

About Challenbio

Beijing Challen Bio-Technology 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

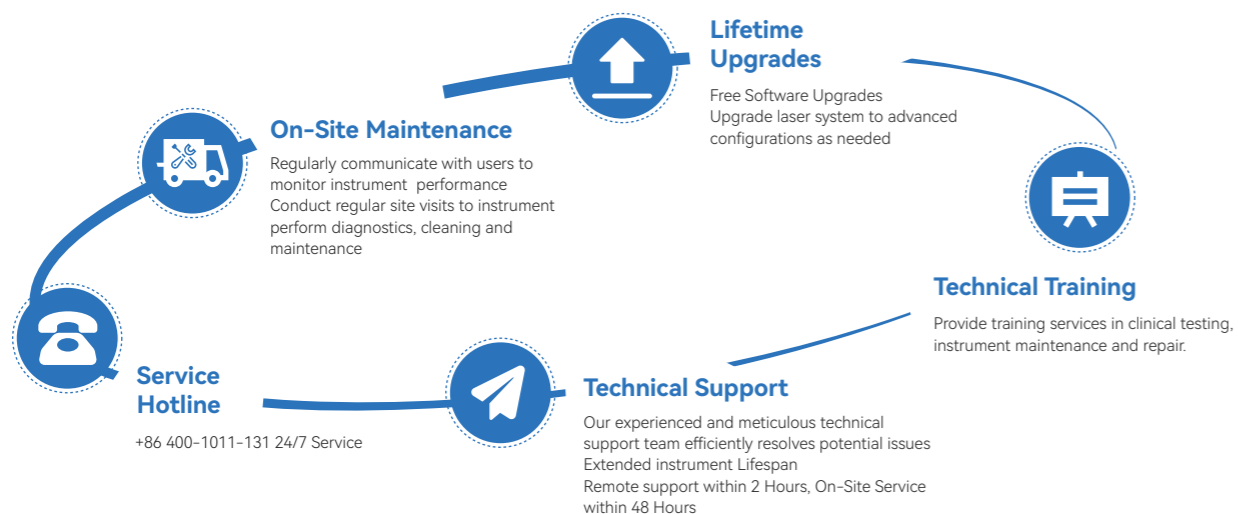
Mission: To create a vibrant world and safeguard the beauty of life.

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 Bio-Technology Co., Ltd.

Beijing Challen Bio-Technology Co., Ltd.

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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

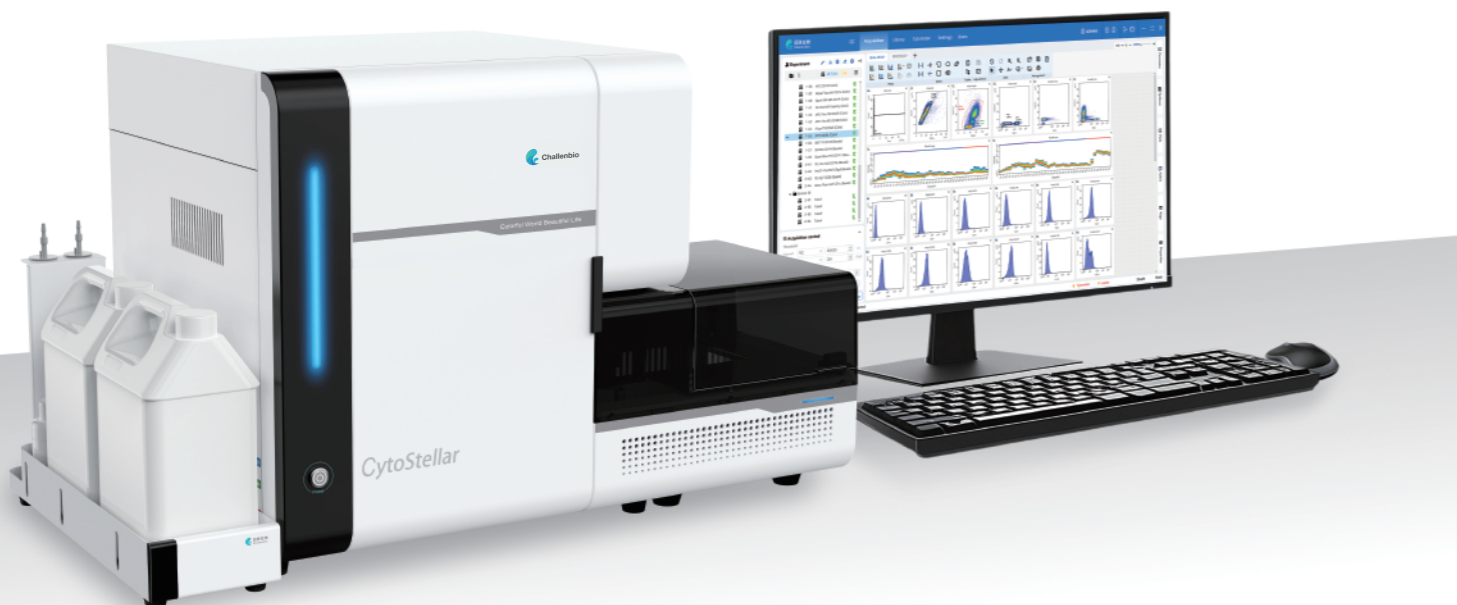
Customizable Power-On/Off, Guided operation, One-Click Spectrum Library Import and Unattended Maintenance simplify operations and minimize labor effort.

Superior Efficiency

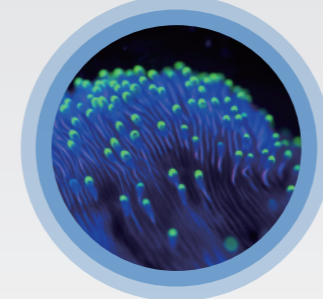
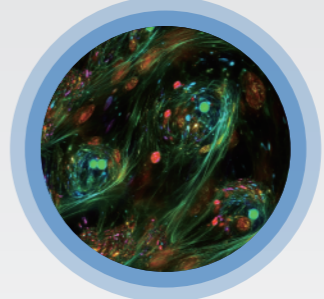
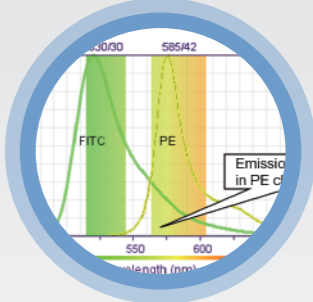
Quick QC in 3 minutes, High-Speed Sampling with Multiple Carriers Options, and independent Real-Time Unmixing between sample tubes, saving time and maximizing efficiency.

