

About Challenbio

Beijing Challen Biotechnology Co., Ltd. is an innovative biotechnology company specializing in flow cytometry technology. With a focus on technological innovation and customer needs, we have established a comprehensive solution that covers instrument development, reagent manufacturing, and technical services. Our independently developed LongCyte®, FongCyte™ series, and flagship full-spectrum flow cytometry instrument, CytoStellar™, offer nano-level detection precision and intelligent analysis systems. These solutions have served over 1,000 research institutes, clinical institutions, and biopharma companies worldwide. The company has obtained ISO 9001 and ISO 13485 quality management system certifications and is committed to becoming a global leader in high-end flow cytometry instruments and associated biomedical technologies.

Company Culture

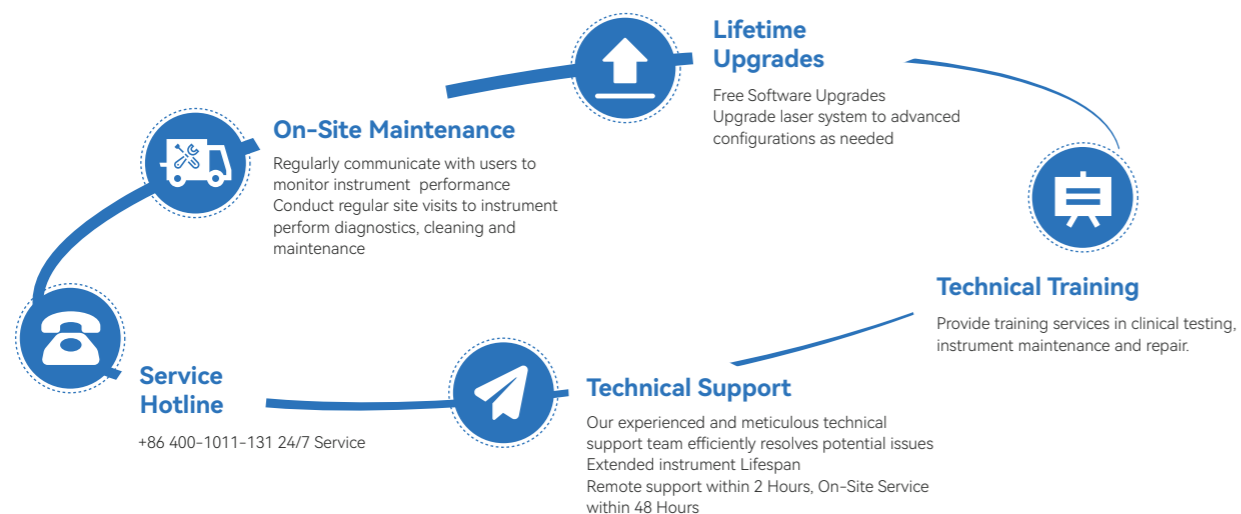
Mission: To create a vibrant world and safeguard the beauty of life.

Vision: To become a global leader in biomedical technology.

Values: Excellence, Dedication, Collaboration, and Mutual Success

After-Sales Service

Challenbio Service-Always by Your Side



Spectra Made Simple
Insights Made Smarter

CytoStellar™ AX

Full-Spectrum Flow Cytometry Analyzer



Colorful World
Beautiful Life

Beijing Challen Biotechnology Co., Ltd.

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1# building, No. 25, Yongxing Road, Zhongguancun Science and Technology Park Daxing
Biological Pharmaceutical Industry Base, Daxing District, Beijing, China.

Website: <https://www.challenbioglobal.com/>
Email: sale@challenbio.com
Service Hotline: +86 400-1011-131
LinkedIn: <https://www.linkedin.com/company/challenbio>
WhatsApp: +86 138 1607 9722

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Transforming Cell Analysis with Innovation

Redefining the Boundaries of Cell Analysis with Breakthrough Technology, Integrating Advanced Optic Systems, Intelligent Algorithms and Fully Automated System Design to Usher in a New Era of Precision Medicine and Life Sciences. Innovative Optic Architecture and Full-Spectrum coverage, offering unlimited Fluorochrome Flexibility for Unrestricted Research Design. Equipped with 3 lasers and 41 detection channels, our system supports simultaneous detection of over 30 colors, breaking through the limitations of traditional multi-color flow cytometry.

Unmatched Precision

Unique Spectral Splitting Technology Combined with Dual Thermal Control Optical System to enhance Sensitivity and precisely capture spectral characteristics.

Advanced Intelligence

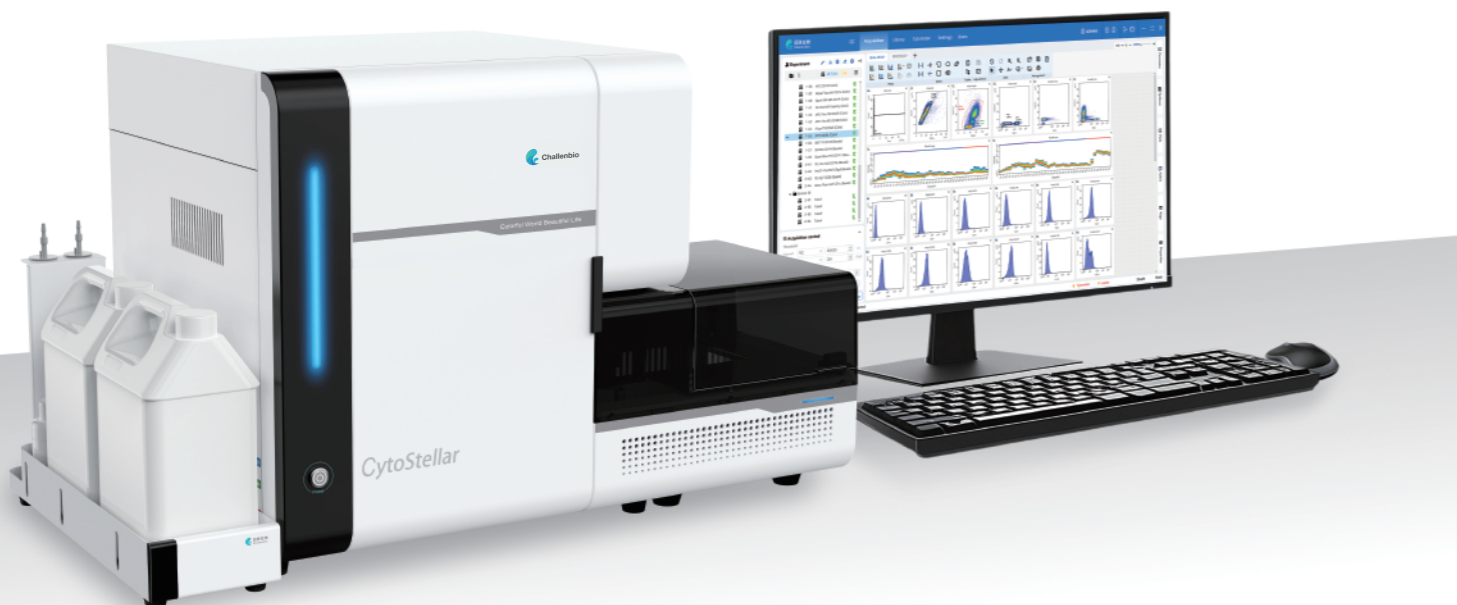
Customizable Power-On/Off, Guided operation, One-Click Spectrum Library Import and Unattended Maintenance simplify operations and minimize labor effort.

Superior Efficiency

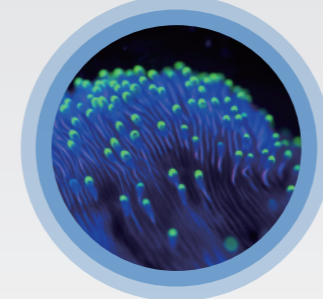
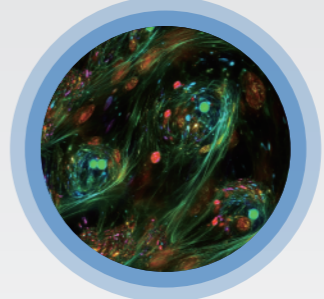
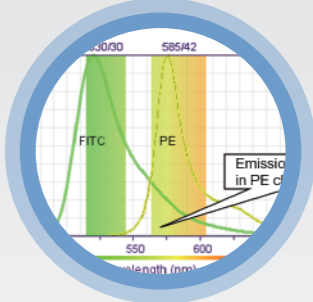
Quick QC in 3 minutes, High-Speed Sampling with Multiple Carriers Options, and independent Real-Time Unmixing between sample tubes, saving time and maximizing efficiency.

