

Agilent BioTek Cytation 9 Cell Imaging Multimode Reader

Powerful imaging and microscopy, and advanced multimode detection



Cytation 9 cell imaging multimode reader

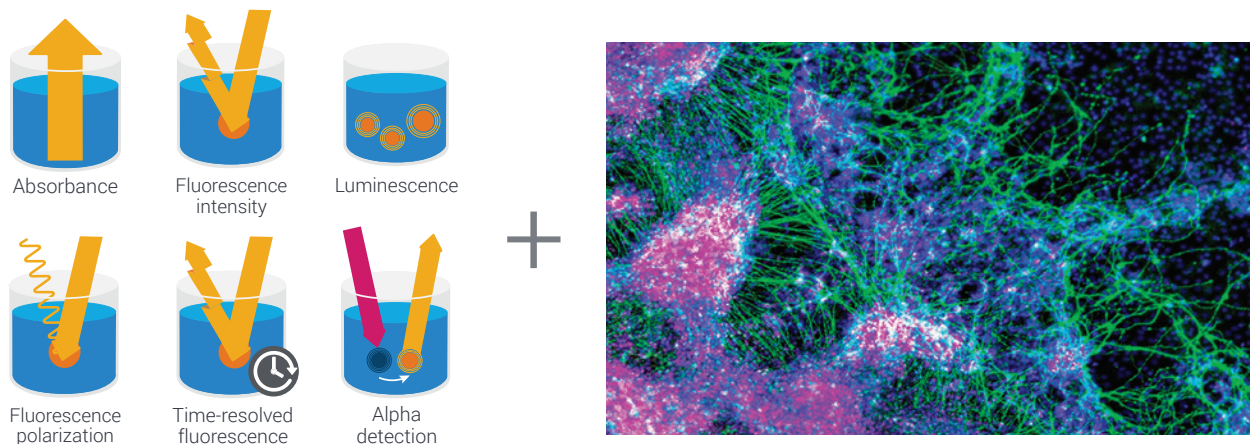


Cytation 9 shown with CO₂/O₂ gas controller and dual-reagent injector.

The Agilent BioTek Cytation 9 cell imaging multimode reader is the next evolution of the Cytation family, merging multimode microplate reading with widefield inverted and upright microscopy in a single platform. It is the versatile, high-end solution designed to move you from raw samples to data-driven insights faster and more efficiently than ever before.

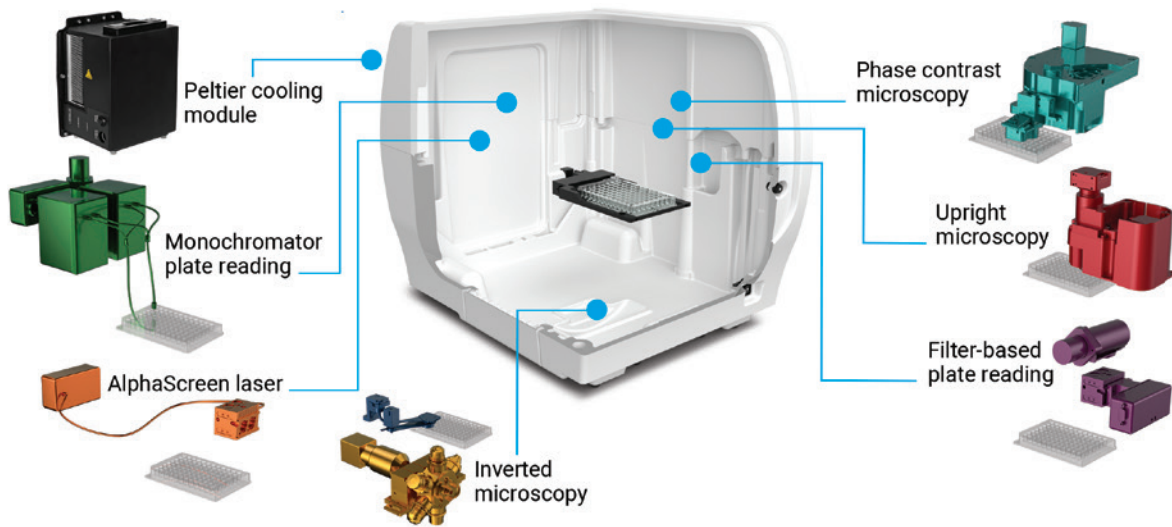
- Streamlined discovery
- Superior kinetic data
- Richer cellular insights
- Engineered flexibility
- Optimized workflow speed
- Ready for any assay

Multimode plate reading and sophisticated imaging



The Cytation 9 cell imaging multimode reader continues the trusted legacy of the Agilent BioTek Cytation line by combining advanced multimode plate reading capabilities with modular and upgradable imaging modes. This powerful integration unlocks a new dimension of cell-based assays that traditional plate readers simply cannot achieve. Go beyond simple intensity readings to capture rich biological insights, including cell morphology, signal localization, cell counts, whole-organism imaging, tissue imaging, and much more, all within the flexible Cytation 9 platform.

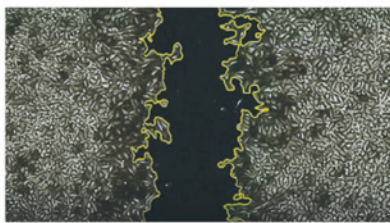
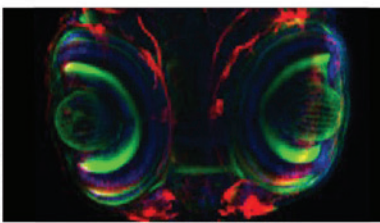
A future-proof platform designed to grow with your research

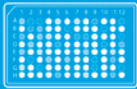


The Cytation 9 builds on the legacy of the Cytation product family by delivering maximum flexibility through its modularity. The platform allows you to start where you need, whether with advanced multimode detection or integrated imaging, and easily expand as your research matures. This flexible architecture ensures your investment remains relevant for years to come: you can upgrade to the full imaging system later or simply add new specialized components (like objectives and filter cubes) to meet evolving assay requirements.


