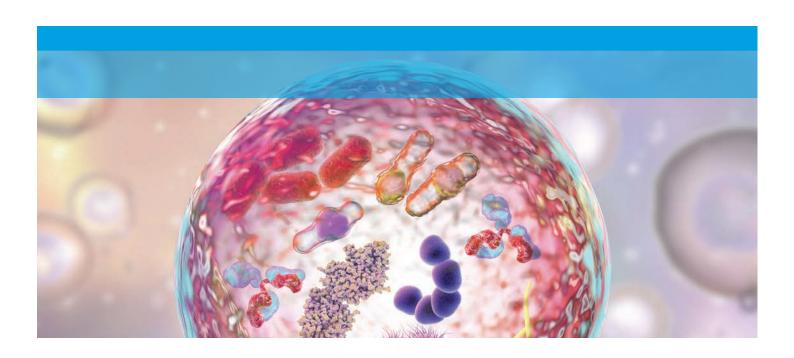


# Supercharge Your Cell Research

Agilent cell analysis portfolio













# Shorten the Path to Your Next Life-Changing Breakthrough

Advances in cell imaging, real-time cell analysis, and flow cytometry are rewriting the rules in the race against disease. But to take full advantage of these technologies, your lab must maximize workflow efficiency and produce robust data. The right partner can help your lab accelerate discoveries.



#### Improve our world through more effective treatments and a higher quality of life

Uncovering unique cell biology. Discovering novel drug targets. Improving pre-clinical toxicology. Pioneering the next generation of immunotherapies.

Cell analysis can help you understand, predict, and influence the factors that determine cell health, proliferation, function, and death. But conducting numerous investigations and compiling multiple data sets is complicated, and can tax the resources of any lab.

You can simplify and enhance your workflows—while enabling both beginners and experts to generate meaningful insights—by partnering with Agilent.

#### **Applications and industries**

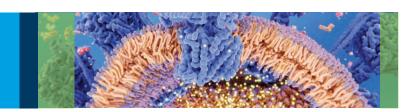
- Cancer biology. Investigate dynamic cancer cell strategies with innovative cell analysis technologies.
- Cell biology. Optimize cell culture workflows and assays and perform robust quantitative analysis.
- Cell health and viability. Measure biological processes such as proliferation, apoptosis, and cytotoxicity.
- Cell metabolism. Analyze key indicators of healthy cell function and predict cellular performance for in vitro disease models.
- Cell migration and invasion. Measure chemotaxis, as well as cell migration and invasion in real time.
- Cell signaling. Identify biochemical targets and develop therapeutic strategies.
- Drug discovery and development. Expand your drug pipeline with cell-based assays.
- Histology and whole-organism imaging. Deliver deeper insight into diverse sample types.

- Immunology. Understand the function and activity of immune cells and gain deeper insight into the mechanisms behind diseases and infections.
- Immuno-oncology. Assess real-time cell function, phenotype, and fate to develop therapies that harness the immune system to attack cancer cells.
- Microbiology. Quantify microbial growth, perform multiparametric profiling of microbial cultures, and detect microbial contamination.
- Molecular biology and biochemical. Achieve robust results for ELISA, nucleic acid and protein quantification, and enzyme kinetics.
- Stem cell biology. Acquire mechanistic insights into disease and test the liability and effectiveness of new drugs.
- Toxicology research. Directly measure genotoxicity, mitochondrial toxicity, cytotoxicity, and cardiotoxicity with high specificity and sensitivity.
- Virology. Gain insights into virus-host cell interactions using robust cell analysis.



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## Agilent Seahorse XF analyzers

#### Transform your measurement of energy metabolism

To fully understand what drives cell phenotype and function, you must consider the influences of energy metabolism.

Examining energy metabolism has led to new insights into biological function. In fact, some of the decade's most significant discoveries have hinged upon elucidating the role of energy metabolism in cellular processes.