Outstanding Standardization

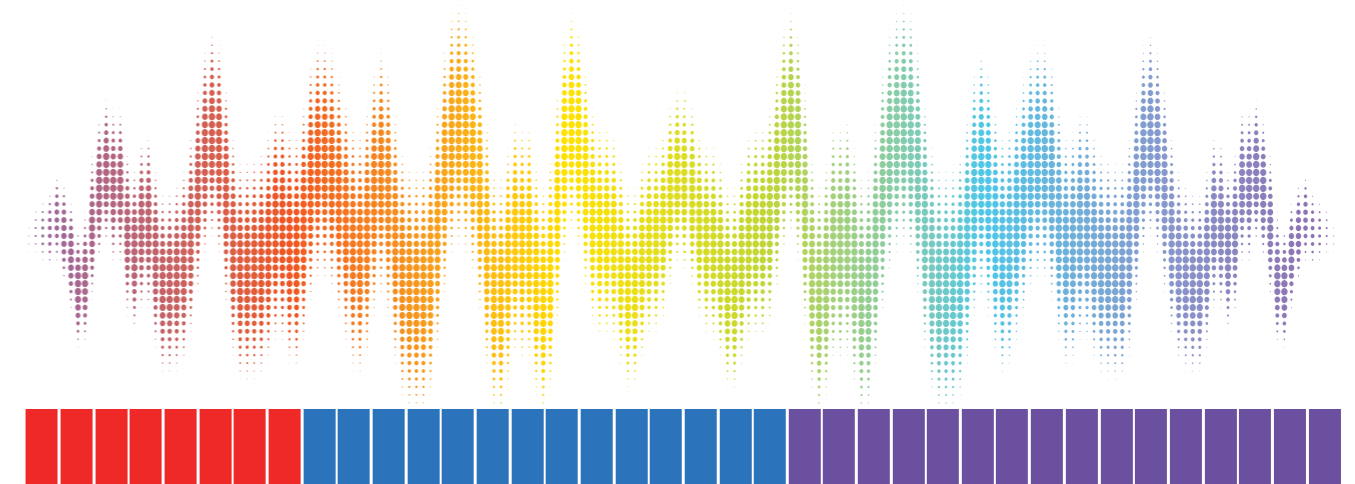
The Audit Trail function creates a complete tracking system from data acquisition to archiving. Experiments are exportable and shareable, enabling result comparability and driving research standardization and collaboration.



Empowering High-Dimensional Analysis for Greater Insights

		
<p>☹️ Dyes with similar emission wavelengths are difficult to distinguish, complicating panel design.</p>	<p>☹️ Cells' autofluorescence and inefficient correction could interfere with flow cytometry accuracy.</p>	<p>☹️ The multi-color fluorescence compensation is complex, significantly increasing the difficulty of data analysis and interpretation.</p>
<p>😊 CytoStellar™ employs optimized Least Squares Spectral Unmixing Algorithm, using mathematical modeling to accurately separate mixed fluorescence signals, effectively distinguishing similar fluorochromes and enabling more flexible multi-color panel design with ease.</p>	<p>😊 CytoStellar™ supports automatic unmixing of multiple autofluorescence signals, removing interference and precisely presenting experimental results.</p>	<p>😊 CytoStellar™ leverages unique spectral fingerprint information to enable near 'no-compensation' flow analysis.</p>

38 Detection Channels for Fluorescence



Red Laser 638nm-8 Channels

Blue Laser 488nm-14 Channels

Violet Laser 405nm-16 Channels

Powerful Detection Capabilities

Worry-Free Fluidics, Low Consumption, High Sampling Efficiency and Long-Lasting Stability

Sheath Addition Without interruption Ongoing Tests

Dual sheath fluid system enables real-time sheath addition without interrupting tests, ensuring seamless operation throughout.

Automatic Tube-to-Tube Cleaning

Automatic cleaning of inner and outer sample needle during testing, reducing carryover contamination risk.

Large Volume Collection

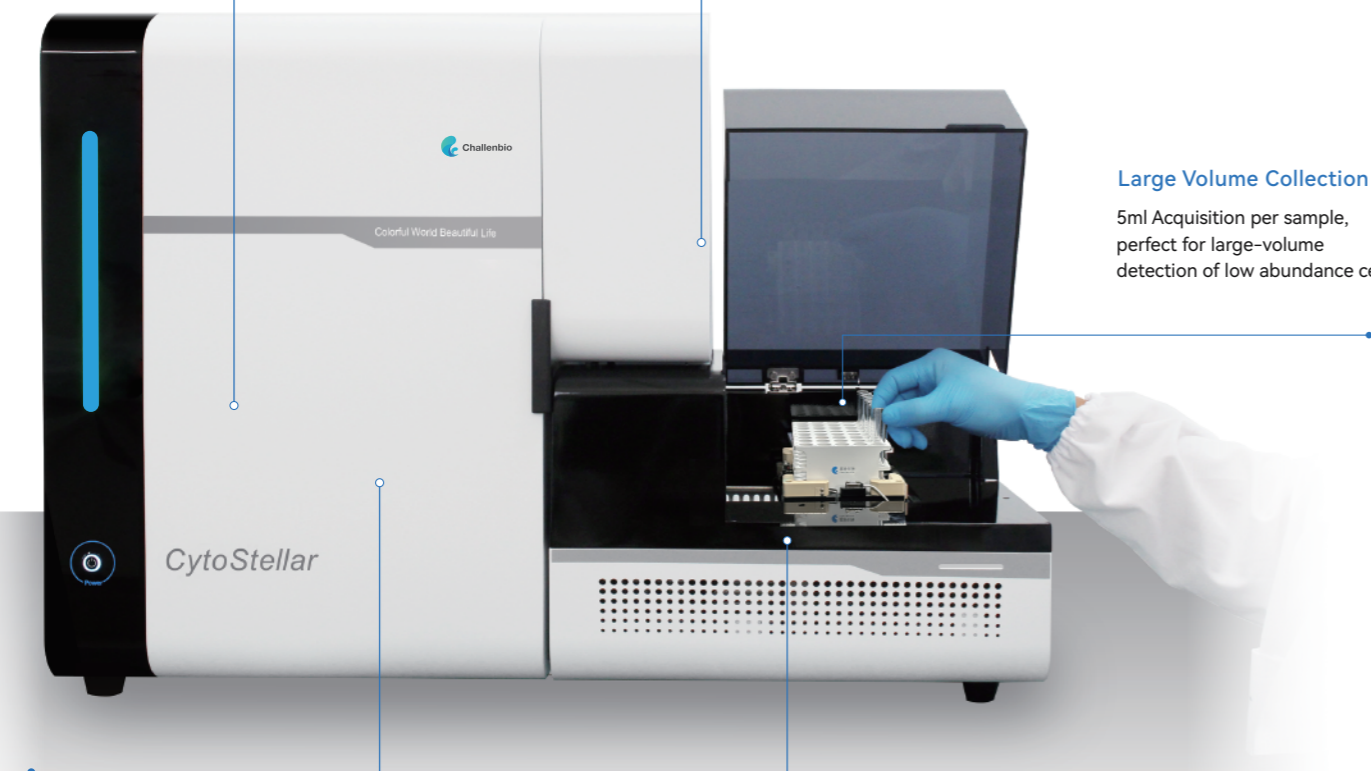
5ml Acquisition per sample, perfect for large-volume detection of low abundance cells

Intelligent sample insufficiency detection

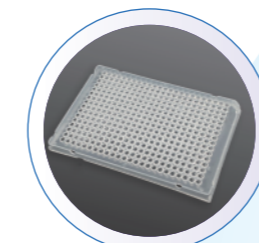
Intelligent bubble detection with real-time monitoring to prevent bubble interference in Fluidics, ensuring accurate testing even with limited sample.

