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Cytation™3 Cell Imaging Multi-Mode Reader

Cytation™3 combines automated digital microscopy and conventional microplate reading in one instrument. Its unique patent pending design is ideal for research and assay development applications in the field of cell biology. With an emphasis on live-cell assays, Cytation3 features temperature control to 45 °C, orbital shaking, CO_2/O_2 gas control and support for time lapse studies.

In contrast with complex image analysis software interfaces available today, BioTek's Gen5 is specifically designed for those familiar with microplate reader software and requires minimal training. Equipped with patented Hybrid Technology™ for microplate reading, Cytation3 offers high performance filter-based optics and high-flexibility monochromator optics for unmatched application versatility.

Features:

- Automated digital microscopy and/or multi-mode microplate detection in one instrument
- Modular and upgradable: Microscopy only, microplate reading only, or both
- Flexible sample format: Accommodates 6- to 384-well plates, microscope slides and T25 cell culture flasks
- Affordable automation: Automated XY stage, auto focus, auto exposure, automated image capture, auto LED intensity
- Inverted fluorescence (4 LED and filter cube assembly capacity) and bright field microscopy
- From 2x for full-well imaging to 20x for sub-micron resolution of intra-cellular details
- High quality images: Olympus objectives, 16-bit gray scale CCD camera, Semrock filters
- Temperature control up to 45 °C
- CO_2/O_2 gas control and monitor accessory
- Dual reagent injector accessory for inject/read assays
- End point, time-lapse and montage assays
- Automatic cell counting, sub-population analysis and image statistics
- Patented Hybrid Technology™ microplate reading mode with high performance filter-based optics and high-flexibility monochromator optics

BioTek®

Models:

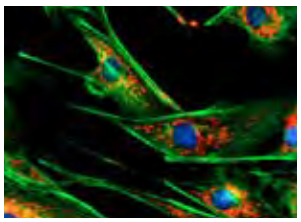
CYT3V:	Cytation3 w/imaging
CYT3FV:	Cytation3 w/filter optics and imaging
CYT3MV:	Cytation3 w/mono optics and imaging
CYT3MFV:	Cytation3 w/mono and filter optics and imaging
CYT3MF:	Cytation3 w/mono and filter optics
CYT3M:	Cytation3 w/mono optics
CYT3F:	Cytation3 w/filter optics

Optional Accessories:

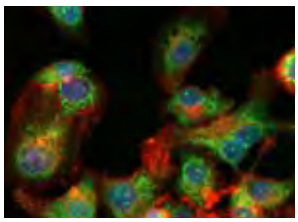
- CO_2/O_2 Gas Controller Module
- Dual Reagent Injector Module
- BioStack™ Microplate Stacker
- Take3™ Micro-Volume Plate
- Gen5™ Secure for 21 CFR part 11 compliance
- Luminescence, Fluorescence and Absorbance Test Plates

Typical Applications:

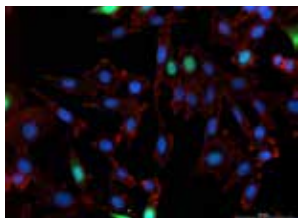
- Cell imaging and analysis
- Cell proliferation
- Cytotoxicity
- Protein expression
- Biomarker quantification
- Drug discovery
- Genetic analysis
- Drug absorption and metabolism
- Biologics drug discovery and development
- Environmental testing
- Food safety
- Nucleic acid quantification
- Protein quantification



BPAE cells, 20x, from FluoCells® prepared slide #2.



HepG2 cells, Caspase3, 20x magnification.



3T3 cells, 4x magnification.

FluoCells® is a registered trademark of Molecular Probes, Inc.

BioTek's Hybrid Technolgy™ is protected under US Patent 8,218,141.

Specifications:

General

Imaging modes:	Fluorescence and brightfield
Detection method:	Monochromators: FL, Lum., UV-Vis Abs. Filters: FL, TRF, FP, Lum.
Read method:	End point, time-lapse, kinetic, well mode, montage
Labware type:	6- to 384-well plates, microscope slides, cell culture flasks (T25) Compatible with Take3™ Micro-Volume Plates with 2 µL microspots
Temperature control:	To 45 °C; ±0.5 °C at 37 °C
Shaking:	Linear, orbital, double orbital
Automation:	Compatible with BioStack™ and 3rd party automation
CO_2 and O_2 control:	0 – 20% CO_2 control and 1 – 19% O_2 control, with optional Gas Controller
Software:	Gen5™ Data Analysis Software

Imaging

Light source:	High power, user-replaceable LEDs
Camera:	16-bit gray scale
Filter cube capacity:	4 onboard, user-replaceable filter cubes
Objective capacity:	2 onboard, user-replaceable objectives
Available objectives:	2x, 4x, 10x, 20x
Image collection rate:	96 wells: 1 image/well, 20x, 8 minutes

Fluorescence Intensity

Sensitivity:	Monochromators: Top: Fluorescein 2.5 pM typical (0.25 fmol/well 384-well plate) Bottom: Fluorescein 5 pM typical (0.5 fmol/well 384-well plate) Filters/mirrors: Fluorescein 1pM typical (0.1 fmol/well 384-well plate)
Light source:	Xenon flash lamp
Wavelength selection:	Double grating monochromators (top and bottom) Deep blocking bandpass filters/dichroic mirrors (top)
Wavelength range:	Monochromators: 250 – 700 nm Filters: 200 – 700 nm (850 nm option)
Dynamic range:	5 decades
Detection system:	Two PMT detectors: one for monochromator system, one for filter system

Fluorescence Polarization

Sensitivity:	5 mP at 1nM fluorescein typical
Wavelength range:	320 – 700 nm (850 nm option)

Time-Resolved Fluorescence

Sensitivity:	Europium 100 fM typical with filters (10 amol/well in 384-well plate) Europium 1200 fM typical with monos (120 amol/well in 384-well plate)
Light source:	Xenon flash lamp
Wavelength range:	Monos: 250 – 700 nm Filters: 200 – 700 nm (850 nm option)

Luminescence

Sensitivity:	Monochromators: <20 amol ATP typical (flash) Filters: <10 amol ATP typical (flash)
Wavelength range:	300 – 700 nm
Dynamic range:	>6 decades

Absorbance

Light source:	Xenon flash lamp
Wavelength selection:	Monochromator
Wavelength range:	230 – 999 nm, 1 nm increment
Bandpass:	4 nm (230 – 285 nm), 8 nm (>285 nm)
Dynamic range:	0 – 4.0 OD
Resolution:	0.0001 OD

Reagent Dispensers

Number:	2 syringe pumps
Dispense volume:	5 – 1000 µL in 1 µL increment
Dead volume:	1 mL, 100 µL with back flush
Plate geometry:	6- to 384-well microplates
Dispense precision:	<2% at 50 – 200 µL
Dispense accuracy:	±1 µL or 2%

**Specifications subject to change.*

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