



EVOS® FL Auto Imaging System with Onstage Incubator

The power of automation with EVOS® simplicity

The EVOS® FL Auto Imaging System brings the simplicity of the entire EVOS® line to an automated cell imaging platform capable of time-lapse imaging, area scanning, tile stitching, and automated cell counting with a simple touch of the monitor—all at a price that is affordable for any lab.

Powerful

With automated filter and objective changes, as well as automated stage movement, focus, and exposure, the EVOS® FL Auto Imaging System does the hard work for you. Simply set your parameters and let the EVOS® FL Auto system take care of the rest— it's perfect for area scanning, automated cell imaging, image stitching, and time-lapse imaging.

Brilliant

Like all EVOS® systems, the EVOS® FL Auto system is equipped with high-quality cameras and optics to ensure you get the publication-quality images you need.

Flexible

With separate color and monochrome cameras, as well as positions for up to 4 fluorescent light cubes and 5 objectives, the EVOS® FL Auto system can be configured to accommodate virtually any cell imaging application, making it the perfect instrument for your lab or department.

Intuitive

The EVOS® FL Auto system's user interface was designed to make it easy for users, regardless of their experience in cell imaging, to create and capture stunning images with very little training.

Economical

The EVOS® FL Auto system offers researchers the benefits of a fully automated imaging system for a fraction of the cost of traditional automated microscopes. Since it is powered by proprietary EVOS® LED light cubes (>50,000-hour life), the EVOS® FL Auto system will reduce operational costs (Figure 1). Replacing burned-out arc lamps is now a thing of the past.



Figure 1. EVOS® LED Light Cube. Each light cube contains an LED, collimating optics, and filters. Light cubes are user interchangeable, auto-configured by the system with plug and play capability.

Time-lapse imaging

When combined with the new onstage incubation system, the EVOS® FL Auto Imaging System is ideal for long-term monitoring of cell cultures and time-lapse imaging at high resolution (Figure 2). The EVOS® Onstage Incubator is an environmental chamber enabling precise control of temperature, humidity, and three gases for time-lapse imaging of live cells under both physiological and nonphysiological conditions.

Environmental settings and image acquisition parameters are all seamlessly integrated into the EVOS® FL Auto system interface, creating a high-performance inverted imaging system with superb flexibility, ease of use, and optical performance for demanding time-lapse imaging experiments. With the integrated environmental chamber, you can:

- Intuitively set environmental and image acquisition parameters
- Easily maintain physiological or nonphysiological conditions with precise control
- Choose from a range of vessel holders
- Save lab space with a small footprint and sleek design

Once captured, you can seamlessly create and export fluorescence or bright-field images as movies (Figures 3 and 4):

- Create time-lapse images of every well of a 96-well plate, simultaneously
- Acquire time-lapse images in single plane or z-stacks
- Autofocus in each channel and data point
- Metadata and time stamps are included with each image frame of time-lapse movies

For more information, visit
www.fishersci.com/evos



Figure 2. EVOS® FL Auto Imaging System with Onstage Incubator.

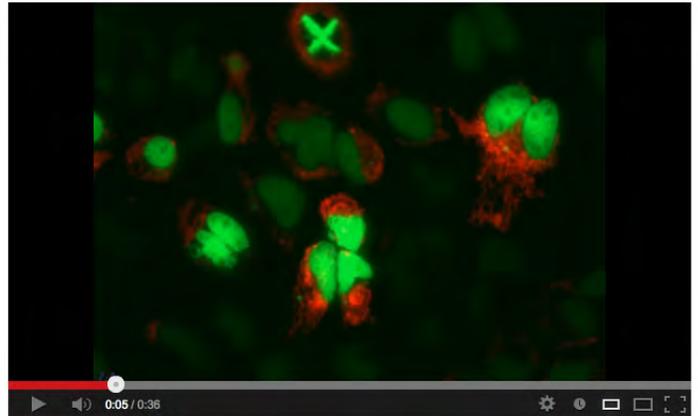


Figure 3. Time-lapse imaging of dividing HeLa cells, using the EVOS® FL Auto Imaging System with Onstage Incubator. Images were captured every 12 minutes over a period of 24 hours. Cells were transduced with CellLight® Histone 2B-GFP (green), CellLight® Mitochondria-RFP (red), and stained with NucBlue® Live ReadyProbes™ Reagent (blue) prior to imaging.