Sample Recovery

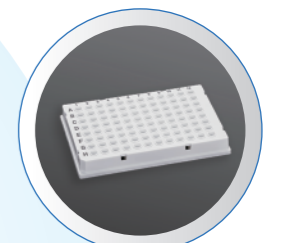
Maximizing the efficiency of every microliter of precious sample



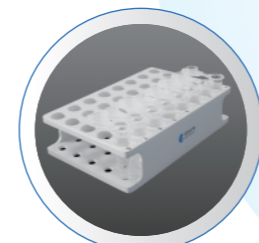
High Throughput Without Compromising Sample Viability



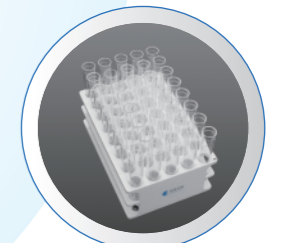
384 Well Plate



96 Well Plate



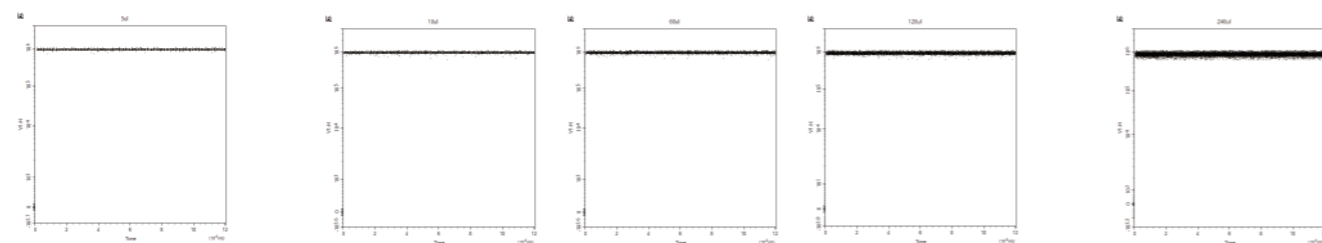
Microcentrifuge tubes-40 tubes per rack



5ml flow Tube (12x75mm) —40tubes per rack



Ultra-Low	Low	Medium	High	Ultra-High
5µL/min	10µL/min	60µL/min	120µL/min	240µL/min



Stable results ranging from 5µL/min to 240µL/min, regardless of sample flow rate.

Flexible Sample Loading Solutions

Seamlessly compatible with 96-/384-well plates, 12x75 mm flow tubes, and microcentrifuge tubes — meet the needs of diverse sample formats with one flexible system.

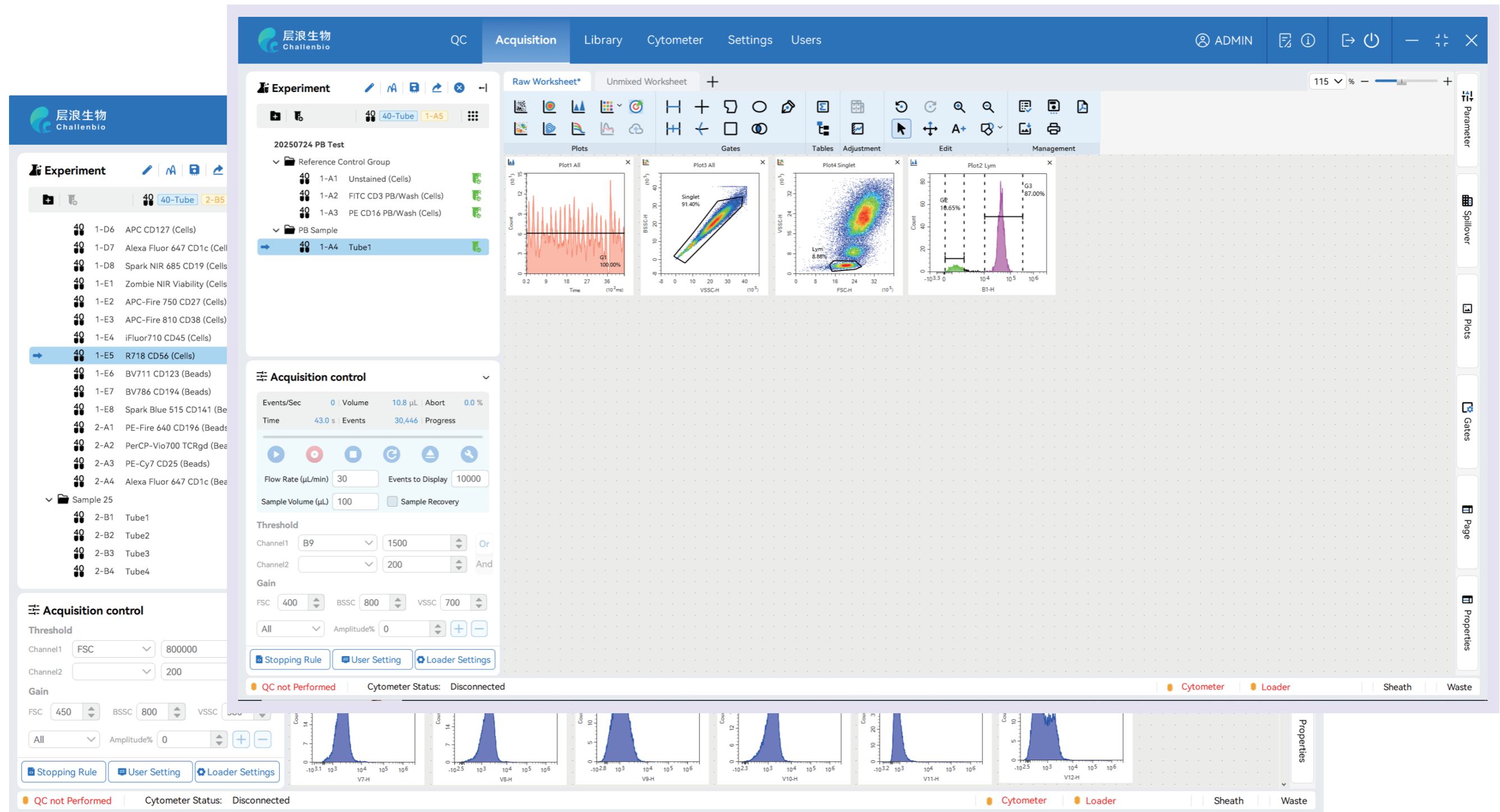
Continuous, Infinitely Adjustable Temperature Control

Continuous Temperature Control from 4°C to 37°C with Dual Peltier Modules Ensures Consistent Well-to-Well Conditions and Optimal Sample Viability.

Customizable Mixing Modes for Various Sample Types

Customizable Mixing Time and Intensity for Efficient Handling of All Sample Types.

Intelligent Analysis Software——IsFlower



Intuitive and Streamlined User Interface

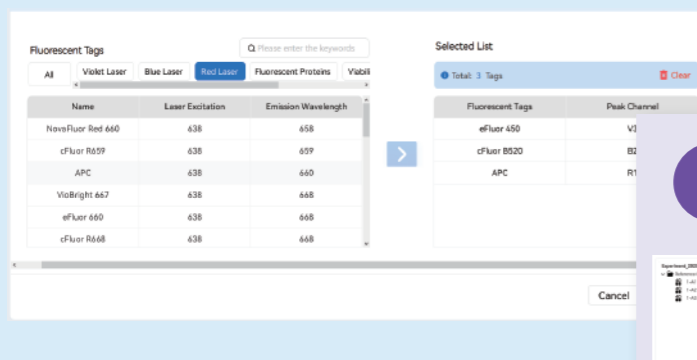
Guided Workflow for Effortless Mastery of Spectral Flow Cytometry