Ready for any assay—from basic to breakthrough

4854	6799	3057	4021	14075	1022	8023	4054	12455	12025
17674	10321	2555	3271	4897	8674	4423	5547	7643	8211
4187	4644	14441	11052	13668	16420	14756	15021	15995	20057
14535	14682	987	997	9987	10010	3544	4001	17459	14168
12258	13021	4387	9110	17476	16021	5048	4654	8447	5018
6174	8875	13478	13021	5648	3947	9874	10965	12213	12225
12164	13021	4454	8448	9987	1647	8554	5187	18719	13965
3687	8559	5389	5387	18887	17992	7910	8884	919	576







Essential



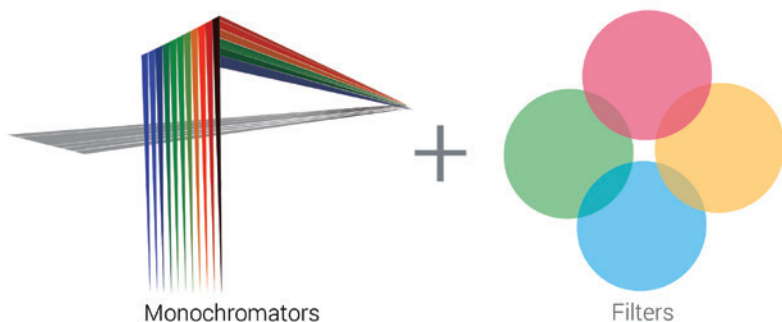
Expansion



Innovation

Cytation 9 seamlessly bridges the gap between essential lab operations, mechanistic expansion, and the innovative breakthroughs that push the limits of scientific knowledge. A single, versatile platform for every stage of your science.

- 3D cell culture
- Nucleic acid quantification
- Live-cell imaging
- Biochemical assays
- Label-free cell counting
- Histology
- Calcium flux
- Apoptosis and necrosis
- Cell migration and invasion
- Cell proliferation
- Cell viability and toxicity
- Confluence
- Phenotypic assays
- Stem cell differentiation
- Transfection efficiency
- Whole-organism imaging
- Normalization
- Phagocytosis
- Signal transduction
- Translocation
- Fast kinetics
- Genotoxicity
- Immunofluorescence
- Microbiology

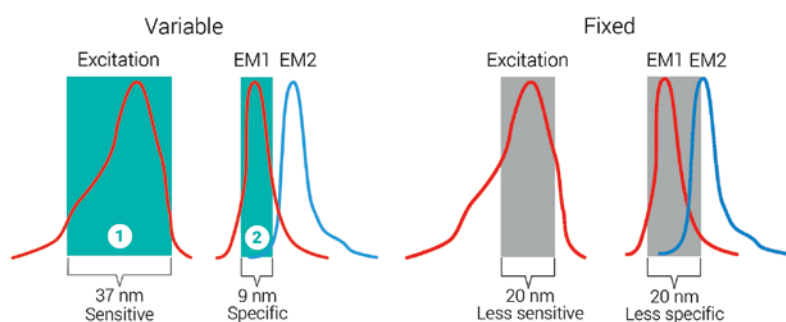


Hybrid plate reader—flexibility and performance

With its unique combination of monochromator and filter optics, the Cytation 9 cell imaging multimode reader is an advanced plate reader that delivers both the flexibility and performance you need for any microplate assay in your lab.

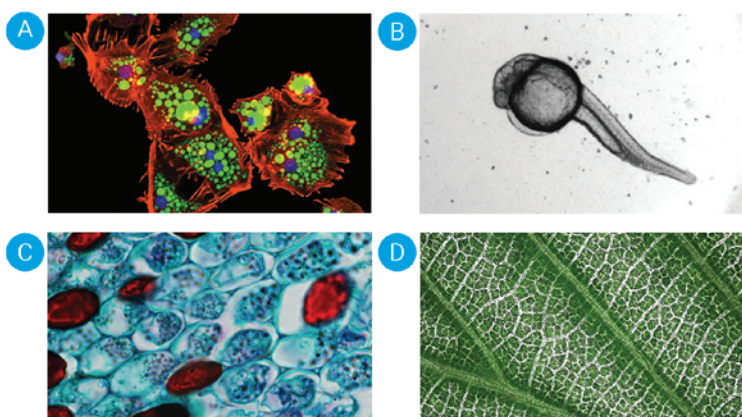
Monochromator: Variable bandwidth, absorbance, fluorescence, luminescence

Filters: Fluorescence polarization, time-resolved fluorescence, Alpha laser



Variable bandwidth for sensitivity and specificity

The Cytation 9 cell imaging multimode reader offers quad monochromator optics with variable bandwidths. The excitation and emission bandwidths can be set between 9 and 50 nm in 1 nm increments. Large bandwidths **(1)** provide increased sensitivity and lower limits of detection. Small bandwidths **(2)** provide increased specificity when multiple signals are present, reducing crosstalk and enhancing assay performance.



