



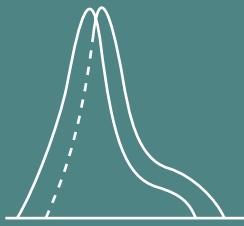
# Cytek Aurora™ CS System

An Advanced and Adaptable Cell Sorting System  
Driven by Full Spectrum Profiling™ Technology

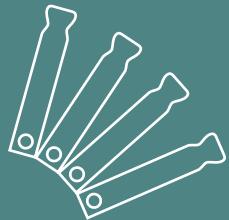
# Isolate Cell Populations From Simple or Complex Samples With Full Spectrum Flow Cytometry

The **Cytek Aurora CS** instrument was built with the scientist in mind, leveraging the power of **Full Spectrum Profiling™ (FSP™)** technology in a flexible and easy-to-use platform that meets the diverse needs of your laboratory.

**Unlock advanced insights and comprehensive understanding using high-dimensional analysis** with up to five lasers and 64 fluorescence detectors



**Maintain cell viability and functionality with high-speed sorting and multiple nozzle sizes** including 70, 85, 100, and 130  $\mu\text{m}$  nozzles



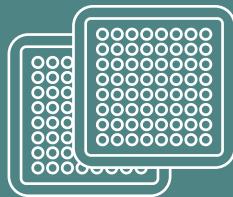
Flexible sorting compatible with **multiple collection tube sizes** that include 1.5 mL, 5 mL, and 15 mL tubes



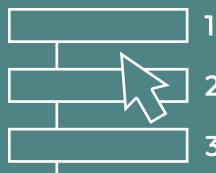
Have confidence and aim, optimize, and monitor side stream position inside the sort chamber with the **live view camera**



High throughput capability with sorting into **96- or 384-well plates** with the option to perform **index sorting**



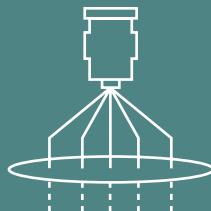
**Intuitive** Cytek SpectroFlo® CS proprietary software and **easy to use, guided workflows**



**Built-in automation tools for ease of use** to set drop delay, stop acquisition at the end of a sample, monitor and maintain stream break-off, and detect clogs



Optimize side stream precision with two drop enhanced aiming test sort and **side stream compensation**



# Full Spectrum Profiling™ Technology Facilitates and Simplifies

The **Cytek Aurora CS** system employs the power of **FSP** technology to produce high-quality flow cytometric data along with the Cytek portfolio of full spectrum instruments.



**Simplify** your experimental design and workflow with **Cytek® Cloud**

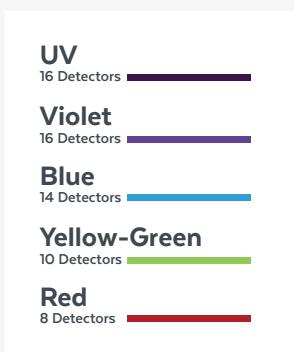
Transfer experiments from the Aurora spectral cell analyzer **without needing to modify your panel**

**State-of-the-art hardware** optimized for sensitivity, high quality, and high-resolution

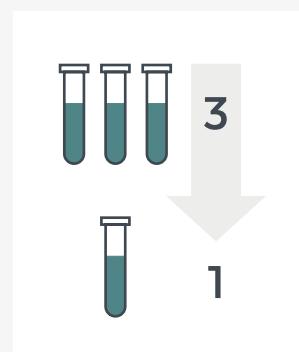
**Streamlined and quick** instrument QC and setup

**Cytek** is a leader in **spectral flow cytometry** with over 2,000+ publications using FSP technology since 2018

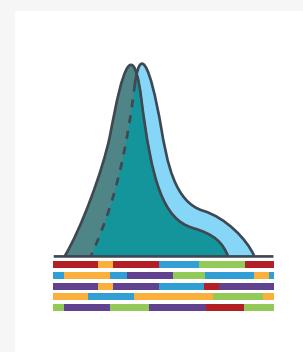
## Maximize the Power of FSP Technology to Resolve Rare Populations and Challenging Cells of Interest



