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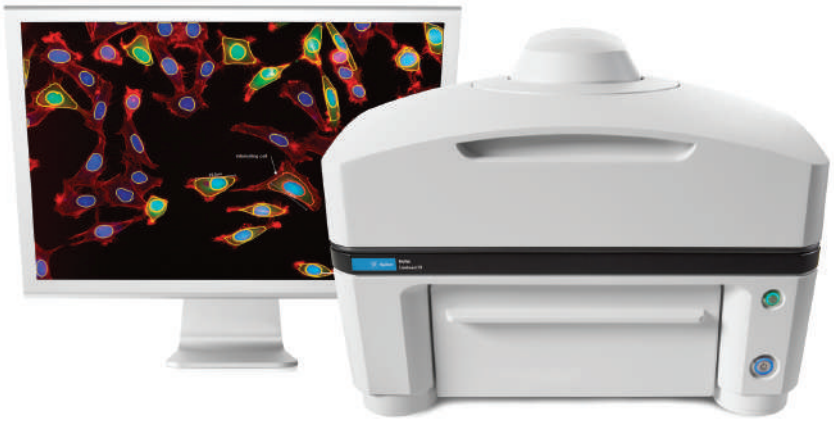
Agilent BioTek Lionheart FX Automated Microscope

Small, powerful, and versatile. A perfect fit for any lab.

The compact Agilent BioTek Lionheart FX automated microscope is ideal for a broad range of imaging workflows.

The Agilent BioTek Lionheart FX automated microscope offers up to 60x air, and 60x and 100x oil immersion magnification, with fluorescence, brightfield, color brightfield, and phase-contrast channels for maximum application reach. An optional environment control cover provides incubation to 40 °C and effective containment for CO_2/O_2 control, and a humidity chamber optimizes conditions for long-term live cell imaging applications, and an available dual-reagent injector facilitates rapid kinetic assays.



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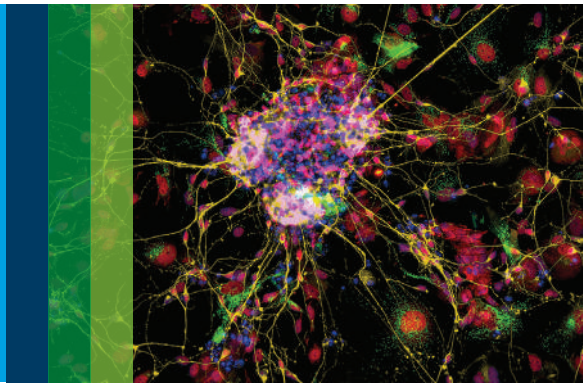
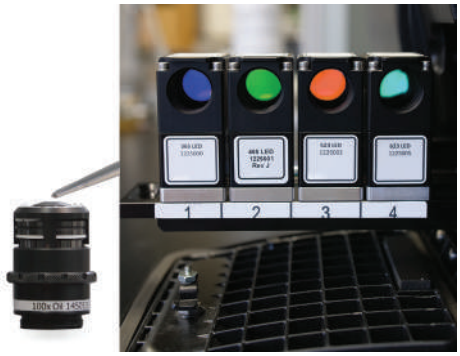
For stunning digital images and detailed quantitative analysis



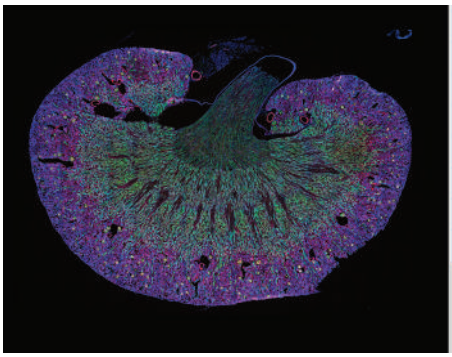
Small benchtop footprint

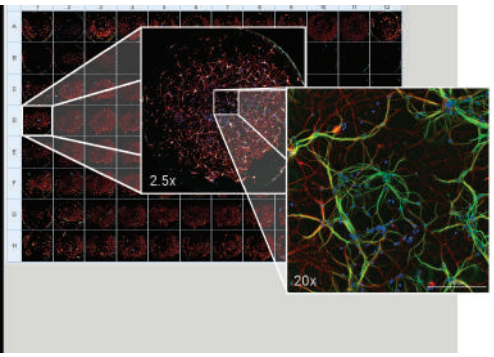
The Lionheart FX has a small footprint and is easily installed on a standard lab bench with no need for a dedicated darkroom.