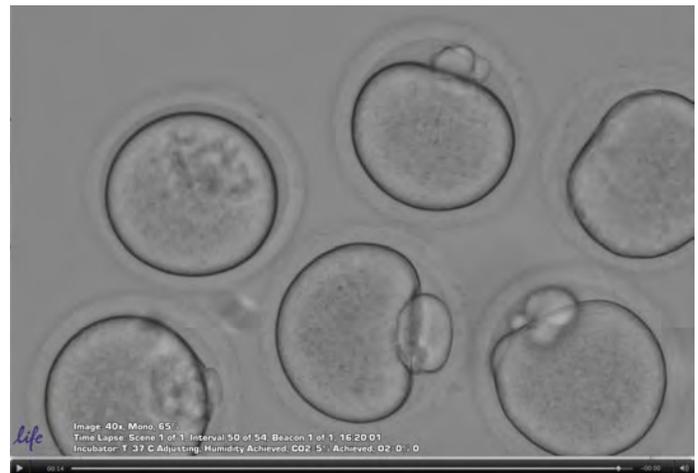


Figure 4. Time-lapse imaging of mouse oocytes undergoing meiosis, using the EVOS® FL Auto Imaging System with Onstage Incubator. Images were captured every 20 minutes over a period of 16 hours. Time-lapse video generously provided by Dr. Karen Schindler, Department of Genetics, Rutgers University.

Image stitching

The EVOS[®] FL Auto Imaging System allows capture of multiple images and mosaic tiling to stitch a high-resolution image of a large area (Figure 5). This is ideal for analyzing tissue sections or stem cell colonies, or viewing every cell in the well of a 96-well plate.

- Acquire images at high magnification and stitch for high-resolution mapping
- Batch export plate scans of large wells in one step
- Scan in bright-field, phase-contrast, or fluorescence mode
- Save individual images as well as composite images

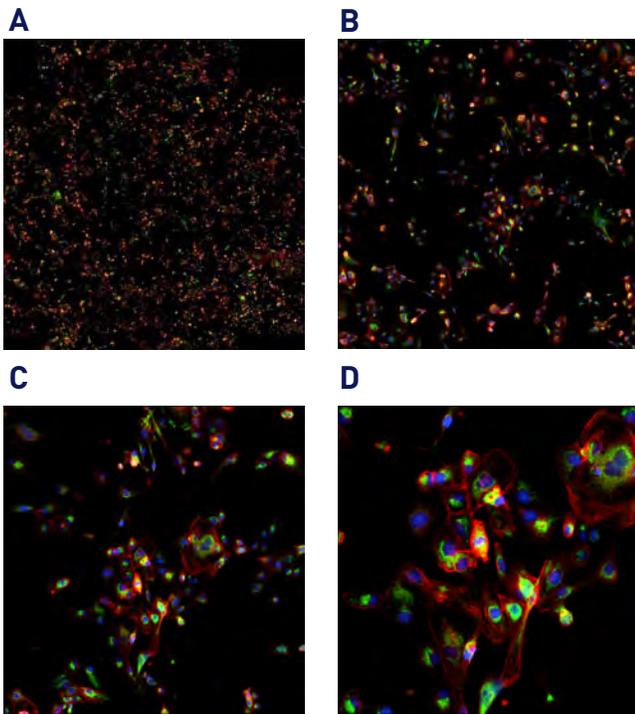


Figure 5. Stitched image of one well from a 96-well plate, taken using a 10x objective (A). CAKI cells were labeled with anti-OxPhos subunit V primary antibody and goat anti-mouse Alexa Fluor[®] 488 secondary antibody (green), ActinRed[™] 555 reagent (red), and NucBlue[®] fixed cell stain (blue). Subsequent images are shown at 200% (B), 400% (C), and 800% (D) magnification.