GPU Acceleration Enables High-Speed Analysis of 100M+ Events

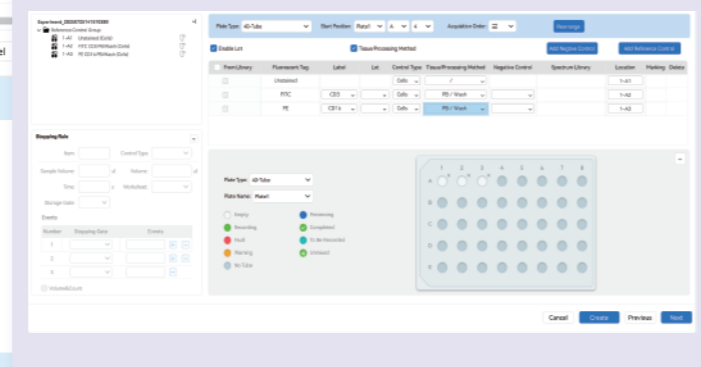
Simple and Streamlined Operation

Guided Experimental Workflow

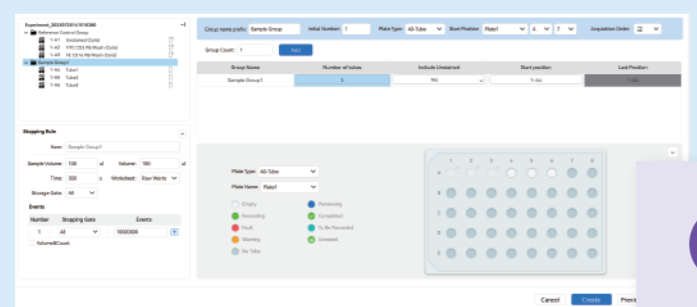
1 Fluorochrome Selection



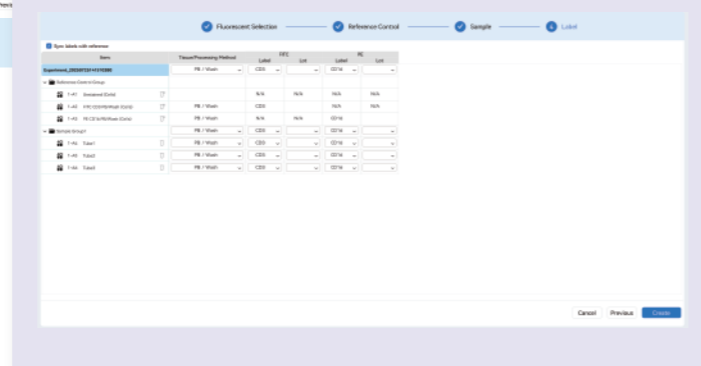
2 Reference Control Setup



3 Sample Setup



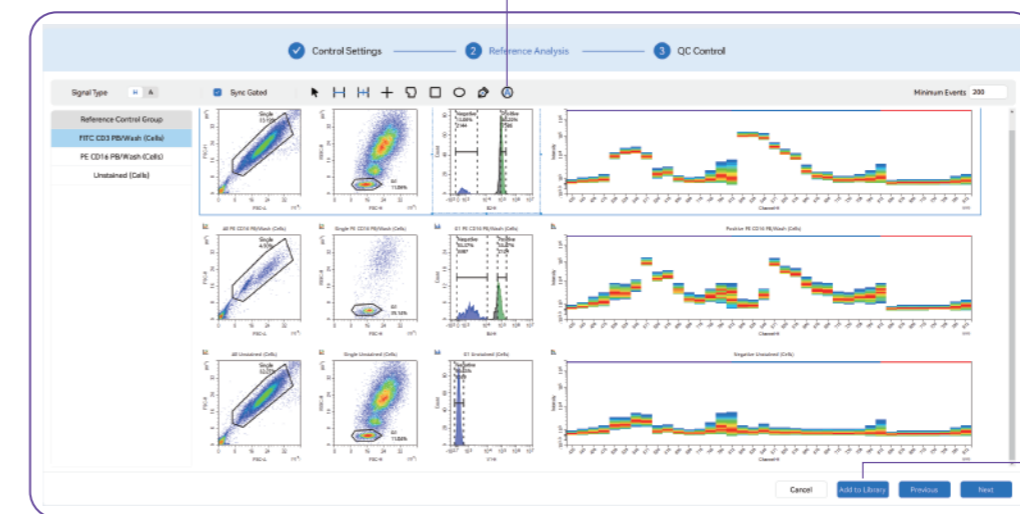
4 Label Setup



Automatic Spectrum Processing

- Single-Stain Unmixing with Automatic Gating of Positive and Negative Populations
- One-Click Spectrum Import
- Seamlessly integrates with Worklist for rapid experiment creation and efficient batch sample processing

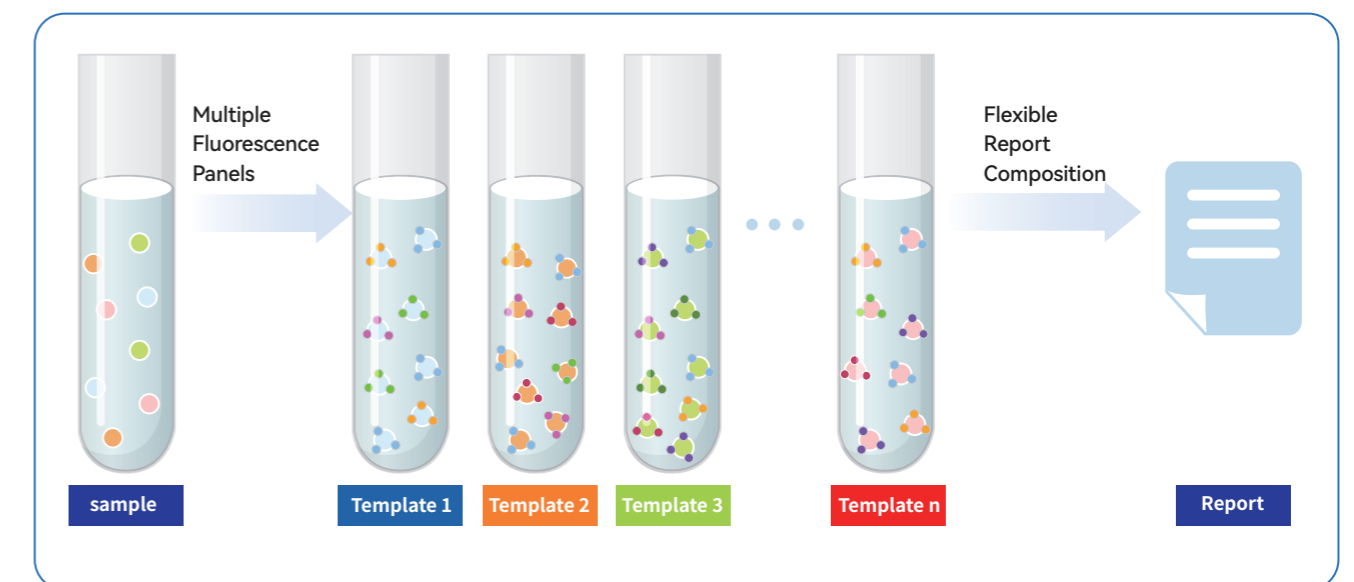
A Auto Gating



One-Click Spectrum Library Import

Tube-Specific Unmixing with Flexible Fluorescence Panel Design

- Tube-to-Tube Spectral Independence, Fully Flexible Panel Design
- Consolidate data from multiple tubes into one report

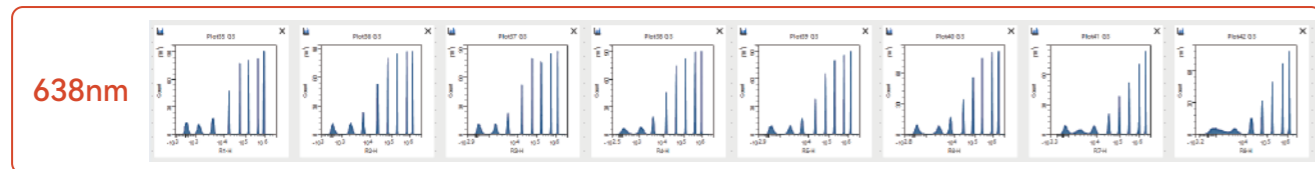
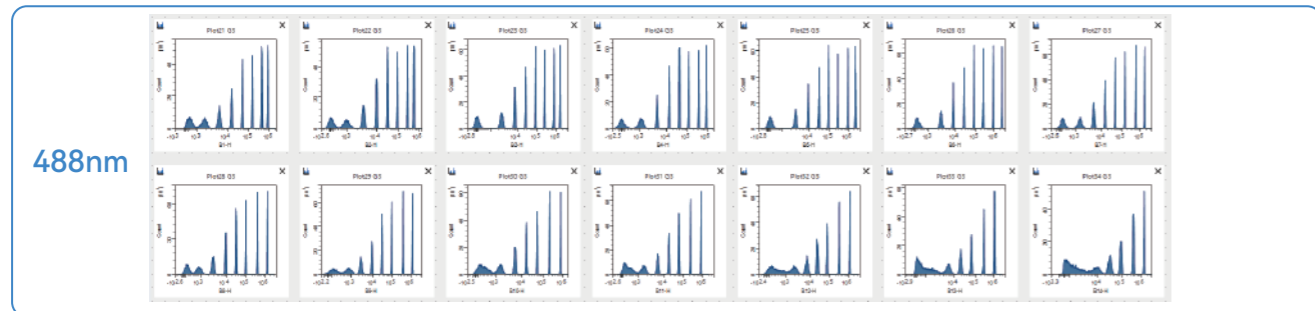
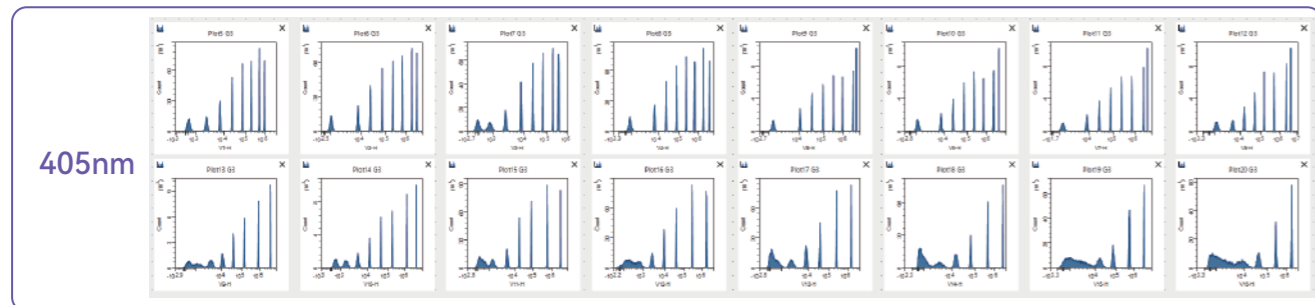
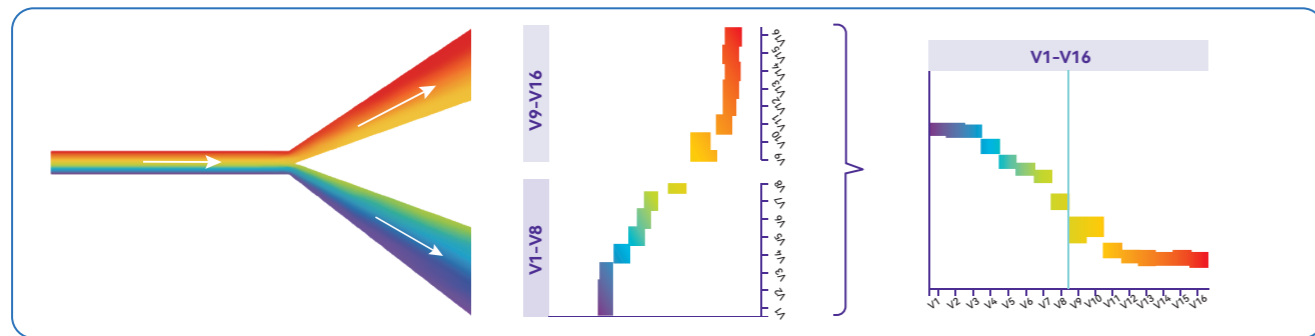


