CYTEK®
TRANSCEND THE CONVENTIONAL

Cytek Aurora™ Evo Flow Cytometer

The New Standard For Full Spectrum Flow Cytometry

Introducing The Cytek Aurora Evo Flow Cytometer

Cytek® Biosciences is proud to introduce the Cytek Aurora Evo flow cytometer. Built on the proven technology of the Cytek Aurora and Cytek Northern Lights™ instruments, the Cytek Aurora Evo system continues to drive research breakthroughs with unmatched resolution, multicolor capabilities, and exceptional assay flexibility. The new Cytek Aurora Evo system has been reengineered to carry forward the proven reliability and reproducibility of the Cytek Aurora system, while introducing high-throughput and automation capabilities. Standardized instrument setup and hardware harmonization minimizes hands-on time for researchers to generate reproducible data, allowing more time to focus on data analysis and to advance scientific discovery.

As pioneers in spectral flow cytometry, Cytek is committed to continuing our leadership with our Full Spectrum Profiling™ (FSP®) technology. The Cytek Aurora Evo system was built to provide the same fluorescence capabilities, with new functionalities to meet the evolving needs of modern research laboratories.

New Features:

- High-throughput capabilities with high resolution that supports sample flow rates up to 200 µL/min using both tubes and plates
- Instrument harmonization, together with existing standardized instrument setup, supports reproducible data across systems, locations, and time
- Automated startup and shutdown to streamline workflows and improve lab efficiency
- Expanded dynamic range of scatter detection that enables the resolution of both small particles and large cells within a single system

Electronics

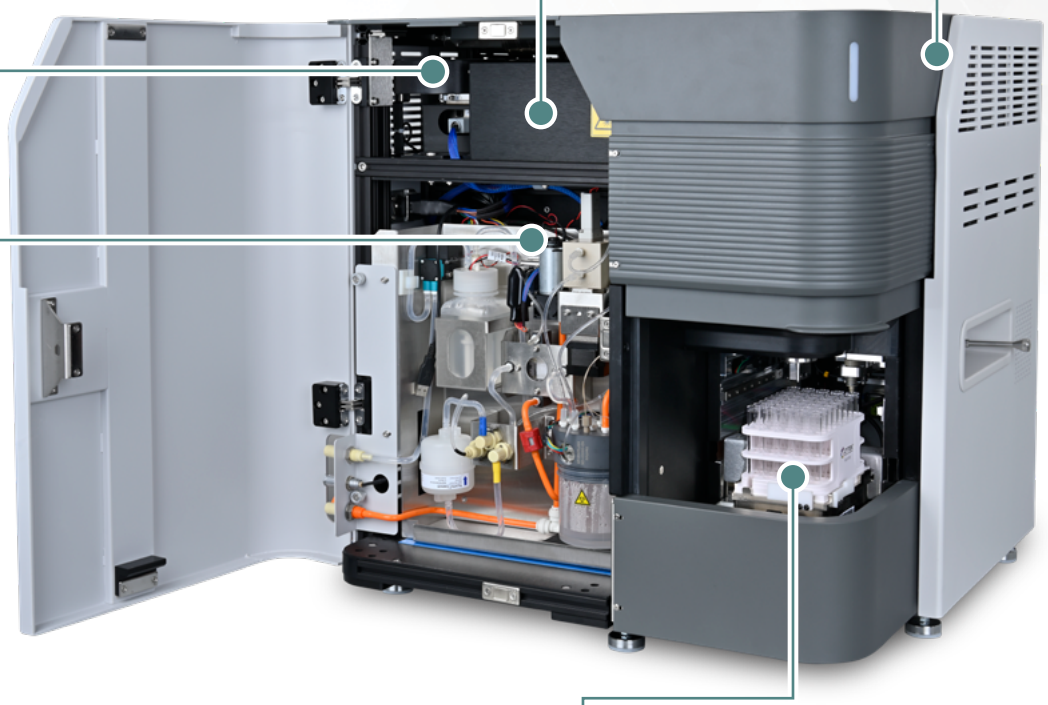
- Low noise electronics improves resolution of dim signals
- Automated instrument startup and shutdown