Seahorse XF analyzers enable robust measurements of mitochondrial activity, glycolysis, and ATP production rates in a microplate format. Capabilities include:

- Automatic calculation of oxygen consumption and proton efflux rates
- Label-free detection of discrete bioenergetic changes to live cells—in real time
- Compatibility with both adherent and suspension cells, as well as isolated mitochondria
- Instrument-controlled gentle mixing, measuring, and compound injections
- High sensitivity for analyzing as few as 5,000 cells per well
- Temperature controlled to maintain cell health and kinetics



## Seahorse XF imaging and normalization system

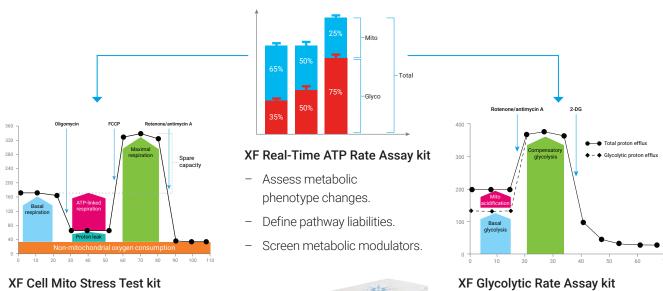
By integrating cell count normalization into Wave software, this turnkey solution improves data interpretation and makes your XF analysis more successful than ever.

www.agilent.com/lifesciences/ normalization



## Deepen your insights into cell function with Agilent Seahorse XF assay kits

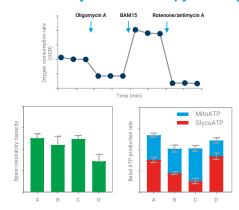
#### Core assays for therapeutic discovery and research



Get a complete mitochondrial respiration profile with multiparametric output.

- Quantify glycolytic activity in real time.
- Reveal insights not evident with an end-point lactate accumulation assay.

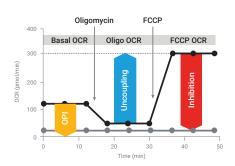
#### Customized assay for cell therapy development



#### XF T Cell Metabolic Profiling Assay kit

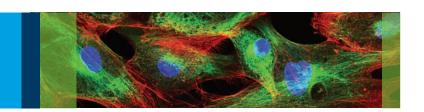
Reveal T cell metabolic signatures that are critical for antitumor activities.

#### Turnkey solution for preclinical safety studies



#### XF Mito Tox Assay kit

Identify mitochondrial toxicity with high sensitivity, specificity, and a simplified assay protocol.



## Agilent xCELLigence RTCA

#### Label-free real-time cell analysis

Discover what you've been missing between endpoints. The Agilent xCELLigence real-time cell analyzer (RTCA) harnesses impedance-based biosensor technology to continuously monitor cell health, behavior, and function with high accuracy, sensitivity, and reproducibility. All without the use of labels and in real time.

#### Simply robust and powerful

The xCELLigence portfolio offers 9 different configurations with a range of throughputs (16-, 48-, 96- or 384-well formats) and functionalities. Perform quantitative monitoring of cardiomyocyte beating (milliseconds), receptor signaling (minutes), cell migration and invasion (hours), and cell growth and killing kinetics (hours/days) in real time without the use of labels. Experience robust assays, from discovery and process development to manufacturing quality control.

## Control unit with state-of-the-art RTCA software

- Simple assay setup
- Streamlined real-time data acquisition and analysis
- Powerful immunotherapy analysis tools
- Support for 21 CFR
   Part 11 compliance



#### **RTCA ePlate**

- Biocompatible biosensor ePlate
- Glass or PET substrate
- Compatible with co-culture device



#### xCELLigence RTCA analyzer

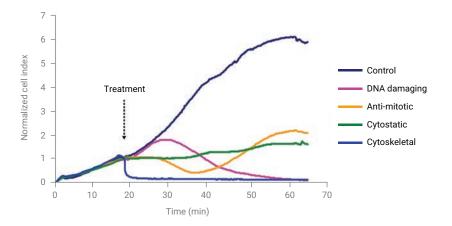
- Processing data in real time
- Validated performance

#### xCELLigence RTCA station

- Interfacing with biosensor ePlate
- High temporal resolution (seconds)
- Independent cradles for multiple users
- Designed for culture incubator

#### Explore a wide range of applications

- Cell migration and invasion
- Compound-mediated cytotoxicity
- Virus-mediated cytopathogenicity
- Immune cell killing and potency
- Functional monitoring of GPCR signaling
- Cell adhesion and spreading
- Cell proliferation and differentiation
- Barrier function disruption and recovery
- Continuous quality control of cells



## Agilent xCELLigence RTCA eSight

# Get two instruments and twice the results from one powerful system

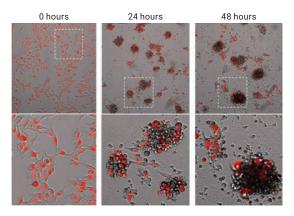
The xCELLigence RTCA eSight provides a simple, automated workflow that generates crucial data around the clock—all within your incubator. With real-time live cell analysis, and the combination of impedance (label-free) and imaging (brightfield, red, green, and blue fluorescent channels), you can easily monitor and quantify kinetic cellular data over the course of seconds, hours, or days. Five cradles, supporting up to 96-well capability, ensure that the experience is multi-user friendly while securing a high-throughput, information-rich, and efficient workflow.