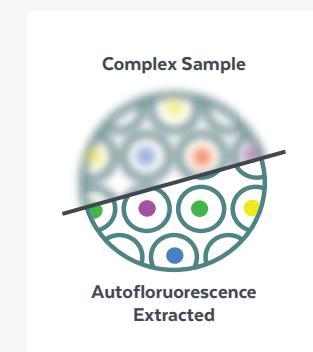
Capture the entire spectrum of information across multiple detectors



Save resources and collect more information from a single tube



Choose from a wider array of commercially available fluorochromes for your assays



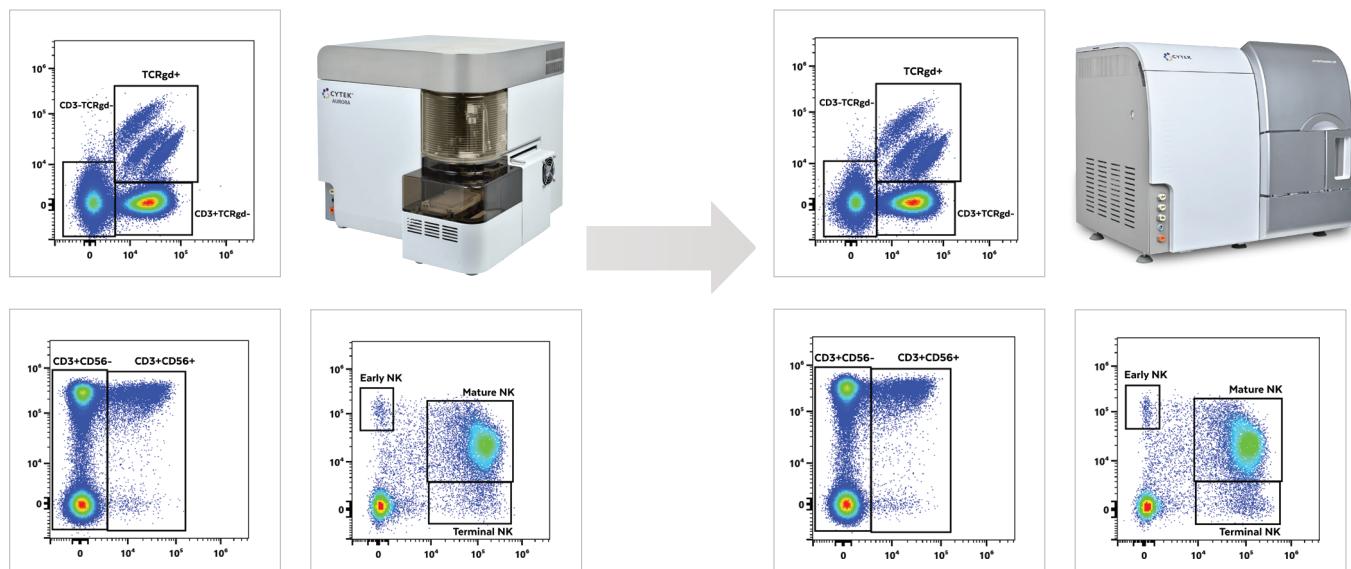
Extract autofluorescence to resolve highly complex autofluorescent samples

# Save Time and Resources With the Spectral Analyzer and Sorter

The **Cytek Aurora™ analyzer** and the **Cytek Aurora CS system** were built with the same **FSP technology** that sets the gold standard for high quality data across assay complexity in flow cytometry.

The Aurora CS system is the only commercially available spectral cell sorter that has a companion spectral analyzer allowing for the seamless transfer of assays from the analyzer to the sorter without needing to reconfigure the experiment or the detectors. This assures that both systems are able to resolve the same populations and achieve high-quality results while also saving time and valuable lab resources. You don't need to start your sorting applications from scratch with the Aurora CS system!