Exceptional Performance

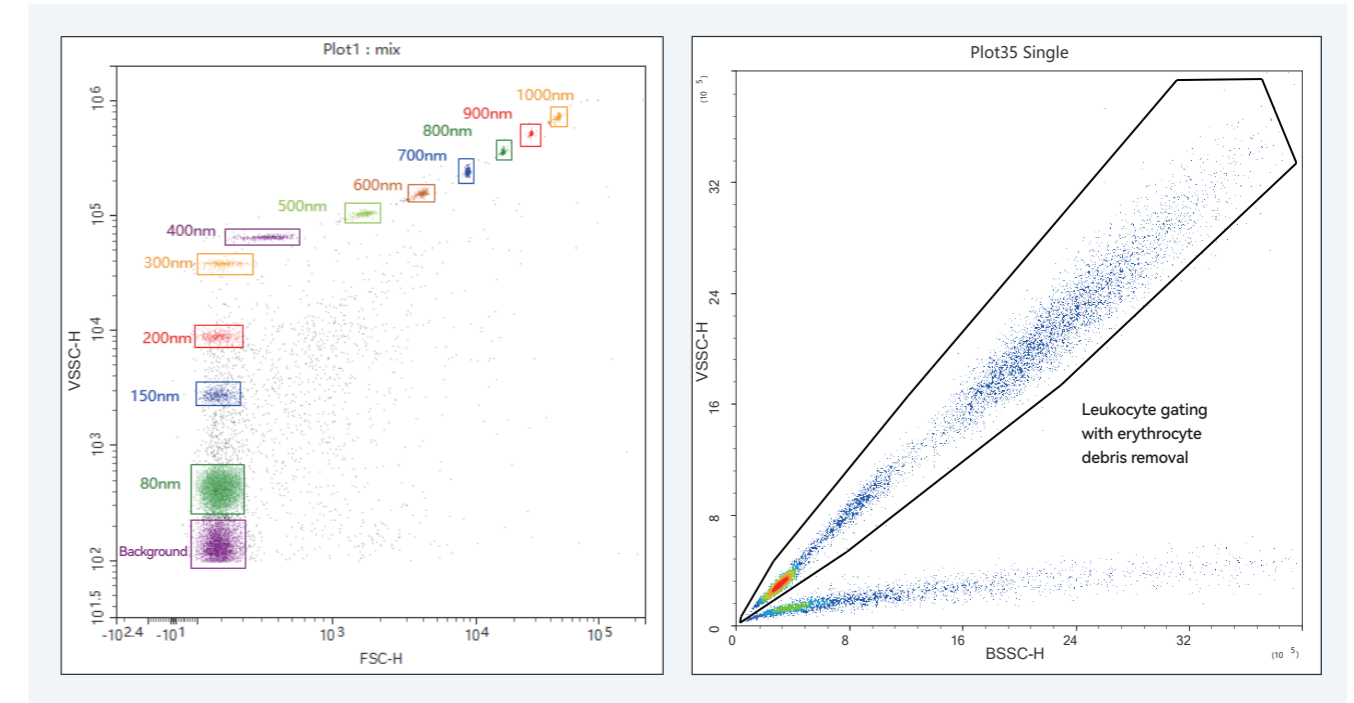
Breakthrough Optical Technology for Weak Signal Detection

Revolutionizing Optical Efficiency

Proprietary "Y"-shaped reflective spectral splitting technology minimizes optical reflection loss. Combined with a single-reflection optical path and a fully temperature-controlled optical system, it significantly enhances the detection of weak fluorescence signals.



VSSC Breaks Through Detection Limits, Unlocking Innovative Applications



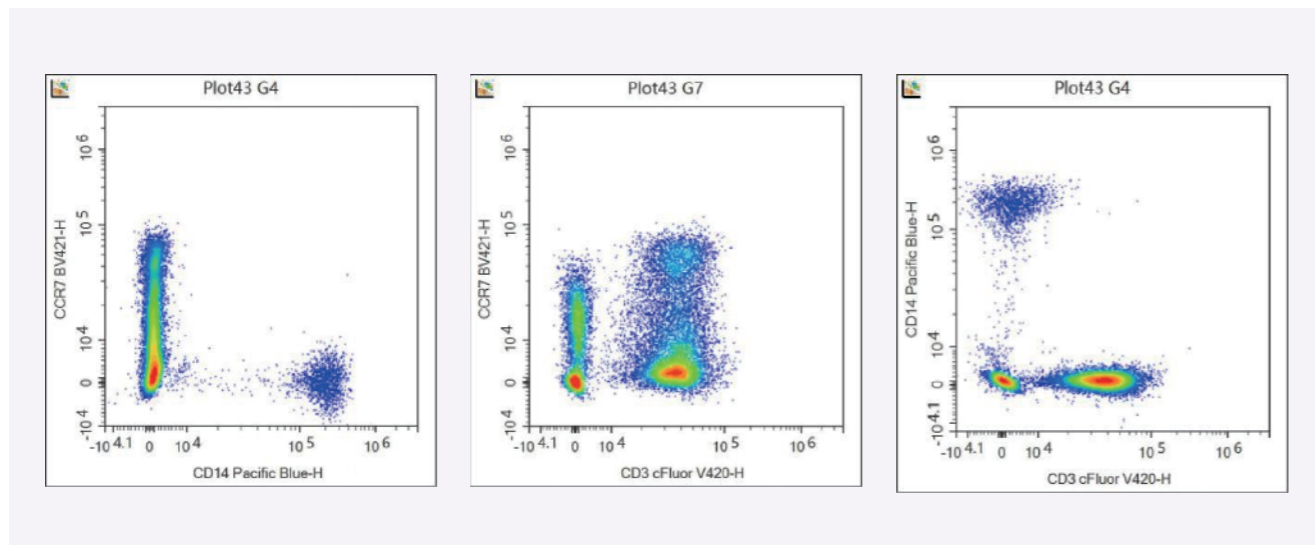
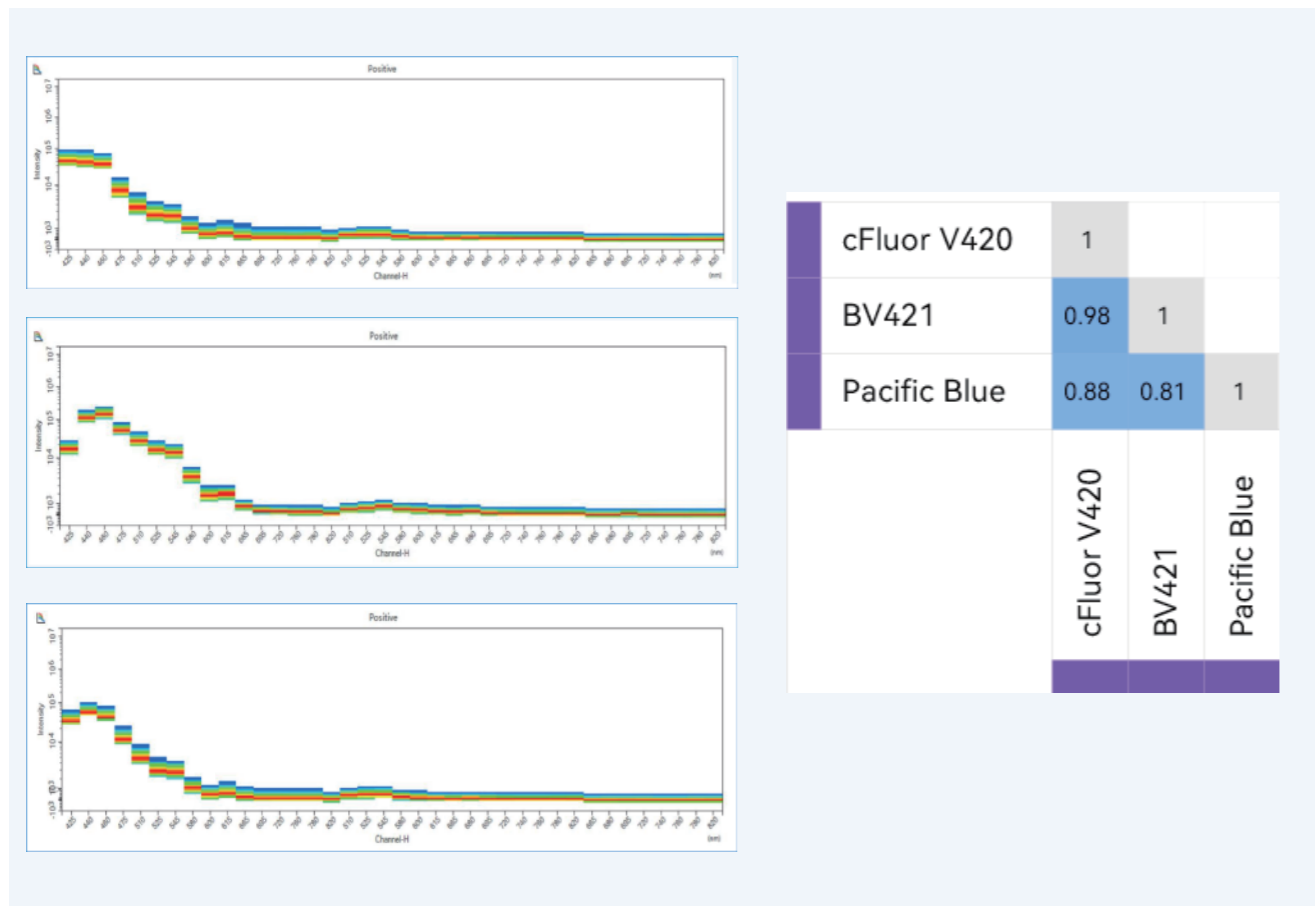
With Violet Side Scatter Channel (VSSC) technology breaking through the 80nm detection limit, it enables a broad particle detection range from 80nm to 1 μ m. Perfectly suited for precise analysis of heterogeneous populations including bacteria, viruses, nanoparticles, and extracellular vesicles (EVs).

