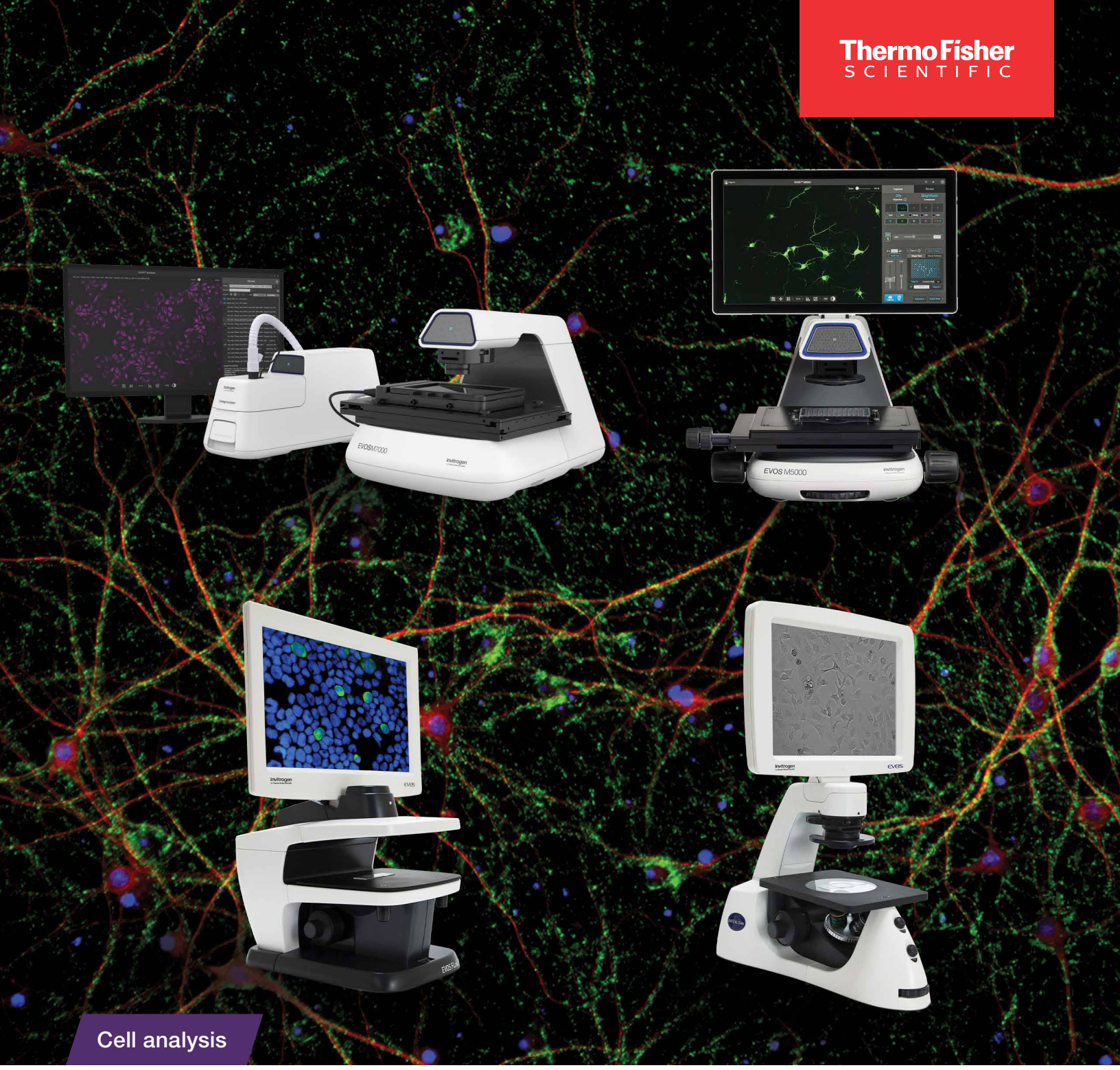



Cell analysis

# Guide to Invitrogen imaging systems

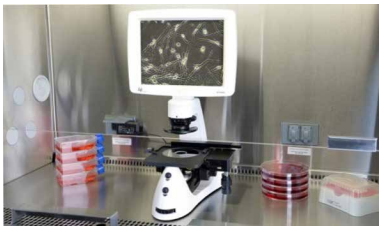
## Clarity, brilliance, and safety

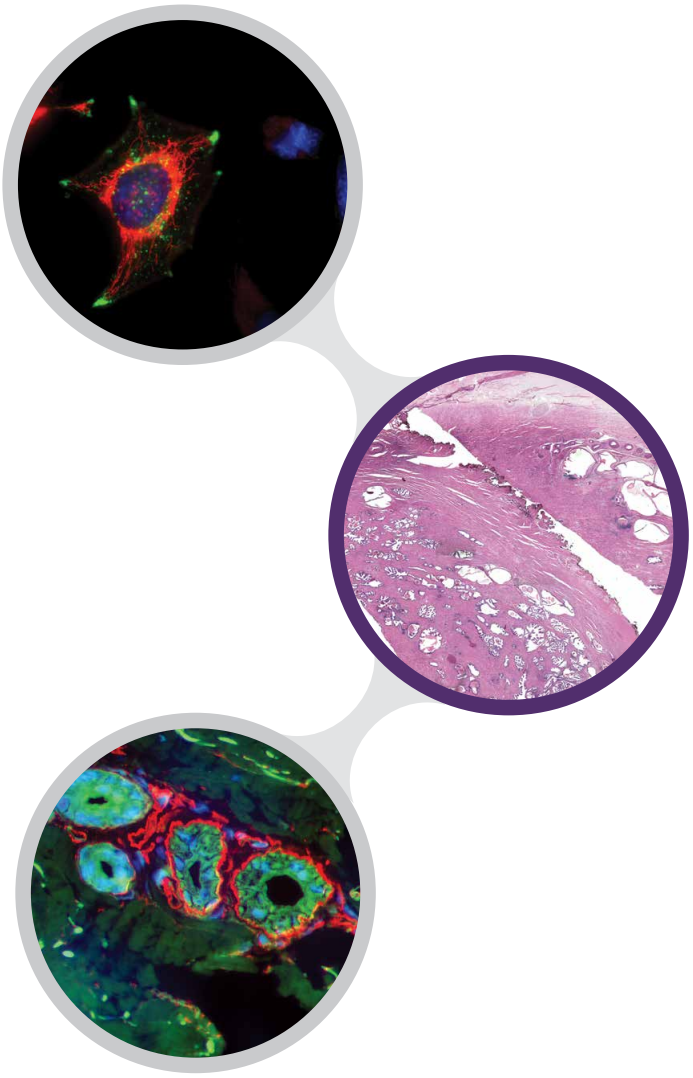
invitrogen

# Compact and portable imaging systems

Now you can have an easy-to-use cell imaging platform where you want it and when you want it. Simply place your Invitrogen™ EVOS™ imaging system in your desired location, flip the switch, and you'll typically be ready to go in under 2 minutes.

From intimate, hands-on demonstrations to presenting data in front of large audiences, EVOS imaging systems are exceptional for teaching, sharing, learning, and discovery.





## Imaging made safer with EVOS imaging systems

- On-screen display (no oculars)
- Automated controls and minimal handling
- Swift decontamination
- Fits in biosafety cabinets
- Easy routine maintenance

## Publication-quality imaging

In today's competitive scientific environment, generating publication-quality images is critical for your success. To help ensure you get the image quality you need, EVOS systems are designed with top-of-the-line imaging components, including:

- High-quality cameras and optics that capture high-resolution images
- LED illumination sources that provide exceptional signal-to-noise ratios
- Easy-to-use image processing and analysis software for images that are ready to publish

## Technology that's better for our environment

Traditional light sources for fluorescence microscopes are mercury-based bulbs that contain a carcinogen, requiring special handling and disposal. The LED light sources for EVOS systems are more efficient and eliminate the need for special handling.

# EVOS imaging systems at a glance




| | M7000 | M5000 | FLoid | XL Core |
|---|---|---|---|---|
| | Cat. No. AMF7000 | Cat. No. AMF5000SV | Cat. No. 4471136 | Cat. No. AMEX1000 |
| | Fluorescence | | | Brightfield |
| **Hardware attributes** | | | | |
| Simple installation | Yes | Yes | Yes | Yes |
| Installation and training | Service team | User | User | User |
| X/Y scanning stage | Motorized | Manual (stage tracking) | Manual | Manual |
| Objectives | 5 | 5 | 1 (fixed) | 4 |
| Objective range | 1.25–100x | 1.25–100x | 20x | 1.25–100x |
| Fluorescence channels | 4 | 4 | 3 (fixed) | No |
| Optimized selectable LED light cubes | Yes | Yes | No | No |
| Monochrome or color camera option | Both | Mono with LED-based RGB illumination scheme | Mono | Color |
| Epifluorescence images | Yes | Yes | Yes | No |
| Transmitted-light images | Yes | Yes | Yes | Yes |
| Color images | Yes | Yes | No | Yes |
| Benchtop system | Yes | Yes | Yes | Yes |
| Suitable for use in tissue culture hood | No | Yes | Yes | Yes |
| Darkroom needed | No | No | No | No |
| Onstage incubator for time-lapse imaging | Optional | Optional | No | No |
| Time-lapse imaging | Multichannel | Multichannel | No | No |
| Autofocus | Yes | Yes | No | No |
| Z-stacking capability | Yes | Yes | No | No |
| Automated multiwell plate screening | Yes | No | No | No |
| Cloud connectivity | Yes* | Yes | No | No |
| USB ports | Yes | Yes | Yes | Yes |
| DVI ports | Yes | Yes | No | No |
| **Software attributes** | | | | |
| Celleste Image Analysis Software | Optional | Optional | Optional | Optional |
| Intuitive onboard software | Yes | Yes | Yes | Yes |
| Networking capability | Yes | Yes | Yes | No |
| Automatic cell counting | Yes | Yes | No | No |
| Cell confluence app | Yes | Yes | No | No |
| Transfection efficiency app | Yes | Yes | No | No |
| Stage tracking | Yes | Yes | No | No |

* Available with a networked computer.