Outstanding Standardization

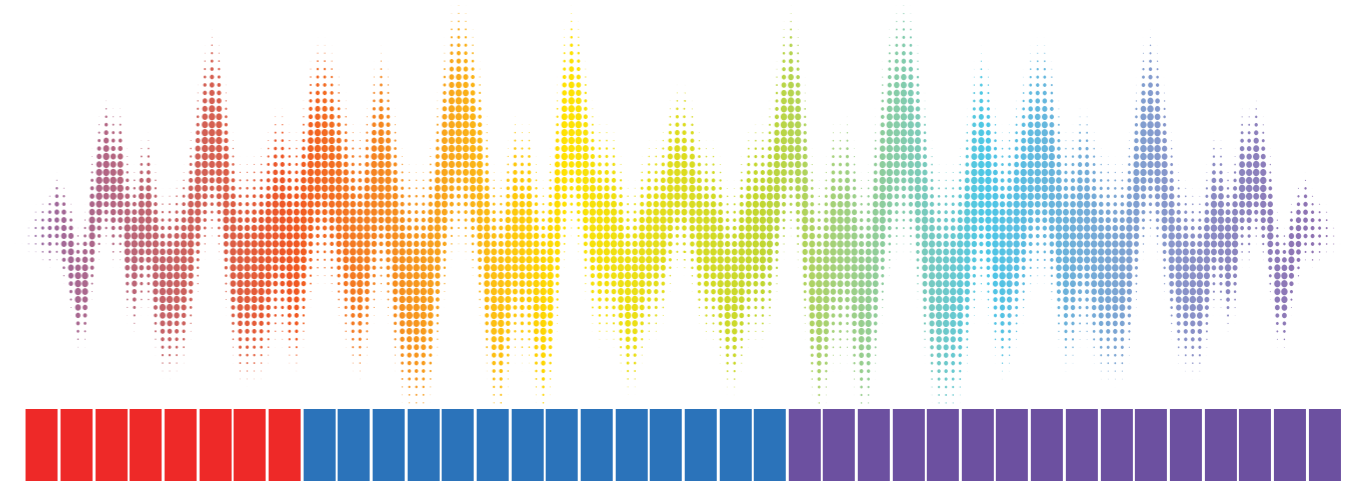
The Audit Trail function creates a complete tracking system from data acquisition to archiving. Experiments are exportable and shareable, enabling result comparability and driving research standardization and collaboration.



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



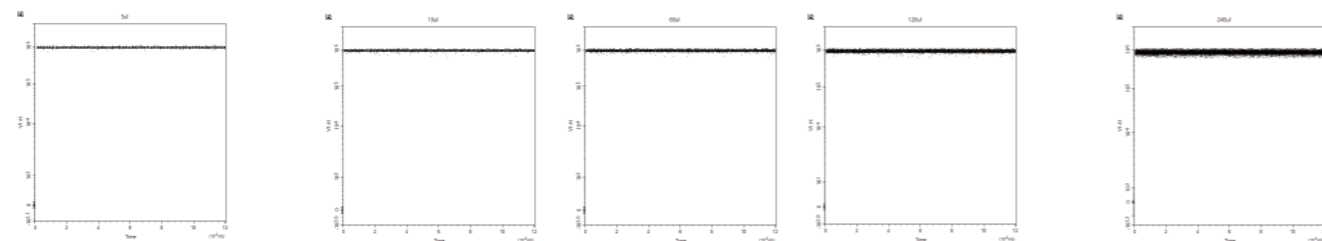
Intelligent sample insufficiency detection

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

Sample Recovery

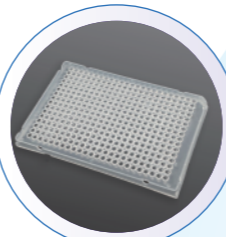
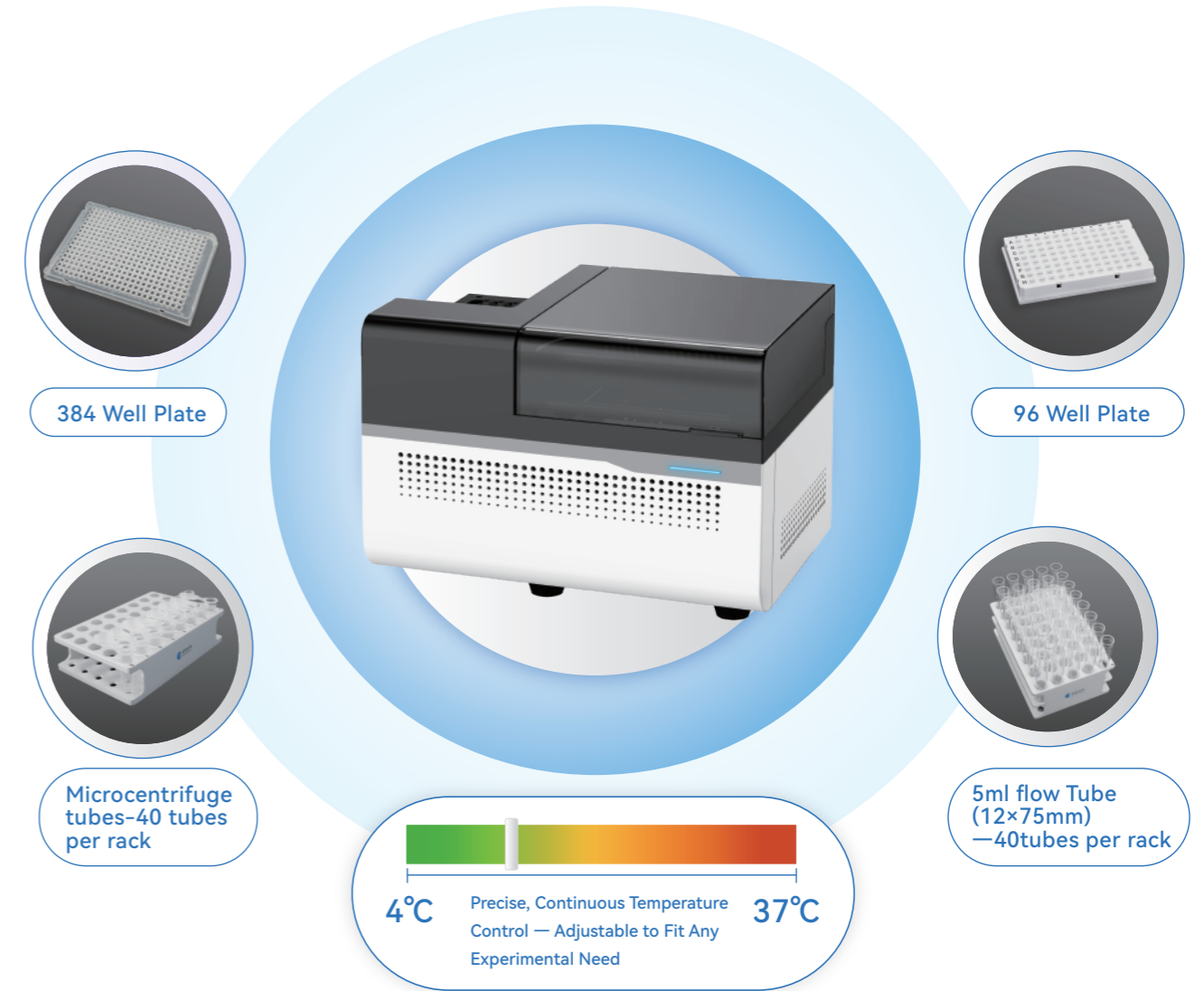
Maximizing the efficiency of every microliter of precious sample

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

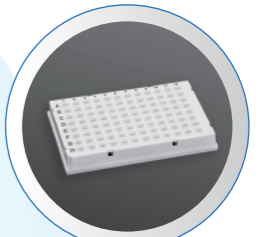


Stable results ranging from 5µL/min to 240µL/min, regardless of sample flow rate.