Lasers

- Flat-top excitation optics for consistent data across all flow rates

Detectors

- High efficiency detectors for high quality multi-dimensional data
- Large dynamic range of side scatter detection, resolving both small particles and large cells



Fluidics

- Built-in flow meter for absolute counting without beads
- Robust vacuum fluidics enabling flexibility of sample inputs and carriers

Loader

- Integrated sample loader compatible with 40-tube racks, 96-well plates, 96-well deep well plates, and 384-well plates

Software

- Separate modes to support conventional compensation and spectral unmixing
- Guided workflows to detect and extract autofluorescence with the Autofluorescence Explorer
- New comprehensive tools for 21 CFR Part 11 compatibility

FSP Spectral Workflow

Streamline And Simplify Your Workflow, From Panel Design To Data Analysis

Design Panel

Automate and optimize your panel design with the SpectroPanel™ algorithm in Cytek® Cloud; convert panels into experiment templates that can be used on the Cytek Aurora Evo system

QC And Instrument Setup

Pre-optimized, ready-to-use, CytekAssaySetting delivers quality multicolor data and improves data reproducibility between instruments

Acquire Single Color Controls

Collect full spectrum signatures for each fluorophore in your panel; store and share reference controls for reuse later

Full Spectrum Unmixing

Follow guided workflows for live unmixing, data QC, and autofluorescence extraction in SpectroFlo® software

Acquire And Analyze Unmixed Data

Generate multicolor data live, evaluate unmixing, then analyze directly in SpectroFlo software

Benefits Of FSP Technology

Cytek's FSP technology redefines flow cytometry, offering unmatched flexibility, resolution, and data quality. Unlike traditional filter-based systems, FSP technology allows experiment design based solely on laser configurations, eliminating the need for complex filter switching. The low-noise electronics and high efficiency detectors deliver exceptional signal resolution, enhancing detection of dim populations. With autofluorescence extraction and the capability to run high-dimensional assays, FSP technology enables researchers to analyze more parameters with confidence, expanding the possibilities for discovery and innovation.

Get More Data From Each Sample

Generate reproducible, high-quality data and extract deeper insights from precious samples

Autofluorescence Extraction

Guided workflows handle even the most complex samples with ease

Assay Flexibility

More options in panel design, perform analysis of small particles to large cells with the same instrument, evaluate simple assays with a few markers or more complex high-dimensional panels

High Resolution And High-Throughput

Consistent Resolution Across Flow Rates

The unique optical and electronics design of the Cytek Aurora Evo system enables exquisite sensitivity and resolution. The excellent signal-to-noise ratio holds true across low (15 µL/min), medium (30 µL/min), high (60 µL/min), ultra (100 µL/min), and max (200 µL/min) flow rates. This allows for consistent, accurate, and reproducible biological data even at high-throughput.