High-quality optical components

Lionheart FX uses high-quality Olympus objectives and Semrock filters, which drive excellent image quality and performance.

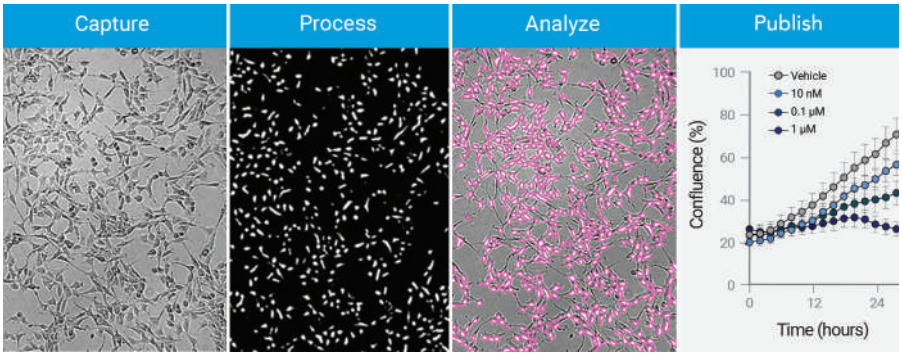




Wide field of view

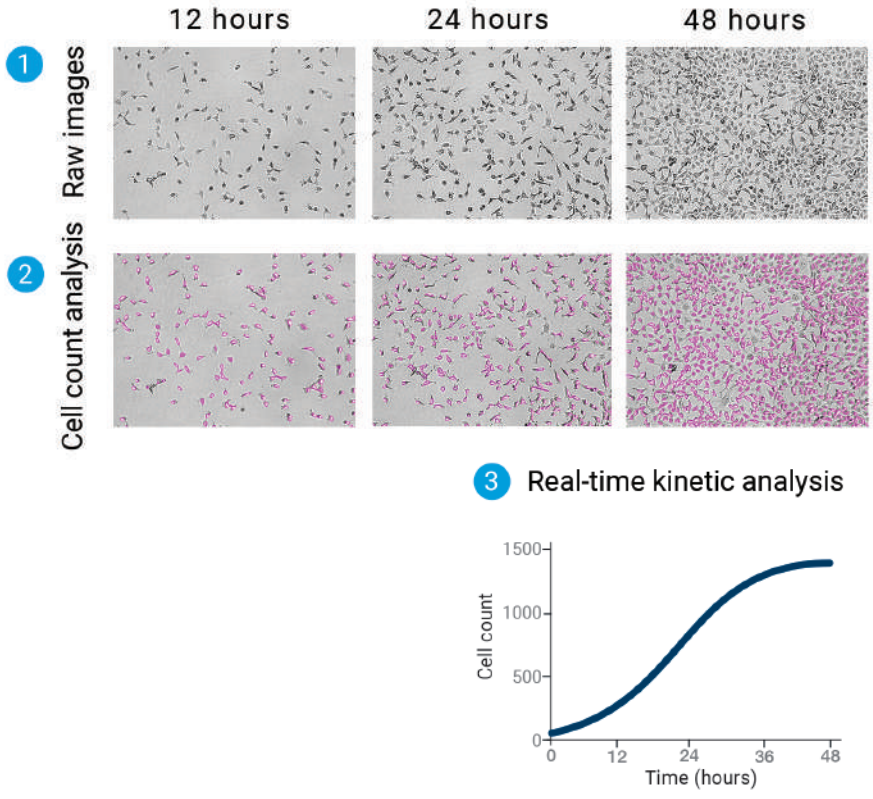
The wide field of view (WFOV) camera provides fast, automated imaging in microplates and slides. Large tissue sections (left) and microplates (right) can be imaged from low to high magnifications.

Lionheart FX shown with CO_2/O_2 gas controller and dual-reagent injector.