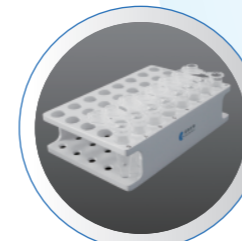
High Throughput Without Compromising Sample Viability



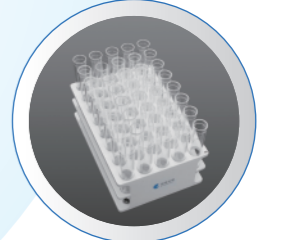
384 Well Plate



96 Well Plate



Microcentrifuge tubes-40 tubes per rack



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



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.

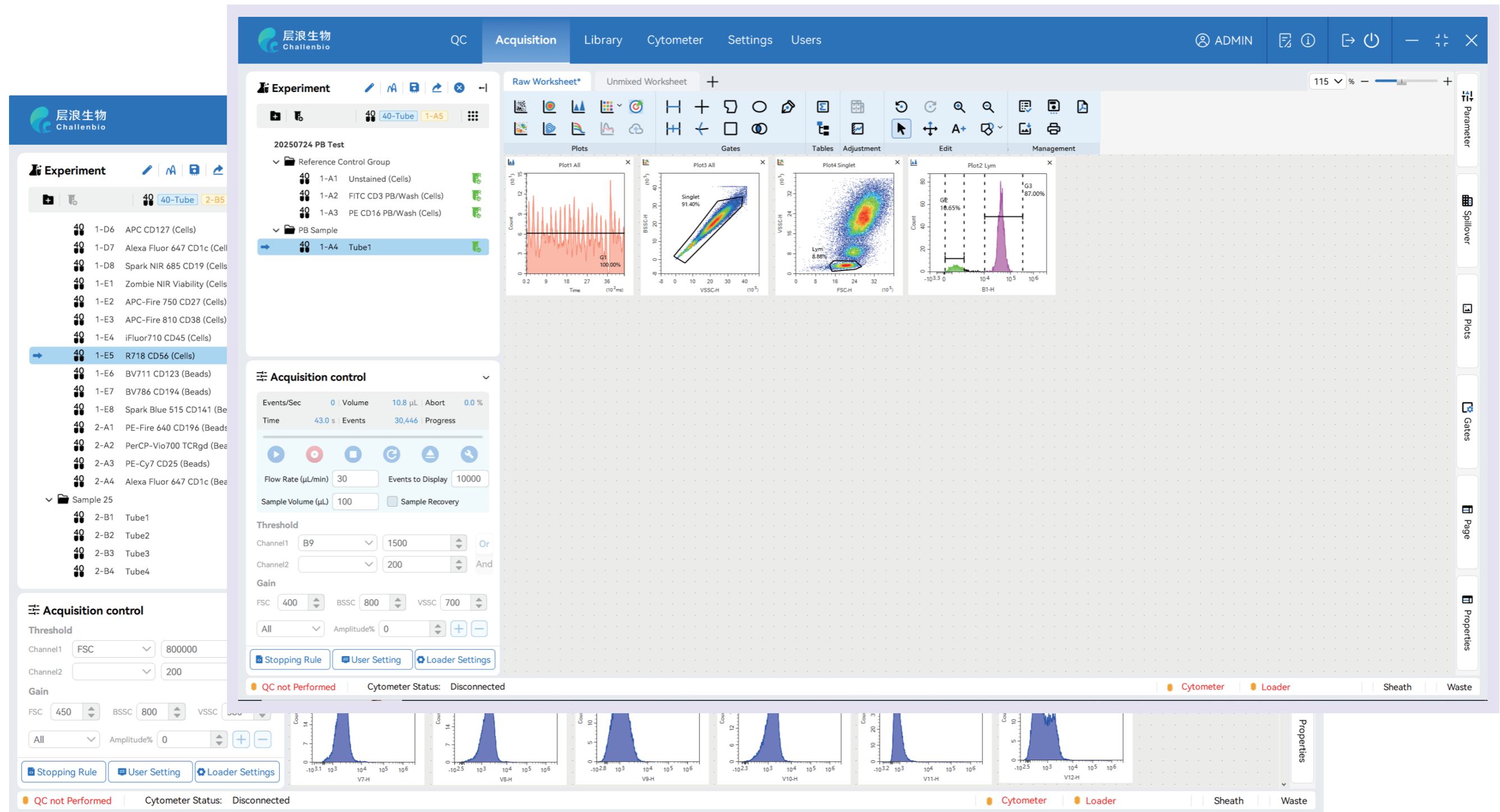
Continuous, Infinitely Adjustable Temperature Control

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

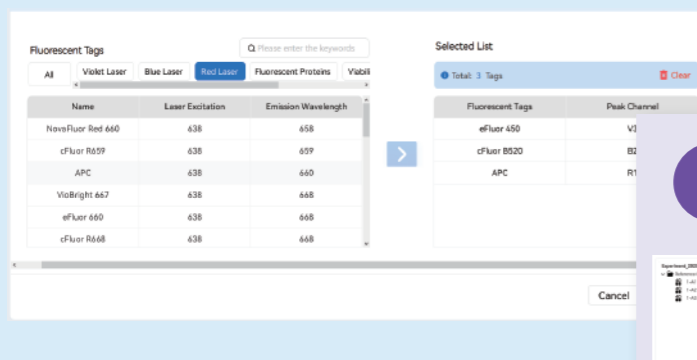
Guided Workflow for Effortless Mastery of Spectral Flow Cytometry