## The Spectral Duo



### Cytek Aurora Analyzer

Simplicity of experiment transfer between the Aurora analyzer and the Aurora CS system streamlines the development of sorting assays

### Cytek Aurora CS System

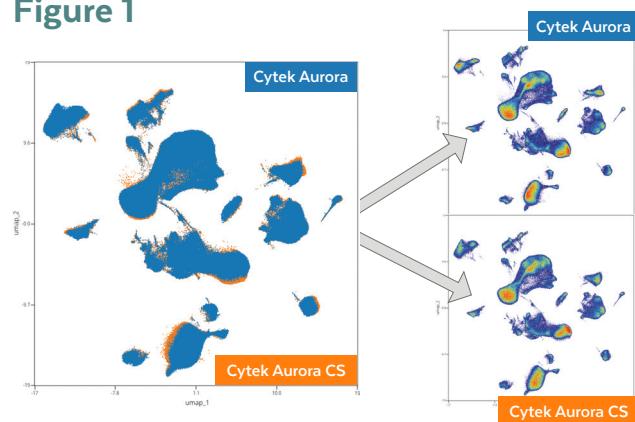
The Aurora CS system is the only commercially available spectral cell sorter that is paired with a companion analyzer

# Migrate Assays Between Analyzer and Sorter With Ease and Identify the Same Populations With the Same Resolution

**Cytek's 40-color deep immunophenotyping panel** for the **Cytek Aurora analyzer** described in the OMIP-069 publication (PMID: 32830910) can perform equally well on the sorting-capable **Cytek Aurora CS system**.

On the right, a UMAP scatter plot of the data from each system is shown overlaid, demonstrating a high level of comparability. Note that the Aurora system (blue) and the Aurora CS system (orange) exhibit the same patterns and overlap. Both systems can resolve the same populations with the same level of accuracy.

**Figure 1**



**Figure 1:** PBCMs from a normal healthy donor stained with the 40-color panel were acquired on the Cytek Aurora and Cytek Aurora CS instruments. Data from both systems were gated on live singlet CD45<sup>+</sup> lymphocyte and monocyte populations and visualized in 2-D using UMAP.

## Transfer Sorted Cells to Downstream Applications Quickly and Efficiently

With the spectral duo, you can transfer the exact same panel from the analyzer to the sorter. Previously, the absence of optically performance-matched systems required the creation of additional panels to sort cells of interest. Extra time was needed to develop and validate the sorting panel and did not guarantee the sorting of matched populations. With the Aurora and Aurora CS systems, the seamless transfer of assays from analyzer to sorter allows you to sort your cells quicker and more efficiently for downstream applications.

