Lionheart FX

Технические характеристики

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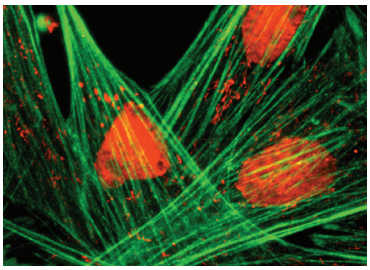
A U T O M A T E D M I C R O S C O P Y

Lionheart™ FX Automated Microscope

Lionheart™ FX Automated Microscope is a compact, inclusive microscopy system for a broad range of imaging workflows. It offers up to 100x air and 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, a humidity chamber optimizes conditions for long-term live cell imaging applications, while a dual reagent injector facilitates rapid kinetic assays.

Lionheart FX and Gen5 together comprise Augmented Microscopy™ - the automation of image capture, processing, analysis and development of publication-ready images and data.



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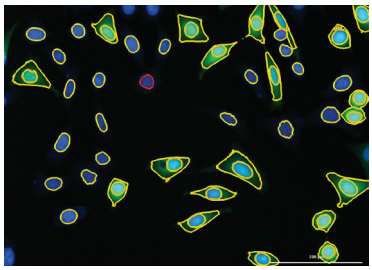

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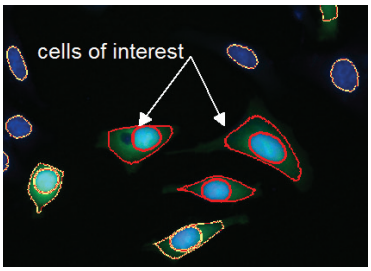
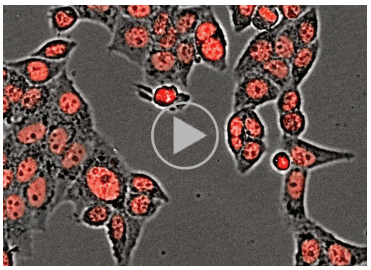


analyze ▶



publish

Features:

- Automated digital microscopy with up to 100x magnification for whole organism to sub-cellular imaging
- Brightfield, color brightfield, phase contrast and fluorescence with image and laser autofocus to meet a wide range of imaging applications
- Powerful Gen5 3.0 software with seamless image capture, annotation, analysis and movie making. Requires no extensive training.
- Automated kinetic live cell assays, with temperature and CO_2/O_2 control, humidity and reagent injectors
- Patented laser autofocus provides speed and accuracy
- Auto Focus, Auto Exposure, Auto LED Intensity
- Fully integrated and compact design offers quick installation and setup, no extensive training required
- Label-free cell counting for cell proliferation assays

Typical Applications:

- Live cell imaging
- Cell culture QC
- Cell proliferation
- Apoptosis
- 3D cell culture
- Tumor invasion
- Signal transduction
- Stem cell differentiation
- Phenotypic assays
- Cell migration and invasion
- Calcium flux
- Translocation
- Cytotoxicity
- Cell viability
- Wound healing
- Phagocytosis
- Slide scanning
- H & E imaging
- Label-free live cell assays
- Label-free cell counting

Configurations:

LFX: Lionheart FX Automated Microscope. Fluorescence, brightfield, color brightfield and phase contrast imaging capabililty. Includes Gen5 3.0 Software and Imaging System Controller. Objectives, filter/LED cubes, accessories and software upgrades sold separately.

Optional Accessories:

- Environment Control Cover. For temperature control to 40 °C, CO_2/O_2 control module support and "darkroom" fluorescence
- Humidity Chamber with rapid gas re-charge
- Reagent Injector Module
- Gen5™ Secure for 21 CFR Part 11 compliance
- Gen5 Image+ and Image Prime Software for advanced image analysis
- Vessel adapters (T25, T75, 35 and 60 mm dishes, slides)
- High Contrast Brightfield kit for Label-free Cell Counting
- Scratch Assay Starter Kit
- Cell Count & Viability Starter Kit

Easy access to filter/LED cubes and objectives.

