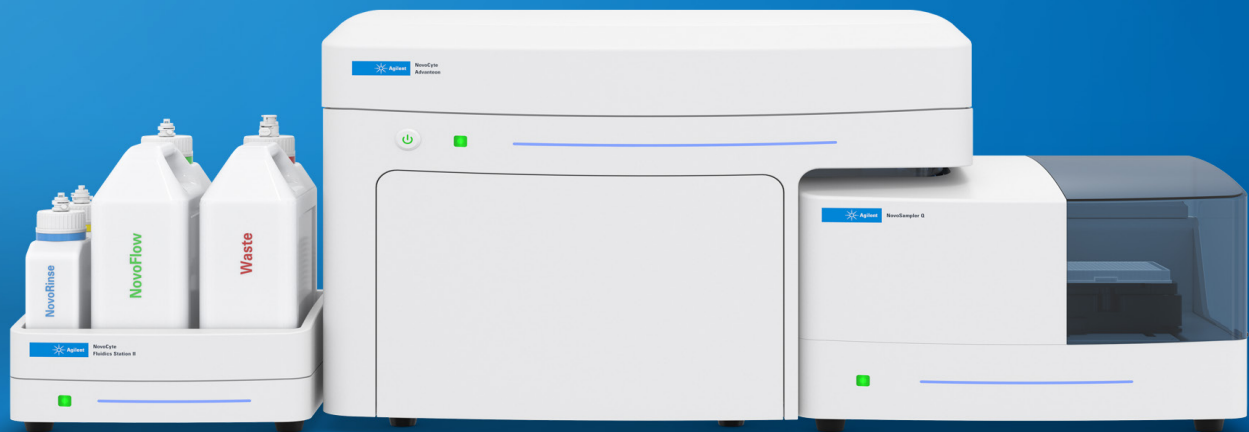# Performance You Can Trust with the Flexibility You Need

Agilent NovoCyte Advanteon flow cytometer

Advancing the Boundaries of Flow Cytometry

The Agilent NovoCyte Advanteon flow cytometer builds upon the highly successful Agilent NovoCyte and NovoCyte Quanteon to provide an advanced set of capabilities for the most demanding scientists, yet is remarkably simple to operate. The NovoCyte Advanteon can accommodate today's high-end and increasingly sophisticated multicolor flow cytometry assays, and provides the flexibility of 1, 2, or 3 laser options, with up to 21 fluorescence channels and 23 independent detectors. The NovoCyte Advanteon is customizable to meet your specific needs, and is easily upgradeable to meet your future demands. When throughput is essential, add Agilent NovoSampler Q to your laboratory automation platforms. It can efficiently process both FACS tubes (using a 40-tube rack) and 24-, 48-, 96-, and 384-well plates. For the NovoCyte Advanteon, the intuitive and industry-honored Agilent NovoExpress software is now even more advanced, providing an exceptional user experience in data acquisition, analysis, and reporting.

- Expanded customization and upgrade potential with up to 21-color options using up to 3 lasers
- Sample recovery mode serves to collect unused sample at end of acquisition
- Superior sensitivity and resolution
- Intuitive and powerful software for data acquisition, analysis, and reporting
- Smart-design functionalities and walk-away operation simplifies your workflow
- Automation-ready for high-throughput needs
- Wide, 7.2-log dynamic range eliminates the need for routine detector adjustments
- High-speed collection of up to 100,000 events/second
- Accurate absolute cell count in every experiment, which eliminates the need for reference beads

