

About Challenbio

Beijing Challen Biotechnology Co., Ltd., located in the Biological Pharmaceutical Industry Base, Daxing District, Beijing, is a biotechnology company specializing in the R&D, manufacture and sales of products manufactured by biological and medical technologies. Challenbio is committed to providing users with excellent one-stop services of flow cytometry, instruments and reagents. Its current product portfolio mainly covers LongCyte® and FongCyte™ flow cytometry series, as well as auxiliary diagnostic reagent and automatic sample preparation instruments, with nearly 1000 users worldwide. Challenbio further offers solutions catering to diverse sectors such as clinical diagnosis, biotherapy, basic biomedical research, drug R&D, ecomaterial, food toxicity monitoring,. The company has successfully attained ISO9001 and ISO13485 certifications, and is committed to building domestic cutting-edge flow cytometers and supporting products.

Enterprise Culture

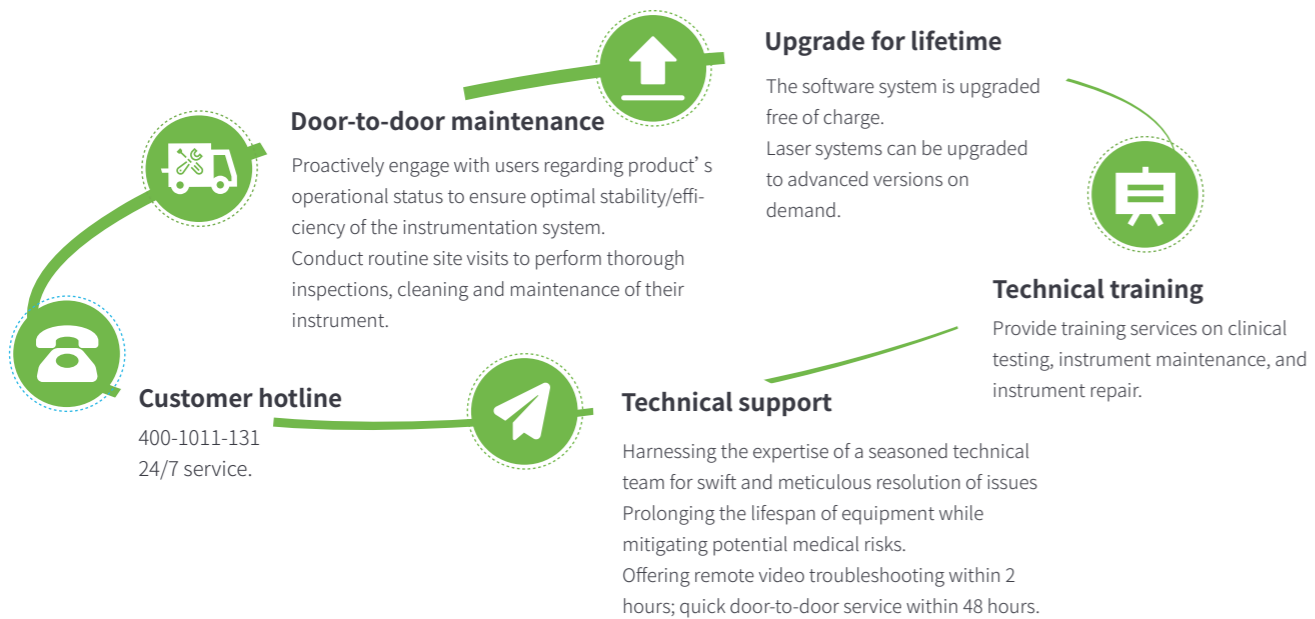
Mission: Colorful World, Beautiful Life!

Vision: To emerge as a world-renowned provider of premier biological and medical services!

Values: Excellence, determination, collaboration, and mutual success!

After-Sales Services

Challenbio is available at all times



FongCyte™ S

Four-laser Flow Cytometer



Superior Performance
Unlimited Potential



Welcome to follow our official account

Beijing Challen Biotechnology Co., Ltd.

Room 405, Building A, Beijing BeautySpot Incubator Enterprise,
25th of YongXing Road, Daxing District, Beijing City, 102629 China.