Hemoglobin in erythrocytes absorbs violet light, resulting in a weaker VSSC (Violet Side Scatter Channel) signal compared to BSSC (Blue Side Scatter Channel) under the same conditions. This enables label-free identification of erythrocytes from other cell populations, effectively excluding debris interference.

Exceptional Performance

High-Resolution Spectral Detector

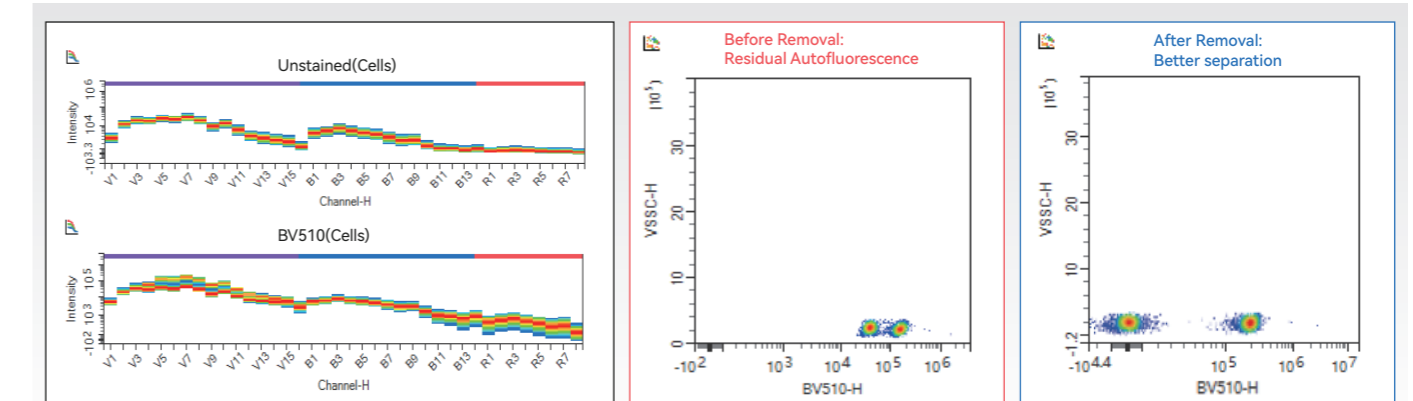
Integrated Multi-Channel APD Array delivers ultra-high spectral resolution, enabling optimal use of highly overlapping fluorochromes.



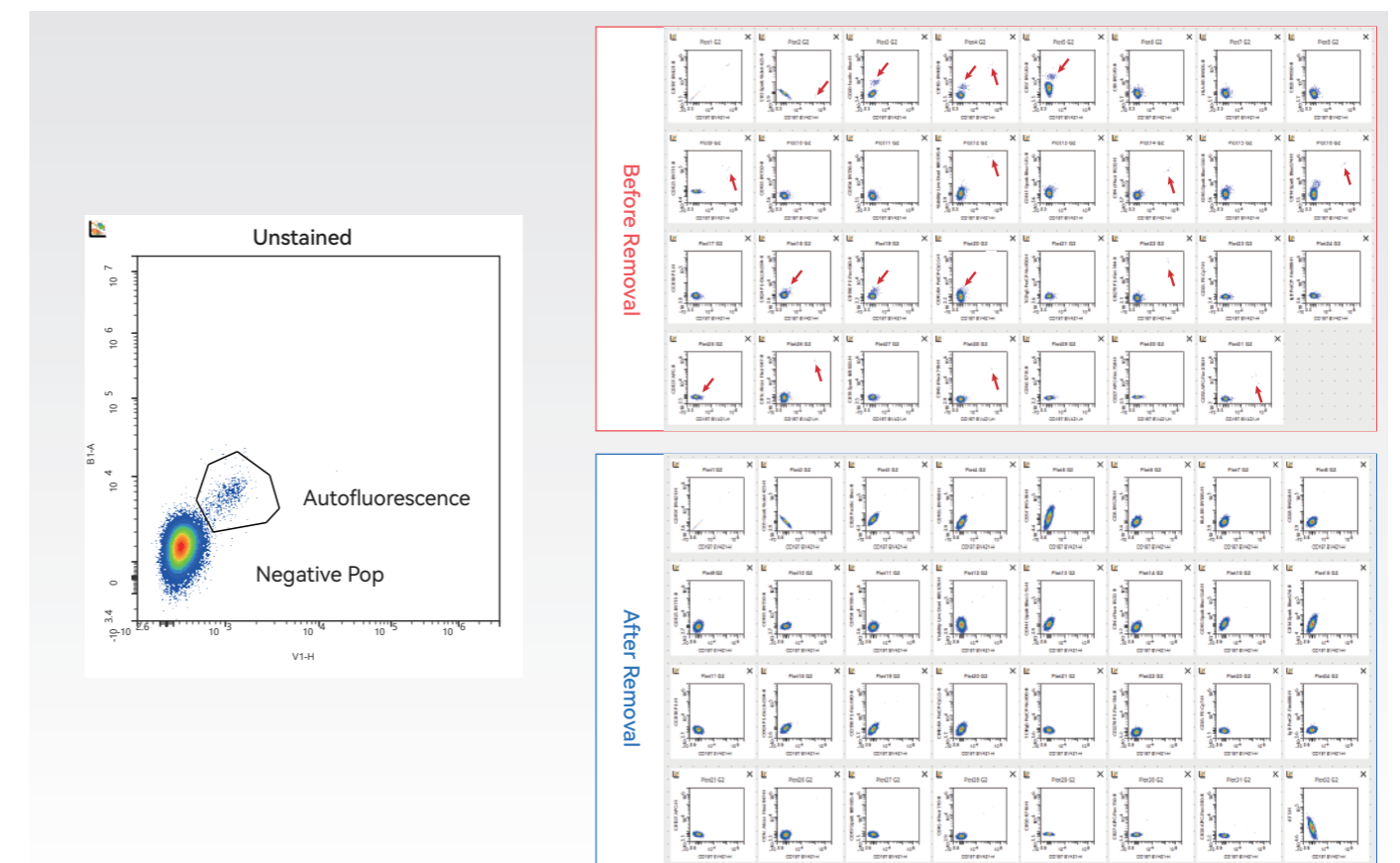
Smart Auto-Fluorescence Extraction

One-click autofluorescence extraction and multidimensional unmixing powered by innovative algorithms — delivering precise analysis for complex samples.