Experience the Advantage of Performance and Flexibility

Up to 21 colors, plus forward and side scatter

With up to 21 fluorescence channels, the NovoCyte Advanteon offers tremendous flexibility in panel design, allowing more data to be collected per run. Assessment of T-cell state and function is just one critical example for researching cell-based immunotherapies using multicolor staining panels. Here, we used the NovoCyte Advanteon to show T-cell differentiation, monitor T-cell exhaustion, and measure cytokine proliferation from PBMCs following activation, all in one experiment.
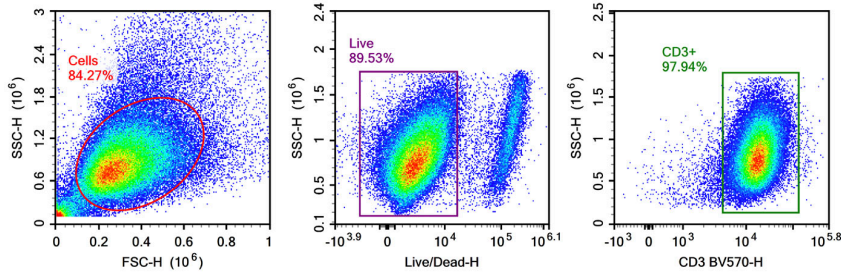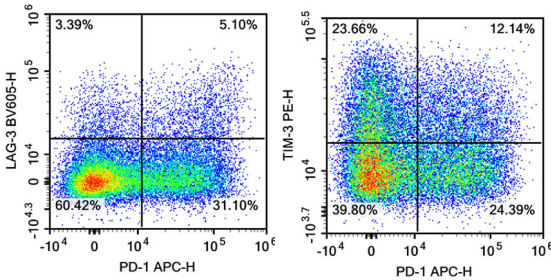

T-cell differentiation
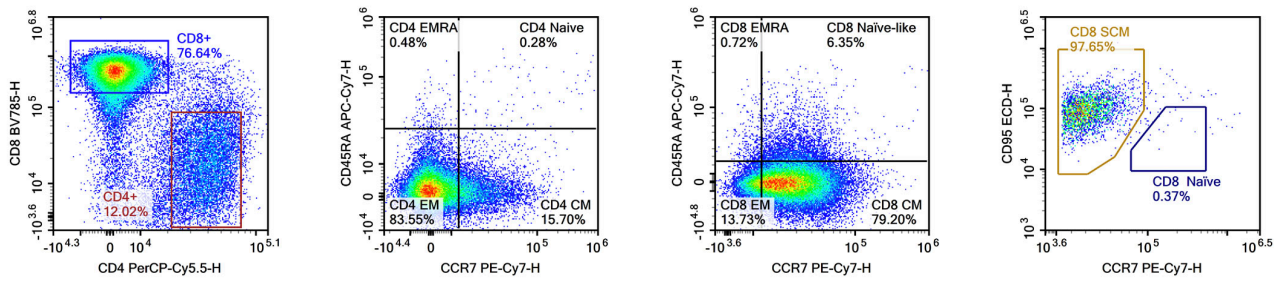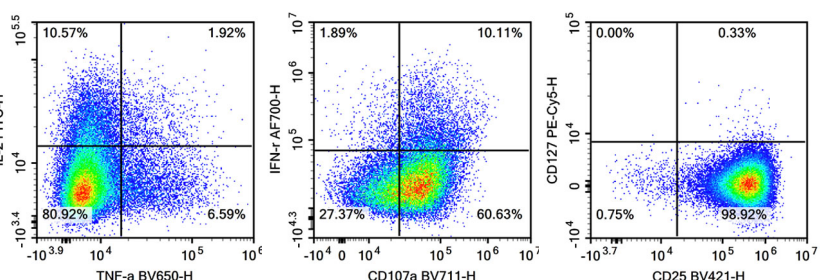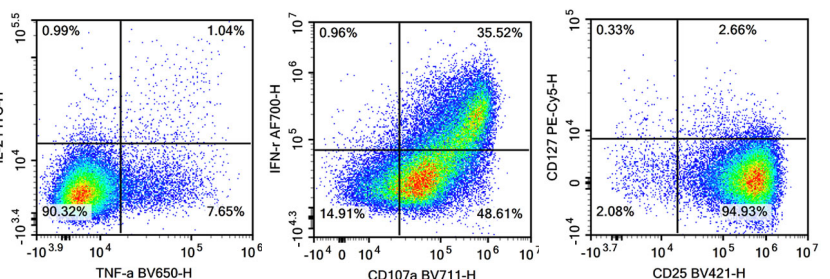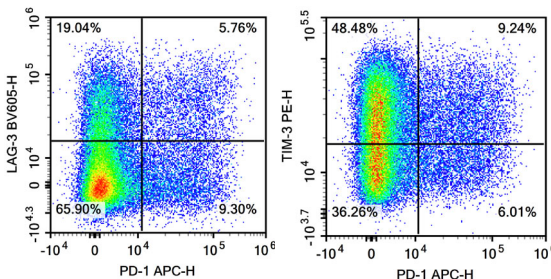