Website: www.challenbio.com

Email: sale@challenbio.com

Service Hotline: 400-1011-131

Beijing Challen Biotechnology Co., Ltd.

Colorful World
Beautiful Life

FongCyte™ S Flow Cytometer

To meet the growing exploratory demands for scientific research in the fields of single-cell, protein, and gene analysis, FongCyte™ S, as an innovative product based on the flow cytometers of FongCyte™ Series, not only inherits the superior performance of the Series, but also achieves a technological leap forward on this foundation. By incorporating a novel design of 561 nm all-solid-state laser and violet side-angle scattering channel (VSSC), FongCyte™ S enables to simultaneously carry 4 lasers including 488 nm, 638 nm, 405 nm, and 561 nm, thereby supporting fine analysis of up to 14 colors or detection small particles with 13 colors. This breakthrough greatly enhances the flexibility of assay design, while broadens the dimension of data analysis, adding unlimited potential to the road of scientific research exploration.

Scalable

Flexible measurement
Automatic sample loading

Smart

Unattended operation
Smart maintenance



Stable

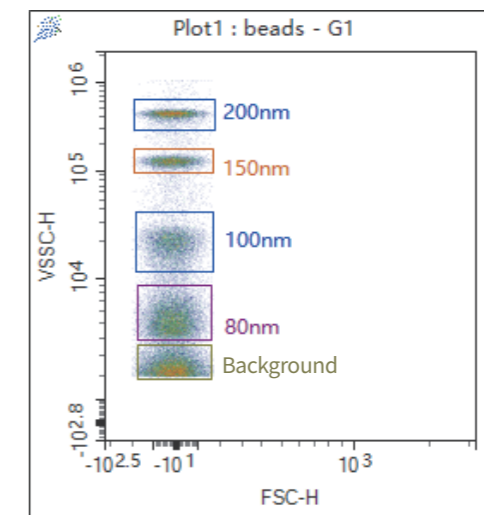
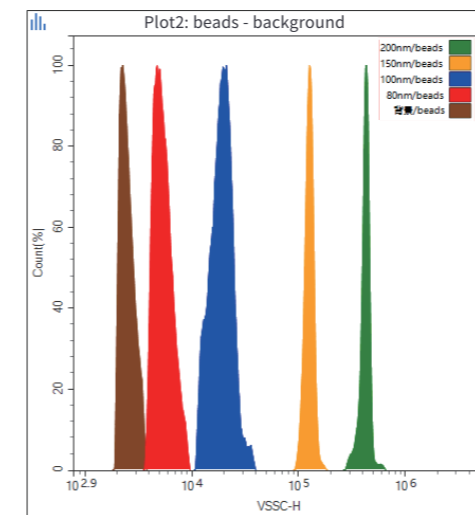
Superior performance
Stability and reliability

Simple

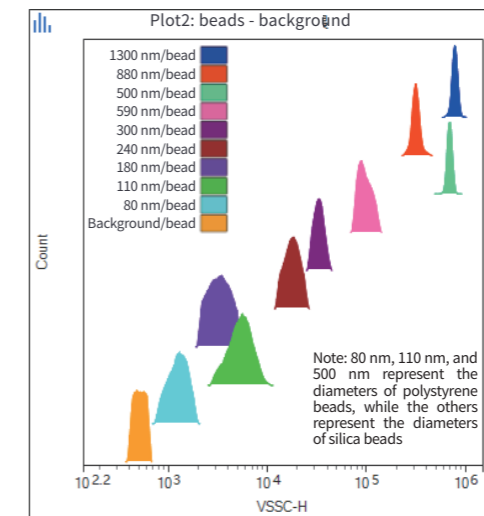
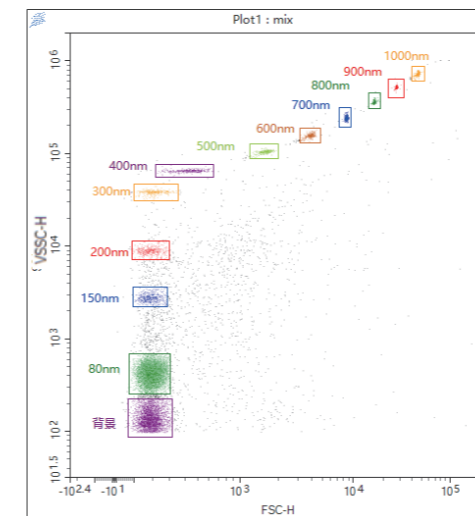
Intelligent analysis
Easy to learn and operate

