

Agilent BioTek Cytation 1 Cell Imaging Multimode Reader

Product description



The Agilent BioTek Cytation 1 cell imaging multimode reader eliminates the complexities of multimode detection without compromising performance. It can be configured with optional fluorescence and high contrast brightfield cellular imaging with up to 60x magnification. This unique, patented design provides both quantitative phenotypic cellular information with well-based quantitative data in an affordable, compact system. The Cytation 1 cell imaging multimode detection module includes high sensitivity filter-based fluorescence and luminescence, and a monochromator system for UV-Vis absorbance. Temperature control to 45 °C and shaking are standard; CO₂/O₂ control and reagent injectors are available. The Agilent BioTek Gen5 microplate reader and imager software automates image capture, plate reading, data and image analysis and reporting.

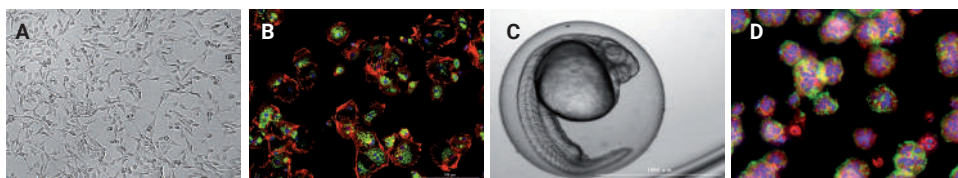


Figure 1. (A) Live cell assays; (B) Primary hepatocytes, 10x; (C) Zebrafish embryo; (D) Z-stack, 20x.

Features

- Affordable, quantitative digital microscopy with optional multimode microplate detection
- Augmented Microscopy using Gen5 microplate reader and imager software for automated image capture to quantitative publication-ready data
- Fluorescence and brightfield imaging from 1.25x to 60x, imaging larger samples to intra-cellular details
- Affordable automation: automated XY stage, focus, exposure, image capture and LED intensity
- Cell friendly design: 4-Zone Incubation to 45 °C with condensation and CO₂/O₂ control
- High-performance filter-based fluorescence and luminescence detection with monochromator-based UV-Vis absorbance
- Available angled injectors for rapid inject/image or read assays
- Peltier Cooling Module maintains environmental stability for assay integrity

Typical applications

- Cell culture QC
- Cell migration and invasion
- Food/beverage quality and safety testing
- Cell proliferation
- Calcium flux
- ELISA, kinetic ELISA
- Apoptosis
- Translocation
- Nucleic acid quantification
- 3D cell imaging
- Cytotoxicity
- Protein quantification
- Tumor invasion
- Cell viability
- Wound migration
- Signal transduction
- Neurite outgrowth
- Stem cell differentiation
- Phenotypic assays
- Phagocytosis

Configurations

- CYT1FA: Cytation 1 with filter-based fluorescence and luminescence, monochromator-based UV-Vis absorbance. Includes Gen5 software. Fluorescence filter cubes sold separately.
- CYT1V: Cytation 1 with fluorescence and high-contrast brightfield imaging. Includes Gen5 software. Imaging controller, imaging filter/LED cubes, and objectives sold separately.
- CYT1FAV: Cytation 1 with fluorescence and high-contrast brightfield imaging, filter-based fluorescence and luminescence, monochromator-based UV-Vis absorbance. Includes Gen5 software. Imaging controller, imaging filter/LED cubes, objectives, and fluorescence filter cubes sold separately.

Optional accessories

- CO₂/O₂ gas controller
- Peltier cooling module
- Agilent BioTek Gen5 Image+ software and Agilent BioTek Image Prime software for advanced image analysis
- Agilent BioTek Gen5 Secure software enables 21 CFR Part 11 compliance
- Agilent BioTek dual-reagent injector module
- Agilent BioTek BioStack microplate stacker
- Agilent BioTek BioSpa 8 automated incubator
- Agilent BioTek Take3 microvolume plates



Figure 3. Agilent BioTek Cytation 1 cell imaging multimode reader interfaces with the Agilent BioTek BioSpa 8 automated incubator to automate live cell assay workflows.

