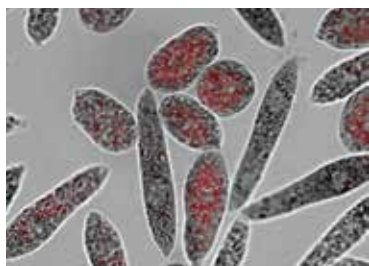


Cytation™ 5 Cell Imaging Multi-Mode Reader

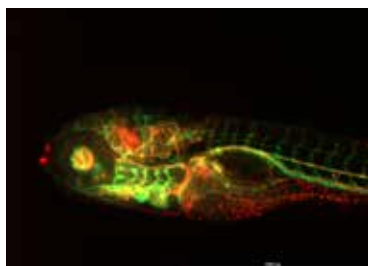


Cytation™ 5 is a uniquely integrated, configurable system that combines automated digital widefield microscopy with conventional multi-mode microplate detection to provide phenotypic cellular information and well-based quantitative data. This instrument replaces multiple modules and software interfaces, yet is simple to setup and operate. With up to 60x magnification, the microscopy module provides high-quality cellular and sub-cellular visualization in fluorescence, brightfield, H&E stain and phase contrast channels. The multi-mode detection module features BioTek's patented Hybrid Technology™, which incorporates variable bandwidth

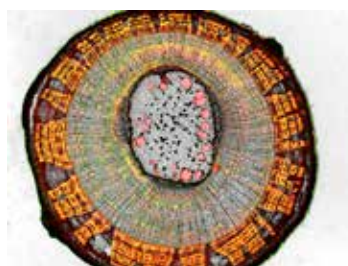
monochromator optics and high sensitivity filter-based detection optics for unmatched versatility and performance. Temperature control to 65 °C and shaking, plus available CO₂/O₂ control and dual reagent injectors optimize conditions for cell-based imaging and detection. Image capture, data collection and powerful image and data analysis are managed with Gen5™ software, specifically designed for uncomplicated processing of even the most complex assays.



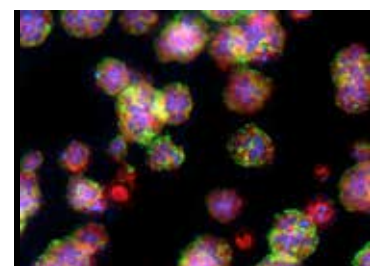
Euglena gracilis, 60x



Zebrafish, 4x



TiliaStem, 2x



Z-stack, 20x



Cytation 5 with dual injector (left) and CO₂/O₂ Gas Controller (right)

Features:

- Fluorescence, brightfield, H&E stain and phase contrast microscopy and conventional multi-mode detection
- Patented Hybrid Technology™ in multi-mode detection combines high performance filters with variable bandwidth monochromators for versatility and performance
- Variable bandwidth fluorescence monochromators offer a 9 nm to 50 nm in 1 nm increments for ultimate flexibility
- Laser-based excitation for AlphaScreen® / AlphaLISA® assays
- CO₂/O₂ control, incubation to 65 °C and shaking optimize cell-based and other assays
- Low volume (2 µL) nucleic acid and protein quantification with the available Take3 Plates
- Powerful yet easy to use Gen5 software for efficient plate reading, image capture and analysis

Typical Applications:

- 2D and 3D 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

Configurations:

- CYT5PV:** Cytation 5 w/phase contrast imaging and fluorescence, brightfield and H&E imaging
- CYT5MFV:** Cytation 5 w/monochromator fluorescence, monochromator UV-Vis absorbance, filtered luminescence, luminescence, time-resolved fluorescence (2° mode), filter / dichroic fluorescence, fluorescence polarization. Fluorescence, brightfield and H&E imaging
- CYT5MV:** Cytation 5 w/monochromator fluorescence, monochromator UV-Vis absorbance, luminescence, time-resolved fluorescence (2° mode). Fluorescence, brightfield and H&E imaging
- CYT5MFA:** Cytation 5 w/monochromator fluorescence, monochromator UV-Vis absorbance, time-resolved fluorescence (2° mode), filter / dichroic fluorescence, fluorescence polarization, luminescence, filtered luminescence, and laser AlphaScreen®/AlphaLISA®
- CYT5M:** Cytation 5 w/monochromator fluorescence, monochromator UV-Vis absorbance, luminescence, and time-resolved fluorescence (2° mode)

Note: Several other configurations are available. Ask your BioTek Sales Representative or visit www.biotek.com for details.

Optional Accessories:

- Joystick Controller
- CO₂/O₂ 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
- Gen5 Image+ Software

Specifications:

General

Imaging modes:	Fluorescence, brightfield, phase contrast, H&E stain
Detection mode:	Monochromators: FL, Lum., UV-Vis Abs., TRF (secondary) Filters: FL, TRF, FP, Lum., Alpha
Read method:	End point, kinetic, well mode, time-lapse, montage
Labware type:	6- to 384-well plates, microscope slides, Petri dishes, cell culture flasks (T25) Take3™ Micro-Volume Plates
Temperature control:	4-Zone™ incubation to 65 °C with Condensation Control™ Variation: ±0.2 °C at 37 °C
Shaking:	Linear, orbital, double orbital
Automation:	Compatible with BioStack™ and 3rd party automation
CO ₂ and O ₂ control:	Optional Gas Controller available
Software:	Gen5™ Data Analysis Software included; Gen5 Image+ software available for full image analysis

Imaging

Light source:	High power LEDs (available wavelengths: 365 nm, 405 nm, 465 nm, 590 nm, 523 nm, 505 nm, 623 nm, 740 nm)
Camera:	16-bit gray scale, Sony CCD, 1.1 megapixel
Filter cube capacity:	4 onboard, user-replaceable filter cubes
Objective capacity:	6 objectives turret
Available objectives:	Fluorescence: 2.5x (2.25x eff), 2.5x (2.75x eff), 4x, 10x, 20x, 40x, 60x Phase contrast: 4x, 10x, 20x, 40x
Image collection rate:	96 wells, 1 color (DAPI), 4x, 6 minutes 96 wells, 3 colors, 4x, 12 minutes
Resolution:	0.3µm/pixel at 20x
Automated functions:	Autofocus, autoexposure, auto-LED intensity

Fluorescence Intensity

Sensitivity:	<u>Monochromators:</u> Top: Fluorescein 2.5 pM (0.25 fmol/well 384-well plate) Bottom: Fluorescein 4 pM (0.4 fmol/well 384-well plate) <u>Filters/mirrors:</u> Fluorescein 0.25 pM (0.025 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 (850 nm option) Filters: 200 – 700 nm (850 nm option)
Dynamic range:	7 decades
Detection system:	Two PMTs: (1) for monochromator system, (1) for filter system

Luminescence

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

Fluorescence Polarization

Sensitivity:	1.2 mP standard deviation at 1nM fluorescein
Wavelength range:	320 – 700 nm (850 nm option)

Time-Resolved Fluorescence

Sensitivity:	Europium 40 fM with filters (4 amol/well in 384-well plate) Europium 1200 fM with monos (120 amol/well in 384-well plate)
Light source:	Xenon flash lamp
Wavelength range:	Monos: 250 – 700 nm (850 nm option) Filters: 200 – 700 nm (850 nm option)

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

Alpha Detection

Light source:	680 nm laser, 100 mW +/-10%
Wavelength selection:	Filter (top only)
Sensitivity:	100 amol LCK peptide (384-well low volume plate)

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%

Performance values represent the average observed factory test values.

**Specifications subject to change.*



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