Technical Details:

General

Labware type:	Imaging: 6- to 1536-well plates
Other labware:	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25, T75), counting chambers, chamber slides Support for labware up to 1.5" tall
Temperature control:	4-Zone™ incubation to 40 °C with Condensation Control™ With optional environmental control cover
CO_2 and O_2 control:	0 – 20% CO_2 control and 1 – 19% O_2 control with optional Gas Controller
Environment control cover:	Top cover for light tight imaging and incubation control (option)
Stage control:	High resolution lead screw driven stage with open access
Humidity control:	Humidity chamber with rapid gas recharge (option)
Software:	Gen5™ 3.0 Microplate Reader and Imager Software included; Gen5 Image+ and Image Prime software for advanced image analysis (option)

Imaging

Imaging modes:	Fluorescence, brightfield, phase contrast, color brightfield
Imaging methods:	Single color, multi-color, montage, time lapse, Z-stacking, burst mode
Light source:	High power LEDs (available wavelengths: 365 nm, 390 nm, 465 nm, 505 nm, 523 nm, 590 nm, 623 nm, 655 nm, 740 nm)
Camera:	16-bit gray scale Sony CMOS
Camera binning:	Optional 2x2 binning for focus and/or image capture
Camera exposure range:	5 milliseconds – 4 seconds
Image outputs available:	Raw Images: 16-bit TIFF Saved Images: TIF, JPG, BMP, PNG, EMF, GIF Movies: MP4, WMV
Filter cube capacity:	4 user-replaceable fluorescence cubes plus brightfield channel
Colors available:	DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, Acridine Orange, CFP-YFP FRET, Chlorophyll, Phycoerythrin (PE), Propidium Iodide, CY5.5, TagBFP, GFP (Ex)-CY6 (Em), RFP (Ex)-CY5 (Em)
Objective capacity:	6 onboard user-replaceable objectives
Available objectives:	Fluorescence: Air: 1.25x, 0.04 NA; 2.5x (2.25x eff), 0.07 NA; 2.5x (2.75x eff), 0.12 NA; 4x, 0.13 NA; 10x, 0.30 NA; 20x, 0.45 NA; 40x, 0.60 NA; 60x, 0.70 NA Oil: 60x, 1.42 NA; 100x, 1.40 NA Phase contrast: 4x, 0.13 NA; 10x, 0.30 NA; 20x, 0.45 NA; 40x, 0.60 NA
Image collection rate:	Single Well Fastest Frame Rate Capture: *Full Resolution: up to 10 frames per second for single color images *2x2 Binning: up to 20 frames per second for single color images
Automated functions:	Autofocus, user-trained autofocus, autoexposure, auto-LED intensity
Autofocus method:	Image-based autofocus Patented laser autofocus option
Microscope stage control:	Gen5 Software Control Optional joystick controller

Reagent Injector Module (optional)

Number:	2 syringe pumps
Dispense volume:	5 – 1000 µL in 1 µL increment
Dispense tip options:	Aligned tip – aligned with optical path for dispensing for fast kinetic assays Offset tip – dispensing is offset from the optical path
Dead volume:	<1.65 mL with back flush
Labware supported:	6- to 384-well microplates, Petri and cell culture dishes, chamber slides
Dispense precision:	<2% at 50 – 200 µL
Dispense accuracy:	±1 µL or 2%

Physical Characteristics

Power:	250 Watts max.
Dimensions:	With environment control cover closed or without cover: 18.3" D x 17.9" W x 14.1" H (46.5 cm x 45.5 cm x 35.8 cm) With environment control cover fully open: 18.3" D x 17.9" W x 27.5" H (46.5 cm x 45.5 cm x 69.8 cm)
Weight:	Without environmental control cover: 51 lbs (23.1 kg) With environmental control cover: 58 lbs (26.3 kg)

Regulatory

CE and TUV marked. RoHS compliant. Configurations for *In Vitro* Diagnostic use are available.

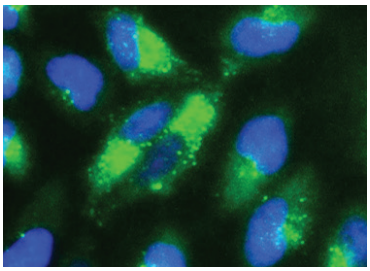
Technical details are subject to change.

A U T O M A T E D M I C R O S C O P Y

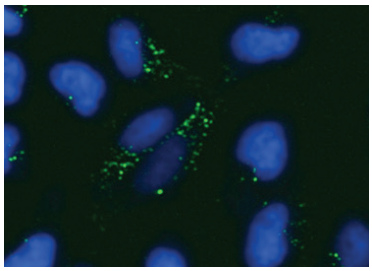
Lionheart™ LX Automated Microscope

BioTek's new Lionheart LX Automated Microscope is designed with affordability in mind, offering an alternative to expensive, custom-built automated microscopes that are complex to learn and use. The compact, ocular-free hardware design eases ergonomic discomfort.