Figure 1

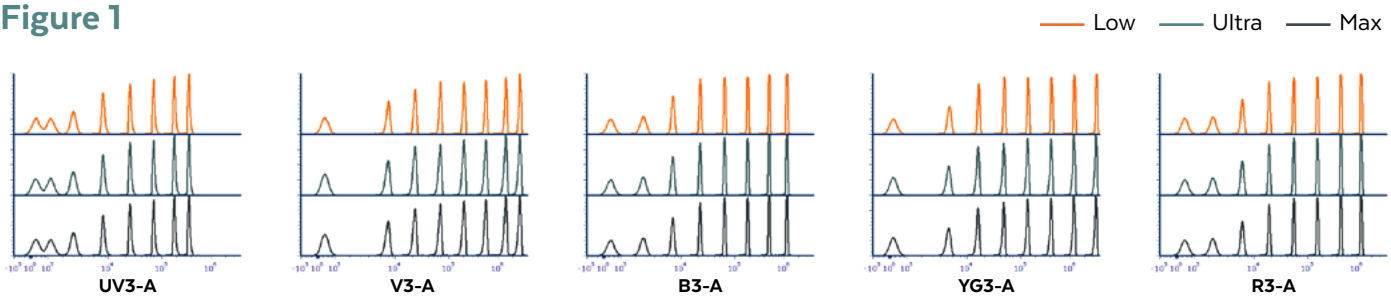


Figure 1: SPHERO™ Rainbow Calibration Particles (Spherotech, 8 peaks) were acquired at low (15 µL/min), ultra (100 µL/min), and max (200 µL/min) flow rates on a 5-laser Cytek Aurora Evo system. Data from the third detector of each laser was chosen to illustrate consistent resolution of all 8 peaks. Near identical peak profiles are demonstrated across all flow rates, highlighting the stability of the instrument under demanding high-throughput conditions, thus ensuring reproducible data regardless of sample acquisition speed.

Figure 2

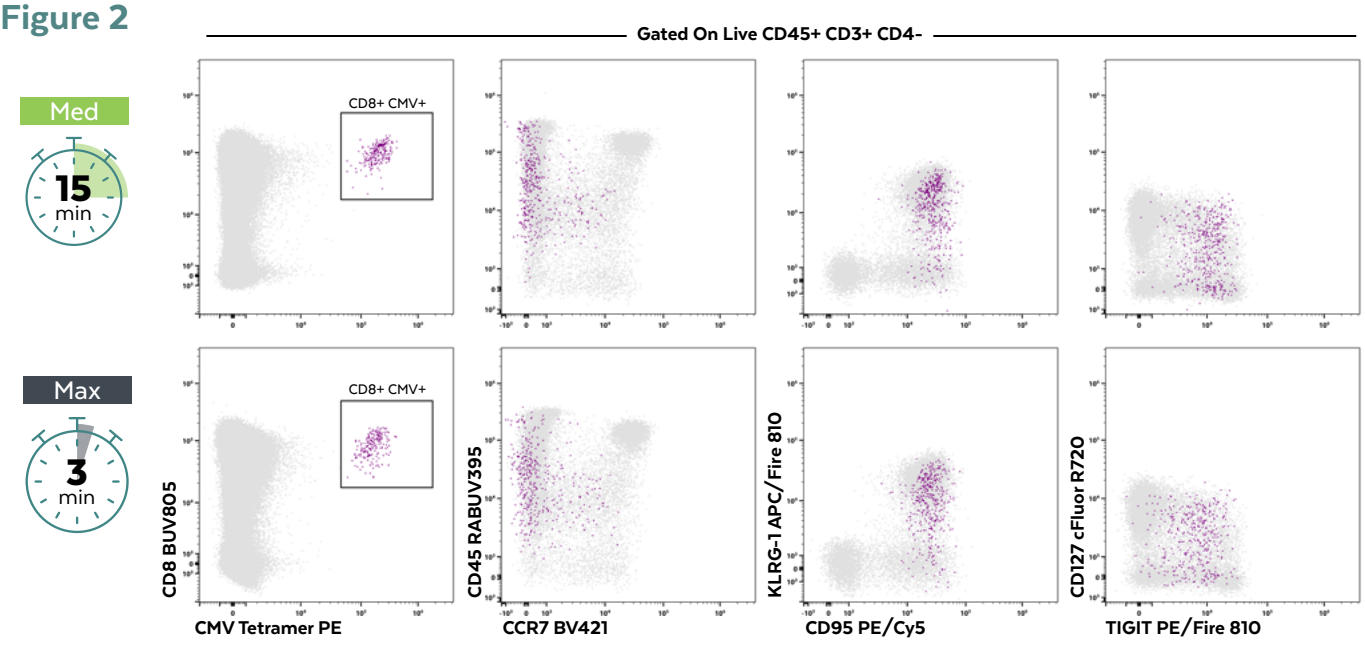


Figure 2: Utility of high sample throughput for detection of rare biological populations. The same biological sample was acquired at both medium (30 µL/min) and max (200 µL/min) flow rates, collecting over 5 million events for each acquisition. The rare population of interest, CD8+ Cytomegalovirus (CMV) tetramer positive cells, which represented approximately 0.01% of total events, were reliably detected at both speeds with equivalent resolution. High resolution and sensitivity at max flow rate allows users to reduce acquisition time without sacrificing confidence in rare event detection.