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

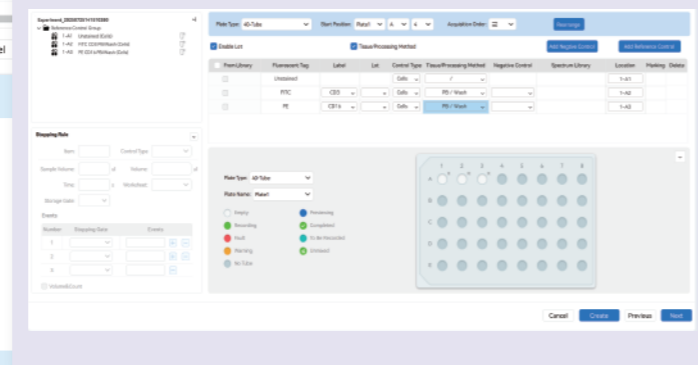
Simple and Streamlined Operation

Guided Experimental Workflow

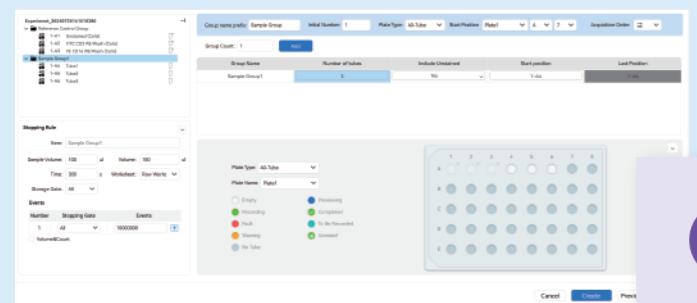
1 Fluorochrome Selection



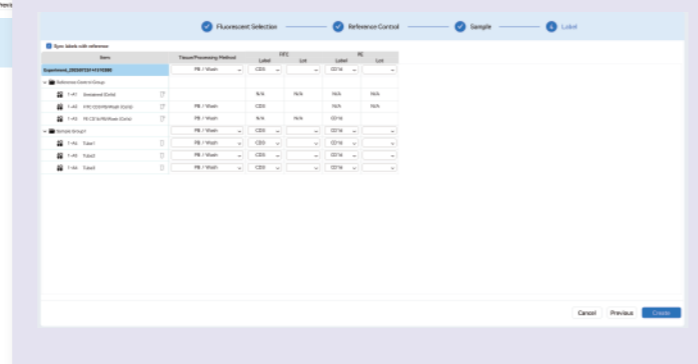
2 Reference Control Setup



3 Sample Setup



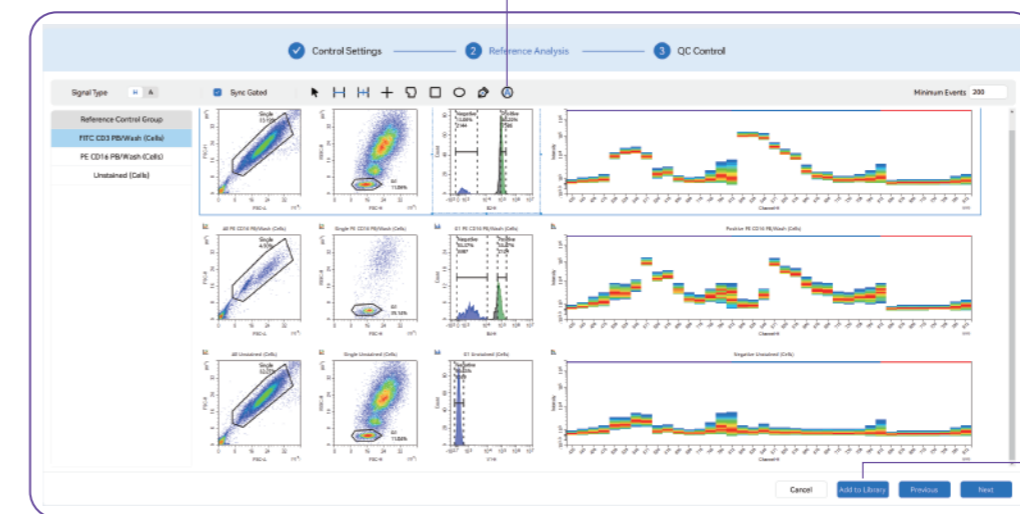
4 Label Setup



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