CD4+ T Cells

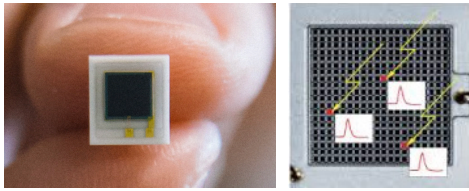### Exhaustion   Cytokine production

CD8+ T Cells

A 16-color T-cell immunophenotyping panel with peripheral blood mononuclear cells (PBMCs) that were isolated from normal blood and stimulated with 5 μg/mL anti-CD3, 2 μg/mL anti-CD28 and 100 ng/mL IL-2 for 9 days before flow cytometry analysis on the Agilent NovoCyte Advanteon.

The Ultimate Photodetector

Our silicon photomultiplier delivers photon-level sensitivity

Silicon photomultipliers (SiPM) are solid-state, semiconductor devices. With a compact array of avalanche photodiodes operating in unison, the innovative optical design within the NovoCyte Advanteon incorporates 21 independent SiPM, which collect light on each and every channel, with sensitivities that far exceed the traditional PMTs.
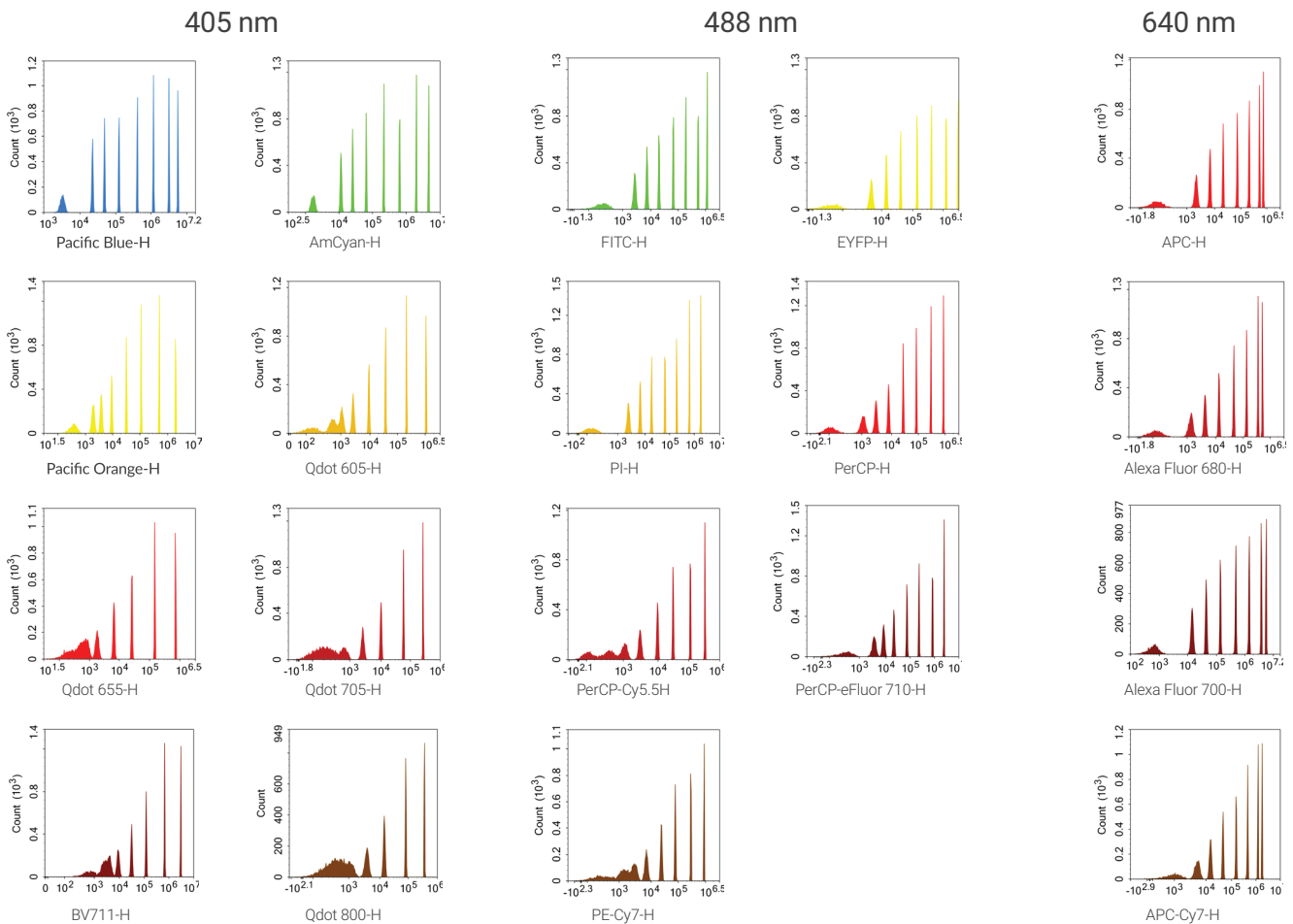
Advantages of SiPM