VSSC: Unlock A New Micro-World of 80 nm Size with Nanoscale Precision

- The violet side scatter channel (VSSC) significantly enhances the resolution capability for micro-particles, making it easy and precise to detect particulate matters within the range of 80 nm particle size, such as bacteria, viruses, nanoscale drug carriers, and extracellular vesicles (EV);
- The integration of VSSC enables simultaneous analysis of heterogeneous populations with micro-particle sizes from 80 nm to 1.3 μm, unlocking the door for researchers to study micro-particles;

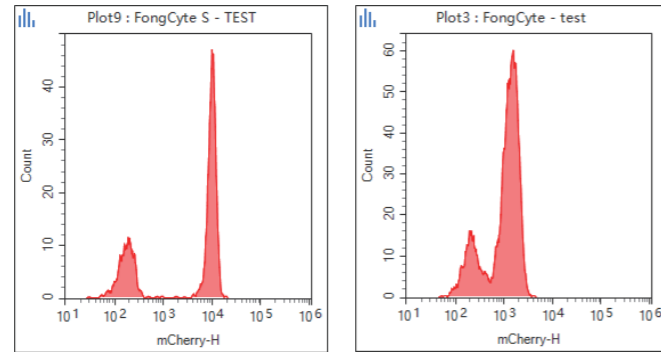


- VSSC not only enables to distinguish the size of nanoparticles, but also precisely identify the differences in micro-sphere materials through scattered light changes, thereby providing a more comprehensive particle analysis method.



561 nm Laser: Outstanding Red Fluorescence Detection Performance

01

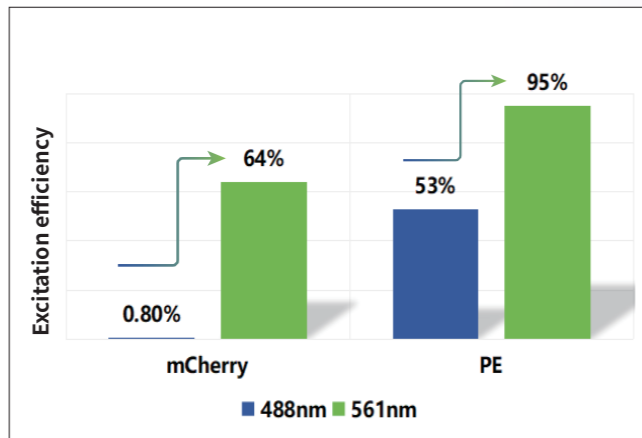


Left: mCherry excited by 561 nm Laser

Right: mCherry excited by 488 nm Laser

- The 561 nm laser is the best excitation light for mCherry and other red fluorescent proteins, which can improve the detection sensitivity and broaden the application range of fluorescent proteins;

- The excitation efficiency of PE family dyes is increased by over 40%. It can grant remarkable enhancement to its detection performance and unlock ability to discover more low-abundance expressed proteins and new biomarkers;

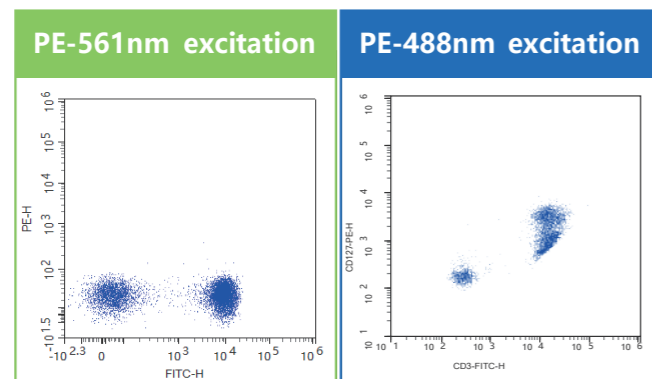


02

8-peak detection results of SPHERO™ rainbow beads, demonstrating excellent instrument sensitivity



