motorized microscope, the Process Manager makes it easy to capture multi-color and multidimensional images. With the optional Multiposition Solution you can automatically capture multi-point and large area images.

Viewing and Processing
Unmixing
With the linear unmixing algorithm in cellSens Dimension, you can readily separate fluorochromes which overlap in their emission spectra—such as GFP and YFP—to produce crosstalk-free fluorescent images. This linear unmixing tool can also separate autofluorescence-related background. Brightfield image unmixing is also available as part of cellSens Dimension.

Deconvolution
cellSens Dimension includes a Live 2D deblurring algorithm for live preview and acquisition, to enable better focusing on thick specimens. Additional deconvolution techniques are available in cellSens to reassign out-of-focus light. The optional CI Deconvolution Solution employs the latest in Constrained Iterative Deconvolution technology to produce improved resolution, contrast and dynamic range with industry-leading speed.

Panoramic Imaging
The manual multiple image alignment function creates a single montage image as you scan the specimen. Multiple saved images with adjoining edges can also be combined into a single montaged image. Wide area imaging can be completely automated when cellSens Dimension and its optional Multiposition Solution are combined with a motorized microscope. This function can also be used in combination with a motorized z-focus to enable the capture of images auto-corrected for sample distortion and tilting. With the release of cellSens v.1.11, a multi-point focus map is now available to enable automated focusing across wide image areas.

Best Focus Extraction
Extract the best focus from images, including z-stack, time-lapse images. This function is effective in creating T-series images with the best focus possible, even when working with defocused time-lapse images.

High Dynamic Range Imaging (HDRi)
By automatically capturing many images at different exposures the HDRi function creates a final image with a much greater dynamic range, where low intensity signals are clearly visible without overexposing the bright areas of the sample.
The Database Core Solution allows the creation of user-defined databases, with full access control, which can be shared across a network. The database not only collects images but also all associated image properties, user comments and any kind of related file, like spreadsheets for other documents. An interactive query tool makes it easy to find the desired data, with automatic preview of the found images. With the Database Client Solution you can then conveniently deploy the capability to read and write to the shared database across many different stations.

Automatic measurement and classification

cellSens Dimension has an extensive set of manual measurements that can be further expanded with the Count & Measure Solution. Easily perform automatic object measurement and classification in an interactive interface where recognized objects are always linked with their measurements.

Manual counts with self-set classes. Counts and proportions can then be undertaken for each class through simple mouse operation.

Reporting

A convenient Reporting tool combines images with image property data, measurement data and your own customized fields into a report template with easy drag-and-drop operation. These Microsoft Word reports will let you quickly and easily collaborate with colleagues and communicate your results. *Requires Microsoft Word version 2003 or later

Remote live images

The cellSens NetCam Solution lets any authorized network user see your live image in real time via a web browser.

AN ARRAY OF EASY-TO-USE FUNCTIONS TO TURN RESEARCH FINDING INTO COMPELLING PRESENTATIONS

Functions

Measurement and Analysis

Manual Measurement

Dimension

Standard or Entry

Depending on the cellSens package, different measurements are easily accessible, including distance between points, areas, intensity measurements, and morphological parameters. Measurement data is saved as an image layer that can be exported to MS Excel and cellSens workbook formats, or viewed using OlyVia the free image viewer software.

Automatic Object Measurement and Classification

Dimension + Count & Measure

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Intensity Analysis

Dimension

Graphically depict intensity and channel ratios, and export values to Excel or WorkBook by simply setting the region of interest (ROI) on multi-color images captured via FRET or Ca2+ imaging. Finer details of cell structures can also be brought into clear view through the use of ratio display, thanks to the intensity modulated display (IMD) that displays ratios and intensity in terms of hues and brightness. Furthermore, the ROI can be moved to capture measurements in line with cell movements, and online analysis is made possible through selection of the ratio option.

Manual Count

Dimension

Standard

Perform manual counts with self-set classes. Counts and proportions can then be undertaken for each class through simple mouse operation.

Remote Live Image

Dimension + NetCam

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Collaboration and Communication

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Solution

Each cellSens Package can be expanded towards a specific application by using optional “Solutions”

Available solutions:

- CI Deconvolution
- Multiposition
- Well Plate Navigator
- Count & Measure
- Ratio
- Database Core
- Database Client
- Photo Manipulation

Available solutions:

- Manual Process
- Database Core
- Photo Manipulation
- Database Client

Available solution:

- Database Client