### Design & Optimize Panel



Cytek Aurora Analyzer

### Setup Templates & Gating Strategy

Design Panel

Titrate Reagents

Optimize Panel & Controls

Finalize Gating & Template

### Import Templates: Acquisition & Analysis



Cytek Aurora CS System

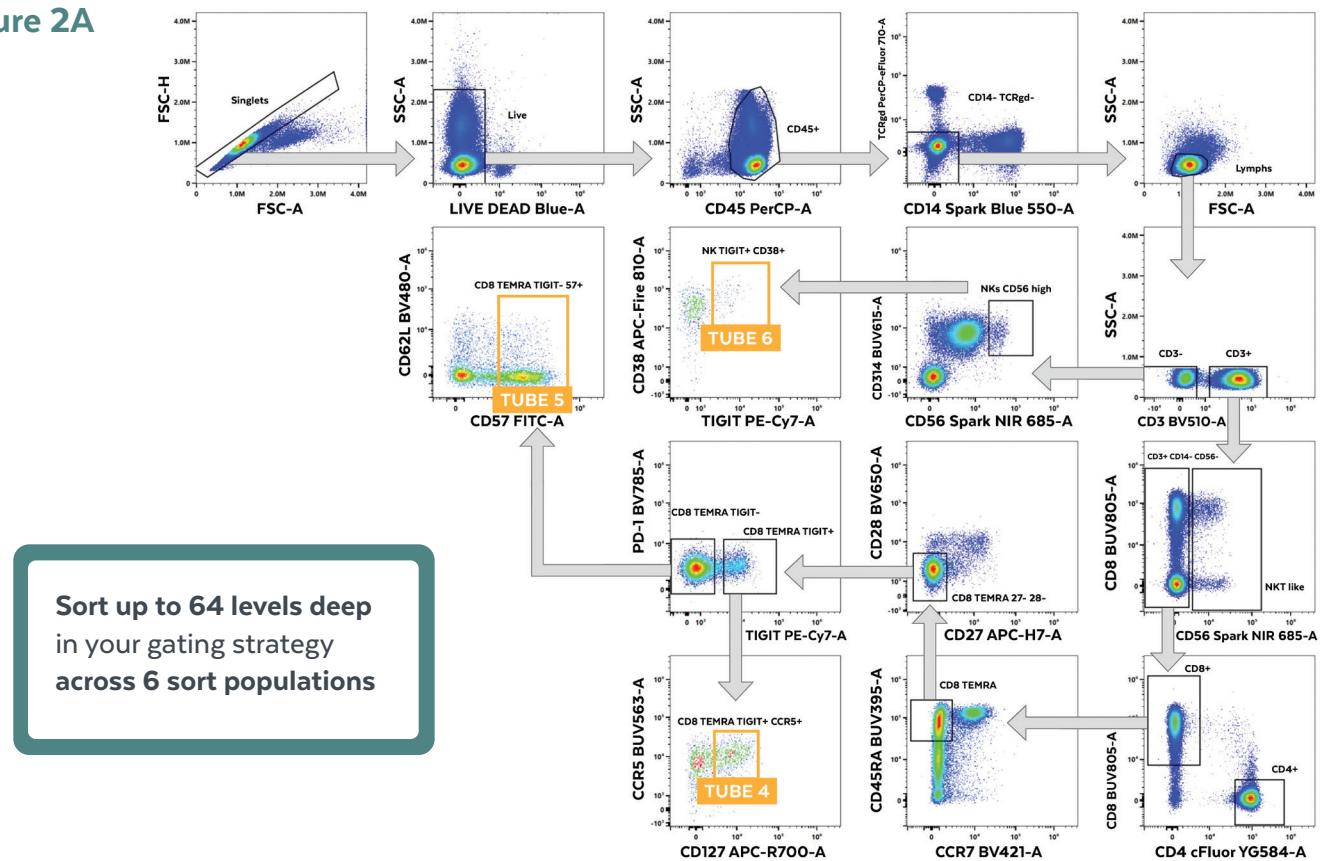
Sort

Sort

# Six-Way High-Purity Sort of Rare Cells From a High Dimensional Panel

The **Cytek Aurora CS system** combines **FSP** technology and high-end sorting functionality. To demonstrate the advanced sorting capability of the Aurora CS system, a 28-color human deep T cell and NK cell immunophenotyping panel was optimized and **transferred from the Cytek Aurora analyzer**. Six low frequency T cell and NK cell subsets shown below were sorted with a 100  $\mu$ m nozzle and evaluated for purity.