03



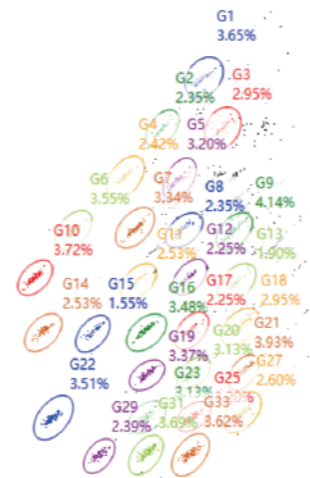
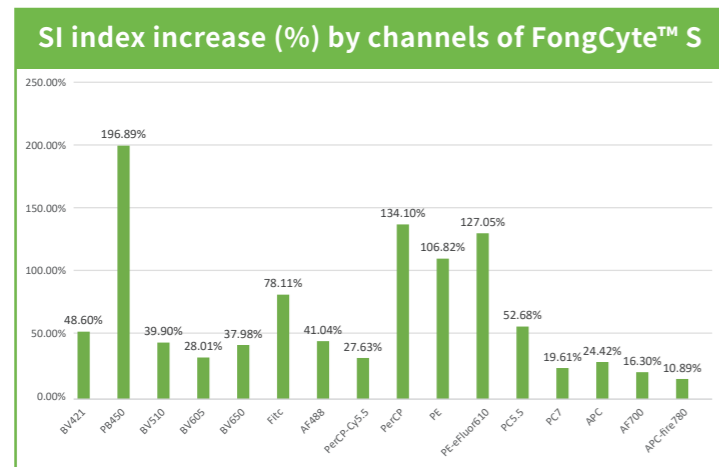
- It can simplify operation by reducing the overlap between FITC and fluorescent dyes of PE family for eliminating fluorescence compensation regulation.

Superior Performance, Stability and Reliability

The patented laser stabilization design guarantees power output stability

*Patent No.:ZL 202120354911.X

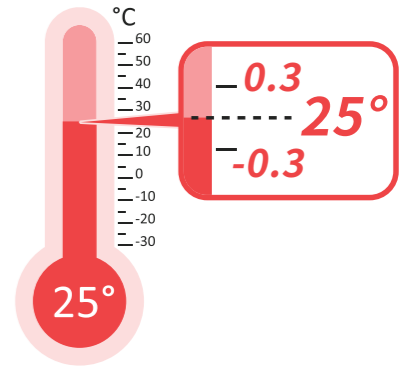
- The semiconductor laser greatly improves the reliability and accuracy of detection results by the integrated patented power control design. This design combines the real-time monitoring and precise control functions, which can sensitively capture tiny changes of 0.5 mW laser power and adjusts it to ensure the stable output power.



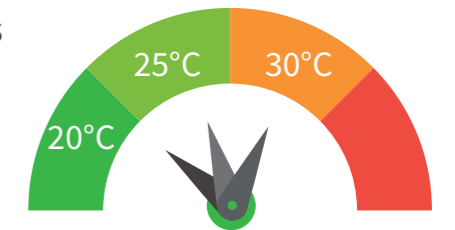
- All channel Stain Index(SI) have been improved, and weak expression markers and low content cells can be clearly distinguished.