Improve signal-to-noise ratio



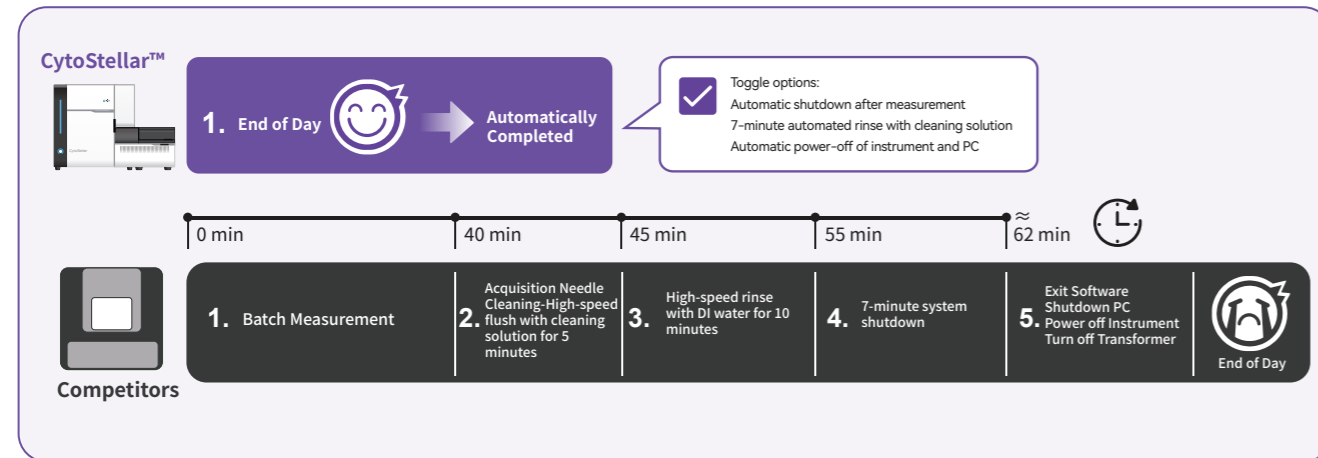
Eliminate background interference



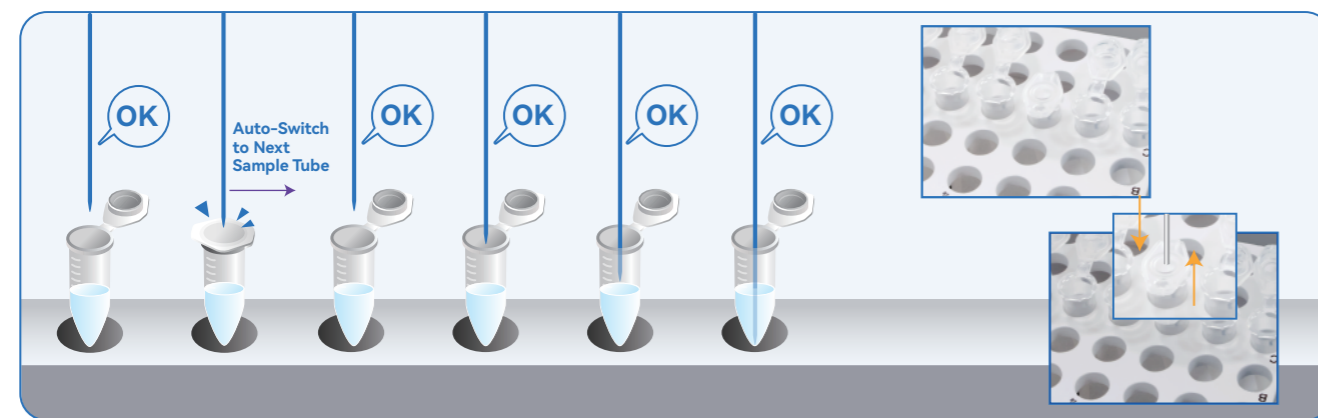
Smart Maintenance Made Easy and Reliable

Smart One-Touch Startup/Shutdown, Scheduled Operation and User-Defined Maintenance
Smart Anti-Collision + Clog Detection Alerts + Comprehensive System Monitoring, ensuring long stable performance.

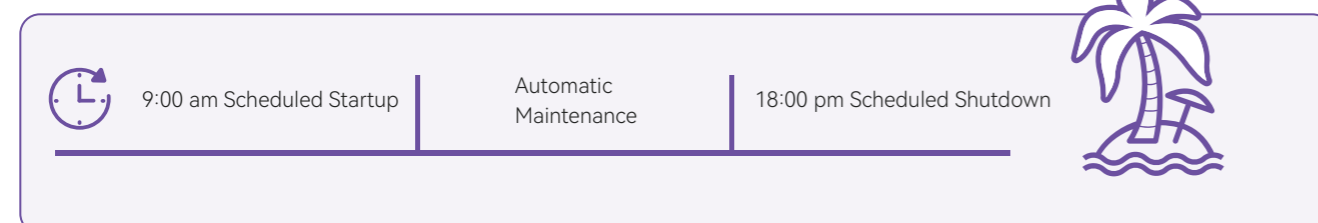
Smart Cleaning



Intelligent Anti-Collision



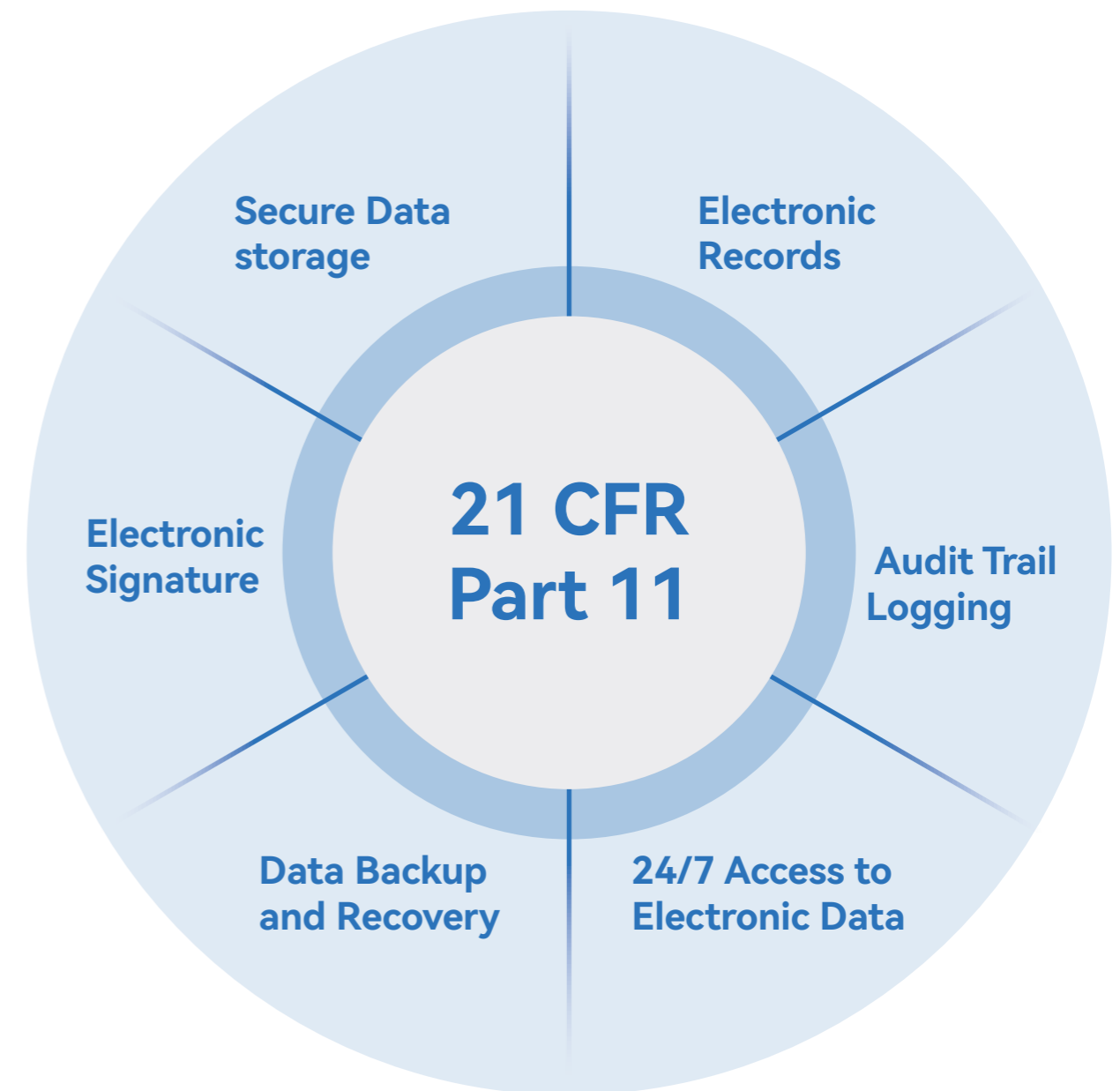
Scheduled Self-Maintenance



Standardized Compliance System

Fully Traceability

Fully compliant with 21 CFR Part 11 regulatory standards, including audit trail logging and electronic signature features. Supports three-level user access control to meet both research and clinical compliance requirements.