# EVOS M7000 Imaging System

## A powerful, fast, fully automated system

Bring high-performance and fast, automated imaging right to your lab bench with the Invitrogen™ EVOS™ M7000 Imaging System. This system has been designed with advanced capabilities to simplify demanding cell-based imaging applications like live-cell analysis, image tiling, and Z-stacking, so you can focus on acquiring images and data rather than instrument operation.

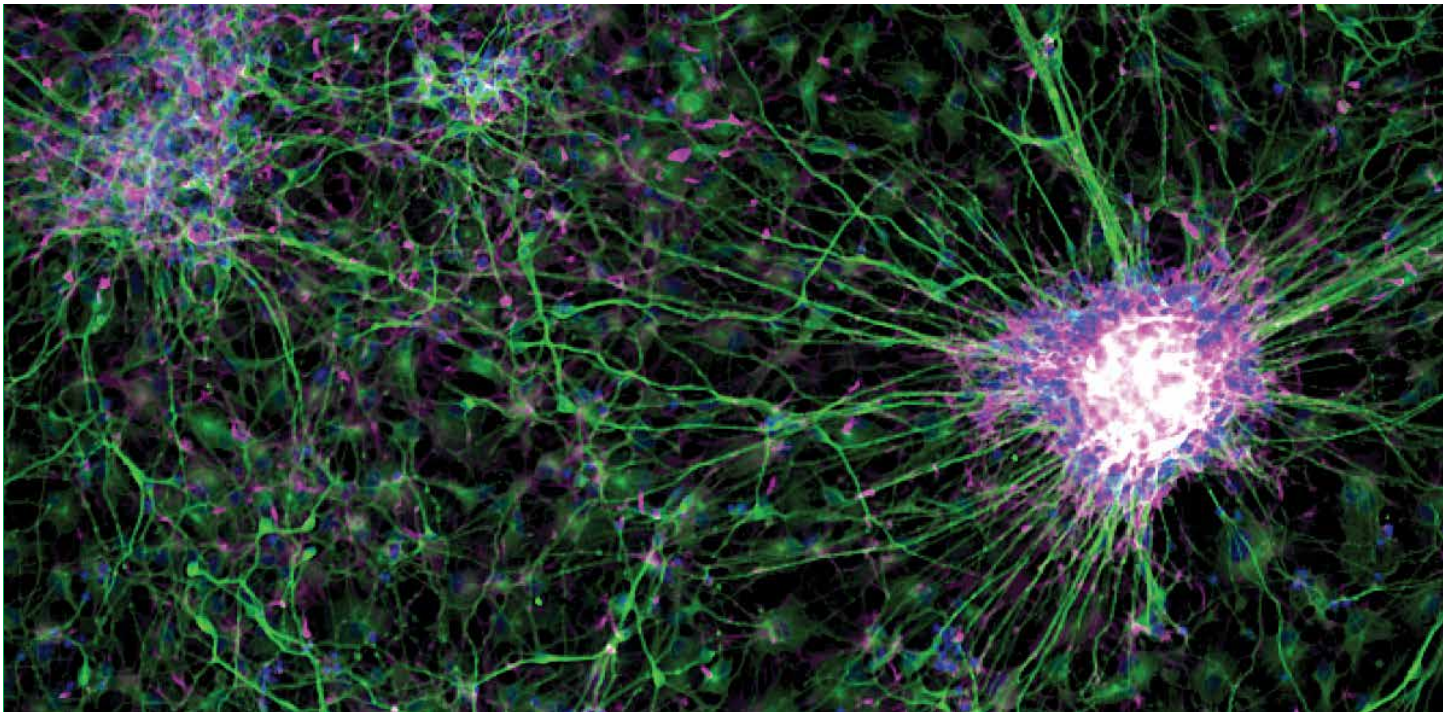
### Features

- **Speed**—Scan a 96-well plate in three fluorescence channels in less than 5 minutes
- **Flexibility**—Customize your system with more than 14 interchangeable LED light cubes, monochrome and color cameras, a variety of objectives ranging from 1.25x to 100x, and a selection of vessel holders
- **Time-lapse live-cell imaging**—The onstage incubator option enables precise control over temperature, humidity, and gas levels to maintain normoxic or hypoxic conditions; the onstage incubator allows a wide range of biological studies under physiological conditions
- **Two cameras, no compromises**—All EVOS M7000 systems come with two dedicated cameras: a high-sensitivity monochrome camera optimized for fluorescence imaging and quantitation and a high-resolution color camera optimized for color imaging
- **Area view**—Move rapidly and seamlessly between single-field mode and low- and high-magnification scan modes to easily define and capture the area of interest
- **Automation**—Time-saving features such as autofocus, rapid stage movement, and automated routines help reduce time to complete experiments, enabling high throughput, high data quality, and improved experimental reproducibility
- **Data analysis**—Extensive quantitative imaging and statistical analysis in combination with Invitrogen™ Celleste™ Image Analysis Software, an optional advanced software package offering powerful tools for image segmentation and classification that can be used for cell counting and for measuring changes in intensity, area, and shape over time

### SmartStart installation and training

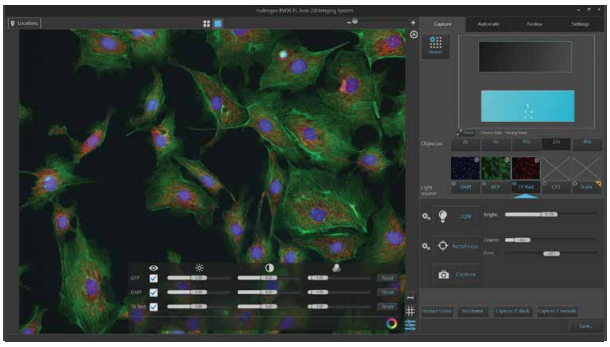
A specialized installation and training program can help get you up and running in just one day. One of our dedicated field applications scientists comes to your site to provide hands-on workflow training and help ensure your lab is ready to utilize the instrument's powerful features to help maximize productivity.

Find out more at **thermofisher.com/evosm7000**

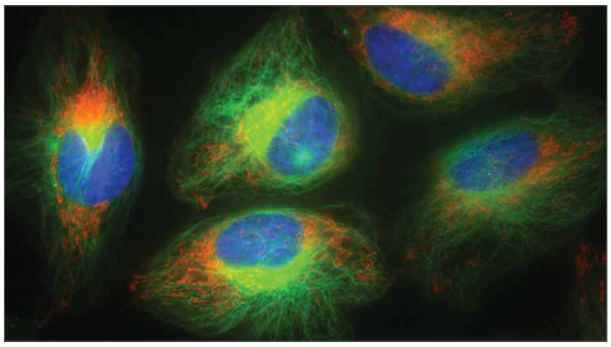


**Neural stem cell colony; 10x objective; green fluorescent protein (GFP) and red fluorescent protein (RFP) light cubes.**

EVOS M7000 Imaging System.



Easy-to-navigate user interface.



Multiplex immunofluorescence staining with Invitrogen™ NucBlue™ Live ReadyProbes™ Reagent (blue), Tubulin Tracker™ Variety Pack (green), and CellLight™ Mitochondria-RFP, BacMam 2.0 (red) in HeLa cells.