Automated cell counting

The EVOS[®] FL Auto Imaging System contains advanced software algorithms that allow extremely accurate cell counting (Figure 6). Following labeling of nuclei using a fluorescent dye such as NucBlue[®] live cell stain, the EVOS[®] FL Auto system will calculate the number of cells in a field of view, making it great for determining the number of cells in a well or dish.

- Accurate cell counting even at 4x magnification
- Adjust intensity levels with a convenient slider bar
- Easily visualize GFP expression, determine live/dead cell ratio, and count total cell numbers

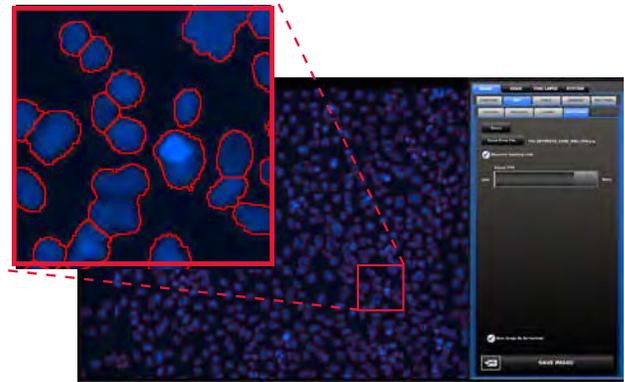


Figure 6. Screen shot from the automated cell counting feature of the EVOS[®] FL Auto Imaging System. Cells were stained with NucBlue[®] live cell stain prior to analysis.

For more information, visit
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EVOS® FL Auto Imaging System specifications

Illumination	Adjustable-intensity LED (>50,000-hour life per light cube)				
Contrast methods	Epifluorescence and transmitted light (bright-field and phase-contrast)				
Objective turret	5-position				
Condenser working distance	60 mm				
Stage	Automated X/Y scanning stage; interchangeable vessel holders available				
LCD display	22-inch high-resolution touch screen color monitor				
Cameras	<div style="border: 1px solid black; padding: 5px;"> Dual (monochrome and color cameras): <ul style="list-style-type: none"> • Monochrome: high-sensitivity interline CCD • Color: high-sensitivity CMOS; 1/2-inch 2,048 x 1,536, 3.1 megapixels </div>				
Captured images	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Monochrome camera: 16-bit monochrome TIFF or PNG (12-bit dynamic range); 24-bit color TIFF or PNG; JPEG, BMP (1,280 x 960 pixels) </td> <td style="width: 50%; padding: 5px;"> Color camera: 16-bit color TIFF or PNG (12-bit dynamic range); 24-bit color TIFF or PNG; JPEG, BMP (1,360 x 1,024 pixels) </td> </tr> <tr> <td colspan="2" style="padding: 5px;"> Video: WMV files </td> </tr> </table>	Monochrome camera: 16-bit monochrome TIFF or PNG (12-bit dynamic range); 24-bit color TIFF or PNG; JPEG, BMP (1,280 x 960 pixels)	Color camera: 16-bit color TIFF or PNG (12-bit dynamic range); 24-bit color TIFF or PNG; JPEG, BMP (1,360 x 1,024 pixels)	Video: WMV files	
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Video: WMV files					
Output ports	Multiple USB ports, 1 display output with DVI adaptor (supports direct output to USB and networked storage)				
Power supply	AC adaptor				
Dimensions	Height: 322 mm (12.7 inch) Depth: 472 mm (18.6 inch) Width: 343 mm (13.5 inch)				
Weight	20.0 kg (44.1 lb)				

EVOS® Onstage Incubator specifications

Compatible vessels	Multiwell plates, 35 mm dishes, 60 mm petri dishes, T-25 flasks
Temperature range	Ambient to 40°C
CO ₂ range	0–20%
O ₂ range	0% to ambient
Humidity range	>80% relative humidity at 37°C
Dimensions	25 x 19 x 3.7 cm (environment chamber) 37 x 16 x 20 cm (control unit)
Weight	1.5 kg (environment chamber) 10 kg (control unit)



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