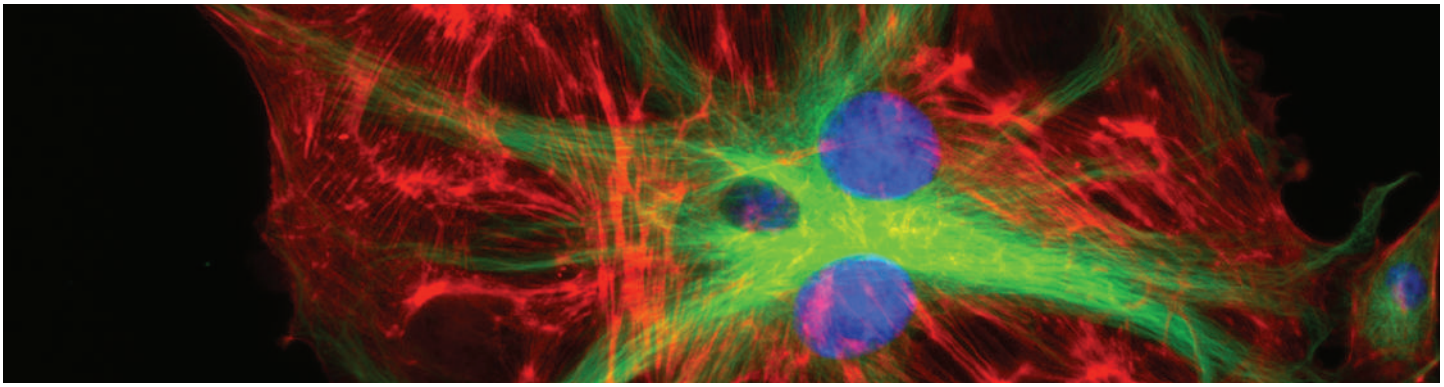
Augmented microscopy

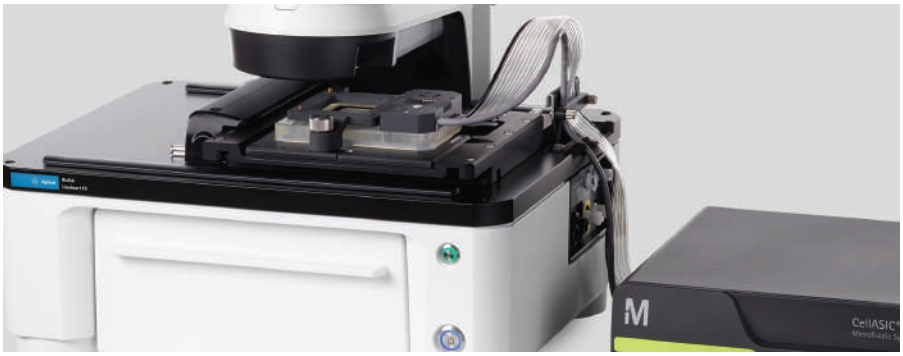
Lionheart FX and Agilent BioTek Gen5 microplate reader and imager software work together for a fully automated capture, process, analyze, and publish workflow. Unlike many other microscopes, the Lionheart platform provides users with complete microscopy workflow control, all the way from image capture to publication-worth results.



Environmental controls for live cell imaging

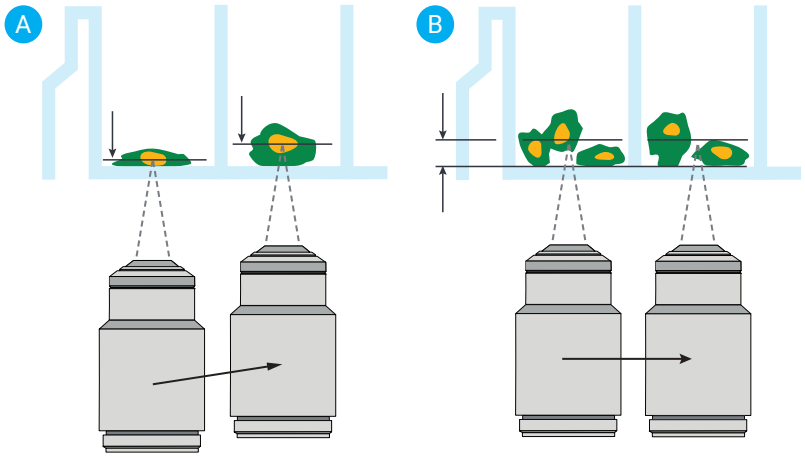
Successful live cell kinetic imaging relies on a consistent environment, including temperature, CO_2/O_2, and humidity control. Lionheart FX provides the perfect environment to grow and analyze live cells over time. Powerful movie maker and kinetic analysis software tools allow visualization and analysis of time-lapse experiments.