– Superior photon detection sensitivity

– High gain and high quantum efficiency

– Instantaneous warm-up and fast response

– Robust and long lifespan

– High durability
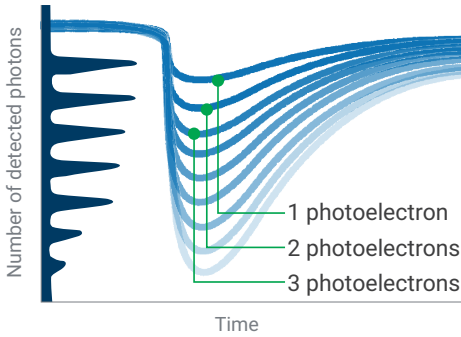
Actual image of SiPM and schematics to show its photon-level sensitivity as well as its arrangement as an array of avalanch photodiodes.

High-performance fluorescence detection to resolve the dimmest of signals

405 nm — Pacific Blue-H, AmCyan-H, Pacific Orange-H, Qdot 605-H, Qdot 655-H, Qdot 705-H, BV711-H, Qdot 800-H

488 nm — FITC-H, EYFP-H, PI-H, PerCP-H, PerCP-Cy5.5H, PerCP-eFluor 710-H, PE-Cy7-H

640 nm — APC-H, Alexa Fluor 680-H, Alexa Fluor 700-H, APC-Cy7-H

Superior scatter resolution to detect small particles

NovoCyte Advanteon scatter detection optics and signal processing electronics have been optimized to resolve particles down to 0.1μm in size. With such superior resolution, platelets, bacteria, and various submicron particles can be readily identified and analyzed.
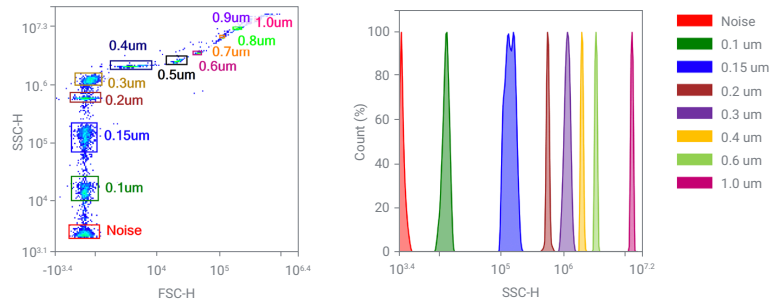
NIST particle size standards run on NovoCyte Advanteon displayed in a two-dimensional density plot or as a histogram showing the SSC resolution down to 0.1 um.