## System highlights

| Attribute | Details |
|---|---|
| **Optics** | Infinity-corrected optical system; RMS-threaded objectives with a 45 mm parfocal distance |
| **Imaging modes** | Fluorescence, brightfield, color brightfield, and phase contrast |
| **Illumination** | 5-position chamber for 4 fluorescence light cubes plus brightfield imaging; light cubes have >50,000-hour lifetimes and integrated hard-coated filters; a broad selection of standard and specialty light cubes |
| **Imaging methods** | Single color; multicolor; area scan with montage or tile stitch; time-lapse; Z-stacking; movie capture |
| **Objective capacity** | 5-position turret |
| **Objectives (not included)** | Wide selection of high-quality long working distance (LWD) and coverslip-corrected objectives available |
| **Condenser** | 60 mm LWD condenser; 4-position turret with a clear aperture and 3-phase annuli |
| **Stage** | Motorized X/Y scanning stage; 120 x 80 mm travel range with submicron resolution; drop-in inserts for vessel holders; lockdown holders to fix samples in place during long scans |
| **Focus mechanism** | Automated focus with submicron resolution |
| **LCD display** | 27-inch high-resolution color monitor; 3,840 x 2,160 resolution |
| **Cameras** | High-sensitivity 3.2 MP (2,048 x 1,536 pixel) monochrome CMOS sensor with 3.45 µm pixel resolution; high-sensitivity 3.2 MP (2,048 x 1,536 pixel) color CMOS sensor with 3.45 µm pixel resolution |
| **Computer** | External Dell™ PC with Intel™ Core™ 12th generation processor; NVIDIA™ Quadro RTX™ A4000 graphics card |
| **Captured images** | 8-bit TIFF, PNG, and JPG images; 16-bit RAW monochrome images (TIFF, PNG); movies and time-lapse images (AVI, WMV) |
| **Output ports** | Microscope: USB 3.1 Type B 4-pin power port. Computer: one USB 3.1 Gen 2 Type C; five USB 3.1 Gen 1 Type A; four USB 2.0 Type A; one serial; two 1.2 display; one RJ45; two PS/2; one UAJ; 1 line out. |
| **Networking capability** | Ethernet capability or Wi-Fi dongle |
| **Power supply** | 24 V AC adapter with country-specific power cord |
| **Dimensions (L x W x H)** | 457 x 356 x 330 mm (18 x 14 x 13 in.) |
| **Weight** | 57 lb (26 kg) |

# Live-cell imaging with the EVOS Onstage Incubator

## Cell imaging system with an onstage incubator

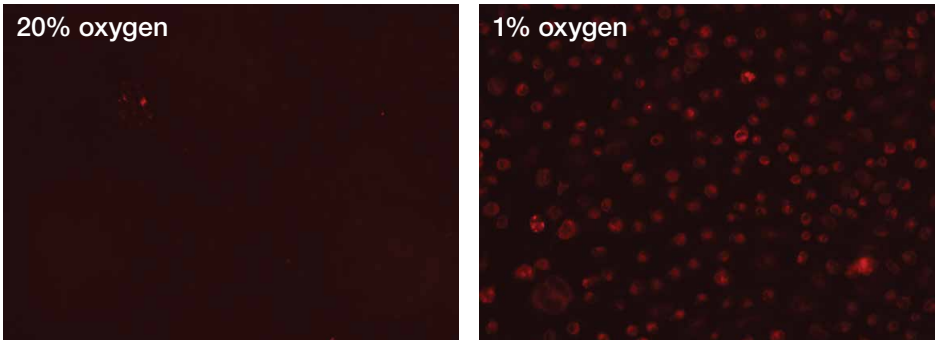
When paired with the Invitrogen™ EVOS™ Onstage Incubator, the EVOS M7000 Imaging System can be well suited for long-term monitoring of cell cultures and time-lapse imaging at high resolution. The second-generation Invitrogen™ EVOS™ Onstage Incubator (OSI-2) is an environmental chamber that enables precise control over temperature, humidity, and three gas levels for time-lapse imaging of live cells under physiological and nonphysiological conditions, making it excellent for demanding live-cell imaging experiments, including hypoxia studies. The EVOS OSI-2 allows you to:

- Intuitively set environmental and image-acquisition parameters
- Easily maintain physiological or nonphysiological conditions with precise control
- Adjust environmental parameters while experiments are running
- Save lab space with the small footprint and sleek design
- Eliminate the need for an air tank with the EVOS OSI-2 onboard air compressor

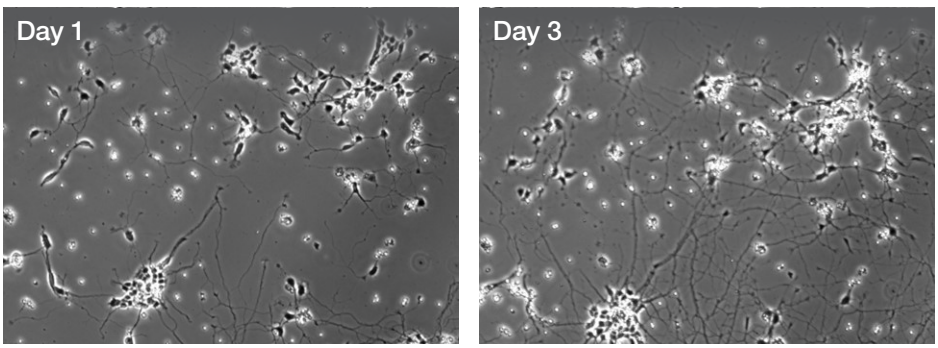
Once you've captured your images, you can seamlessly create and export them as movies:

- Simultaneously create time-lapse images of every well in a 96-well plate
- Acquire time-lapse images in a single plane or in Z-stacks
- Autofocus in each channel and region of interest
- Metadata and time stamp included with each image frame in time-lapse movies

Find out more at **thermofisher.com/evososi**




**Real-time detection of hypoxia in A549 cells using an EVOS M7000 Imaging System equipped with an EVOS OSI-2.** A549 cells were labeled with Invitrogen™ Image-iT™ Hypoxia Red Reagent (Cat. No. H10498) and incubated in the EVOS OSI-2 (Cat. No. AMC2000) in **(A)** 20% $O_2$ for 1 hour, then in **(B)** 1% $O_2$ for 1 hour, with 5% $CO_2$ at 37°C and 80% humidity. Imaging was performed with an EVOS M7000 Imaging System (Cat. No. AMF7000) equipped with a 20x objective (Cat. No. AMEP4734) and a custom EVOS filter cube with GFP excitation and RFP emission.




**Time-lapse imaging of neurite outgrowth from neurons over several days using an EVOS M7000 Imaging System equipped with an EVOS OSI-2.** Rat hippocampal neurons were plated on Gibco™ Poly-D-Lysine (Cat. No. A38904) coated plates in Gibco™ Neurobasal™ Plus Medium (Cat. No. A35829) with B-27™ Plus Supplement (Cat. No. A35828) and were incubated in an EVOS OSI-2 (Cat. No. AMC2000) with 5% $CO_2$ at 37°C and 80% humidity. The cells were imaged every 15 minutes for 72 hours with an EVOS M7000 Imaging System (Cat. No. AMF7000) equipped with a 20x objective (Cat. No. AMEP4734).

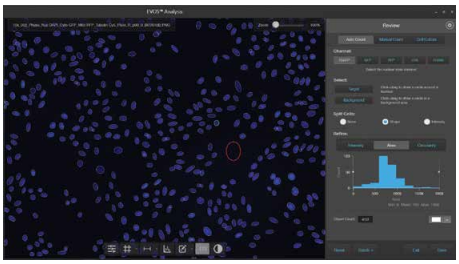
| EVOS Onstage Incubator (OSI-2) specifications | |
|---|---|
| **Compatible vessels** | Multiwell plates; 35, 60, and 100 mm petri dishes; T-25 flasks; chamber slides |
| **Temperature range** | 30°C to 40°C |
| **$CO_2$ range** | 0–20% |
| **$O_2$ range** | 0% to ambient |
| **Humidity range** | 70–90% relative humidity at 37–40°C |
| **Dimensions (H x D x W)** | 27 x 17 x 4.1 cm (environmental chamber)<br>42 x 21 x 23 cm (control unit) |
| **Weight** | 0.73 kg (environmental chamber)<br>6.7 kg (control unit) |
| **Compatible instruments** | EVOS M5000 and EVOS M7000 Imaging Systems |

# Powerful and intuitive EVOS software

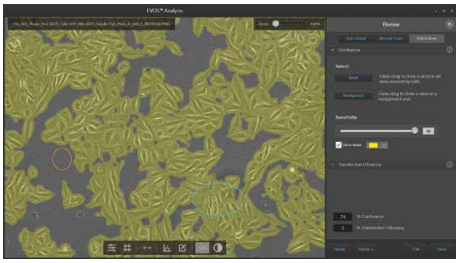
The onboard software for EVOS imaging systems offers pinpoint operational control and advanced image processing tools.

- Optimized autofocus allows you to measure specific areas marked in annotated images
- View intensity information across the field or annotated shapes with a histogram
- Obtain total counts and individual object information like brightness, size, and circularity
- Measure and quantify cell coverage to obtain insight into growth and proliferation over time
- Measure and document gene expression in a cell population
- Obtain quantitative results by automatically applying auto counting, confluence, and/or transfection algorithms
- Reduce stage acceleration and deceleration to prevent disruption of weakly adherent cells
- Easily reapply acquisition settings (light, focus, XY position) from a selected image to reimage or view samples under the same conditions
- Easily transfer images from EVOS M7000 software to Celleste Image Analysis Software for analysis

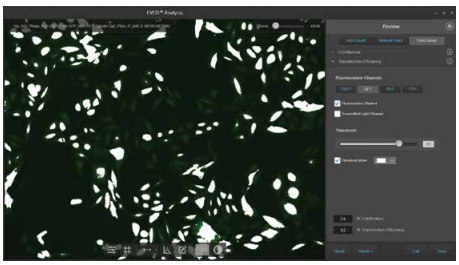
Find out more at **thermofisher.com/evososi**



**Automatic cell counting**



**Cell confluence app**



**Measure transfection efficiency in cultured cells**

# Celleste Image Analysis Software

## Generate publication-quality data with Celleste 6 Image Analysis Software

Invitrogen™ Celleste™ 6 Image Analysis Software is a full-feature image visualization and analysis suite with broad functionality and point-and-click simplicity. Designed for usability and flexibility, Celleste 6 software offers powerful tools for cell counting and sizing as well as classification, segmentation, and analysis of complex images. The software also includes machine learning algorithms for advanced image analysis and quantitation. Streamlined and customizable workflows afford repeatability and reproducibility across experiments. Celleste software licensing options include a single-user license (AMEP4942) and a network license with one seat (AMEP4941).