High-Dimensional Data Is Reproducible Across Flow Rates

Figure 3A

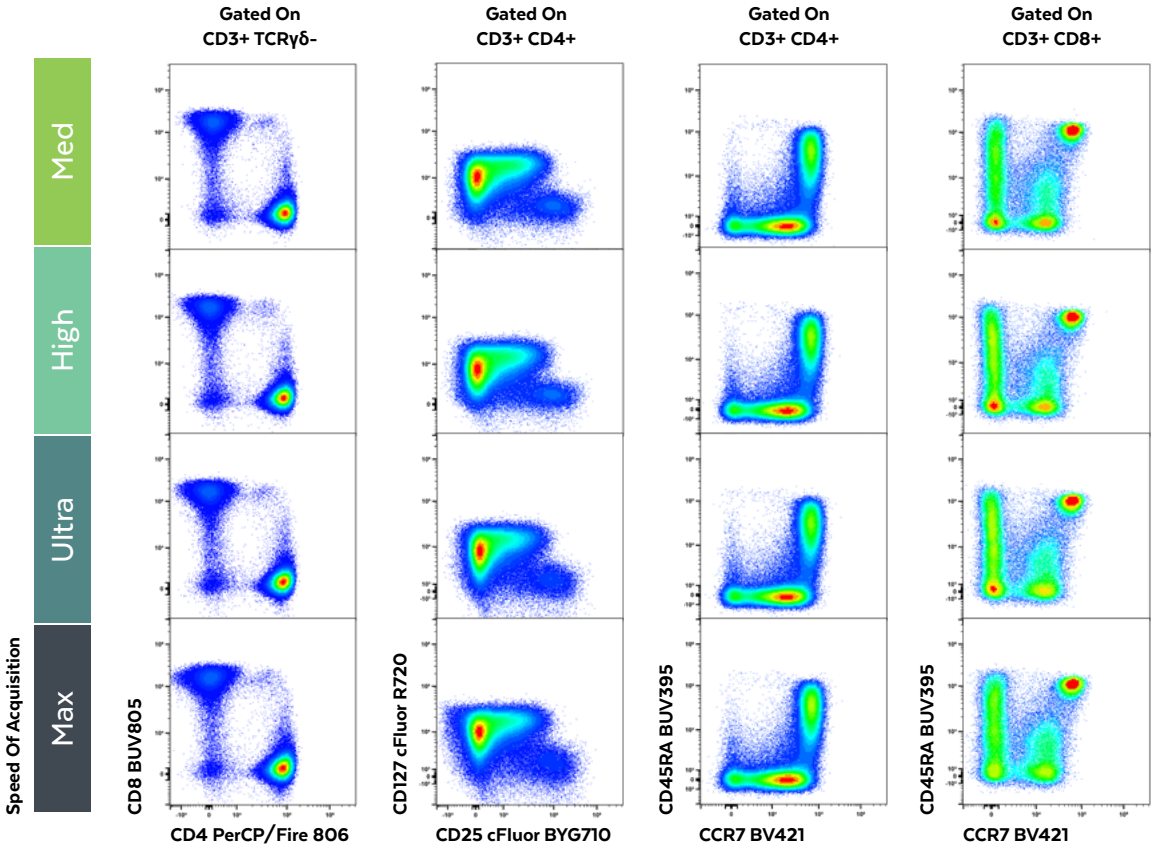


Figure 3B

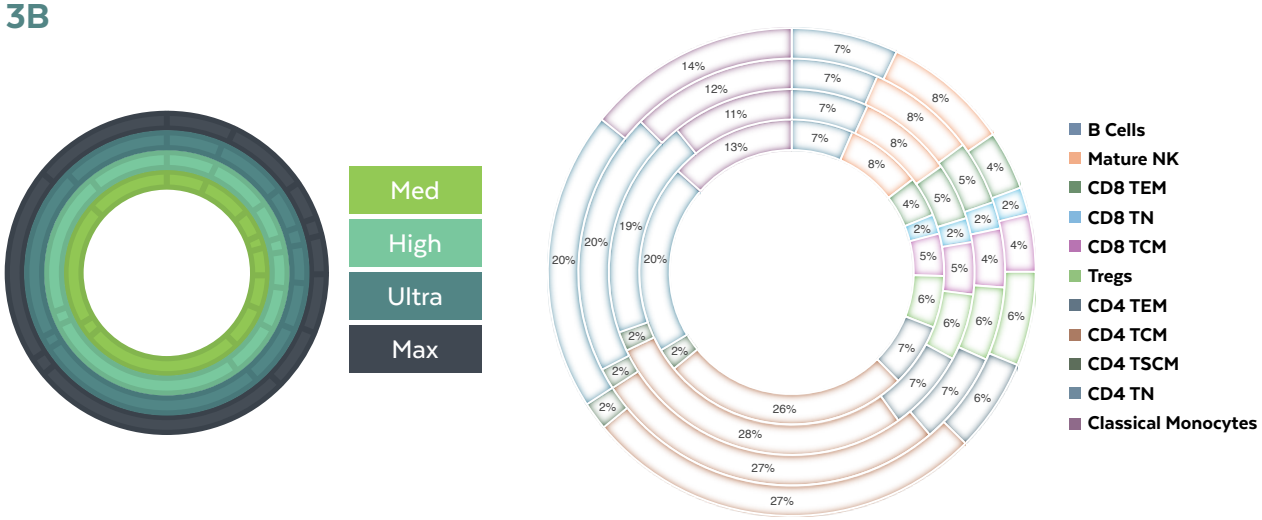


Figure 3: Cytek's 45-color multicolor panel, described in the OMIP-109 publication, was acquired on a 5-laser Cytek Aurora Evo system. Data was collected at medium (30 µL/min), high (60 µL/min), ultra (100 µL/min), and max (200 µL/min) flow rates. The results demonstrate the utility of the 5-laser Cytek Aurora Evo system in large-scale, high-parameter immune profiling studies where both speed and precision are essential. **A)** The patterns of expression of the T cell subsets from freshly isolated human peripheral blood mononuclear cells (PBMCs) shown above demonstrate identical resolution across flow rates. **B)** Frequencies of main subsets remain consistent, demonstrating that increasing sample throughput does not compromise quantification of key populations of interest.

Reproducible Data

Consistent Resolution Across Instruments

The Cytek Aurora Evo system was designed with standardization and harmonization in mind. Consistency in fluorescence performance is achieved with a patented optical design and implementation of tight specifications across all components and procedures during the manufacturing process. To standardize instrument setup, Cytek uses pre-optimized acquisition settings called CytekAssaySetting and automated Daily QC.