Flexible and upgradeable configurations

With "smart" filter sets, the NovoCyte Advanteon always knows when a filter is changed, provides instantaneous feedback, and reports accordingly.

Lasers	405 nm	488 nm	561 nm	640 nm	Max. No. of Fluorescence Channels
1		✓			7
			✓		6
2	✓	✓			15
		✓		✓	11
		✓	✓		13
3	✓	✓		✓	19
	✓	✓	✓		21
		✓	✓	✓	17

Consistent results, fast or slow

The fluidic feedback control mechanisms found on the NovoCyte Advanteon consistently maintain exceptionally steady flow rates. The superior stability across a wide range of sample flow rates provides consistent results under variable operating conditions. As shown here, the CVs at different flow rates are dramatically improved over other systems on the market.
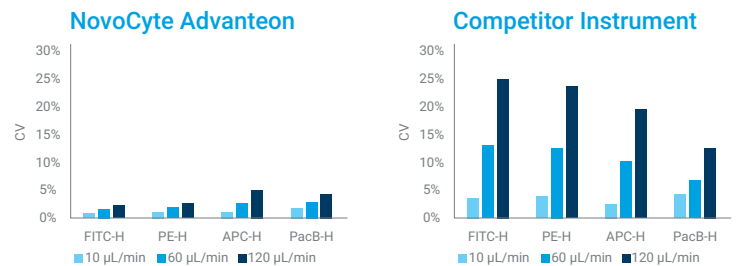

CVs measured with various flow rates

Streamline Your Experiment's Design, Setup, and Data Analysis with NovoExpress Software

Proven and now even more advanced

– Use one software interface for sample acquisition and data analysis

– Analyze acquired data in real time during flow experiment to maximize productivity and efficiency

– Customize statistical parameters with live updates when running samples

– Get powerful compensation tools with convenient adjustments that enable accurate pre- and post-acquisition compensation

– Enjoy the convenience of batch analysis and reporting

– Easily create publication-quality figures with customizable plot scales, fonts, and legends

– Export as FCS (3.0, 3.1) or CSV files, import FCS files for analysis
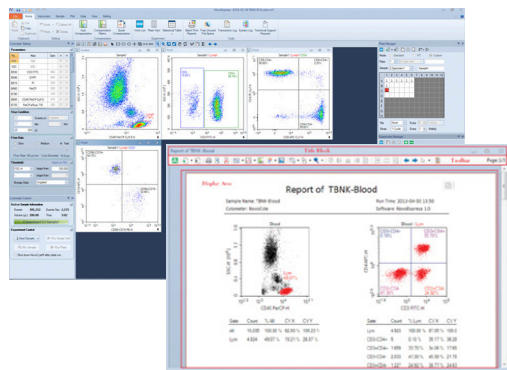
NovoExpress user-friendly interface for easy access to settings, analysis, reports, and plates/sample layout.
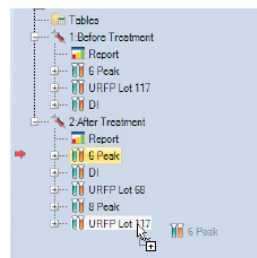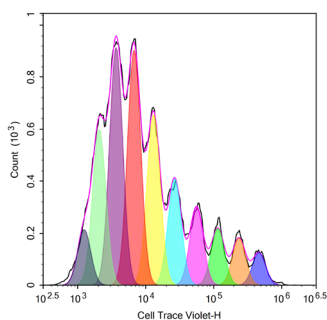