Unique precise temperature control system of laser and detector

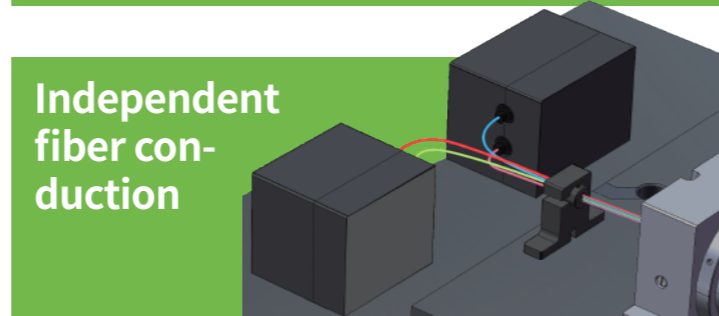
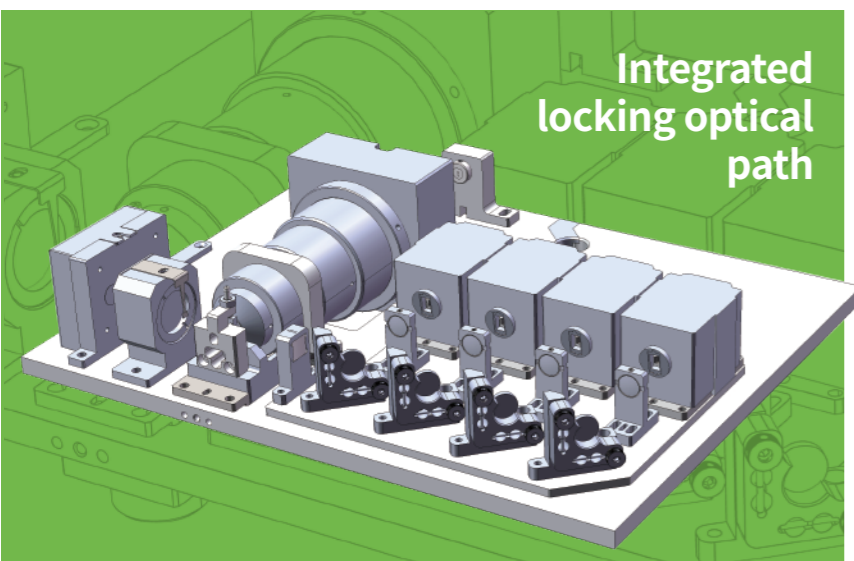
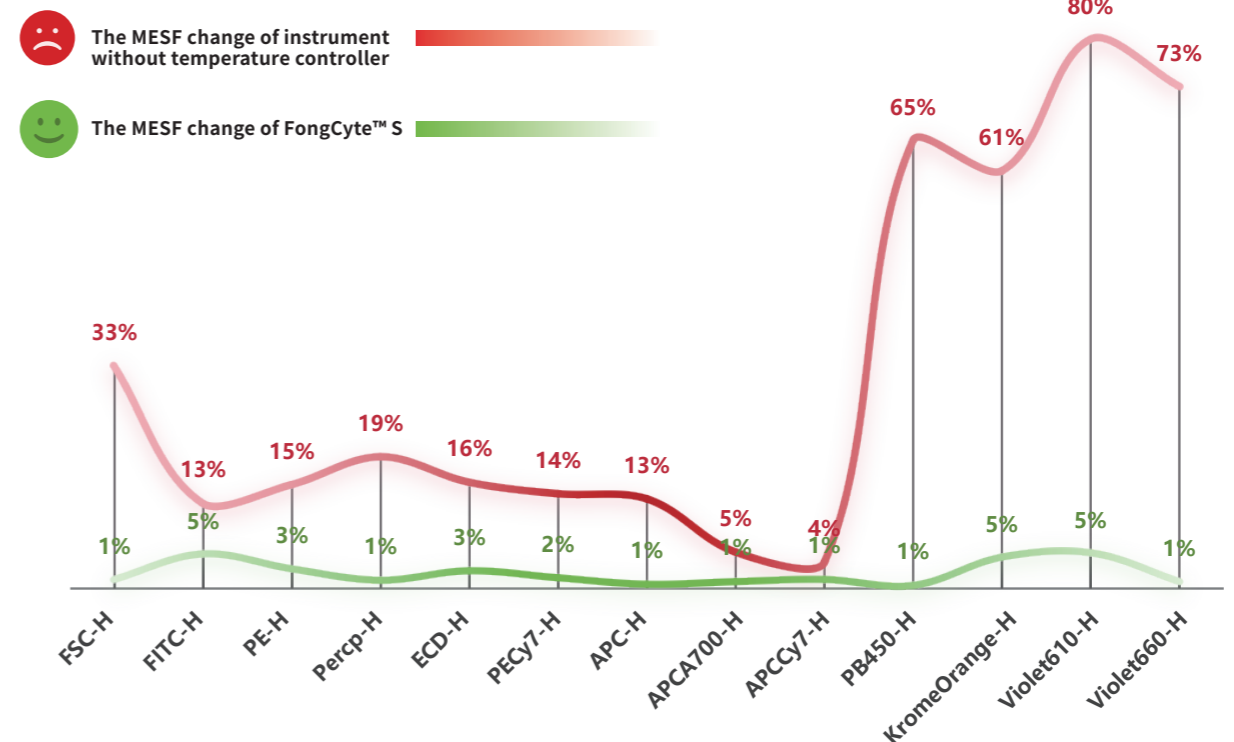
- The optical system employs a high-precision dual-temperature control technology with a TEC (ThermoElectric Cooler), locking the optical system work temperature within a minimal deviation range of $25^{\circ}\text{C} \pm 0.3^{\circ}\text{C}$. No matter how the ambient temperature fluctuates, the detection results remain accurate.