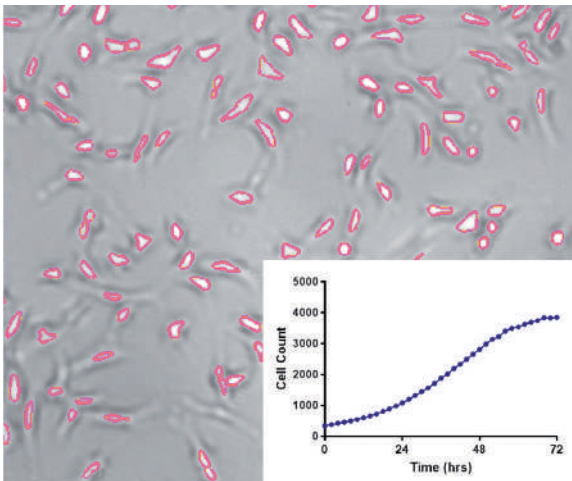


Figure 2. High-contrast brightfield for cell counting.

Technical details

General	
Microplates	6- to 1536-well microplates, 1.0" maximum height
Other Labware Supported	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25), and counting chambers (hemocytometer) Take3 microvolume plates
Temperature Control	4-Zone Incubation to 45 °C with Condensation Control
Cooling	Peltier cooling module option
Shaking	Linear, orbital, double orbital
Automation	BioStack, BioSpa 8, and third-party automation compatible
CO ₂ and O ₂ Control	0–20% CO ₂ control and 1–19% O ₂ control, with optional gas controller
Software	Gen5 microplate reader and imager software included
Imaging	
Imaging Modes	Fluorescence and high-contrast brightfield
Imaging Methods	Single color, multicolor, montage, time lapse, Z-stacking
Light Source	High-power LEDs
Camera	16-bit grayscale, Sony CMOS, 1.25 megapixel
Resolution	0.3 μm/pixel at 20x
Filter Cube Capacity	Up to 4 onboard, user-replaceable cubes
Colors Available	More than 15 colors
Objective Capacity	2 onboard, user-replaceable objectives
Objectives Available	1.25x, 2.5x (2.25x eff), 2.5x (2.75x eff), 4x, 10x, 20x, 40x, 60x
Automated Functions	Autofocus, user-trained autofocus, auto-exposure, autoLED intensity
Autofocus Methods	Image-based autofocus; laser autofocus option
Image Collection Rate	Image-based autofocus: 96 wells, 1 color (DAPI), 4x, 6 min Laser autofocus: 96 wells, 1 color (DAPI), 4x, < 3 min Burst mode: 10 fps, single well, single color at ≤ 50ms integration time
Fluorescence Intensity	
Light Source	Xenon flash lamp
Detector	PMT
Read Methods	End-point, kinetic, area scanning, inject/read process
Wavelength Selection	Deep blocking bandpass filters/dichroic mirrors
Wavelength Range	200–700 nm (850 nm option)
Dynamic Range	7 decades
Sensitivity	Fluorescein: 0.25 pM (0.025 fmol/well, 384-well plate)
Read Speed	96 wells: 11 s 384 wells: 22 s

(Continued)

Luminescence	
Sensitivity	10 amol ATP (flash); 100 amol (glow)
Read Modes	End-point, kinetic, area scanning, inject/read process
Fluorescence Polarization	
Sensitivity	1.2 mP standard deviation at 1 nM fluorescein
Wavelength Range	280–700 nm (850 nm option)
Read Modes	End-point, kinetic, inject/read process
Time-Resolved Fluorescence	
Sensitivity	Europium 40 fM (4 amol/well, 384-well plate)
Absorbance	
Light Source	Xenon flash lamp
Wavelength Selection	Monochromator
Wavelength Range	200–999 nm, in 1 nm increments
Bandwidth	2.4 nm
Dynamic Range	0–4.0 OD
Resolution	0.0001 OD
Reagent Injectors	
Number	2 syringe pumps
Dispense Volume	5–1,000 μL, in 1 μL increments
Dead Volume	< 1.1 mL with backflush
Physical Characteristics	
Power	100–240 VAC, 50–60 Hz (24 VDC external power supply, 130 W)
Weight	65 lb (29 kg)
Dimensions	20" D x 16.5" W x 17.5" H (50.8 x 41.91 x 44.5 cm)

www.agilent.com/lifesciences/biotek

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