### Features of Celleste 6 Image Analysis Software include:

- Powerful image analysis capabilities for segmentation, classification, and quantification of single images or image batches
- Comprehensive image processing and enhancement functions with optional modules for deconvolution and three-dimensional rendering and analysis
- Rapid processing for manual and automatic measurements over multiple channels and images

### Celleste 6 software multichannel analysis (MCA) tool

The Celleste 6 software MCA tool utilizes preconfigured algorithms and analysis templates trained on representative data to optimally segment and classify images generated in a range of common cell-based assays to simplify batch analyses. Simply choose the app that corresponds to your assay, and follow the wizard-based workflow step-by-step from image to data generation.

- Several formatting options for reporting well plate data, including heat maps, image montages, and kinetic graphs
- Channel-based relational measurements
- Dedicated step-by-step analysis workflows and protocols based on templates optimized for specific assays

Find out more at **thermofisher.com/celleste**

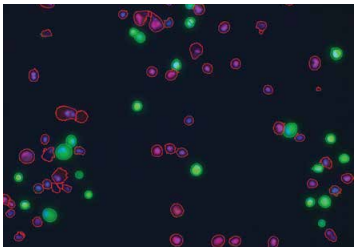
**Celleste 6 Image Analysis Software modules**

| | Single-user license | Network license | Description |
|---|---|---|---|
| **Celleste 2D Deconvolution** | AMEP4864 | AMEP4915 | Improve resolution of single-plane images by removing out-of-focus light |
| **Celleste GPU Acceleration for 2D Deconvolution** | AMEP4939 | AMEP4940 | Deconvolve 2D image sets in a fraction of the time |
| **Celleste 3D Deconvolution with Visualization Tools** | AMEP4865 | AMEP4916 | Improve resolution of thick samples; access suite of 3D display and visualization tools including 3D movies |
| **Celleste GPU Acceleration for 3D Deconvolution** | AMEP4876 | AMEP4919 | Deconvolve 3D image sets in a fraction of the time |
| **Celleste 3D Analysis** | AMEP4867 | AMEP4918 | Access suite of segmentation, measurement, and reporting tools for complex 3D objects |

Note: Celleste software modules require Celleste 6 software single-user (Cat. No. AMEP4942) or network license (Cat. No. AMEP4941).

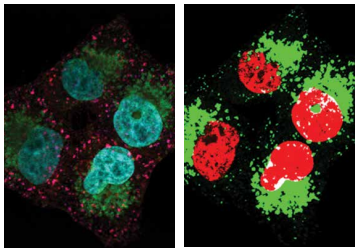
## Cell viability

Use Invitrogen™ LIVE/DEAD™ labeling kits to label your cells, then image them on the Invitrogen™ EVOS M5000 or M7000 Imaging System and count them using Celleste 6 Image Analysis Software and LIVE/DEAD analysis application.



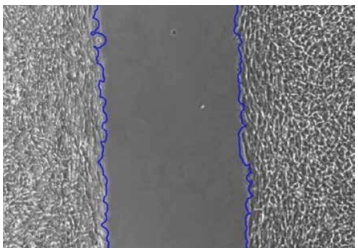
## Colocalization

Celleste 6 Image Analysis Software includes a colocalization feature that can map the spatial overlap between two or more fluorescent labels in two and three dimensions. With this feature, you can identify correlations between pairs of molecules.

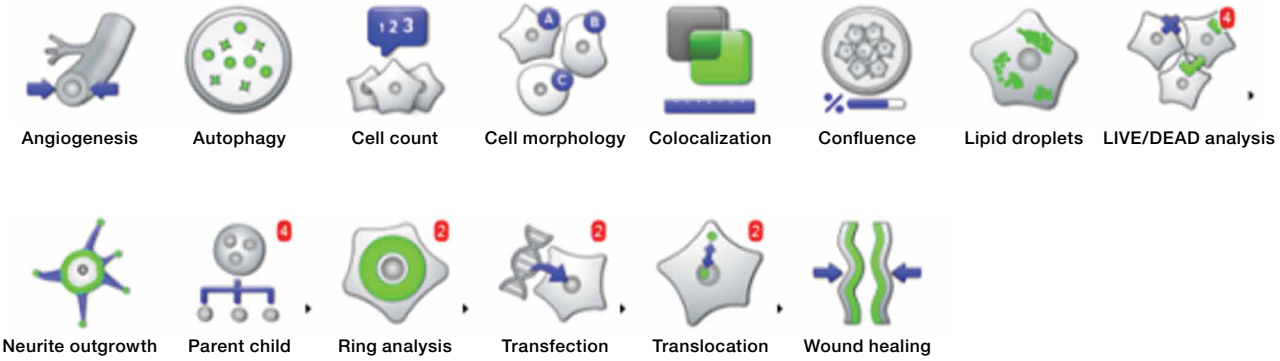


## Wound healing

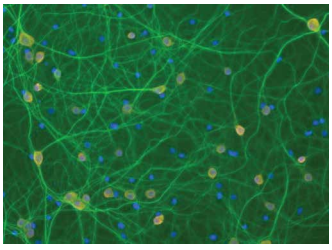
With the Celleste 6 wound healing measurement application, you can generate data about the migration rate and direction of healing with the touch of a button.



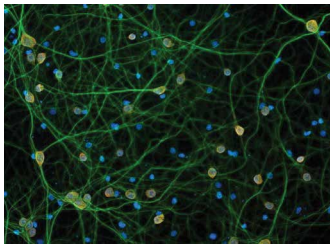
**Protocols**



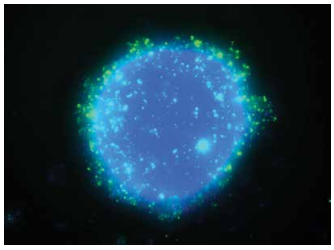

**Celleste 6 multichannel analysis (MCA) templates for common applications to simplify batch analysis.**



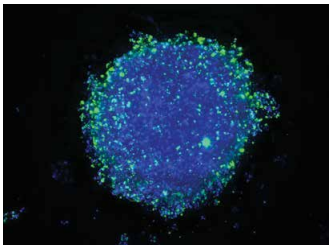
Widefield (2D)



Deconvolved (2D)



Widefield (3D)



Deconvolved (3D)

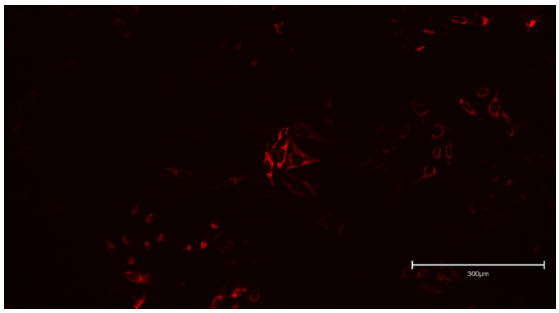
**Celleste 2D and 3D deconvolution modules dramatically improve image quality for publication or downstream image analysis.**

# EVOS M5000 Imaging System

## Form, function, and flexibility in one system

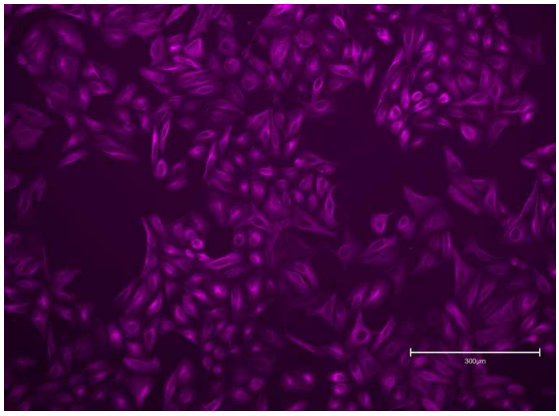

### Features

- Onboard software for acquisition, annotation, and analysis
- Machine learning–based cell counting and confluency analysis
- Autofocus, Z-stacking capability, time-lapse imaging, and multichannel capture with a single click
- Proprietary tracking functionality of stage locations through Invitrogen™ EVOS™ Stage View software*
- Automated multichannel fluorescence
- High-resolution monochrome camera and novel LED-based color illumination modes
- Proprietary RGB illumination for color imaging
- Access images and data anytime, anywhere with internet access to the Thermo Fisher™ Connect Platform