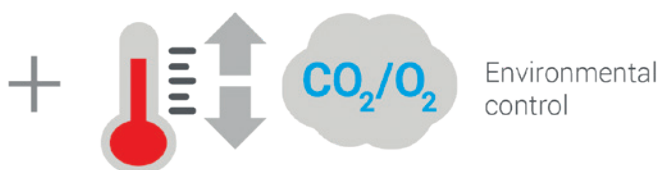
Powerful image processing and analysis

The inverted microscopy module of the Cytation 9 cell imaging multimode reader supports fluorescence, phase contrast, brightfield, high-contrast brightfield, and color brightfield from 1.25x to 60x to analyze both large objects and intracellular details. The upright, reflected-light imaging module enables a broad range of applications, such as ELISpot, colony counting, material inspection, and much more.

Flexible hardware: Six-objective turret, 1.25x to 60x, 20+ colors available, wide field of view (WFOV) camera

Full automation: Automated stage, autofocus, automated turret

Live-cell imaging: Advanced 4-Zone Incubation temperature control and software-driven CO₂ and O₂ gas control for time-lapse live-cell imaging

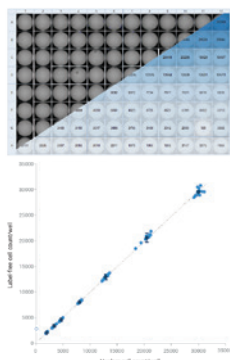
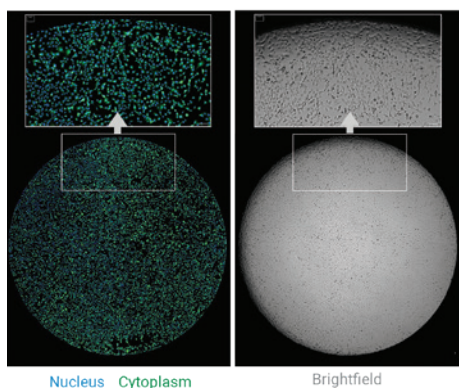


A. Fluorescence, B. Brightfield
C. Color brightfield, D. Upright reflected brightfield



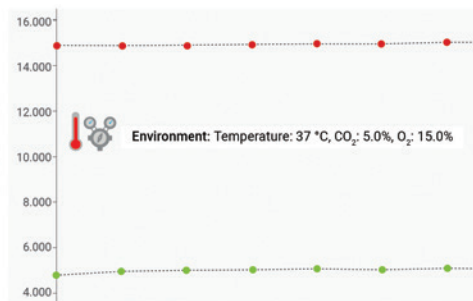
Agilent BioTek Cytation 9 cell imaging multimode reader

The Cytation 9, along with Agilent BioTek Gen5 software, can easily automate and manage a broad range of imaging, microscopy, and multimode detection application workflows.



Edge-to-edge counting accuracy with and without labels

Historically, meniscus effects and optical artifacts at well edges have made unlabeled cell counting a challenge, often requiring nuclear stains for accuracy. The enhanced optical path of the Cytation 9 cell imaging multimode reader delivers superior resolution in these difficult peripheral regions. As shown, unlabeled counts correlate exceptionally well with fluorescent nuclear stains, allowing researchers to eliminate dyes, reduce phototoxicity, and streamline live-cell workflows while cutting costs and preparation time.



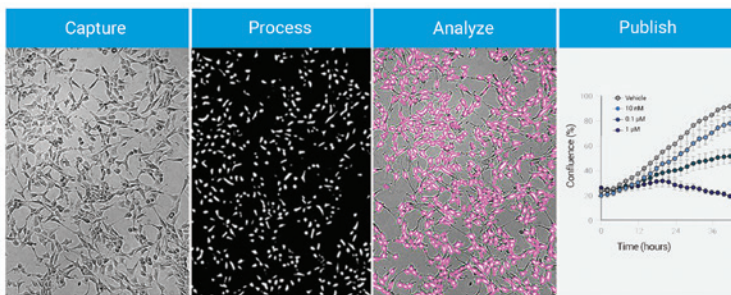
Precise environmental control for live-cell assays

The Cytation 9 elevates your live-cell kinetic experiments through intuitive, software-driven environmental control. All critical parameters (CO_2 , O_2 , and temperature) are easily set and monitored in real time within Gen5 software. This integration provides unmatched flexibility, allowing you to easily program kinetic protocols and dynamically change environmental conditions mid-experiment. Mimic complex physiological or experimental changes precisely, ensuring your in vitro results reflect real-world biological responses.



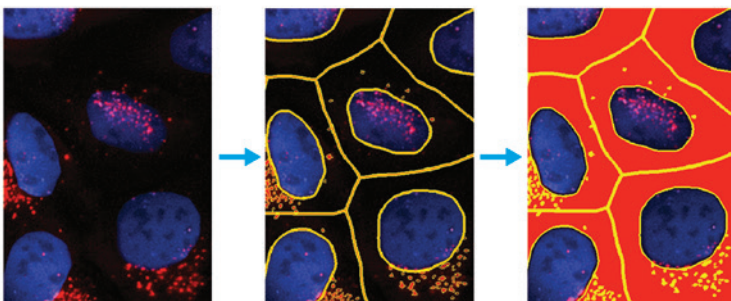
Automated, multiplate live-cell imaging and analysis

The Cytation 9 cell imaging multimode reader and Agilent BioTek BioSpa 8 automated incubator enable true multi-user, automated operation across up to eight microplates. This integrated system provides the precise environmental control and humidity required for long-term culturing and kinetic analysis of sensitive, complex cell models, including stem-cell-derived lineages and organoids. By automating routine processes, the Cytation 9 and BioSpa 8 deliver continuous, reliable data for your most demanding live-cell research applications.