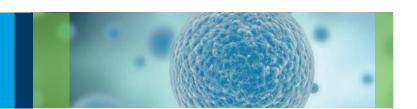
## Multiplex impedance-based data with live cell imaging for increased confidence

xCELLigence RTCA eSight adds live cell imaging for increased confidence in your cell analysis and conclusions. Go a step further in your research and easily monitor and quantify assays spanning immune cell activation, proliferation, clustering, potency, target cell killing, as well as viral CPE and drug discovery. Uncover unique drug mechanisms of action and cellular phenomena by multiplexing with both impedance and imaging—all in the same well.

Capture precious cellular and biological events as they happen, and never miss a crucial time point again.



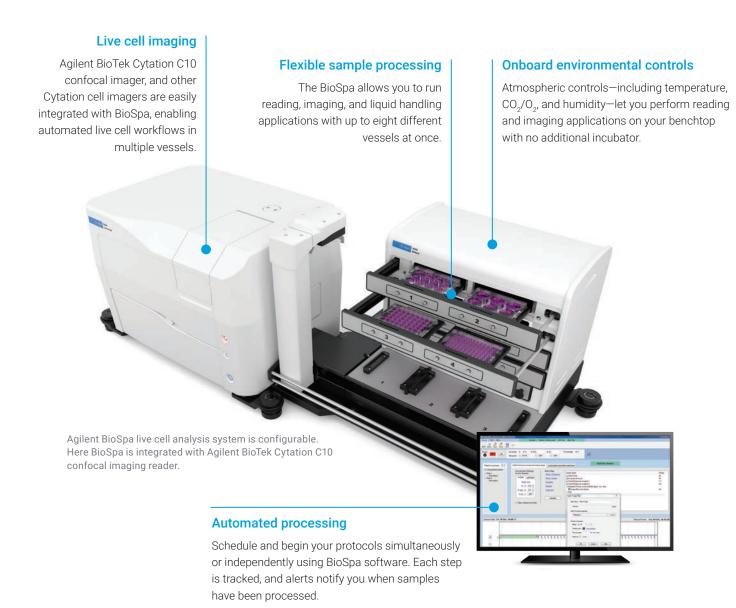
Seeing is believing: Fully unlock your CAR-TCR T cell research by visualizing and quantifying kinetic events ranging from mono-culture to complex co-culture experiments. Users can select 5x, 10x, or 20x objectives.



## Agilent BioTek BioSpa live cell analysis system

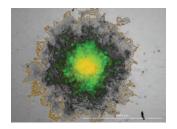
#### Multiplate processing with walkaway convenience

The Agilent BioTek BioSpa live cell analysis system lets you process up to eight vessels for hours, days, or weeks at a time. Onboard atmospheric controls enable kinetic reading and image processing on a laboratory benchtop. You can also perform live cell imaging, including liquid handling under sterile conditions, by placing the system into a laminar flow hood.

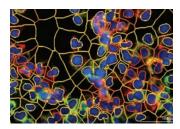


#### Automate live cell workflows

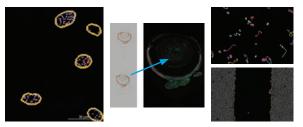
BioSpa integration with BioTek liquid handlers and imagers creates an automated system for long- and short-term live cell assays. Gen5 software provides the data capture and analysis for imaging operations.



3D cell structure details are captured with the z-stacking and z-projection features in Gen5.



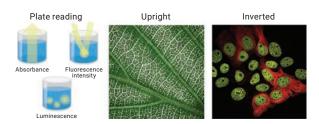
Gen5 tools like nuclear and cytoplasmic masking define regions of interest for detailed analysis.



Gen5 offers advanced analysis including spot counting, auto ROI, object tracking, and scratch wound healing.