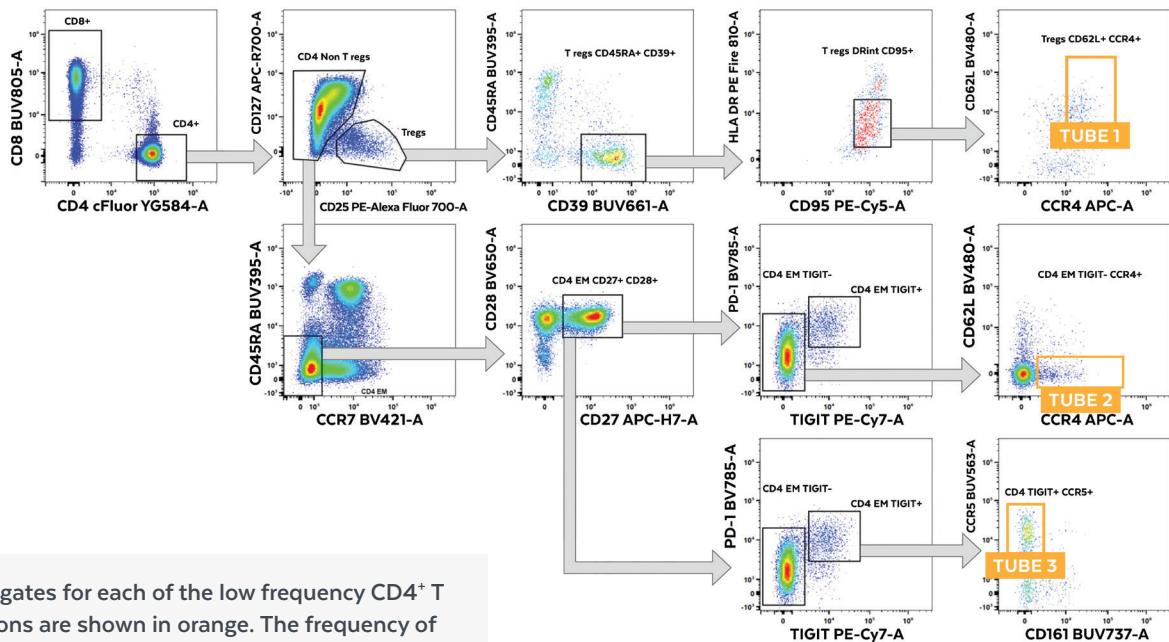
**Figure 2A**



UV	Violet	Blue	Yellow-Green	Red					
CD45RA	BUV395	CCR7	BV421	CD57	FITC	CD4	cFluor YG584	CCR4	APC
Viability	Live/Dead Blue	CD62L	BV480	CD14	Spark Blue 550	CD337	PE/Dazzle 594	CD56	Spark NIR 685
CCR5	BUV563	CD3	BV510	CD45	PerCP	CD95	PE-Cy5	CD127	APC-R700
CD314	BUV615	CD28	BV650	TCR $\gamma$ $\delta$	PerCP-eFluor 710	CD25	PE-Alexa Fluor 700	CD27	APC-H7
CD39	BUV661	CXCR5	BV750			TIGIT	PE-Cy7	CD38	APC/Fire 810
CD161	BUV737	PD-1	BV785			HLA-DR	PE/Fire 810		
CD8	BUV805								

**Figure 2A:** The sort gates for each of the low frequency CD8 $^{+}$  T cell and NK cell sorted populations are shown in orange. The frequency of each of these sorted populations ranged from 0.16% to 0.40% of total cells in the sample. The sort gates for this experiment go as deep as 13 levels into the gating hierarchy.