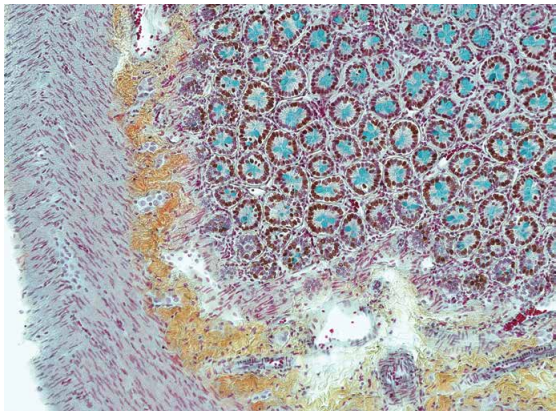


**Fluorescence image captured in RFP channel using a Fluor 10x long working distance (LWD) PH objective.**

**Z-stack of honeybee claw imaged with the EVOS M5000 Imaging System.**



**Fluorescence image captured in Cy®5 channel using a Fluor 10x LWD PH objective.**



**Unique and proprietary color illumination mode enables rendering of true color in transmitted light.**

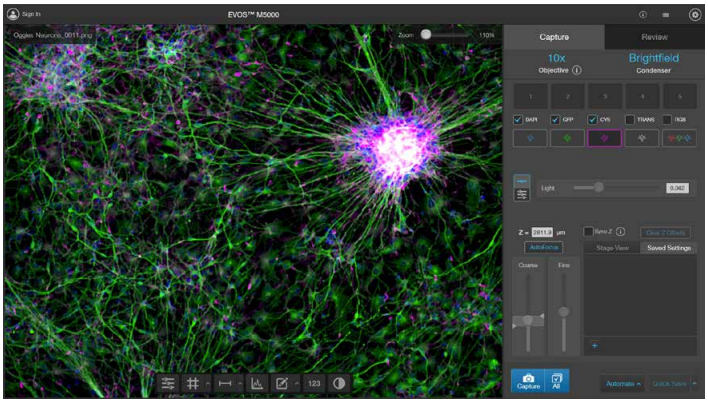
* US and international patents pending.

## System highlights

| Hardware | Details |
|---|---|
| **Illumination** | LED light cubes with adjustable intensity; lifetime: >50,000 hours each |
| **Imaging** | 4-color fluorescence, transmitted light, and color imaging modes |
| **Contrast methods** | Epifluorescence and transmitted light (for brightfield and phase contrast applications). |
| **Objective turret** | 5-position control |
| **Fluorescence channels** | Simultaneously accommodates up to 4 fluorescent light cubes |
| **Condenser working distance** | 60 mm |
| **Stage** | Mechanical stage with x- and y-axis fine positioning controls and automated z-axis software controls; interchangeable vessel holders available; proprietary functionality to track stage locations in the EVOS Stage View software |
| **Onboard display** | 18.5-inch high-resolution articulated LCD monitor |
| **Camera** | Highly sensitive 3.2 MP monochrome CMOS camera (2,048 x 1,536 pixel) with 3.45 µm pixel resolution |
| **Output ports** | 3 USB ports; 1 DVI port for direct output to an external USB device or network; Wi-Fi connectivity |
| **Power supply** | AC adapter |
| **Dimensions (W x L x H)** | 18 x 18 x 23 in. (46 x 46 x 59 cm) |
| **Weight** | 36 lb (16 kg) |

## Software

You can track your stage locations via the proprietary EVOS Stage View software functionality. Locations of interests can be pinned, saved, and returned to, at any time. Designed by biologists for biologists, the EVOS M5000 Imaging System is remarkably easy to use. After seamless image acquisition, you can analyze, edit, and annotate saved images with a set of convenient tools that can be used in live mode and with saved images. For common applications, we have created easy-to-use image analysis tools that are driven by sophisticated segmentation algorithms. With a few clicks, you can get a total count of your DAPI-stained cells or estimate confluence for reproducibility when you split your cells. Once you have edited and analyzed your images, save the images and data on the integrated hard drive, an external USB device, a local network, or the Cloud Platform using the EVOS™ Image Analysis app.




**Intuitive interface allows even a novice to acquire images like a pro in minutes.**

## Applications

The EVOS M5000 system integrates precision components and a unique modern design to deliver high-quality 4-color fluorescence, transmitted light, and color images with unprecedented flexibility. It is a fully integrated stand-alone system that combines precision optics, an articulated 18.5-inch high-resolution LCD monitor, and a highly sensitive 3.2 MP monochrome CMOS camera with 3.45 µm pixel resolution. The monochrome camera affords exceptional sensitivity for detection of faint fluorescence signals and allows quantitative analysis. Using the system's unique and proprietary color illumination mode enables rendering of true color in transmitted light, which can be useful when imaging stained tissue samples.

## Key software capabilities

- EVOS Stage View software functionality for tracking of stage location
- Confluence measurements
- Automated cell counting
- Z-stacking with multichannel composite overlay
- Batch analysis
- Multichannel time-lapse imaging

Find out more at **thermofisher.com/evosm5000**

# EVOS FLoid Cell Imaging Station

## Simple, budget-friendly, 3-color fluorescence cell imaging

The Invitrogen™ FLoid™ Cell Imaging Station can be used for a broad range of applications, including routine tissue culture visualization and imaging with DAPI, GFP, and Invitrogen™ Texas Red™ dye. The EVOS Floid Imaging Station is an excellent entry-level fluorescence microscopy instrument.


### Features

- **Simplicity**—The fully integrated system has an intuitive, multilingual user interface
- **Speed**—Get results in a snap without warmup, cooldown, or filter changes
- **Convenience**—Capture and print images on your bench rather than in the darkroom
- **Robustness**—There are no moving parts, and the long-life LED cubes are reliable for everyday use

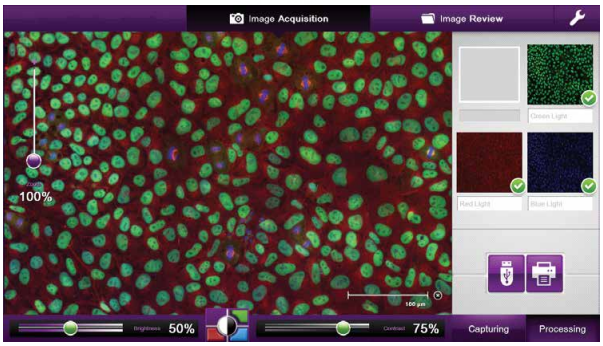
### Software

The EVOS FLoid Imaging Station makes capturing and processing 3-color fluorescence images as easy as taking pictures on your smartphone. All images acquired can be saved in JPEG, BMP, TIFF, and PNG formats.

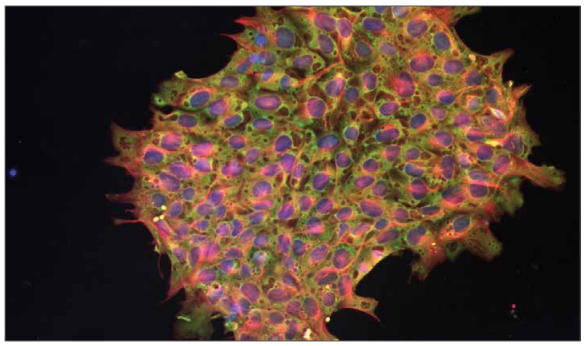
### Key software features

- One-click multichannel overlay
- Icon-based operation
- Multiple language options
- Digital zoom

Find out more at **thermofisher.com/floid**




**Screenshot of EVOS FLoid image processing software.**



**Human induced pluripotent stem cells; 20x objective; light cubes: GFP, RFP, and DAPI.**

# EVOS XL Core Imaging System

## A simple and compact transmitted-light system that is well suited for use in a cell culture hood or a cell and tissue culturing facility

The Invitrogen™ EVOS™ XL Core Imaging System is an exceptional cell culture and tissue culture microscope.


### Features

- Fits inside all culture hoods
- Cost-effective and user-friendly
- Easy installation; no maintenance, assembly, alignment, or calibration required
- Removable mechanical stage for precise imaging

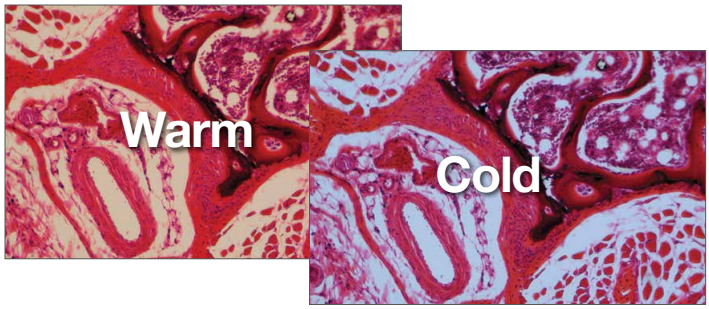
### Software

Integrated software is a key component of this all-in-one system. Our software has a variety of useful features, such as color temperature control. All images acquired can be saved in JPEG, BMP, and TIFF formats.