#### Featured technologies

The Cytation product line offers a range of microscopy and imaging capabilities, including upright and inverted microscopes, confocal and widefield imaging, plus multimode plate reading.



The BioSpa live cell analysis system fits compactly in a laminar flow hood, enabling long-term kinetic live cell assays under sterile conditions.



#### Related instruments and accessories

BioSpa integrates with several Agilent BioTek instruments to enable a variety of automated workflows. Key components of a system can include:

#### Cytation C10/7/5/1 cell imaging multimode readers

Confocal and widefield automated imagers and plate readers

#### Synergy Neo2 hybrid multimode reader

Fast, accurate multimode plate reading, up to 1536 wells

#### MultiFlo FX multimode dispenser

Automates liquid handling steps with peristaltic and syringe pump delivery

#### 405 TS washer

Rapid 96- and 384-well plate washing

#### EL406 washer dispenser

Multifunctional liquid handling



BioSpa with MultiFlo FX (left) and Cytation 5 (right)

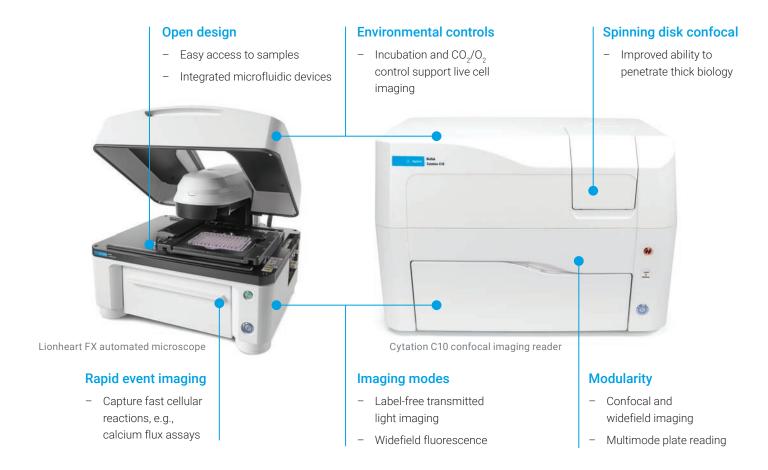




## Agilent BioTek cell imagers and microscopes

#### Bring your science to life

Capture spectacular images, z-stacks, montages, and time-lapse sequences using different vessels, including Agilent cell culture and imaging microplates. These instruments support a wide range of microscopy workflows, including live cell kinetics.



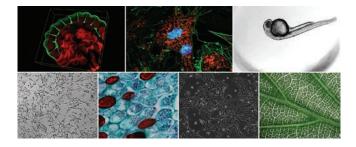


#### Cytation cell imaging multimode readers

The Cytation line offers a broad range of of imaging modes, plus multimode reading across many application areas and budgets.

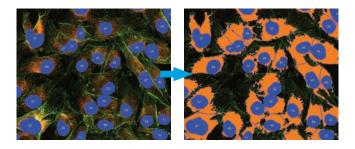
#### Capture with confidence

Execute a wide range of widefield and confocal imaging applications including live- and fixed-cell biologies.



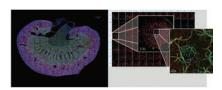
#### **Analyze with certainty**

Use Gen5 to analyze and obtain a wealth of data on a population, single cell, or subcellular level.

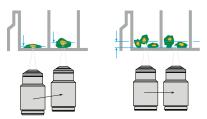


#### Featured technologies

The wide field of view camera provides fast imaging. Tissue sections on slides (below left) and in microplates (right) can be imaged from low to high magnification.

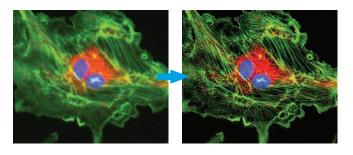


The BioTek proprietary laser autofocus offers speed, excellent reproducibility, and accuracy, while preventing phototoxicity and photobleaching.



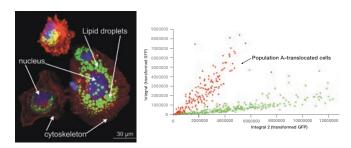
#### Process and optimize images

Image-processing tools provided by Gen5 software improve your final results, delivering publication-quality images.



#### Publish without external software

Automatically create scatterplots, histograms, and  $IC_{50}/EC_{50}$  curves from generated data.