Augmented microscopy—from image capture to publication-quality data

The Cytation 9 and Gen5 work together to provide a true "set it and forget it" experience. Unlike traditional microscopes, this integrated platform provides seamless, end-to-end control with automatic capture, processing, and analysis. Simply set your protocol and click **Run**. Gen5 software generates publication-quality results, such as graphs and data, completing your entire microscopy workflow—from sample to final data—in a single software package.



Powerful image processing and analysis

No need to process and analyze images one by one on a dedicated computer. In Gen5, preprogram your analysis tasks and walk away.

Image processing: Stitching, Z-projection, deconvolution, digital phase contrast.

Image analysis: Cell count, confluence, cytoplasm analysis, intracellular analysis, subpopulation analysis, signal translocation, and much more.

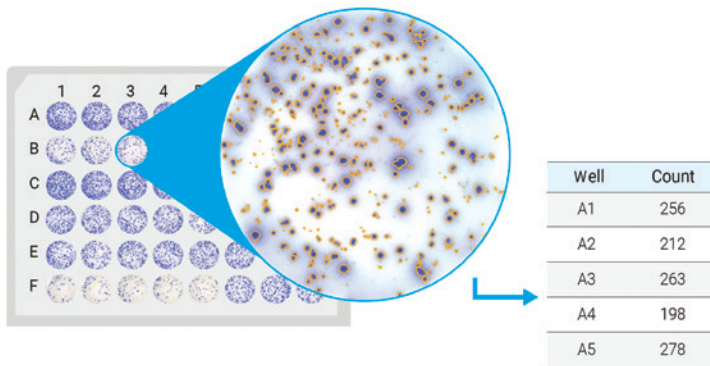
1	1	2	3	2	1	2	3
A	1989	13885	1157	A			
B	1960	3703	16597	B			
C	13209	3132	1629	C			

Hit picking—combining multimode detection and imaging saves time and data storage

(1) The plate reader quickly identifies GFP-positive wells.

(2) Only GFP-positive wells are imaged, saving both time and computer memory.

Acquiring large imaging datasets requires extended acquisition time and data storage capacity. The hit picking function solves this by allowing you to simply set the hit picking criteria and rapidly prescreen the microplate using the plate reader optics. The Agilent BioTek Cytation 9 then automatically images only the wells that meet your criteria, drastically cutting acquisition time and minimizing your data storage footprint.



ELISpot imaging

The upright imaging module of the Cytation 9 cell imaging multimode reader can be used to automate assays such as ELISpot, in which cell secretions are rendered visible through the use of a colorimetric reaction.

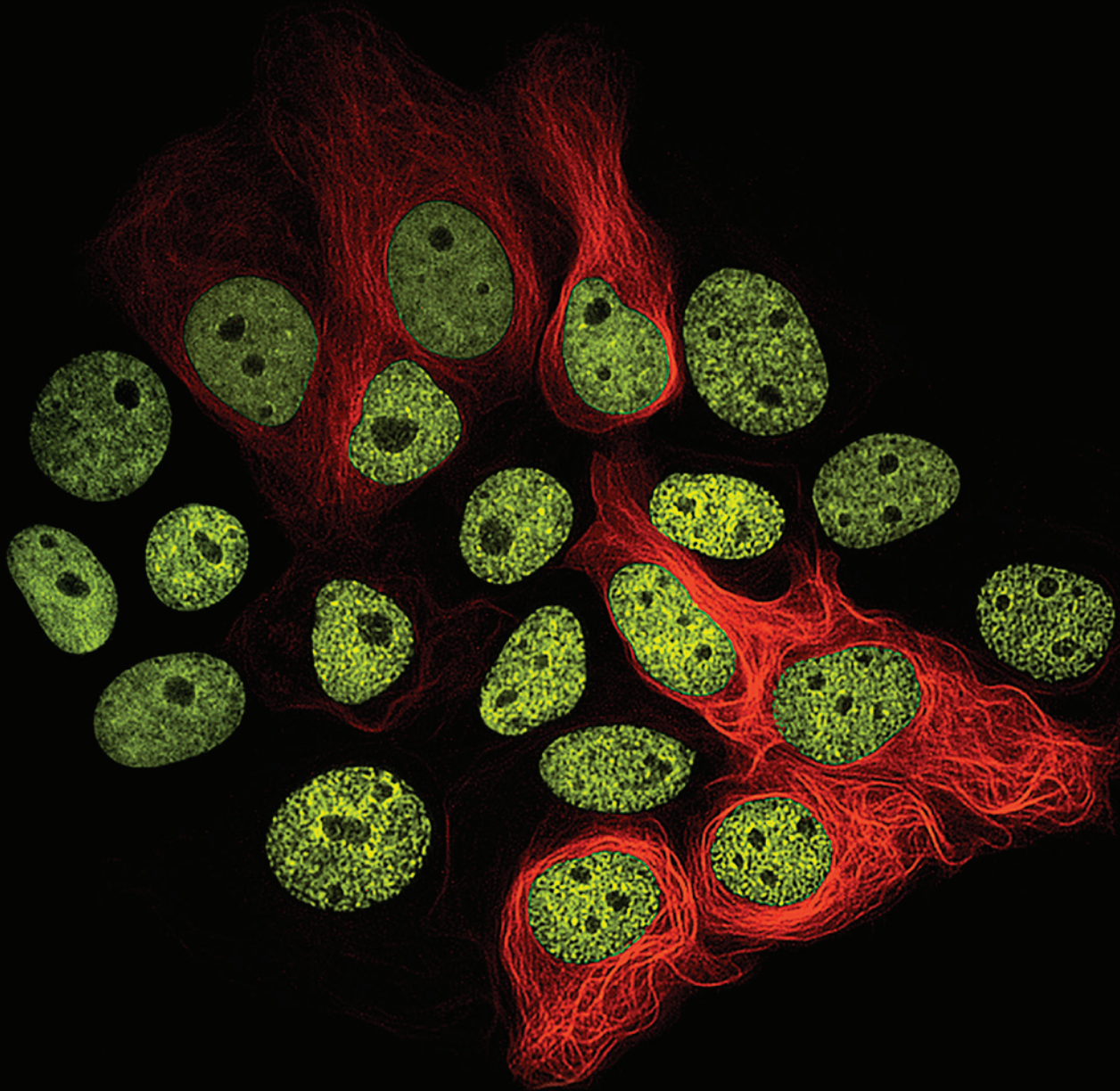
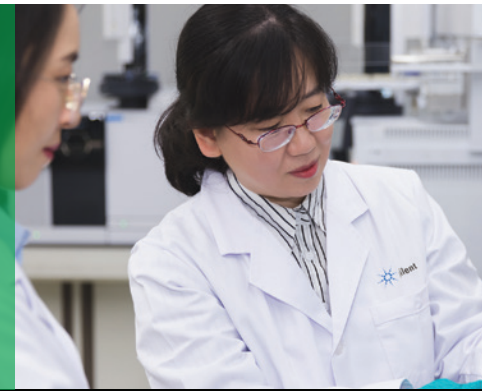
The Cytation 9 fully automates image acquisition, processing, image analysis, and object count.