Optical Configuration

Catalog Number	405nm 16 Channel	488nm 14 Channel	638nm 8 Channel	VSSC	FSC	BSSC
AX 01		✓			✓	✓
AX 02	✓	✓		✓	✓	✓
AX 03		✓	✓		✓	✓
AX 04	✓	✓	✓	✓	✓	✓

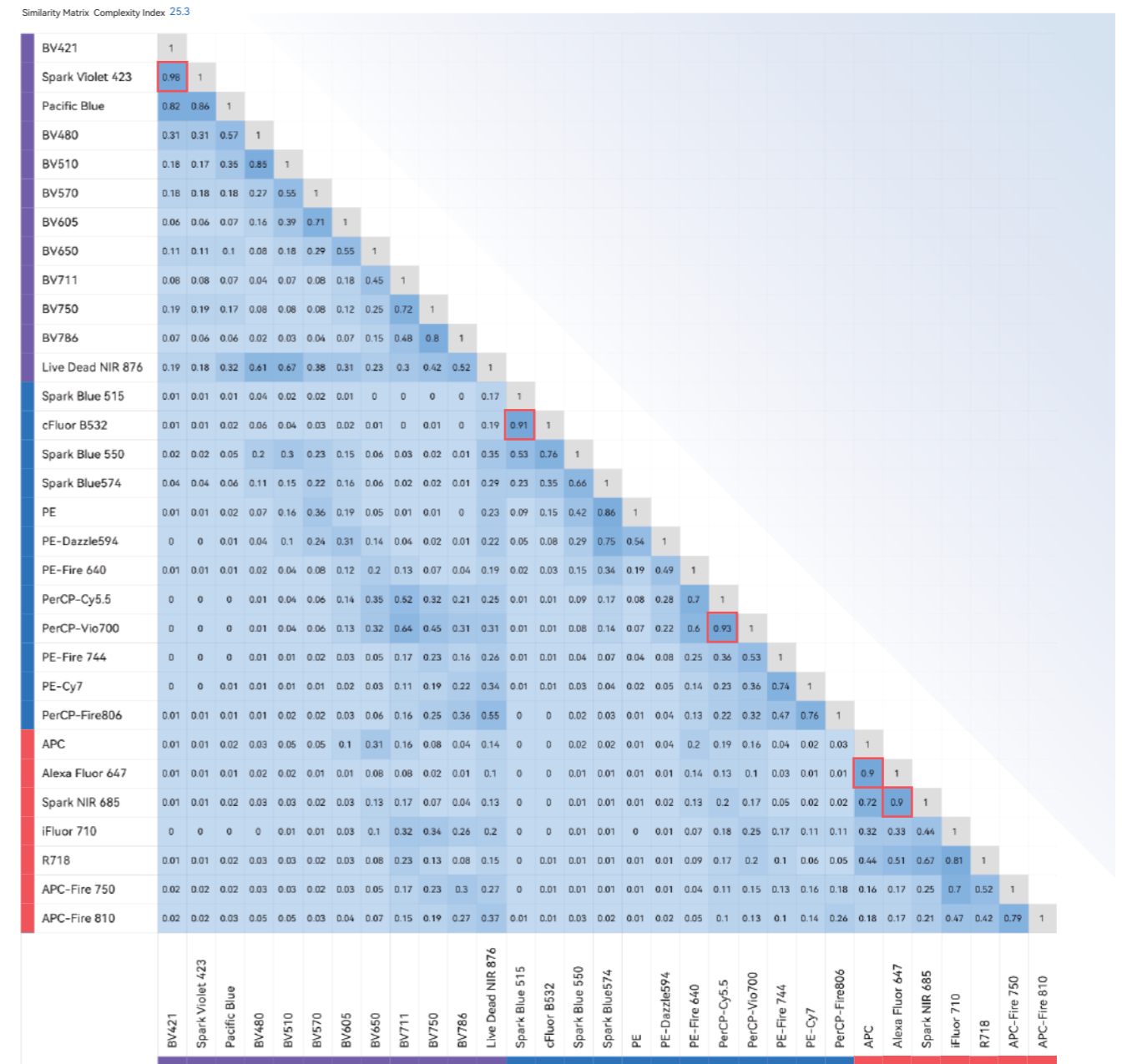
Seamless On-System Upgrade to Advanced Configuration

Key Specifications

Optics	Lasers	High-Power semiconductor lasers, spatially separated beam path, TEC-based temperature stabilization.
	Signal Transmission	Optical Fiber Signal Collection
	Particle Detect Size Range	0.1um-50um; VSSC Channel Detect Limit: below 80nm
Electronics	Dynamic Range	7.2 Decade Dynamic Detect Range
	Signal Resolution	24bit
	Pulse Parameters	All channels support Height(H), Area(A), Width(W), and Time Parameters
Fluidics	Sampling Options	Supports sing tube loading and high-throughput acquisition, optional Smart Loader available
	Sample Recovery	Supports Sample Recovery functionality
	Smart Loader	Supports continuous temperature control from 4°C to 37°C
	Sample Flow Rate Range	Supports two adjustment modes Preset mode: three preset sample flow rate: Low:10 µL/min, Medium:60 µL/min, High:120 µL/min Custom mode: User-defined continuous adjustment range from 5 to 240µL/min
	Carryover	≤0.05%
Software	Data Analysis	Supports advanced data integration and processing
	User Interface Language	Available in both Chinese and English
	Absolute Counting	Compatible with bead-based method and volumetric method
	Autofluorescence Unmixing	Supports one-click extraction and simultaneous unmixing of multiple autofluorescence (no quantity limitation)
	Spectral Unmixing	Single staining controls supports automatic gating of negative and positive populations
	Spectrum Library	Templates and spectrum libraries can be shared across different users accounts.
Audit Trial	Comprehensive audit trial throughout the entire workflow. Fully compliant with 21CFR Part11 for data integrity and traceability.	
Others	System Dimensions(with Smart Loader): 80.7×52.8×57.3cm Instrument Dimensions(Main Unit only): 53.8×52.8×57.3cm, Loader Dimensions: 40.0×29.5×28.5cm Weight(Main Unit): 55kg, Loader Weight:12.6kg	

3Laser 31Color Deep Unmixing Unlocks New Possibilities

405nm Laser	Marker	Fluorochrome	488nm Laser	Marker	Fluorochrome	638nm Laser	Marker	Fluorochrome
405nm	CD197 (CCR7)	BV421	488nm	CD141	Spark Blue 515	638nm	CD127 (IL-7Ra)	APC
	CD3	Spark Violet 423		CD4	cFluor B532		CD1c	Alexa Fluor 647
	CD20	Pacific Blue		CD16	Spark Blue 550		CD19	Spark NIR 685
	CD185 (CXCR5)	BV480		CD14	Spark Blue 574		CD56	R718
	CD57	BV510		CCR10	PE		CD45	iFluor710
	CD8	BV570		CD24	PE-Dazzle 594		CD27	APC-Fire 750
	HLA-DR	BV605		CD196 (CCR6)	PE-Fire 640		CD38	APC-Fire 810
	CD28	BV650		CD45RA	PerCP-Cy5.5			
	CD123 (IL-3Ra)	BV711		TCR γδ	PerCP-Vio 700			
	CD183 (CXCR3)	BV750		CD279	PE-Fire 744			
	CD194 (CCR4)	BV786		CD25	PE-Cy7			
	Viability	Live Dead NIR 876		IgD	PerCP-Fire 806			



3Laser 31Color Deep Unmixing Unlocks New Possibilities