#### Related instruments and accessories

Enhance the live cell imaging and microscopy capabilities of Agilent BioTek instruments with an extensive range of objectives, filters, and peripherals, including those featured here.

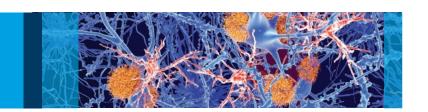






Agilent BioTek Autoscratch automatically creates scratch wounds

Explore the entire Agilent BioTek imaging and microscopy instrument portfolio at www.agilent.com/lifesciences/biotek-imaging



## Agilent BioTek liquid handling and automation

#### Save time, space, and money

Why use multiple instruments for washing and reagent dispensing? With their small footprint, Agilent BioTek washers, dispensers, and combination washer dispensers are the ultimate in modularity. These affordable, compact instruments are designed to offer the best performance, low maintenance, ease of use, and powerful functionality.

Add up to two peristaltic pumps and two dual-syringe pumps to the plate washer to dispense up to six reagents on a single instrument.

No-contact reagent dispensing

#### **Automate seamlessly**

The Agilent BioTek BioStack is compact and versatile, with rapid plate exchange to increase throughput. BioStack enables automated workflows in microplates and slides.



Agilent BioTek 406 FX washer dispenser

Agilent BioTek BioStack

#### Plate washing

The dual-action manifold allows separate control of aspirate and dispense tube positions for optimized 96- and 384-well plate washing.

### Modularity enables application versatility

Agilent BioTek liquid handling and automation instruments are designed for ultimate versatility, with modules that enable expanded applications as your research needs change. The wide range of applications includes:

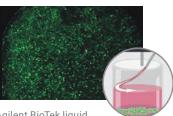
ImmunocytochemistryHigh-content screening

Magnetic bead assays
 Cell seeding

 Automated media exchange for 3D cell structures - ELISA







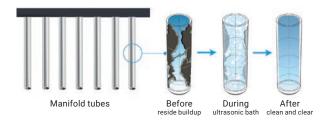
The angled tips available for the Agilent BioTek liquid handlers ensure maximum cell retention.



The Agilent BenchCel integrates with several Agilent BioTek instruments to create an automated ELISA workstation.

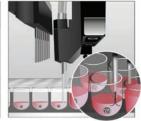
#### Featured technologies

The Agilent BioTek Ultrasonic Advantage feature of the 406 FX washer dispenser automatically maintains clog-free dispense and aspirate tubes.



The Agilent BioTek MultiFlo FX offers automated media exchange (AMX) technology to provide gentle media exchange for cells and spheroids.





#### Related instruments and accessories

Agilent BioTek liquid handlers integrate with Agilent BioTek BioSpa and microplate imagers and readers to enable fully automated live cell workflows.



The Agilent BioTek BioStack integrates with Agilent BioTek liquid handlers, imagers, and readers for increased throughput and walkaway convenience of multiplate processes.



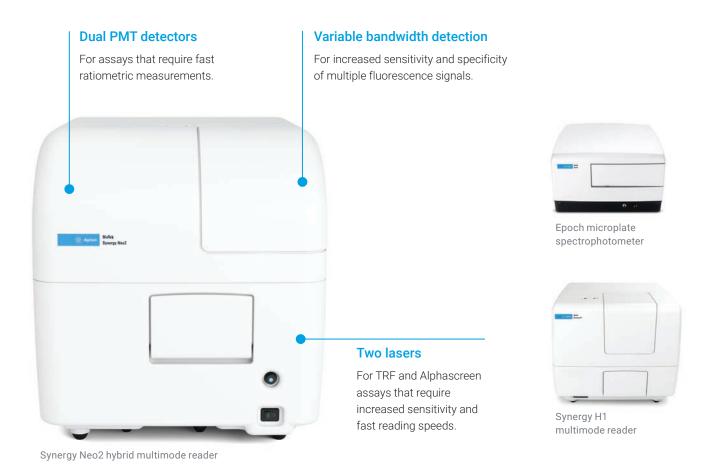
See the complete portfolio of Agilent BioTek liquid handling products at www.agilent.com/lifesciences/biotek-automation



## Agilent BioTek microplate readers

#### Experience ultimate flexibility and performance

Configurable Agilent BioTek microplate readers offer a range of modules, options, and accessories to address low, medium, and ultrahigh throughput applications. Absorbance readers deliver excellent performance and functionality from basic ELISA to advanced detection chemistries. Multimode readers support monochromator-based, filter-based, and combination methods—enabling detection of UV-Vis absorbance, luminescence, fluorescence, fluorescence polarization, time-resolved fluorescence (TRF), FRET, and Alphascreen assays.