Microvolume analysis with the Take3 microvolume plate

Achieve microvolume analysis by integrating the Take3 microvolume plate with the Agilent BioTek Cytation 9 cell imaging multimode reader. Take3 microvolume plates are compatible with UV-Vis absorbance or fluorescence measurements. Measure 16 to 48 samples in a single run and save time compared to single-sample devices. Gen5 data analysis software has customizable, prebuilt protocols for ssDNA, dsDNA, RNA, and protein quantification in 2 μ L sample volumes.

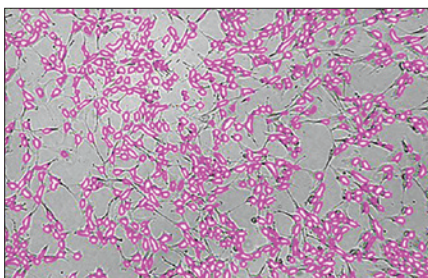
Applications



U2OS cells at 20x, with YFP and mCherry.

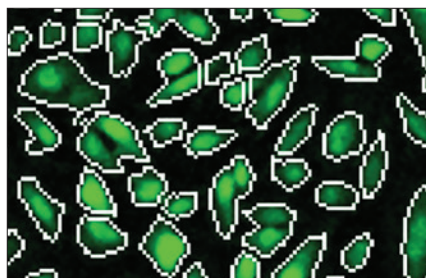
Applications—imaging

Label-free cell counting



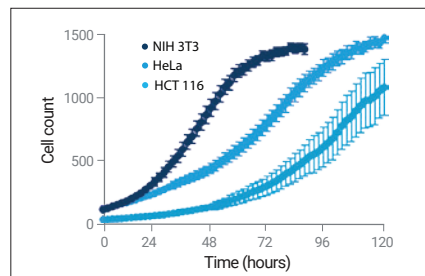
Use high-contrast brightfield imaging for accurate, label-free cell counting.

Calcium kinetics



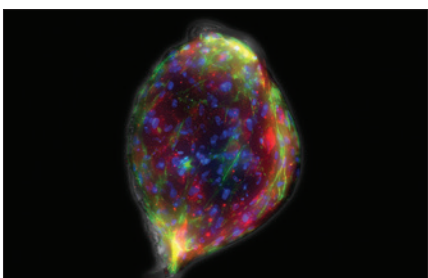
The Cytation 9 dual-reagent injectors enable capture and analysis of fast inject/image assays like calcium kinetics.

Time-lapse live-cell imaging



Cell proliferation studies require controlled environments. Cytation 9 automates image capture to through analysis.

3D cell culture



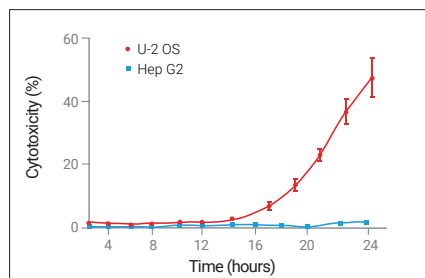
Automate 3D spheroid and tumoroid assays using environmental control and Agilent BioTek Automated Media Exchange with an Agilent BioTek liquid handler. Z-stack, Z-project, and analyze with Gen5 software.

Microbiology



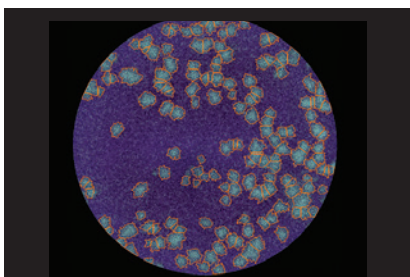
High-magnification objectives, multiple imaging channels, and advanced image analysis capabilities enable analysis of a variety of microorganisms.

Cell viability/toxicity



Classic live/dead assays use fluorescent probes or membrane-impermeable dyes; viability or toxicity is measured in real time.