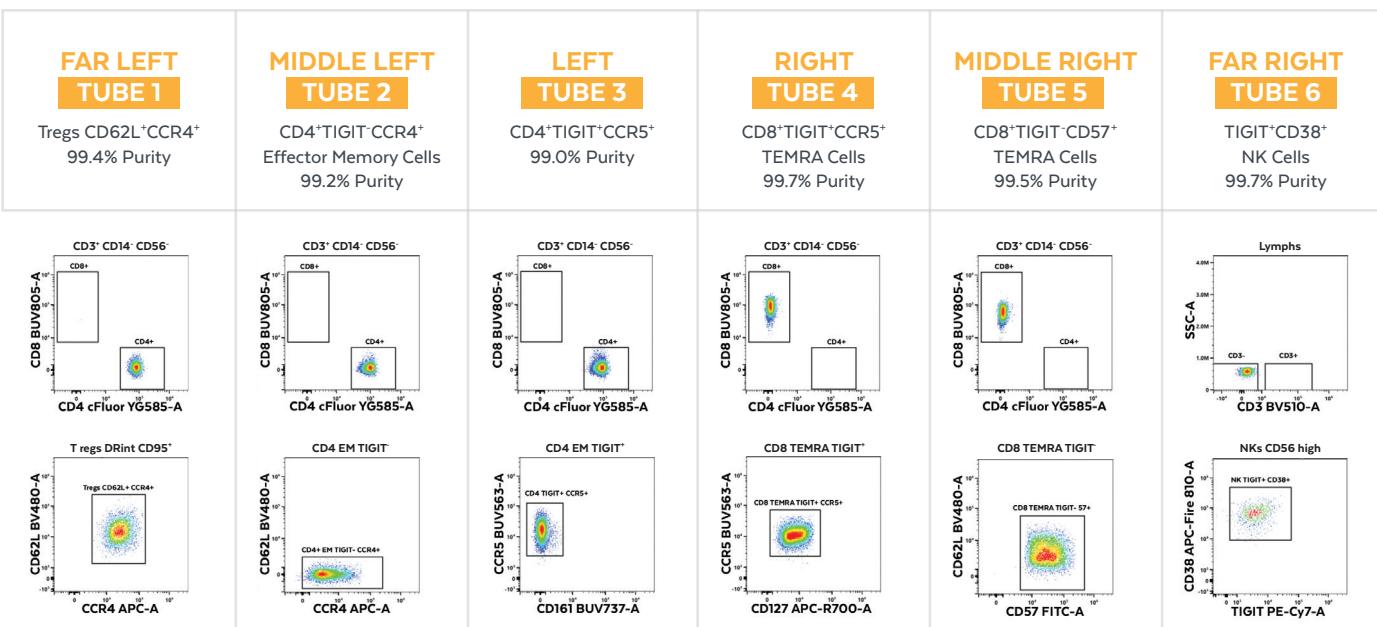
**Figure 2B**



**Figure 2B:** The sort gates for each of the low frequency CD4<sup>+</sup> T cell sorted populations are shown in orange. The frequency of each of these populations ranged from 0.09% to 0.18% of total cells in the sample.

When examining the post sort tubes, purity is found to be greater than 99.0% for all six populations. In the figure below, the sorted populations are shown. The top row is one of the lineage parent gates, and the bottom row is the final sort gate.

**Figure 3**



**Figure 3:** Two representative plots taken from the gating strategy shown in Figure 2A and 2B.

# Delivering High Quality Single Cells for Downstream Applications

## Cell Functionality is Preserved After Sorting

Human PBMCs were prepared and sorted with a 70  $\mu$ m nozzle to collect CD4 $^{+}$  effector memory cells and NK cells. After sorting, the cells were rested for 2 hours in an incubator, stimulated with PMA and ionomycin in the presence of BFA, monensin, and CD107a, then stained with eight different intracellular markers.

Cytokine expression is similar between the pre-sort and post-sort samples.