Figure 4A

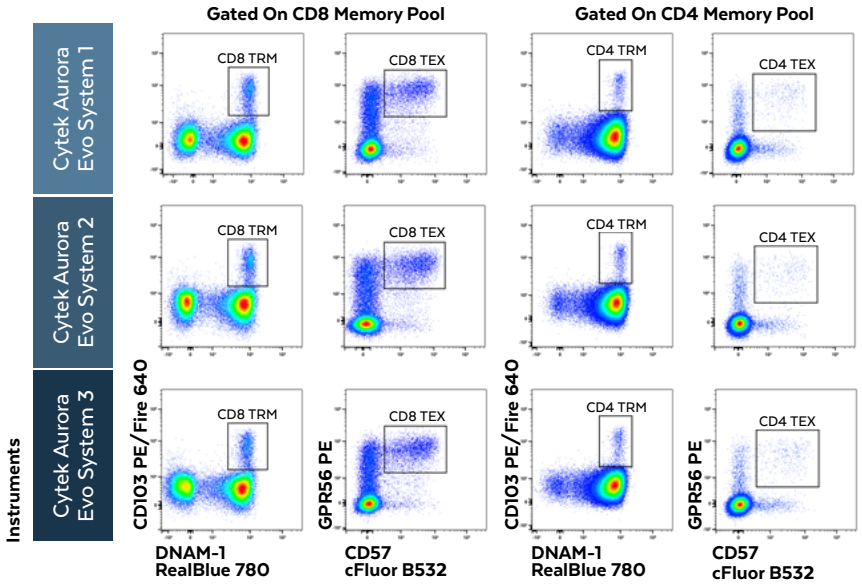


Figure 4B

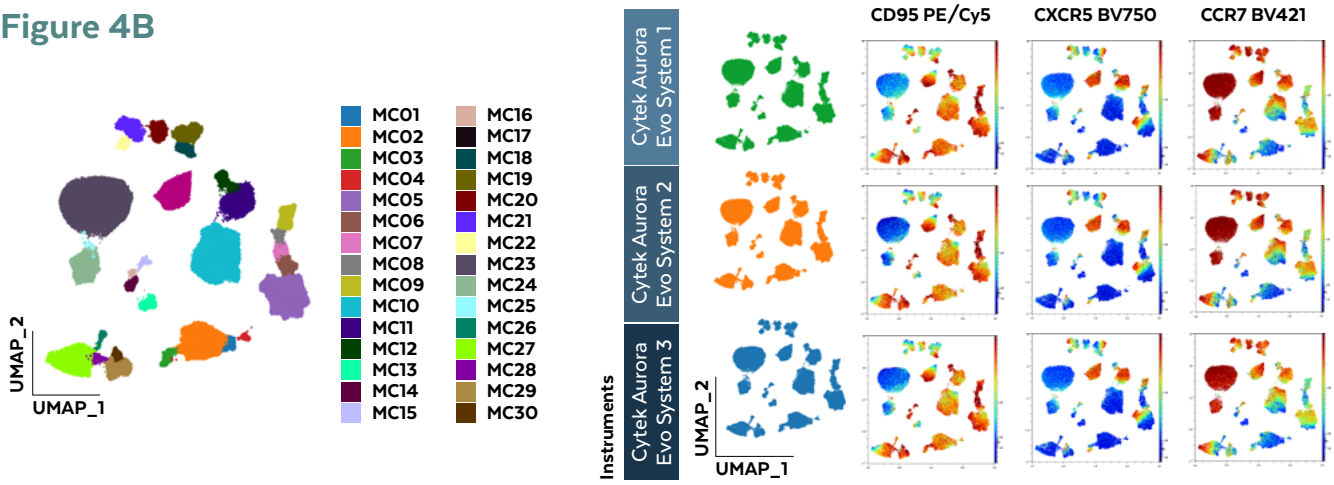


Figure 4: Cytek's 45-color multicolor panel, described in the OMIP-109 publication, was acquired on three separate 5-laser Cytek Aurora Evo systems. Specific downstream T cell populations were gated as determined by the publication for the three data sets. Results underscore the reproducibility and harmonization of the Cytek Aurora Evo systems. **A)** Manual gating performed in SpectroFlo software reveals identical resolution and population distribution of rare T cell subsets across all three systems. Scaling remains consistent across all data displayed. **B)** Metacluster (MC) analysis was performed with FlowSOM and visualized on Unsupervised Uniform Manifold Approximation and Projection (UMAP) plots for ease of comparison. UMAP analysis of CD4 T cells confirming marker expression and cluster identity remain consistent across all three 5-laser Cytek Aurora Evo systems.