Open-stage design

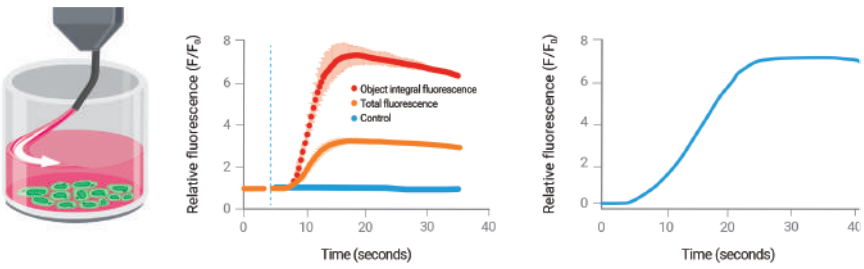
The open design of the Lionheart FX stage allows researchers to work with microfluidic devices.



Laser and image autofocus

A. Image-based autofocus is available on all Agilent BioTek imaging systems. It focuses on the plane of highest contrast in the sample, including "shifting" biology within the well.

B. Laser autofocus uses the same focal offset from well to well and is typically faster. It works with dim fluorophores and helps prevent phototoxicity and photobleaching. Laser autofocus also offers better reproducibility and higher accuracy during long-term kinetic imaging.



Dual-reagent injector module

The dual-reagent injector module for Lionheart FX allows fast cellular reactions to be imaged after the addition of a reagent.

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automated microscope

Technical Details

General	
Microplate types	6- to 1536-well plates
Other labware supported	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25, T75), counting chambers (hemocytometers), chamber slides Support for labware up to 1.5" tall
Software	Gen5 microplate reader and imager software (included) Optional Agilent BioTek software: – Gen5 Image+: image analysis – Gen5 Image Prime: advanced image analysis – Gen5 Secure, Gen5 Secure Image+, Gen5 Secure Image Prime: 21 CFR Part 11 compliant features – AutoROI module, Spot-count module, cell count and viability app
Imaging	
Imaging modes	Fluorescence, brightfield, high-contrast brightfield, color brightfield, and phase contrast
Imaging methods	Single color, multicolor, montage, time lapse, z-stacking, z-stack montage
Image processing	Z-projection, digital phase contrast, stitching
Light source (fluorescence)	User-replaceable LEDs (available wavelengths: 365, 390, 405, 465, 505, 523, 590, 623, 655, and 740 nm
Camera	Sony CMOS 16-bit grayscale camera
Wide Field of View (WFOV) mode	3.42 x 3.42 mm at 4x magnification
Image outputs available	Raw images: 16-bit TIFF Saved images: TIF, JPG, BMP, PNG, EMF, GIF
Filter cube capacity	4 user-replaceable fluorescence cubes
Filter cubes available	DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, acridine orange, CFP-FRET, CFP-YFP FRET, chlorophyll, phycoerythrin (PE), propidium iodide, CY5.5, TagBFP, Tag BFP-FRET, GFP (Ex)-CY5 (Em), RFP (Ex)-CY5 (Em), Alexa Fluor 568, Ex 377/Em 647, oxidized roGFP2, TRITC
Objective capacity	Six-position automated turret for user-replaceable objectives
Objectives available	Air: 1.25x, 2.5x (2.75x eff), 4x, 10x, 20x, 40x, 60x Oil: 60x, 100x
Phase objectives available	4x, 10x, 20x, 40x
Image capture throughput	Laser autofocus, 20x, 100 ms exposure, 96 wells: 4 min, 4 s Software autofocus, 20x, 100 ms exposure, 96 wells: 7 min, 3 s
Automated functions	Autofocus, user-trained autofocus, autoexposure, auto-LED intensity
Autofocus method	Image-based autofocus Laser autofocus (option)
Microscope stage control	Gen5 software control Optional joystick controller
Physical Characteristics	
Dimensions	With cover closed or without cover: 18.3" D, 17.9" W, 14.1" H (46.5 x 45.5 x 69.8 cm) With cover fully open: 18.3" D, 17.9" W, 27.5" H (46.5 cm x 45.5 cm x 69.8 cm)
Weight	With top cover: 58 lb (26.3 kg) Without top cover: 51 lb (23.1 kg)
Power	External 250 W (minimum), 24 VDC power supply compatible with 100–240 VAC at 50–60 Hz

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