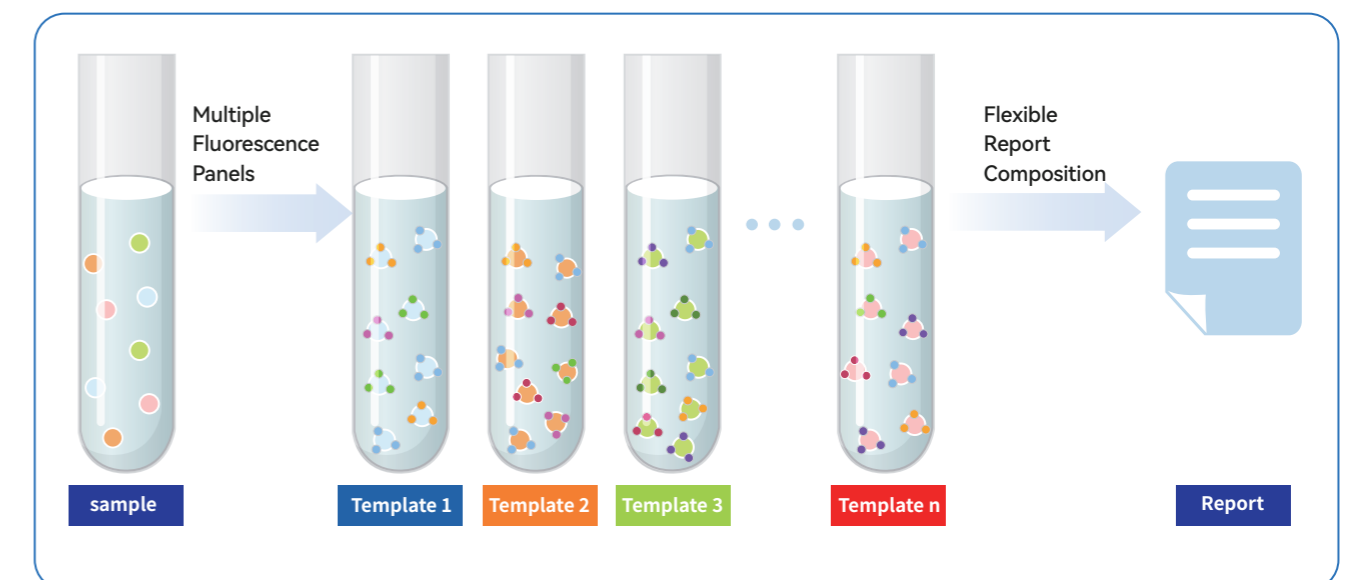
A Auto Gating



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

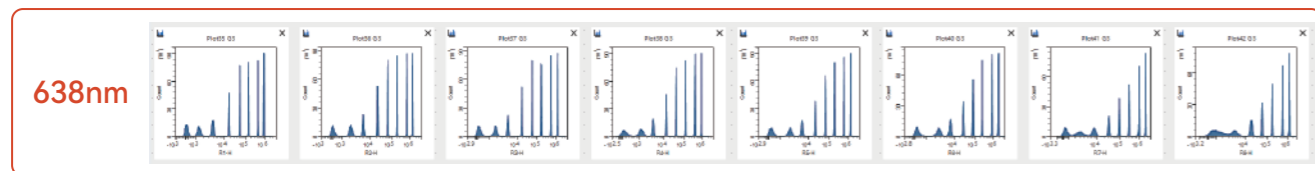
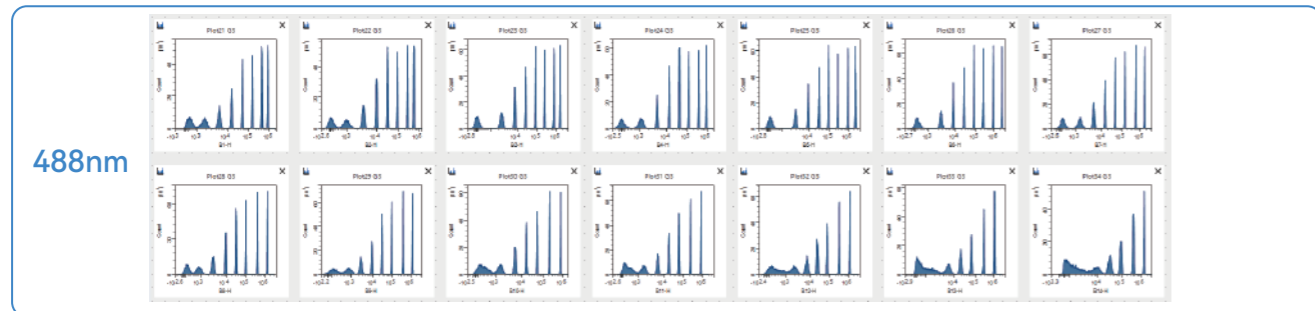
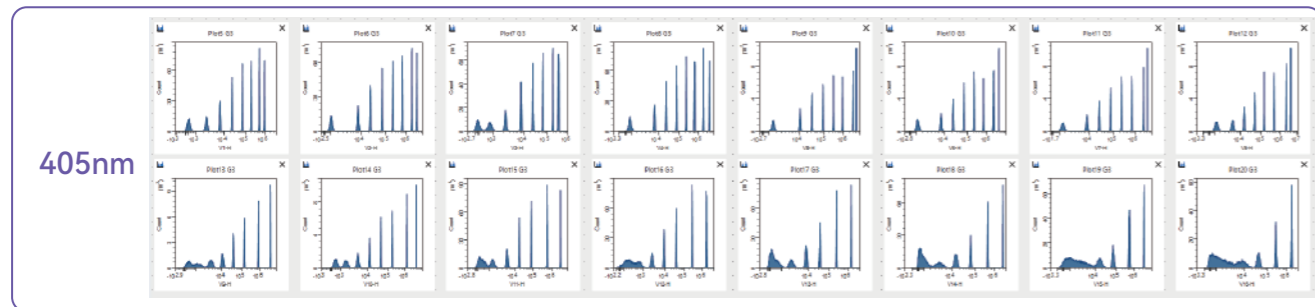
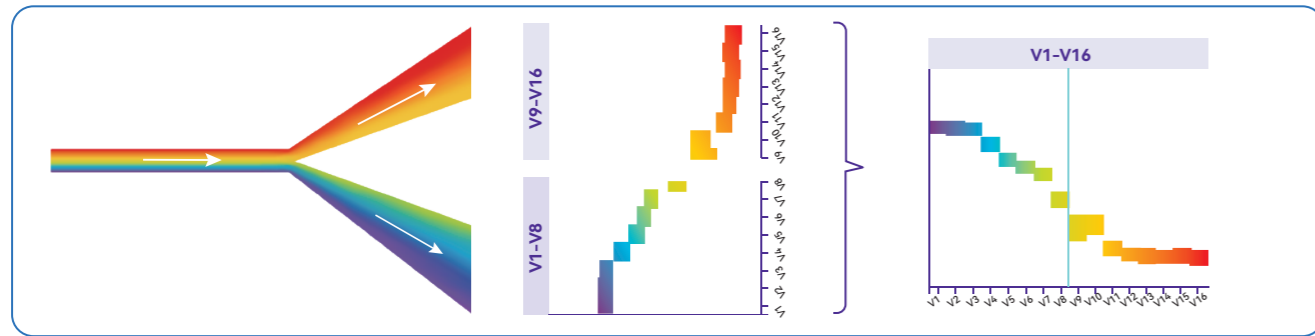


Exceptional Performance

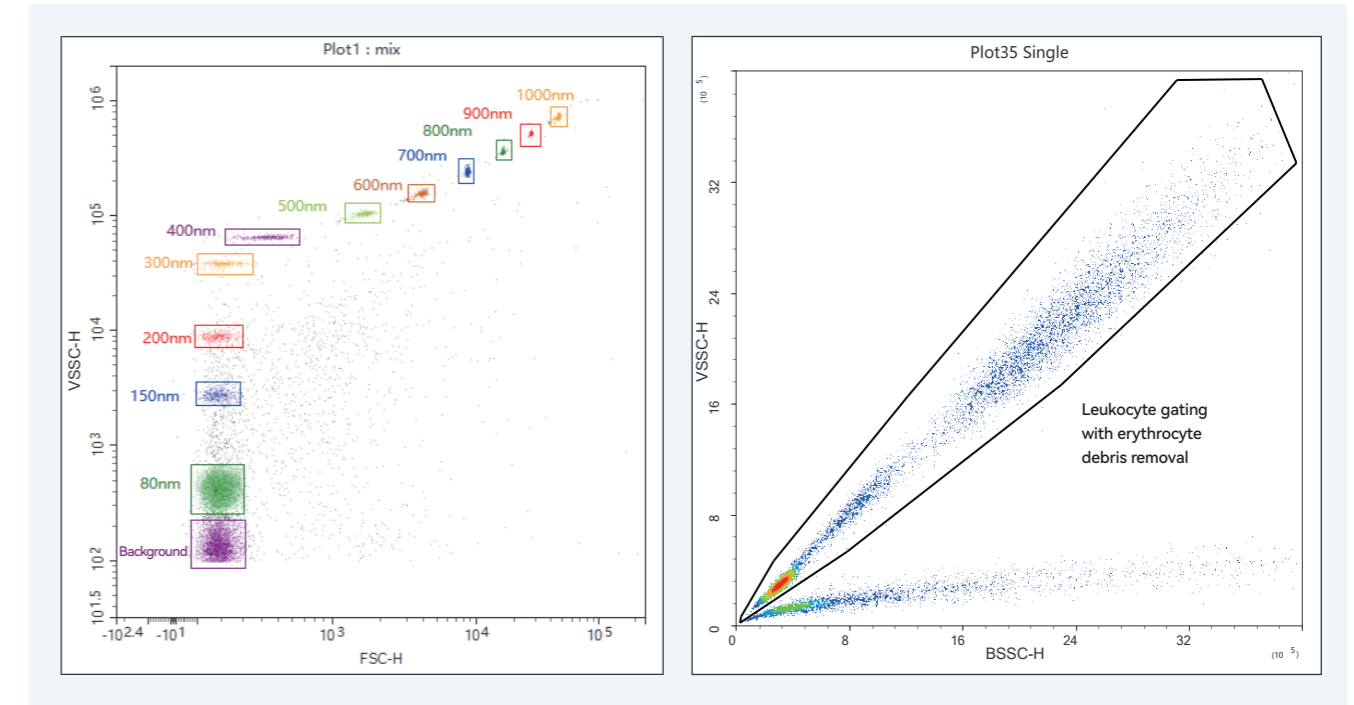
Breakthrough Optical Technology for Weak Signal Detection