**Figure 4**

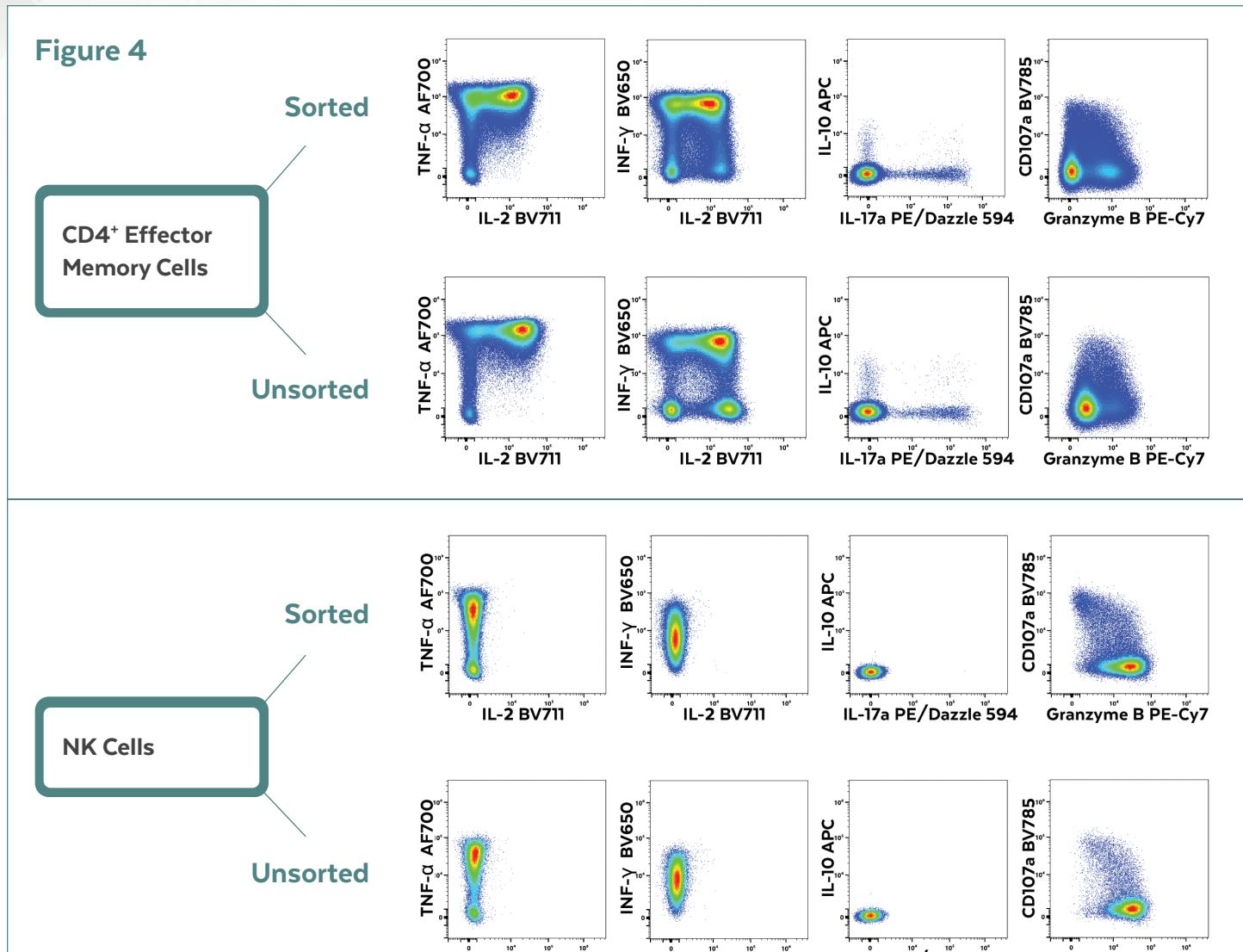


Figure 4: The sorted and unsorted cells were acquired on a Cytek Aurora system, and the functional status of the cells was characterized by detecting CD107a and intracellular cytokine staining.

# Start Sorting Faster: Minimize Setup Time, Maximize Usage

## Minimize Setup Time and Go From Start to Sort Quickly and Efficiently



### Startup

Simplify startup using the guided workflows for startup and warm-up



### Instrument QC

Update instrument settings using the automated setup and QC software module



### Drop Delay

Use the Automatic Drop Delay function to easily set up drop delay in minutes



### Aim Sort Streams

Observe the sort streams with the live view camera and aim them into collection devices without needing to open the sort chamber, protecting yourself from aerosols and preserving the sort environment



### Sort

Set up multiple sort populations, establish sorting acquisition criteria for up to six sort streams, and receive an automatically generated sort report upon completion of each sort



**Minimize experiment setup time on the instrument by building your experiment template remotely in Cytek Cloud and then import it into SpectroFlo CS software**

**Save time and effort by reusing experiment templates, worksheet templates, reference controls, aim and sort settings, and nozzle settings**

**Run your experiment with the CytekAssaySetting to ensure consistent day-to-day quality of your data**

Update standardized settings on a daily basis to maintain consistent signal over time. Never waste precious samples to adjust detectors again!

# Optimize and Maintain Sort Conditions With Built-In Tools

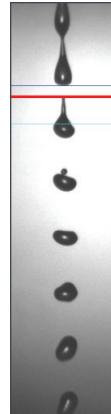
The **Cytek Aurora CS system** is equipped with a bevy of tools that you can use to optimize and maintain your sort. Take advantage of the **automatic drop delay** function to optimize the conditions for your sort.

Once optimized, maintain and monitor your sort live without disturbing those conditions with **sort monitoring** and the **live view camera**. Know that you can walk away from your sort safely with **clog detection** and **end of sample detection** enabled.

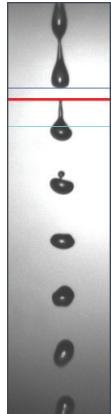
## Robust Sort Monitoring

Manage and maintain stream break-off with sort monitoring to confirm that your stream and break-off profile is optimal throughout the duration of your sort.