#### Modular detection covers multiple applications

The modular and upgradable BioTek multimode readers offer expanded capabilities as your research needs change. The applications for these readers are broad-ranging and include:

High-throughput screening
 ELISA

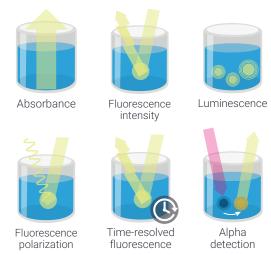
Biomarker assaysHTRF

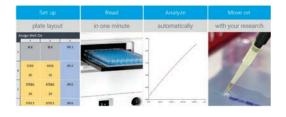
Nucleic acid quantification – Microbial growth assays

Protein quantification – Alphascreen assays

Rapid kineticsFRET

Applications in 6- to 1536-well microplates are accommodated, depending on the selected microplate reader.

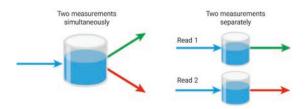




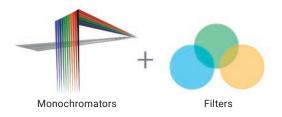
Agilent BioTek Gen6 data analysis software—with many preprogrammed assays—makes plate setup, reading, and analysis seamless and efficient, so you can move on with your research.

#### Featured technologies

Synergy Neo2 has dual PMTs, enabling rapid, simultaneous measurements for FP, FRET, and TR-FRET assays.



The combination of filters and monochromators in Synergy H1 and Synergy Neo2 provides flexibility and performance.



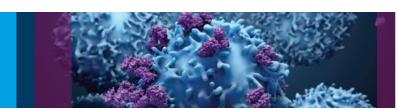
#### Related instruments and accessories

The Agilent BioTek Take3 plates enable microvolume nucleic acid measurements in the Epoch and Synergy microplate readers.



The reagent injector for Synergy Neo2 and Synergy H1 has straight tips for vigorous inject/read assays, or angled tips for gentle dispensing to cell layers.





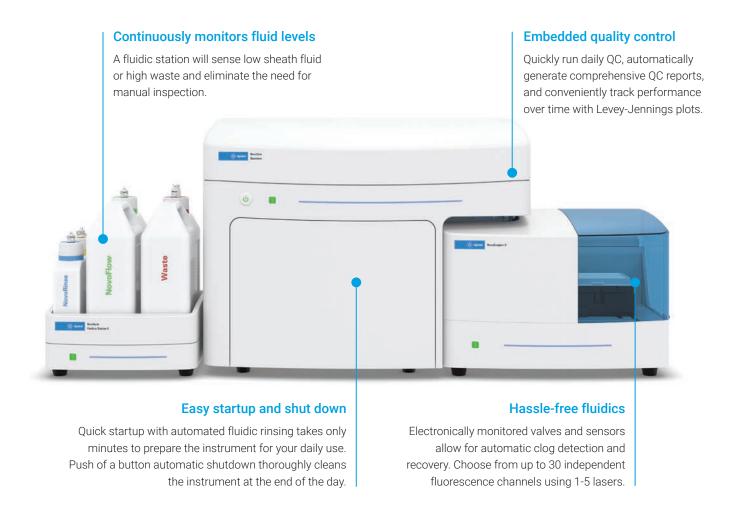
## Agilent NovoCyte flow cytometers

#### Find answers to your flow cytometry frustrations

Built on a proven platform, NovoCyte Penteon, NovoCyte Quanteon, and NovoCyte Advanteon flow cytometers deliver expanded capabilities that accommodate today's sophisticated, multicolor flow cytometry assays.

Put more flow into your flow cytometry with features like these:

- High-sensitivity and resolution
- Smart-design functionalities and walkaway convenience
- Automation-ready capabilities for high-throughput needs
- Wide, seven-log dynamic range that eliminates the need for routine detector adjustments
- Side-scatter resolution of 100 nm, which allows for small particle detection
- Exceptional fluidic stability and precision volumetric measurement for absolute counts in every sample





#### Flow cytometry doesn't have to be complicated

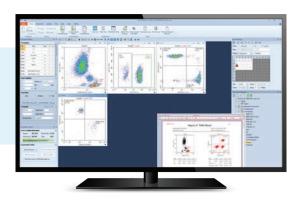
Instrument clogging. Endless detector setting adjustments. Different software programs for acquisition and data analysis. If you use flow cytometry to analyze cell characteristics, then you've probably dealt with all of these hassles and more. But here's the good news: NovoCyte flow cytometers put your flow frustrations to rest.