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



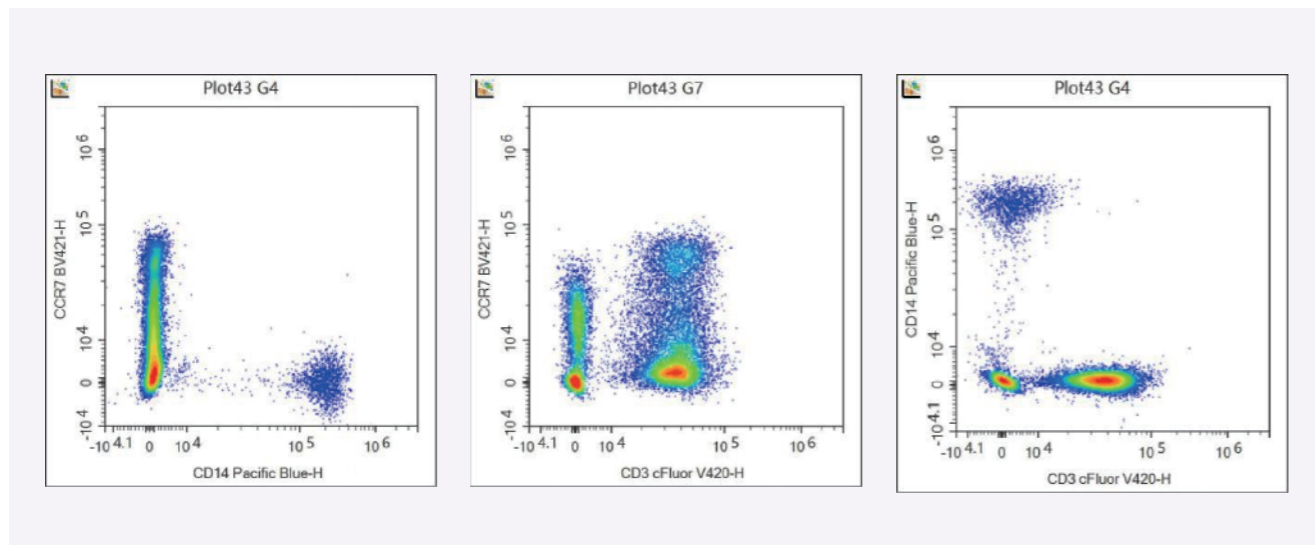
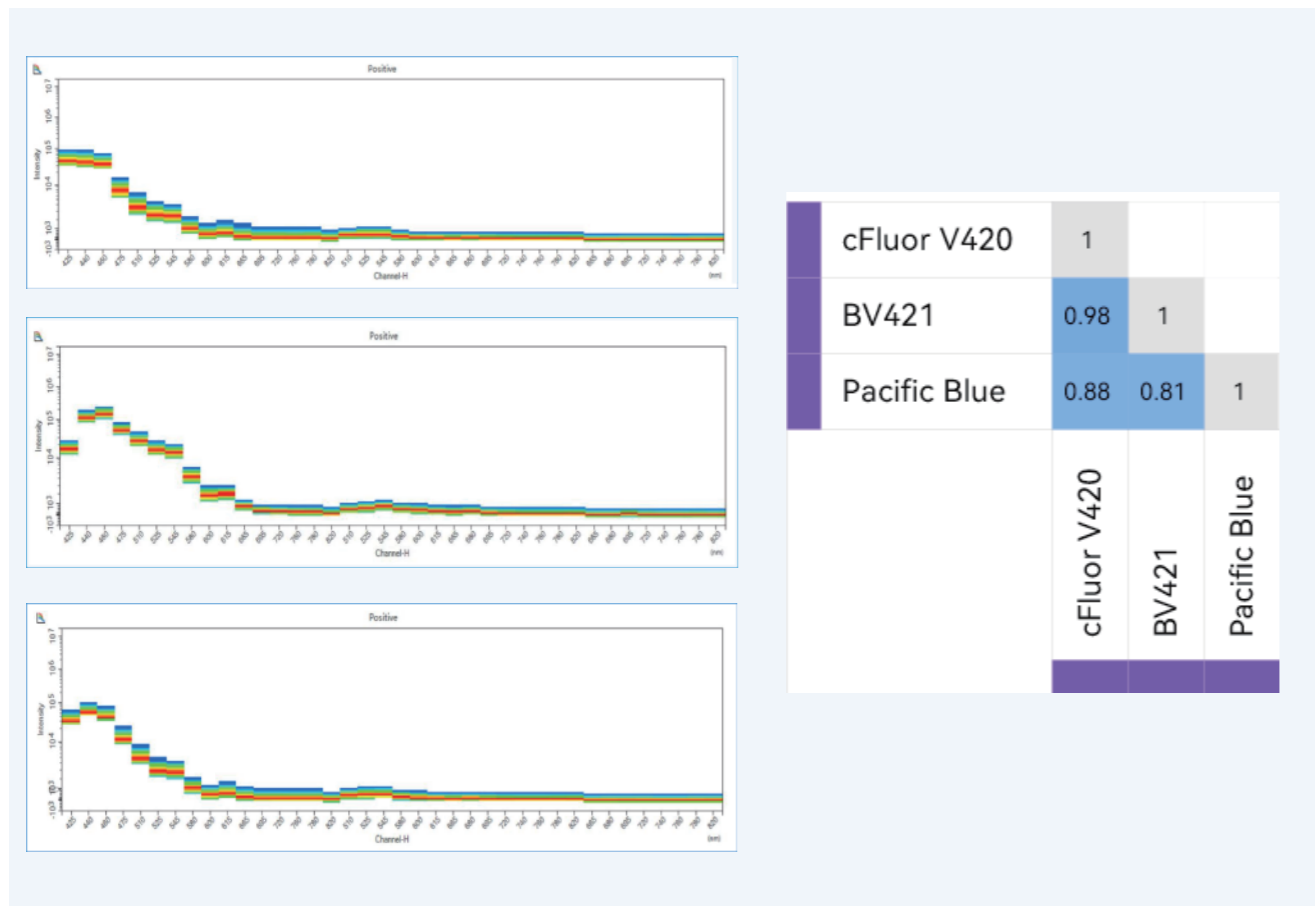
With Violet Side Scatter Channel (VSSC) technology breaking through the 80nm detection limit, it enables a broad particle detection range from 80nm to 1 μ m. Perfectly suited for precise analysis of heterogeneous populations including bacteria, viruses, nanoparticles, and extracellular vesicles (EVs).