### Key software features

- Easy-to-use interface
- Adjustable saturation and contrast
- Warm and cool color temperature control

Find out more at **thermofisher.com/xlcore**

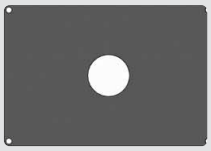



**Mouse tail cross-section imaged with a 20x objective.**

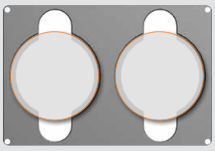
# EVOS vessel holders and stage plates

## All models

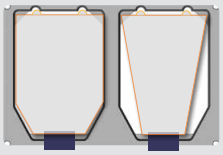
**AMEPVH009**
Universal stage insert



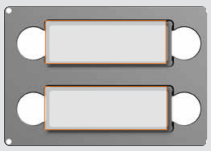
**AMEPVH003**
Holds two 60 mm Petri dishes



**AMEPVH005**
Holds two 25 $cm^2$ flasks (rectangular or triangular)

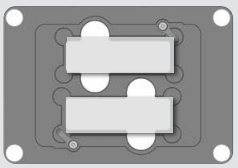


**AMEPVH001**
Holds two 25 x 75 $mm^2$ standard microscope slides or chamber slides

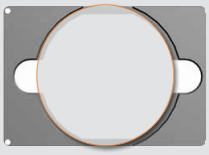


**AMEPVH006**
Holds one Thermo Scientific™ Nunc™ T-75 flask (75 $cm^2$)

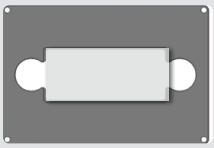
**AMEPVH021**
Holds two microscope slides or chamber slides with retention clip



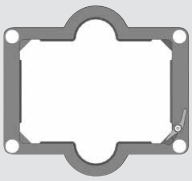
**AMEPVH004**
Holds one 100 mm Petri dish



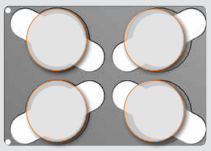
**AMEPVH007**
Holds one hemocytometer



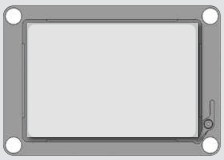
**AMEPVH022**
Holds one multiwell plate with retention clip; serves as an adapter for AMEPVH001 through 020



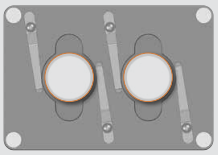
**AMEPVH002**
Holds four 35 mm petri dishes



**AMEPVH028**
Holds one multiwell plate with retention clip



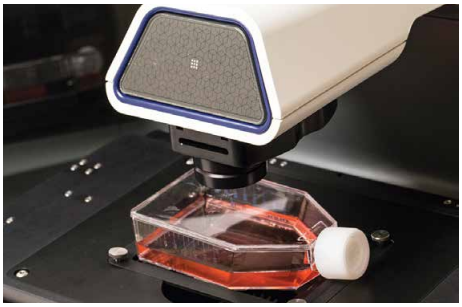
**AMEPVH030**
Holds two 35 mm Petri dishes

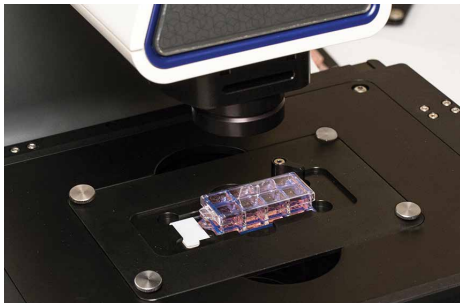


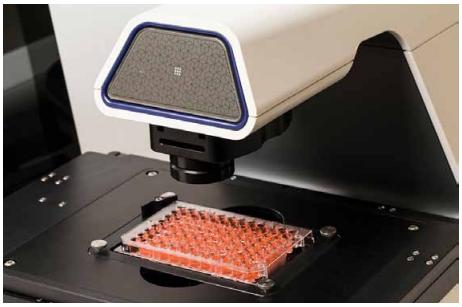
## Custom vessel holders

Need a vessel holder to accommodate your specialized plates, slides, culture dishes, or flasks? Contact us to create a specialty vessel holder for your EVOS imaging system.

See a complete list of available vessel holders and stage plates
thermofisher.com/evosvesselholders







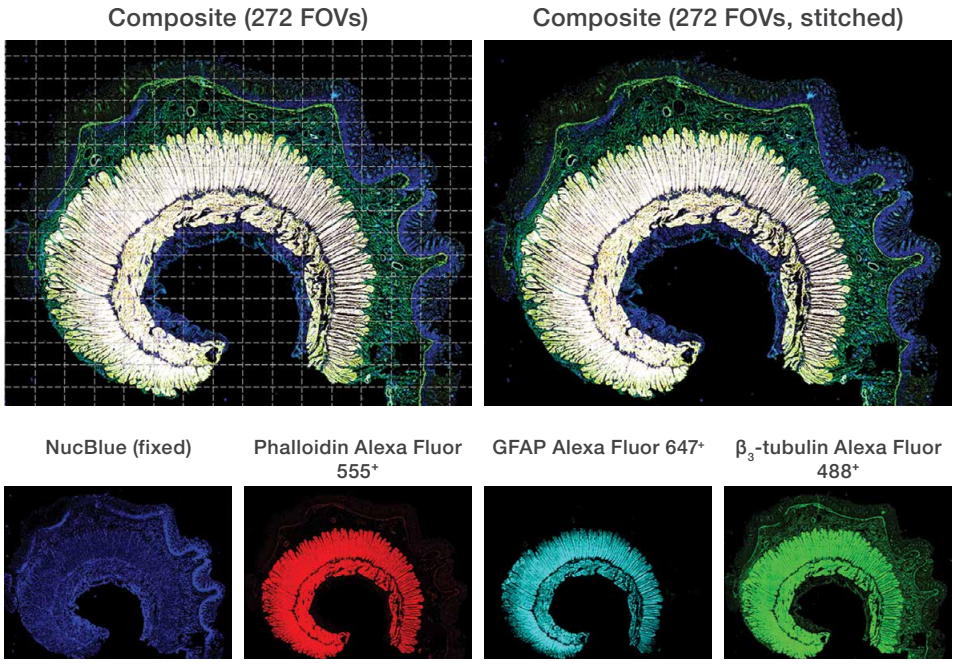
# Optimized light cubes

Invitrogen™ EVOS™ light cubes have been optimized to take cell imaging to the next level for publication-quality images. These interchangeable LED cubes enable precise control with plug-and-play capability.

## EVOS light cubes feature:

- An improved opto-mechanical design
- Exceptional illumination uniformity across the field of view (FOV)
- Multi-FOV stitching performance
- Spectrally optimized optical components
- Spectral fidelity across channels to eliminate undesirable bleed-through
- Maximum signal-to-background ratios, even with dim images
- Compatible with legacy EVOS light cubes

See a complete list of available light cubes
thermofisher.com/evoslightcubes




**Human cerebellum tissue stitching.** Images were acquired on an EVOS M7000 Imaging System fitted with a 10x Olympus™ air objective and DAPI, GFP, RFP, and Cy5 EVOS Light Cubes. The upper right image is a stitched composite of 272 individual FOVs. The individual panels below show the channels making up the composite.

### Optimized light cubes

| Light cube | Description | Excitation (nm) | Emission (nm) | Dyes | Cat. No. |
|---|---|---|---|---|---|
| **DAPI** | EVOS Light Cube, DAPI 2.0 | 357/44 | 447/60 | Alexa Fluor 350, BFP, DAPI, Hoechst, LysoTracker Blue, NucBlue Dead, NucBlue Live | AMEP4950 |
| **GFP** | EVOS Light Cube, GFP 2.0 | 482/25 | 524/24 | Alexa Fluor 488, CellROX Green, CellTracker Green, CyQuant Direct, FITC, GFP, MitoTracker Green, YOYO-1 | AMEP4951 |
| **RFP** | EVOS Light Cube, RFP 2.0 | 542/20 | 593/40 | Alexa Fluor 555, CellMask Orange, CellROX Orange, CellTracker Orange, Cy3, MitoTracker Orange CMTMRos, pHrodo, RFP, rhod-2, SYTOX Orange | AMEP4952 |
| **Texas Red** | EVOS Light Cube, Texas Red 2.0 | 585/29 | 628/32 | Alexa Fluor 594, CellTracker Red CMTPX, DyLight 594, Katushka, LIVE/DEAD Fixable Red, mCherry, MitoTracker Red CMXRos, mKate, Texas Red | AMEP4955 |
| **Cy5** | EVOS Light Cube, Cy5 2.0 | 635/18 | 692/40 | Alexa Fluor 647, Alexa Fluor 660, Cy5, DRAQ5, NucRed Live 647, SYTO 60 | AMEP4956 |

# EVOS objectives

**Achromatic objectives are suitable for general applications with standard correction of color and focus.**

| EVOS™ achromat objectives* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Magnification | NA** | WD† (mm) | Brightfield | Phase | Long WD | Coverslip-corrected | Optimal vessel thickness (mm) | Oil | Cat. No. |
| 2x | 0.06 | 5.62 | • | | • | | 1.0–1.2 | | AMEP4931 |
| 4x | 0.13 | 10.58 | • | • | • | | 1.0–1.2 | | AMEP4932 |
| 10x | 0.25 | 7.45 | • | • | • | | 1.0–1.2 | | AMEP4933 |
| 20x | 0.4 | 6.92 | • | • | • | | 1.0–1.2 | | AMEP4934 |
| 40x | 0.65 | 3.1 | • | • | • | | 1.2 | | AMEP4635 |
| | 0.65 | 2.74 | • | • | • | | 1.0 | | AMEP4935 |
| 50x | 0.95 | 0.19 | • | | | • | 0.17 | • | AMPFOP050 |
| 100x | 1.25 | 0.15 | • | | | • | 0.17 | • | AMPFOP100 |

* Recommend 1.0 mm thickness for glass slides.