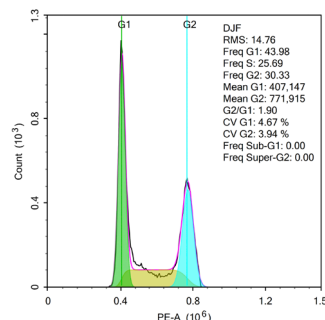Drag-and-drop functionality to copy settings/analysis

Batch statistics using the statistical table
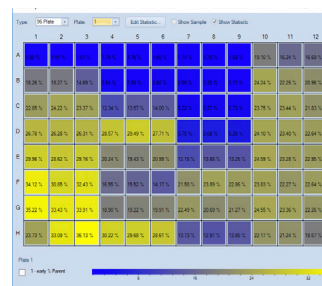
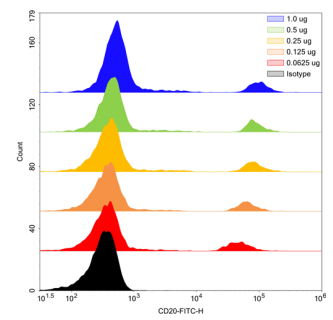## Advanced data analysis is made easy by NovoExpress

Cell proliferation modeling

Cell cycle analysis


Heat map data display

Histogram overlay (half-offset)

The NovoSampler Q

The ultimate autosampler with flexibility and performance built in

The NovoSampler Q is an automatic sample loading system that fulfills the requirement of high-throughput and automated sample acquisition. The NovoSampler Q seamlessly integrates with NovoCyte Advanteon, is exceptionally easy to operate, and delivers high-speed processing and analysis performance.

– Automated plate calibration eliminates the need for manual alignment and calibration

– Versatile loading modes with a variety sample formats (40 tube rack, 24/48/96/384 well plates), as well as customizable plates

– Rapid and high-throughput reading, in 20 mins or faster, for a 96-well plate and <80 mins for a 384-well plate

– Reliable orbital shaking keeps samples in suspension at all times, which is important in dosing experiments where cell settling would skew the results.

– Fully integrated barcode reader provides rapid sample identification and tracking
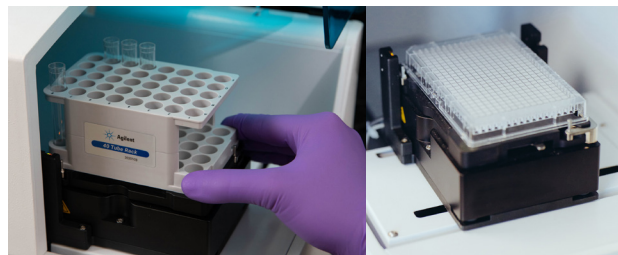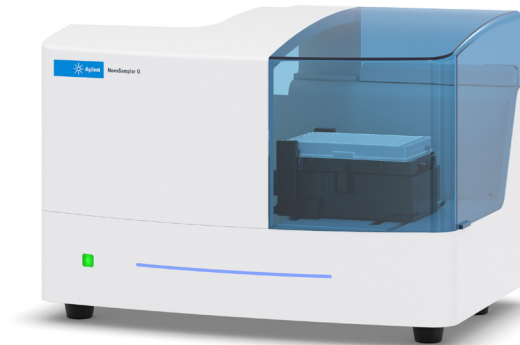
Automated, high-throughput sample acquisition

– Lab automation friendly with open architecture and developer-ready API

– Compatible with robotic handling platforms to easily incorporate flow cytometry into your automated laboratory

– Ideal for large screening applications, with long run times

– Optional large fluidic cart to minimize downtime for refilling sheath fluid and emptying waste

15 L sheath and waste tanks

Learn more:
www.agilent.com/chem/advanteon

U.S. and Canada
1-800-227-9770
agilent_inquiries@agilent.com

Europe
info_agilent@agilent.com

Asia Pacific
inquiry_lsca@agilent.com

Agilent
Trusted Answers