Any disturbances in the stream break-off profile will automatically trigger an action to maintain the quality of your sort.



Break-off profile  
at the start of sort



Break-off profile  
1.5 hours into sort

## High Resolution Live View Camera

Use the live view camera to aim the sort streams into your collection devices without disturbing your sorting conditions. Visually ensure that your optimized settings are true during a real live sort.

Operators can supervise the sort using the live view camera to confirm that the sort streams are stable and to monitor the volume going into each sort collection device.



Monitor your sort streams with video from the live view camera

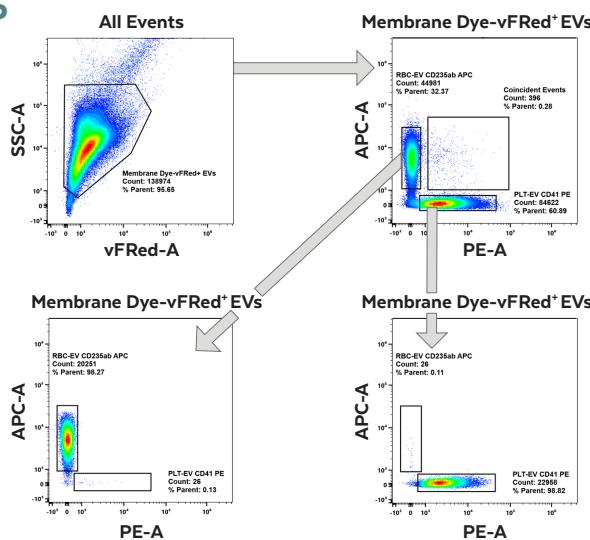
# Tools to Unlock Small Particle and Single Cell Applications

## Enhanced Small Particle™ Detection Option for Small Particle Analysis

Enhance the Cytek Aurora CS instrument sensitivity and resolving capability with the Enhanced Small Particle™ (ESP™) Detection Option. The first cell sorter to offer this novel feature, the ESP Detection Option unlocks the ability to not only detect and analyze extracellular vesicles (EVs) on the Cytek Aurora CS system, but to also sort them with high purity and efficiency. Only one instrument is needed to analyze and sort EVs, which opens up a wide array of research applications leading to advancements in therapy and diagnostic development.

The successful sorting of EVs in this experiment illustrates how Cytek's technology addresses the challenges of EV detection and expands new research opportunities.

**Figure 5**



**Figure 5:** To demonstrate the effectiveness of the Cytek Aurora CS system to sort EV populations, the Cellarcus Vesicle Flow Cytometry (vFC™) assay was used to stain and sort platelet- and red blood cell-derived extracellular vesicles.

A mixture of EVs were first stained with vFRed™ to selectively stain membrane bound particles, followed by fluorescent antibodies specific for platelet and red blood cell surface markers.

After staining, the sample was acquired on the Cytek Aurora CS system and gated to sort the two populations of EVs into separate collection devices. Both populations were sorted at high efficiency and resulted in high purity.

## 384-Well Plate Sorting for Single Cell Applications

Sort into 96- or 384-well plates with user definable sort settings for each well. Setting up is as easy as loading a plate onto the plate holder and placing the holder inside the droplet deposition unit. Accurately deposit 1 cell per well into 96 wells in less than 2 minutes and 384 wells in less than 5 minutes with high throughput mode.



Use the angled plate adapter on the plate holder to sort into 384-well flat bottom plates

# Cytek Cloud

## Streamline Your Experimental Workflow

### 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 SpectroFlo experiments anytime, anywhere

Sign up for a free account at [cloud.cytekbio.com](https://cloud.cytekbio.com)

## Ordering Information

Description	Part Number
Cytek Aurora CS 3L System	N7-00090
Cytek Aurora CS 4L YG System	N7-00092
Cytek Aurora CS 5L System	N7-00094
Sheath Fluid - (30X)	TNB-4600-L600
SpectroSort™ Beads	B7-10006
SpectroFlo® QC Beads	B7-10001
Sorter - Start-Up Kit	B7-20001



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Email us at: [sales@cytekbio.com](mailto:sales@cytekbio.com)  
or call 1-877-922-9835

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