** NA: numerical aperture.

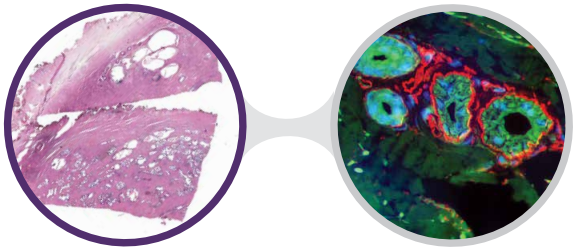
† WD: working distance.

**Fluorite objectives provide excellent resolution and have higher numerical apertures than achromat objectives.** Using fluorite objectives results in brighter fluorescence signals, enables high-contrast imaging, and helps reduce optical aberrations. Color and focus have high levels of correction.

| EVOS™ fluorite objectives* | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Magnification | NA | WD (mm) | Brightfield | Phase | Long WD | Coverslip-corrected | Optimal vessel thickness (mm) | Oil | Cat. No. |
| 4x | 0.13 | 10.58 | • | | • | | 1.0–1.2 | | AMEP4922 |
| | 0.13 | 10.58 | • | • | • | | 1.0–1.2 | | AMEP4980 |
| 10x | 0.3 | 7.13 | • | | • | | 1.0–1.2 | | AMEP4923 |
| | 0.3 | 7.13 | • | • | • | | 1.0–1.2 | | AMEP4981 |
| 20x | 0.5 | 2.5 | • | | | • | 0.17 | | AMEP4698 |
| | 0.45 | 6.23 | • | | • | | 1.0–1.2 | | AMEP4924 |
| | 0.45 | 6.12 | • | • | • | | 1.0–1.2 | | AMEP4982 |
| 40x | 0.65 | 2.8 | • | | • | | 1.2 | | AMEP4625 |
| | 0.65 | 1.79 | • | | • | | 1.0 | | AMEP4925 |
| | 0.65 | 1.6 | • | • | • | | 1.2 | | AMEP4683 |
| | 0.65 | 1.79 | • | • | • | | 1.0 | | AMEP4983 |
| | 0.75 | 0.72 | • | | | • | 0.17 | | AMEP4699 |
| | 1.3 | 0.2 | • | | | • | 0.17 | • | AMEP4735 |
| 60x | 0.75 | 2.2 | • | | • | | 1.2 | | AMEP4626 |
| | 0.75 | 1.28 | • | | • | | 1.0 | | AMEP4926 |
| 100x | 1.28 | 0.21 | • | | | • | 0.17 | • | AMEP4696 |

* Recommend 1.0 mm thickness for glass slides.

**Prostate tissue cross-section, 10x objective.**



**Rat epidermis, 40x objective.**

Find out more at [thermofisher.com/evosobjectives](thermofisher.com/evosobjectives)

**Apochromat objectives provide high resolution, fluorescence brightness, contrast, and chromatic correction.**

| EVOS™ apochromat objectives | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Magnification | NA | WD (mm) | Brightfield | Phase | Long WD | Coverslip-corrected | Oil | Cat. No. |
| **1.25x** | 0.04 | 5.11 | • | | • | | | AMEP4736 |
| **2x** | 0.08 | 6.22 | • | | • | | | AMEP4751 |
| **4x** | 0.16 | 13.0 | • | | • | | | AMEP4904 |
| **10x** | 0.4 | 3.1 | • | | | • | | AMEP4905 |
| **20x** | 0.8 | 0.6 | • | | | • | | AMEP4906 |
| **40x** | 0.95 | 0.18 | • | | | • | | AMEP4907 |
| **60x** | 1.42 | 0.15 | • | | | • | • | AMEP4910 |
| **100x** | 1.45 | 0.13 | • | | | • | • | AMEP4913 |

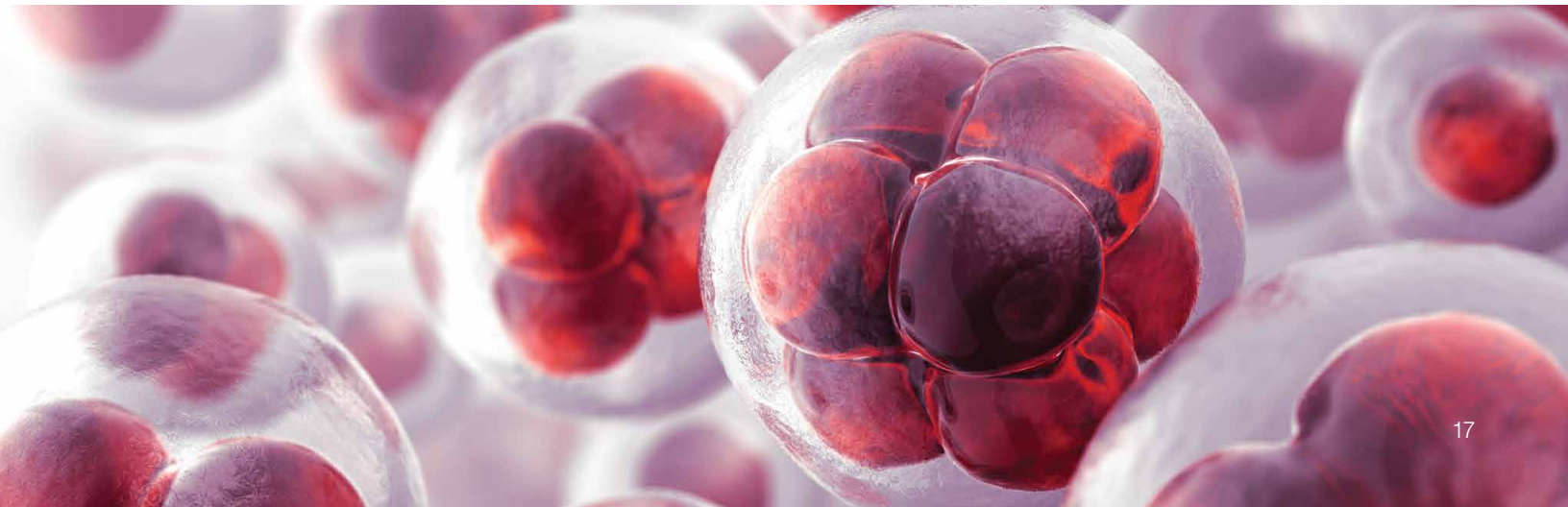
## Long working distance (LWD) vs. coverslip-corrected objectives

### LWD objectives

LWD objectives are optimized for use with vessels that have a nominal wall thickness of 0.9–1.5 mm, such as slides, flasks, and microtiter dishes.

### Coverslip-corrected objectives

Coverslip-corrected objectives are optimized for use with #1.5 coverslips, which are approximately 0.17 mm thick. Coverslip-corrected objectives have higher magnification-to-numerical aperture (NA) ratios and provide greater resolution than LWD objectives.

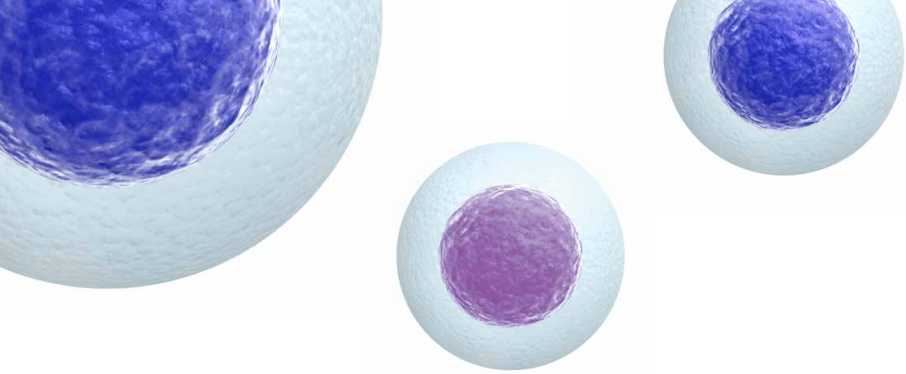



# Fluorophore selection guide

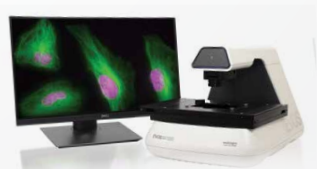
**Use this guide to find the Invitrogen™ labeling tool that best matches your light source and experimental needs.**