Assay Transferability

Cross-Platform Reproducibility Among The Cytek Aurora Evo, Cytek Aurora, And Cytek Aurora CS Systems

Figure 5

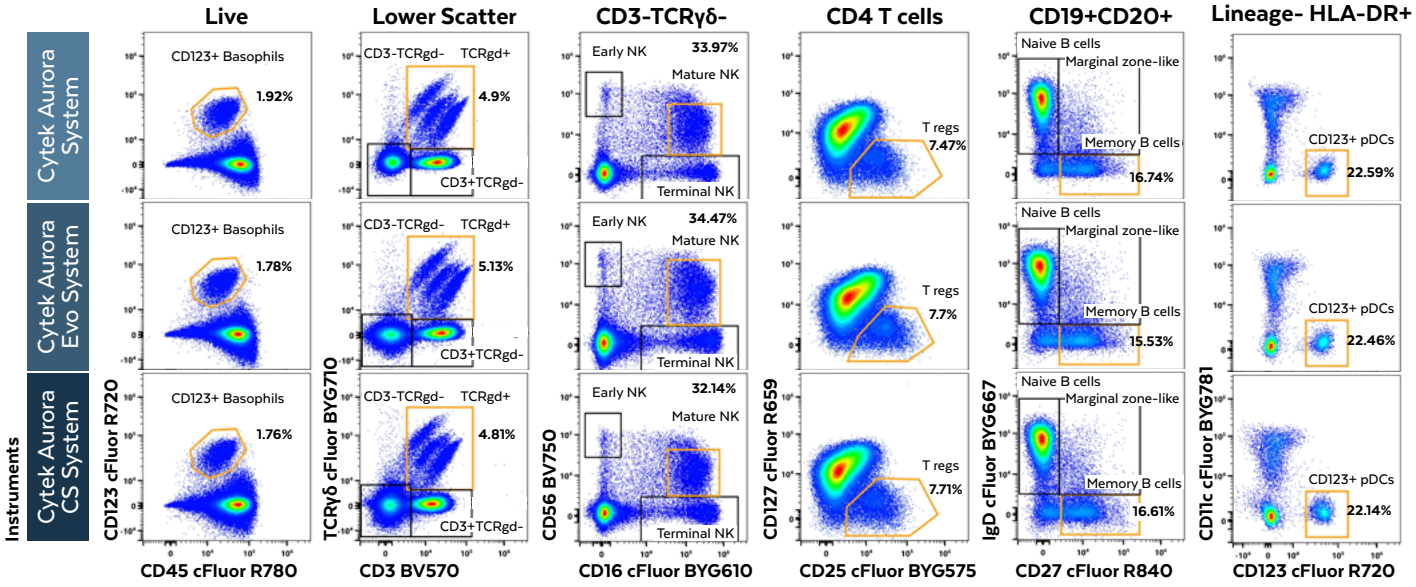


Figure 5: The Cytek 25-Color Immunoprofiling Assay was used to stain human PBMCs and acquired on the 5-laser Cytek Aurora Evo, Cytek Aurora, and Cytek Aurora CS systems. Frequencies for the six populations of interest for sorting were identical across all three platforms. The consistency of the results allows users to confidently transfer their assays across platforms.

Autofluorescence Extraction

With Cytek's FSP technology driving the Cytek Aurora Evo system, autofluorescence extraction from highly autofluorescent samples improves data resolution even further. Some sample types, such as tumor samples, increase assay complexity with high autofluorescence and heterogeneous autofluorescent populations. For these challenging applications, SpectroFlo software autofluorescence extraction capabilities, paired with the Autofluorescence Explorer feature, can help achieve new levels of resolution.