Virology



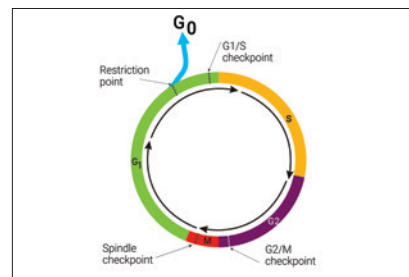
The flexibility of the Cytation 9 and Gen5 software enable a variety of assays to be imaged and analyzed when performing viral research.

Whole-organism imaging



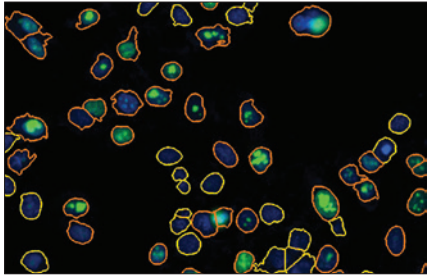
Essential to current drug screening methods, whole organisms like zebrafish and nematodes are effectively imaged and analyzed with Cytation 9 and Gen5 software.

Cell cycle



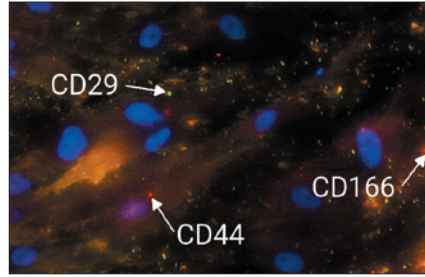
The progression of cell growth through the cell cycle is a highly regulated process. Automated histogram analysis of objects facilitates threshold definition.

Transfection efficiency



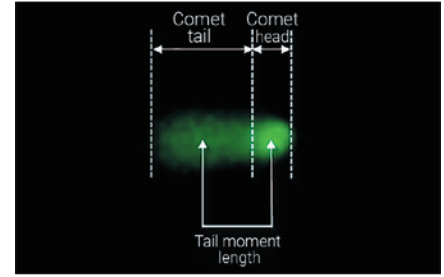
Cytation 9 provides intuitive image analysis for automating the assessment of transfection efficiency.

Stem cell differentiation



Cytation 9, when integrated with the Agilent BioTek BioSpa 8 automated incubator and MultiFlo FX multimode dispenser, automates analysis of the lengthy process of stem cell differentiation to find highly physiologically relevant cells for drug discovery.

Genotoxicity

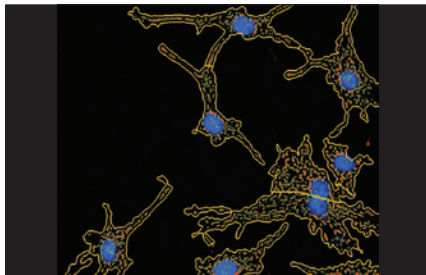


The destructive effects of mutagens, such as high-energy radiation and chemicals on nuclear DNA, are measured with the comet assay and H2AX immunofluorescence assays. Cytation 9 is an ideal imaging platform for these assays.

Advanced Gen5 image analysis modules

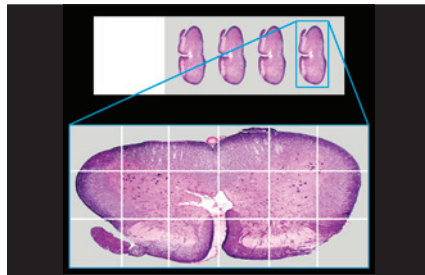
Beyond the powerful analysis features in Gen5 software, specialized add-on modules expand method-specific analyses to automate processes and generate advanced metrics.

Spot counting



The Agilent BioTek Gen5 spot counting module enables users to gain information about a second set of objects within primary and/or secondary mask compartments, which are tied to the original primary mask data.

Automatic region of interest



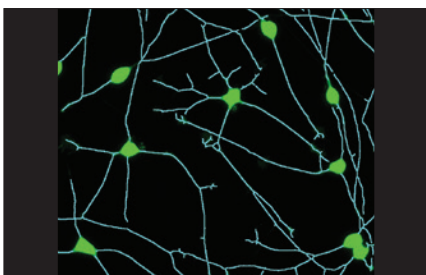
The Agilent BioTek AutoROI module is a three-step process to eliminate superfluous image capture. A low-magnification step quickly images the entire area. The regions of interest are automatically identified, and then imaged at high magnification.

Single object tracking



The Agilent BioTek Gen5 object tracking module provides the ability to track single objects over time. Relative motility can be visualized by selecting single cells or entire populations within an image. Calculated metrics include total distance, Euclidean distance, and mean, median, and maximum object velocity.

Neurite outgrowth



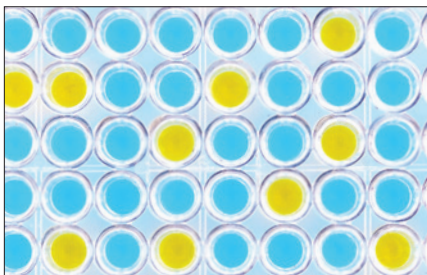
The Agilent BioTek Gen5 neurite outgrowth module accurately quantifies neuronal cell metrics and provides masking options including soma and neurite masks, along with skeletonized images. The module also accurately detects neuronal outgrowth in kinetically monitored, unlabeled live cells.



Agilent BioTek Gen5 data analysis software.