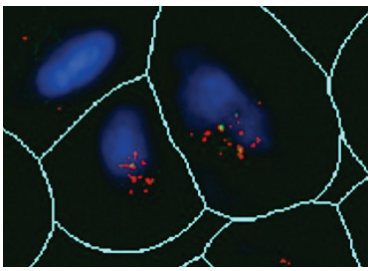
Along with Gen5 software, Lionheart LX enables Augmented Microscopy™, which fully automates image capture, processing and analysis. Load samples, start a run and come back to publication-ready images and quantitative data. Lionheart LX can help increase your research output while reducing processing time and costs.



capture ▶



process ▶



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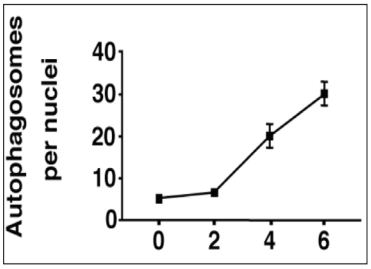

publish

Features:

- Affordable automated digital microscopy for microplates, slides, cell culture dishes and flasks
- High contrast brightfield, color brightfield and fluorescence imaging
- Augmented Microscopy™ with seamless image capture, processing and analysis: advanced expertise not required
- Quick analyze feature: instant cell count and confluence measurement from live feed, prior to image capture
- Fully integrated and compact design offers quick installation and setup

Typical Applications:

- Cell counting
- End point live cell assay including:
  - Apoptosis
  - Autophagy
  - Cell cycle
  - Cytotoxicity
  - Mitochondrial membrane potential
- Fluorescence in-situ hybridization
- Histology (H&E)
- Label-free cell counting
- Confluence
- Genotoxicity including:
  - Comet assay
  - γH2AX
- Immunofluorescence
- NASH assays using lipophilic fluorescent probes
- Phenotypic assays

Configurations:

LLX: Lionheart LX Automated Microscope. Fluorescence, high contrast brightfield and color brightfield imaging. Includes standard Gen5 software and 4-position slide holder. The imaging controller, objectives, filter/LED cubes, accessories and software upgrades are sold separately.

Optional Accessories:

- Gen5™ Secure for 21 CFR Part 11 compliance
- Gen5 Image+ and Image Prime Software for advanced image analysis
- Vessel adapters (T25, T75, 35 and 60 mm dishes, slides)
- Joystick Controller

Easy access to filter/LED cubes and objectives.

Technical Details:

General

Labware type:	Imaging: 6- to 1536-well plates
Other labware:	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
Stage control:	High resolution lead screw driven stage with open access
Software:	Gen5™ 3.0 Microplate Reader and Imager Software included; Gen5 Image+ and Image Prime software for advanced image analysis (option)

Imaging

Imaging modes:	Fluorescence, high contrast brightfield, color brightfield
Imaging methods:	Single color, multi-color, montage, time lapse, z-stack, z-stack montage, burst mode
Image processing:	Z-projection, digital phase contrast, stitching, deconvolution
Light source:	High power LEDs (available wavelengths: 365 nm, 390 nm, 465 nm, 505 nm, 523 nm, 590 nm, 623 nm, 655 nm, 740 nm)
Camera:	16-bit gray scale, Sony CMOS, 1.25 megapixel
Camera binning:	Optional 2x2 binning for focus and/or image capture
Camera exposure range:	5 milliseconds – 4 seconds
Image outputs available:	Raw Images: 16-bit TIFF Saved Images: TIF, JPG, BMP, PNG, EMF, GIF Movies: MP4, WMV
Filter cube capacity:	Up to 4 onboard, user-replaceable cubes
Colors available:	DAPI, CFP, GFP, YFP, RFP, Texas Red, CY5, CY7, Acridine Orange, CFP-YFP FRET, Chlorophyll, Phycoerythrin (PE), Propidium Iodide, CY5.5, TagBFP, GFP (Ex)-CY5(Em), CFP FRET, 377 (Ex)-647 (Em), Oxidized roGFP2, 400 (Ex)-647 (Em)
Objective capacity:	6 onboard, user-replaceable objectives
Available objectives:	Air: 1.25x, 0.04 NA; 2.5x (2.25x eff), 0.07 NA; 2.5x (2.75x eff), 0.12 NA; 4x, 0.13 NA; 10x, 0.30 NA; 20x, 0.45 NA; 40x, 0.60 NA; 60x, 0.70 NA Oil: 60x, 1.42 NA; 60x, 1.25 NA; 100x, 1.40 NA; 100x, 1.30 NA High NA: 20x, 0.75 NA; 40x, 0.95 NA
Image collection rate:	Single Well Fastest Frame Rate Capture: - Full Resolution: up to 10 frames per second for single color images - 2x2 Binning: up to 20 frames per second for single color images
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

Power:	60 Watts max.
Dimensions:	18.3" D x 17.9" W x 14.1" H (46.5 cm x 45.5 cm x 35.8 cm)
Weight:	51 lbs (23.1 kg)

Regulatory

CE and TUV marked. RoHS compliant. Configurations for *In Vitro* Diagnostic use are available.

Technical details are subject to change.

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