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

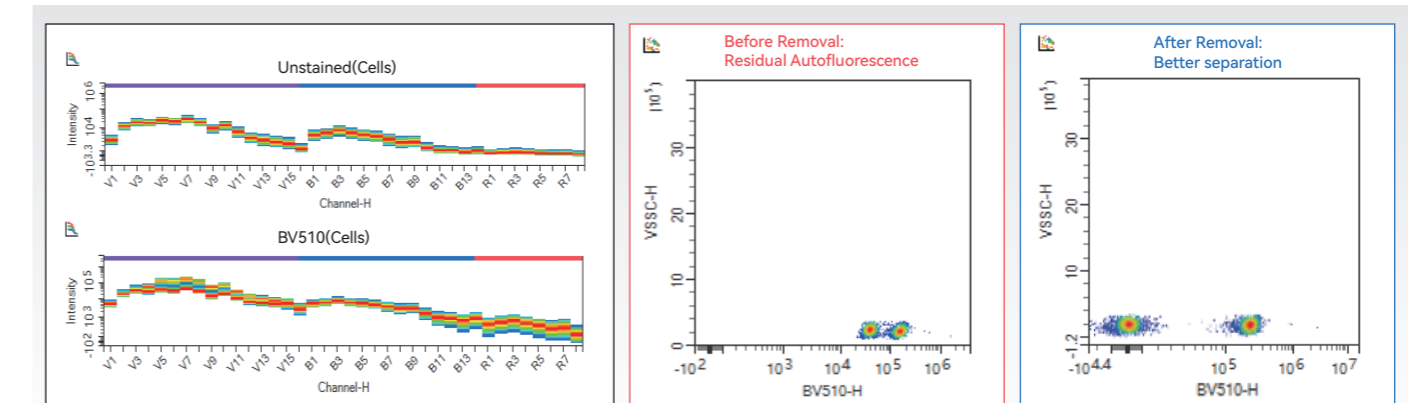
Integrated Multi-Channel APD Array delivers ultra-high spectral resolution, enabling optimal use of highly overlapping fluorochromes.