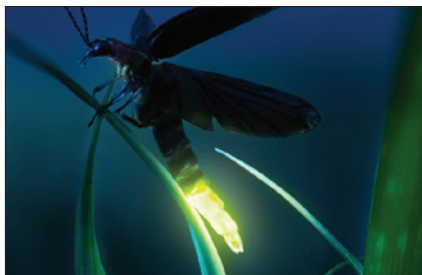
Applications—multimode detection

ELISA



ELISA methods with colorimetric, fluorescent, and luminescent substrates are easily detected with Cytation 9.

Luciferase reporter assays



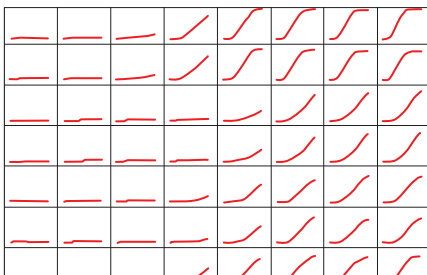
Luciferase-based reporter assays measure luminescent signal. This enables users to quantify the activity of factors that affect particular signaling pathways.

Nucleic acid and protein quantification



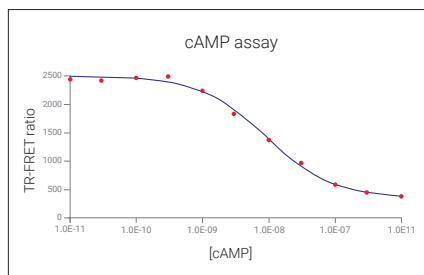
Nucleic acid and protein quantification assays can be executed by spectrophotometric or fluorescent determination with Cytation 9, in microplates or in microvolumes with the Agilent BioTek Take3 microvolume plate.

Cell growth



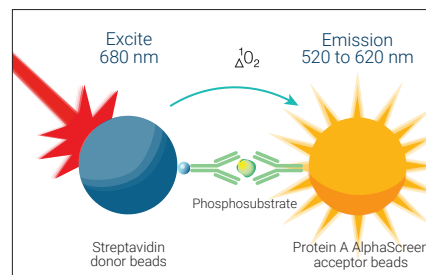
Microbial growth assays, such as those using yeast and bacteria, can be measured by several methods, including turbidimetric measurements with Cytation 9.

TR-FRET



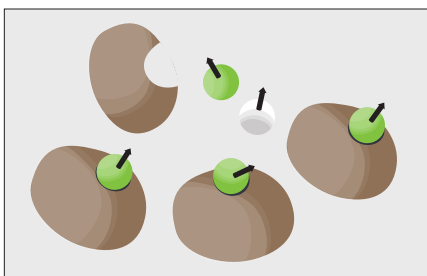
TR-FRET and HTRF are sensitive, robust methods. Cytation 9 and Gen5 provide excellent sensitivity for optimal Z-factors.

AlphaScreen



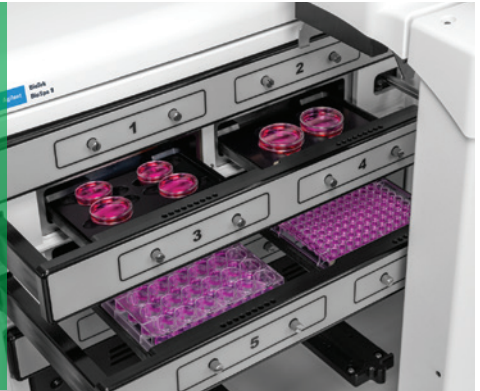
AlphaScreen technology provides high signal-to-background ratios. The measurable energy transfer is emitted in the 520 to 620 nm range.

Fluorescence polarization



Fluorescence polarization is widely used in research labs to study molecular binding or dissociation events, and in screening labs to screen for drug candidates.

Peripherals



BioSpa 8 automated incubator

The Agilent BioTek BioSpa 8 environmental controls and labware handling capabilities, integrated with Cytation 9, facilitate long-term live-cell kinetic imaging processes for up to eight microplates and other labware.



BioStack microplate stacker

The Agilent BioTek BioStack microplate stacker manages up to 50 microplates for automated imaging or multimode operations, including de- and relidding of microplates used with cell-based assays.



CO₂/O₂ controller

The compact gas controller maintains control of CO₂ and O₂ levels in the Cytation 9 to support live-cell assays.

Dual-reagent injector

The dual-reagent injector module enables fast inject/read processes. Angled injector tips protect cell monolayers from shear stress during injection.



AutoScratch wound making tool

The Agilent BioTek AutoScratch wound making tool automatically creates reproducible scratch wounds in cell monolayers grown in 24- or 96-well microplates, used for cell migration and invasion studies.