| | EVOS Light Cube, DAPI 2.0 (AMEP4950) Ex: 357/44 nm; Em: 447/60 nm | EVOS Light Cube, GFP 2.0 (AMEP4951) Ex: 482/25 nm; Em: 524/24 nm |
|---|---|---|
| **Apoptosis** | Annexin V Conjugates for Apoptosis Detection (A23202) | CellEvent Caspase-3/7 Green (C10423)<br>Click-iT Plus TUNEL Assay, Alexa Fluor 488 (C10617)<br>Image-iT LIVE Green Caspase-3 and -7 Detection Kit (I35106) |
| **Autophagy** | – | Premo Autophagy Tandem Sensor RFP-GFP-LC3B Kit (P36239)<br>Premo Autophagy Sensor LC3B-GFP (P36235)<br>Premo Autophagy Sensor GFP-p62 Kit (P36240) |
| **Cell tracing and tracking** | CellTrace Calcein Blue, AM (C34853)<br>CellTracker Blue CMAC Dye (C2110)<br>CellTracker Blue $CMF_2HC$ Dye (C12881) | CellTrace Calcein Green, AM (C34852)<br>CellTracker Green CMFDA Dye (C7025)<br>Vybrant DiO Cell-Labeling Solution (V22886) |
| **Cytoskeleton stains** | Alexa Fluor 350 Phalloidin (A22281) | Alexa Fluor 488 Phalloidin (A12379)<br>CellLight Actin-GFP (C10582)<br>CellLight Tubulin-GFP (C10613)<br>ActinGreen 488 ReadyProbes Reagent (R37110) |
| **Endocytosis** | – | CellLight Early Endosomes-GFP (C10586)<br>pHrodo Green Dextran, 10,000 MW (P35368)<br>LysoTracker Green DND-26 (L7526) |
| **Neuronal tracing and staining** | Alexa Fluor 350 Hydrazide (A10439) | NeuroTrace 500/525 Green Fluorescent Nissl Stain (N21480)<br>DiO (D275)<br>Alexa Fluor 488 Dextran (D22910) |
| **Nuclear stains** | DAPI (D1306)<br>Hoechst 33342 (H3570)<br>NucBlue Fixed Cell ReadyProbes Reagent (R37606) | SYTO 9 Green Fluorescent Nucleic Acid Stain (S34854)<br>SYTOX Green Nucleic Acid Stain (S7020)<br>CellLight Nucleus-GFP (C10602) |
| **Oxidative stress** | – | CellROX Green Reagent (C10444)<br>CM-$H_2$DCFDA (C6827)<br>DAF-FM Diacetate (D23844) |
| **Phagocytosis** | – | pHrodo Green *E. coli* BioParticles Conjugate (P35366)<br>pHrodo Green *S. aureus* BioParticles Conjugate (P35367)<br>pHrodo Green Zymosan BioParticles Conjugate (P35365) |
| **Plasma membrane stains** | Wheat Germ Agglutinin, Alexa Fluor 350 Conjugate (W11263) | Wheat Germ Agglutinin, Alexa Fluor 488 Conjugate (W11261)<br>CellMask Green Plasma Membrane Stain (C37608)<br>CellLight Plasma Membrane-GFP (C10607) |
| **Proliferation** | – | Click-iT Plus EdU Alexa Fluor 488 Imaging Kit (C10637) |
| **Viability** | ReadyProbes Cell Viability Kit, Blue/Green (R37609)<br>ReadyProbes Cell Viability Kit, Blue/Red (R37610) | LIVE/DEAD Viability/Cytotoxicity Kit (L3224)<br>LIVE/DEAD Cell Imaging Kit (488/570) (R37601)<br>ReadyProbes Cell Viability Kit, Blue/Green (R37609) |


Find out more at **thermofisher.com/microscopes**



| EVOS Light Cube, RFP 2.0 (AMEP4952) Ex: 542/20 nm; Em: 593/40 nm | EVOS Light Cube, Texas Red 2.0 (AMEP4955) Ex: 585/29 nm; Em: 628/32 nm | EVOS Light Cube, Cy5 2.0 (AMEP4956) Ex: 635/18 nm; Em: 692/40 nm |
|---|---|---|
| Annexin V Conjugates for Apoptosis Detection (A35108)<br>Image-iT LIVE Red Caspase-3 and -7 Detection Kit (I35102)<br>Image-iT LIVE Red Poly Caspases Detection Kit (I35101) | Click-iT Plus TUNEL Assay,<br>Alexa Fluor 594 (C10618)<br>Annexin V, Alexa Fluor 594 Conjugate (A13203) | Click-iT Plus TUNEL Assay,<br>Alexa Fluor 647 (C10619)<br>Annexin V, Alexa Fluor 647 Conjugate (A23204) |
| Premo Autophagy Tandem Sensor RFP-GFP-LC3B Kit (P36239)<br>Premo Autophagy Sensor LC3B-RFP (P36236)<br>Premo Autophagy Sensor RFP-p62 Kit (P36241) | – | – |
| CellTracker Orange CMRA Dye (C34551)<br>CellTracker Orange CMTMR Dye (C2927)<br>Vybrant DiI Cell-Labeling Solution (V22885) | CellTracker Red CMTPX Dye (C34552) | CellTracker Deep Red Dye (C34565)<br>Vybrant DiD Cell-Labeling Solution (V22887) |
| Alexa Fluor 555 Phalloidin (A34055)<br>CellLight Actin-RFP (C10583)<br>CellLight Tubulin-RFP (C10614)<br>ActinRed 555 ReadyProbes Reagent (R37112) | Alexa Fluor 594 Phalloidin (A12381) | Alexa Fluor 647 Phalloidin (A22287) |
| CellLight Early Endosomes-RFP (C10587)<br>pHrodo Red Dextran, 10,000 MW (P10361)<br>pHrodo Red Epidermal Growth Factor (EGF) Conjugate (P35374) | LysoTracker Red DND-99 (L7528) | LysoTracker Deep Red (L12492) |
| DiI (D282)<br>Alexa Fluor 555 Dextran (D34679)<br>Tetramethylrhodamine Dextran (D1817) | Alexa Fluor 594 Hydrazide (A10438)<br>Alexa Fluor 594 Biocytin (A12922)<br>Alexa Fluor 594 Dextran (D22913) | DiD (D7757)<br>Alexa Fluor 647 Hydrazide (A20502)<br>Alexa Fluor 647 Dextran (D22914) |
| SYTO 82 Orange Fluorescent Nucleic Acid Stain (S11363)<br>CellLight Nucleus-RFP (C10603) | – | TO-PRO-3 Iodide (T3605)<br>HCS NuclearMask Deep Red Stain (H10294) |
| CellROX Orange Reagent (C10443)<br>Dihydroethidium (D11347) | MitoSOX Reagent (M36008) | CellROX Deep Red Reagent (C10422) |
| pHrodo Red *E. coli* BioParticles Conjugate (P35361)<br>pHrodo Red *S. aureus* BioParticles Conjugate (A10010)<br>pHrodo Red Zymosan BioParticles Conjugate (P35364) | – | – |
| Wheat Germ Agglutinin, Alexa Fluor 555 Conjugate (W32464)<br>CellMask Orange Plasma Membrane Stain (C10045)<br>CellLight Plasma Membrane-RFP (C10608) | Wheat Germ Agglutinin,<br>Alexa Fluor 594 Conjugate (W11262) | Wheat Germ Agglutinin,<br>Alexa Fluor 647 Conjugate (W32466)<br>CellMask Deep Red Plasma Membrane Stain (C10046) |
| Click-iT Plus EdU Alexa Fluor 555 (C10638) | Click-iT Plus EdU Alexa Fluor 594 Imaging Kit (C10639) | Click-iT Plus EdU Alexa Fluor 647 Imaging Kit (C10640) |
| LIVE/DEAD Viability/Cytotoxicity Kit (L3224)<br>ReadyProbes Cell Viability Kit, Blue/Red (R37610) | LIVE/DEAD Cell Imaging Kit (488/570) (R37601) | NucRed Dead 647 ReadyProbes Reagent (R37113) |

**EVOS M7000 Imaging System**

**EVOS M5000 Cell Imaging System**

# Educational resources

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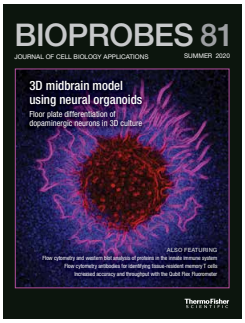


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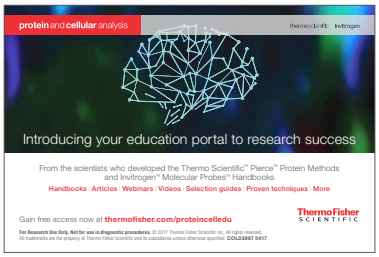


## Ordering information

| Product | Cat. No. |
|---|---|
| EVOS M7000 Imaging System | AMF7000 |
| EVOS Onstage Incubator | AMC2000 |
| EVOS M5000 Cell Imaging System | AMF5000SV |
| EVOS FLoid Imaging System | 4471136 |
| EVOS XL Core Imaging System | AMEX1000 |

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