Figure 6

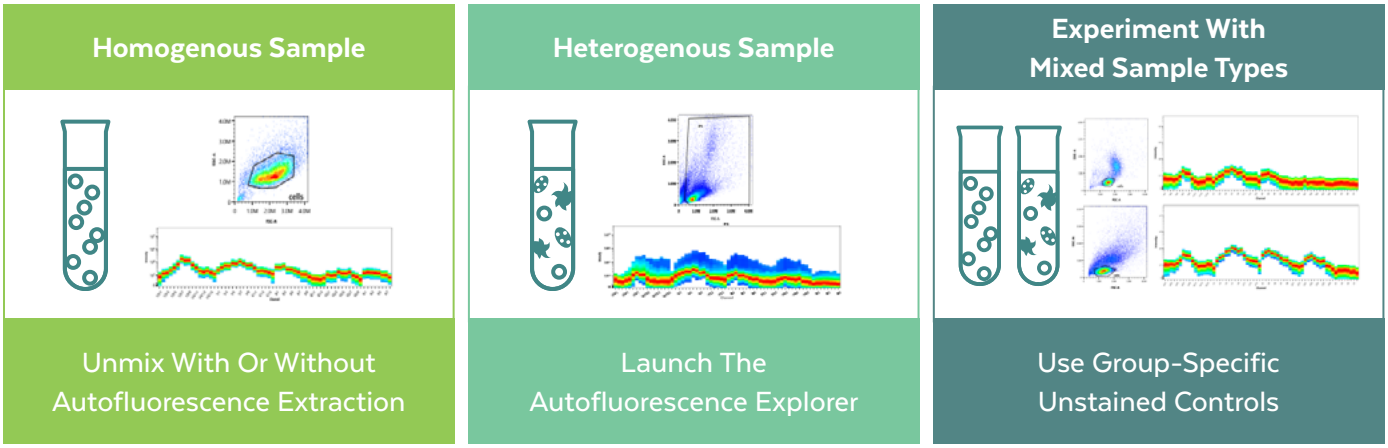


Figure 6: SpectroFlo software offers flexible and powerful tools to accommodate samples with different autofluorescence characteristics.

Enhanced Small Particle™ Detection For Analysis Of Extracellular Vesicles

The Cytek Aurora Evo system boasts a large dynamic range of side scatter (SSC) equipped with two onboard highly sensitive SSC detectors; SSC-B detector off the 488 nm laser and SSC off the 405 nm laser. The SSC detector can resolve polystyrene beads down to 70 nm in size. New applications exploring viruses, bacteria, extracellular vesicles, nanoparticles, and other subcellular components are now made possible on the Cytek Aurora Evo system.

Automation Capabilities

The Cytek Aurora Evo system elevates automation, enabling researchers to focus on results. The integrated plate loader streamlines sample acquisition from various carriers, including 40-tube racks, 96-well, 96-well deep well, and 384-well plates. Designed for flexibility, the system supports multiple user modes for both low carryover and high-throughput needs, customizable to specific assay requirements.

The Cytek Aurora Evo system also features scheduled automated startup so the instrument is ready when you need it. Automated shutdown enhances lab efficiency by allowing users to initiate the shutdown process and attend to other tasks.

Assay Flexibility

Explore over 2,600+ peer-reviewed publications describing an array of applications enabled by FSP technology including:

- Immuno-oncology
- Infectious Diseases
- Marine Biology
- Inflammation
- Autoimmunity
- And More

Cytek Cloud

Full Spectrum Viewer

Explore new fluorochromes and combinations based on your instrument configuration

Panel Builder

Panel Builder brings all your panel design needs into one simple and organized interface; design your panels manually, or use the SpectroPanel algorithm, Cytek's intelligent and automated panel design tool

Experiment Builder

Save time on the instrument and create experiments with SpectroFlo software anytime, anywhere

Ordering Information

Description	Part Number
Cytek Aurora™ Evo 2L B-R System	N7-00053
Cytek Aurora™ Evo 2L V-B System	N7-00054
Cytek Aurora™ Evo 3L V-B-R System	N7-00057
Cytek Aurora™ Evo 3L B-YG-R System	N7-00055
Cytek Aurora™ Evo 3L V-B-YG System	N7-00056
Cytek Aurora™ Evo 4L V-B-YG-R System	N7-00058
Cytek Aurora™ Evo 5L UV-V-B-YG-R System	N7-00059
SpectroFlo® QC Beads	B7-10001
Sheath Fluid (30X)	TNB-4600-L600

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This document highlights preliminary data, final performance and specifications will be confirmed upon completion of verification testing.

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