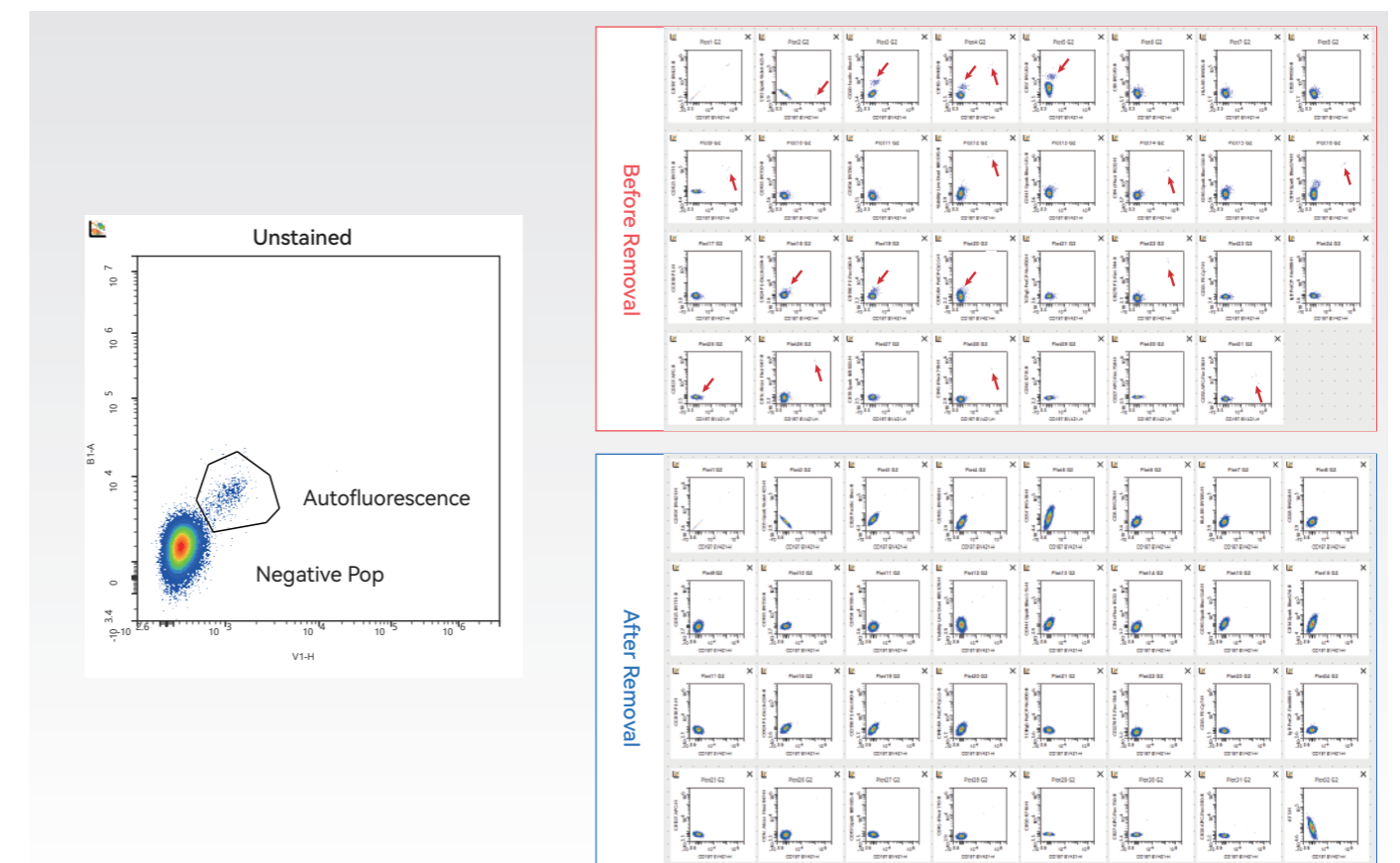
Smart Auto-Fluorescence Extraction

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

Improve signal-to-noise ratio



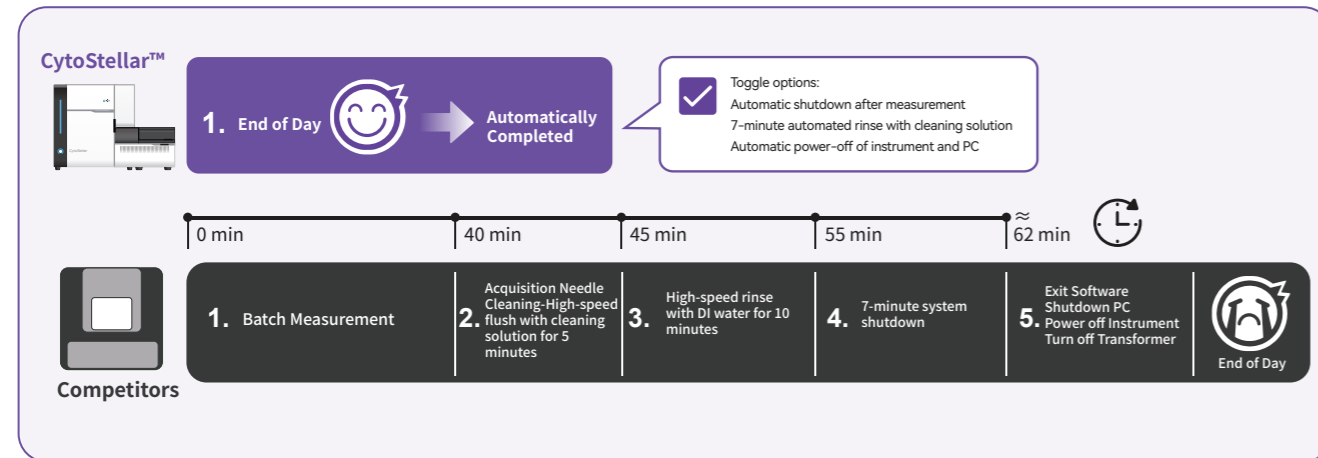
Eliminate background interference



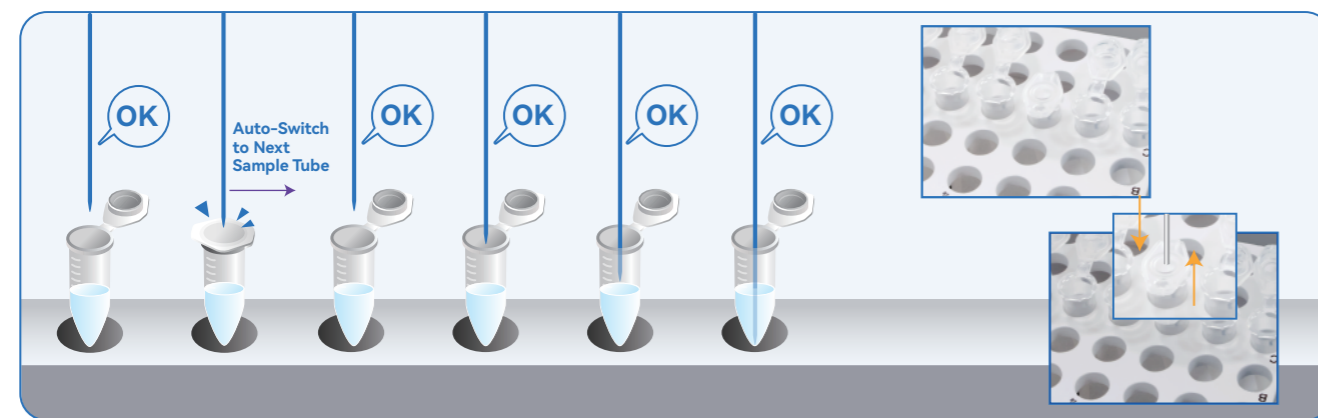
Smart Maintenance Made Easy and Reliable

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

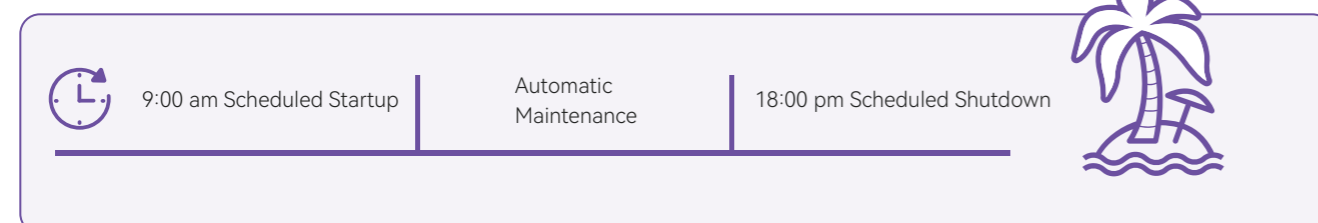
Smart Cleaning



Intelligent Collision Avoidance



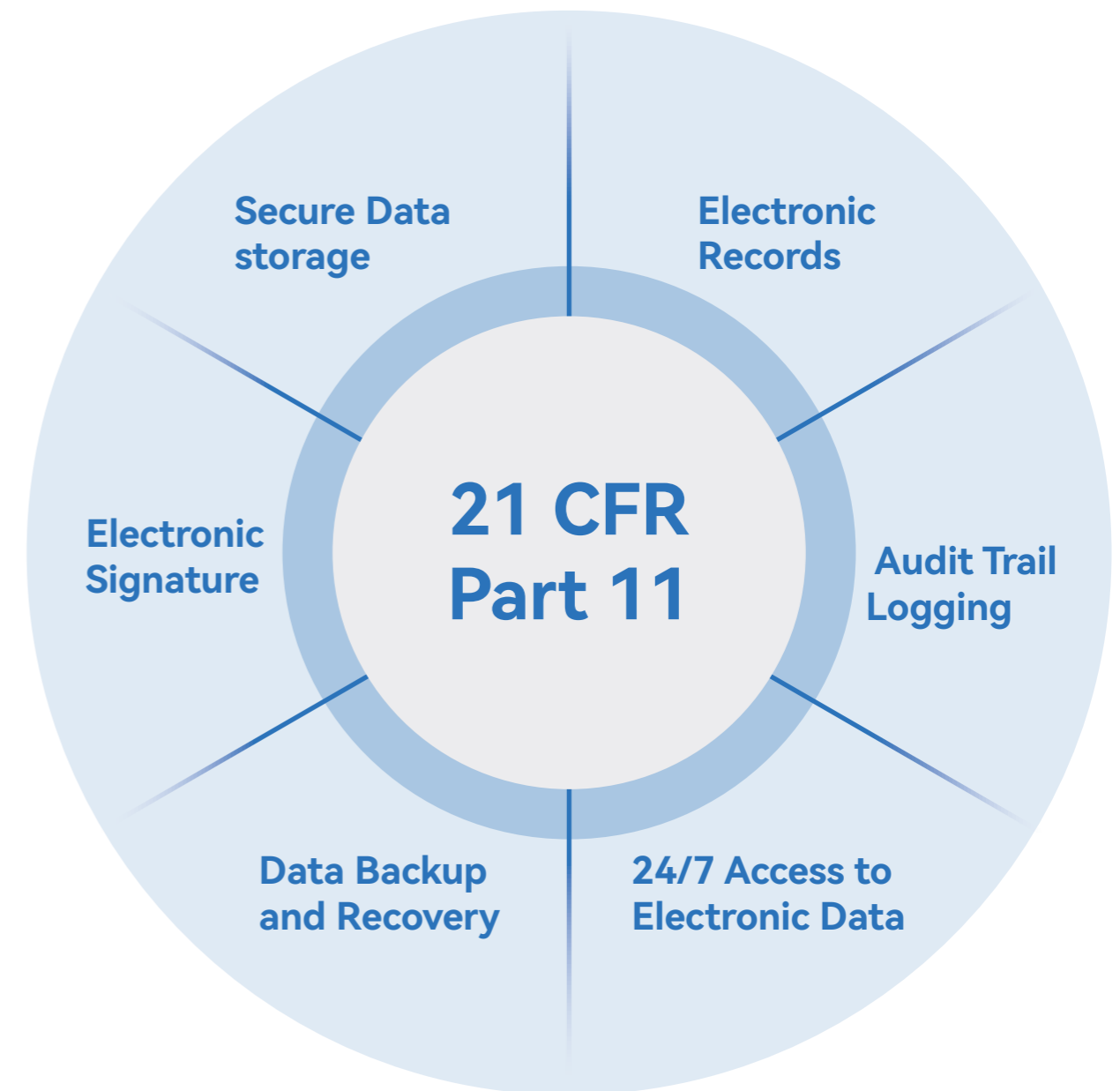
Scheduled Self-Maintenance



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

3Laser 31Color Deep Unmixing Unlocks New Possibilities

| Laser | Marker | Fluorochrome | Laser | Marker | Fluorochrome | 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 | | | |

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. |
| Others | Audit Trial | Comprehensive audit trial throughout the entire workflow. Fully compliant with 21CFR Part11 for data integrity and traceability. |
| | 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 | |