- Begin—and end—your day with ease. It takes just minutes to prepare the
  cytometer for use, and prescheduled shutdown includes an automatic
  deep cleaning.
- Keep clogs at bay. Electronically monitored valves and sensors allow for automatic clog detection and recovery.
- Reduce the need for manual inspections. The cytometer automatically detects low fluid or high waste.
- Maintain quality. An automatic QC test monitors instrument performance.
- Intuitive and easy-to-use software. No steep learning curve to focus on data generation.



The NovoSampler Q, which can be integrated into different automation platforms, efficiently processes FACS tubes (using a 40-tube rack) and 24-, 48-, 96-, and 384-well plates.

Streamline your sample acquisition, data analysis, and reporting. The latest edition of our industry-leading NovoExpress software provides an exceptional user experience.





## Agilent microplates

#### Meeting the needs of today's cell analysis procedures

Today's cell analysis workflows incorporate multiple steps and components, including test molecule storage, sample purification, dilution and transfer of assay components, and analysis of each final test condition. The Agilent portfolio of reagent reservoirs, storage/assay plates, filter bottom microplates, and imaging microplates provide the solutions you need to perform each portion of your assay procedure.

### Compound library storage

Store compound libraries and large numbers of biological samples safely and efficiently. All storage plates are sealable and automation friendly. www.agilent.com/microplates/storage\_plates

#### Assay component dilution and transfer

Perform serial dilutions for  $IC_{50}/EC_{50}$  evaluations. Easily hold cells, media, and assay reagents before transferring with manual or automated pipetting. www.agilent.com/microplates/reservoirs

#### Filter-based assay performance

Customize filter-based applications by optimizing sample preparation and final yield output.

www.agilent.com/microplates/filter\_plates

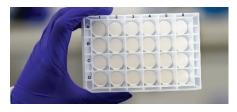
#### Image-based cellular analysis

High-quality transmitted light and fluorescence imaging is possible using clear or black-walled microplates with coverslip bottom thickness in 96- or 384-well formats.

www.agilent.com/microplates/imaging\_plates











#### **Custom solutions**

Your application is unique. While there are plenty of standard microplate options to choose from, the right microplate for your needs could be a variation of an existing product or a completely new design. Learn more about our custom solutions. www.agilent.com/microplates/custom\_plates



## Move your science forward, faster

Where can you find the support, services, and expertise that will give you the confidence to pursue deeper insights into diseases and their potential therapies? Look no further than Agilent. Our broad, multidisciplinary community puts your mission-critical goals at the center of everything we do.

#### Agilent CrossLab services for cell analysis

Unplanned instrument downtime can waste precious samples and set your research back weeks or months. Control costs and power your workflow productivity by partnering with Agilent CrossLab services. Together, we can help you maximize uptime through predictive diagnostics, control service costs, and produce publication-ready data.



View or download the brochure at www.agilent.com/lifesciences/cell-analysis-crosslab



#### An extensive support network

Scientific achievement depends upon the union of experimental design, instrumentation, and analysis. Agilent field application scientists (FAS) provide unparalleled support, and can assist you with experimental planning and assay optimization. From predemonstration through ownership, our FAS team is focused on your research goals and ideas.

Learn more about Agilent FAS at

www.agilent.com/lifesciences/fasteam

#### **Compliance services**

Data integrity requirements are more stringent than ever, and regulatory audits are growing more frequent by the day. As leaders with a long history of working with regulated laboratories, Agilent recognizes how this changing landscape impacts you. That's why we developed systems, software, and services that work together to help you handle these challenges with confidence.



#### **Agilent Value Promise**

We guarantee you at least 10 years of instrument use from your date of purchase. Otherwise, we will credit you with the residual value of the system toward an upgraded model.

Learn more:

www.agilent.com/lifesciences/cellanalysis

Find a local Agilent customer center in your country: www.agilent.com/chem/contactus

USA and Canada: 1-800-227-9770 agilentinquiries@agilent.com

Worldwide technical support:

cellanalysis.support@agilent.com

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