Fluorescence intensity changes of flow cytometers without temperature control exceed **15%** due to ambient temperature fluctuations



Rate of MESF change at different temperatures for FongCyte™ S vs. Flow cytometer without temperature controller



Flexible Measurement, Efficient Sample loading



Built-in auto-loader, one-click switching between single-tube and high-throughput sampling

- 40-Falcon 5ml round-bottom tube rack
- 40-EP tube rack (1.5 mL and 2 mL)
- 96-well plates (U-shaped bottom, V-shaped bottom, flat bottom)

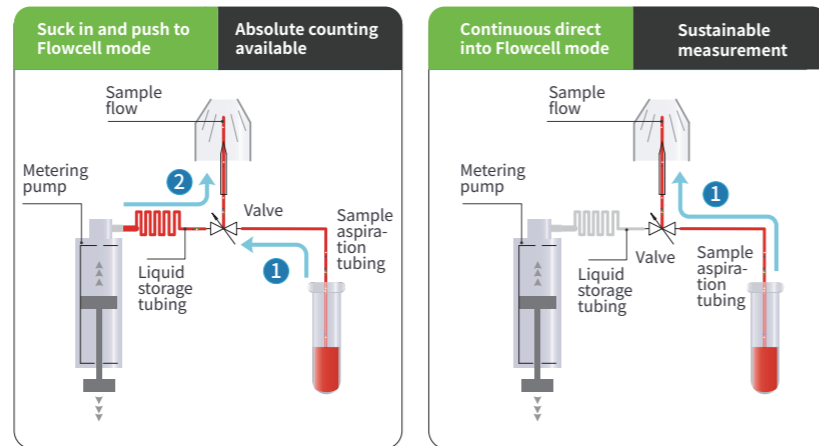
Dual measurement modes for different assay requirements

Quantitative sampling mode:

- High-precision plunger pump minimizes clogging and achieves absolute counting without micro-beads.

Continuous sampling mode:

- Suitable for rare cell detection.



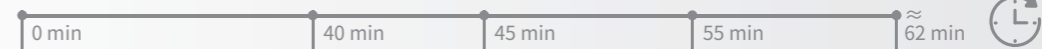
Unattended Operation, Smart Maintenance

Challenbio Flow Cytometer



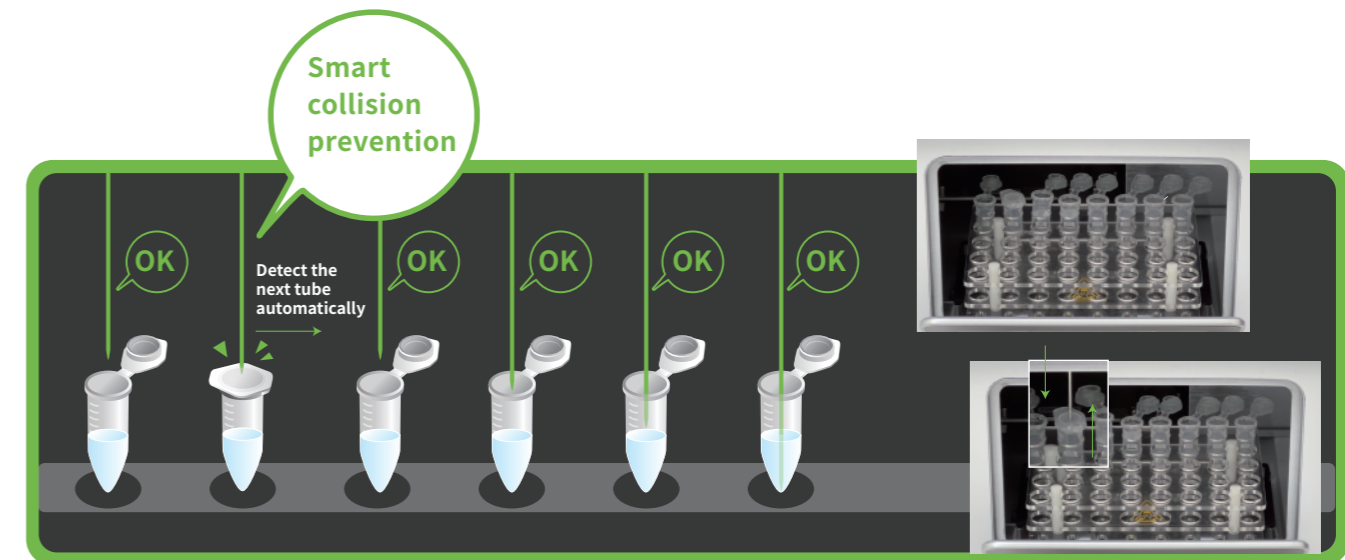
1. Go off work → **Automatic completion!**