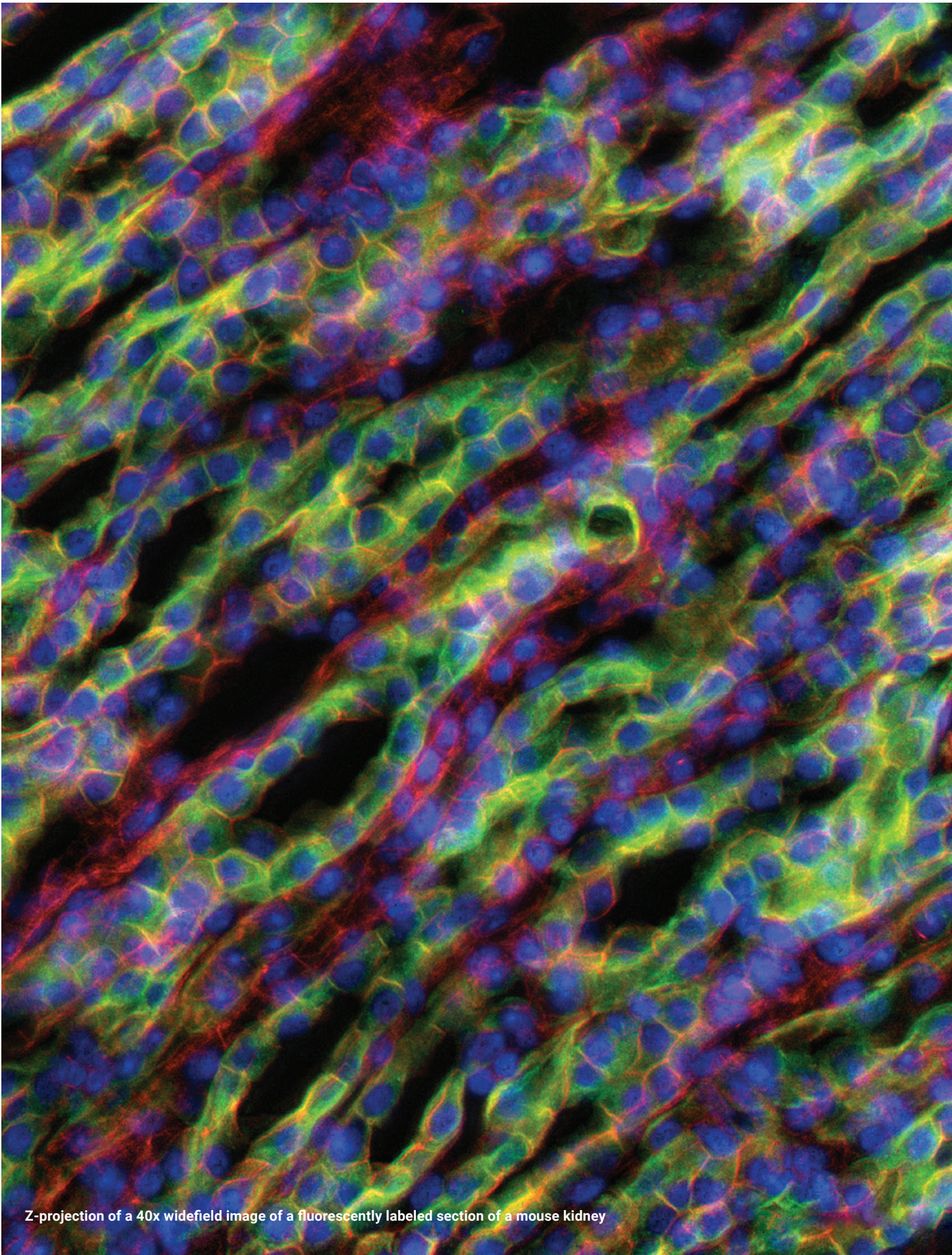
Peltier cooling module

The Peltier cooling module cools the interior of the Cytation 9 after incubated processes, enabling efficient switching between multiple applications without unwanted temperature influences. The cooling module maintains environmental stability, allowing less than a 1 °C rise in ambient temperature, regardless of external and internal temperature fluctuation.



Take3 microvolume plate

Measure multiple 2 µL samples at a time with the Agilent BioTek Take3 microvolume plate, which is used with Cytation 9. Microvolume nucleic acid and protein quantification are fast and easy.



Z-projection of a 40x widefield image of a fluorescently labeled section of a mouse kidney

Agilent BioTek Cytation 9 cell imaging multimode reader

Technical Details



General	
Microplate Types	Monochromator: 6- to 384-well plates Filters: 6- to 1536-well plates Imaging: 6- to 1536-well plates
Other Labware Supported	Microscope slides, Petri and cell culture dishes, cell culture flasks (T25), counting chambers (hemocytometer), Take3 microvolume plates
Environmental Controls	Temperature control to 65 °C Integrated CO ₂ /O ₂ controller available Peltier cooling module available
Shaking	Linear, orbital, double-orbital
Automation	Agilent BioTek BioSpa 8, Agilent BioTek BioStack, and third-party automation capability
Modularity and Configurability	The Cytation 9 offers a modular architecture with three base configurations: microscopy only (inverted, upright, or both), multimode plate reading only, or a combination of both. Some modules can be added as laboratory needs change.
Software	Gen5 microplate reader and imager software (included) Optional software and modules: Gen5 Image+: Image analysis Gen5 Image Prime: Advanced image analysis Gen5 Secure, Gen5 Secure Image+, Gen5 Secure Image Prime: Enable 21 CFR Part 11 compliance Neurite outgrowth module, AutoROI module, spot counting module, and object tracking module
Imaging (Inverted Microscope)	
Imaging Modes	Fluorescence, brightfield, high-contrast brightfield, color brightfield, phase contrast
Imaging Methods	Single color, multicolor, montage, time lapse, Z-stacking
Light Source	Long-life LEDs
Camera	Sony CMOS, 16-bit grayscale, WFOV
Imaging Objectives Capacity	1.25x to 60x magnification and six-position automated turret
Imaging Filter Cubes	More than 20 filter and LED cubes available
Imaging Filter Cube Capacity	Four color channels plus brightfield and dedicated laser autofocus position
Autofocus Methods	Image-based and laser autofocus
Imaging (Upright Microscope)	
Imaging Modes	Reflected- and transmitted-light microscopy
Camera	Color camera, WFOV
Lenses	Finder scope, 2x, 4x, and 8x magnification
Multimode Detection	
Detection Modes	UV-Vis absorbance Fluorescence intensity Luminescence Fluorescence polarization Time-resolved fluorescence Alpha
Reading Methods	Endpoint, kinetic, spectral scanning, well-area scanning

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