Checked: Automatic shutdown after measurement
Automatic aspiration of cleaning solution for cleaning tubing for 7 minutes
Automatic power-off: instrument/PC



Flow cytometer of other brands

1. In-batch measurement **2. Cleaning sampling needle:** High-speed filling of clean solution for 5 min **3. Deionized water:** High-speed filling of deionized water for 10 min **4. Conduct the shutdown procedure (7 min)** **5. Shut down the software**
Shut down the PC
Switch off the instrument power
Switch off the main power



01 Sample preparation

Multiple modes for full compatibility

- Flexible sample loading modes are compatible with various preparation containers in scientific research
- Unique dual measurement modes allows for optionally selection depending on target cell abundance

02 Startup

One-click quick startup, instant stable use

- The process of stability only requires 7 minutes without the need for warm-up, saving time
- Can ensure stable laser performance and prolong laser lifespan

03 Measurement

Real-time monitoring, smart troubleshooting

- Intelligent monitoring, automatically resolving anomalies without manual processing
- Intelligent anti-collision design of sampling needle ensure safe use and smooth detection

04 Shutdown

Smart maintenance, automatic shutdown

- No waiting or supervision time required, once detection is completed, the system will automatically proceed to cleaning, shutdown, and power-off, requiring no human assistance.

Intelligent Analysis Software - ModelFlower

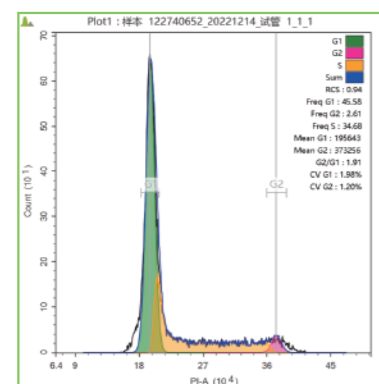
Built-in Analysis Modules

Easy to Learn and Operate

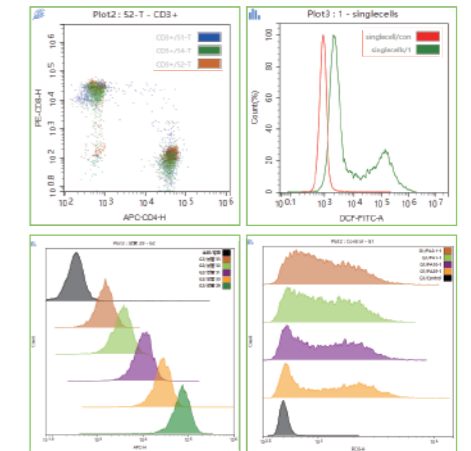
Bilingual display in Chinese and English, graphical tools and wizard

Audit Trail

Audit trail for electronic signatures: meeting the requirements of 21 CFR part 11



Built-in common analysis modules for scientific research:
Multiple display methods of overlay
Cell cycle fitting module
Cytokines analysis module



The overlay function can use scatter plots or histograms to display various data analyses

Standard Quality Control

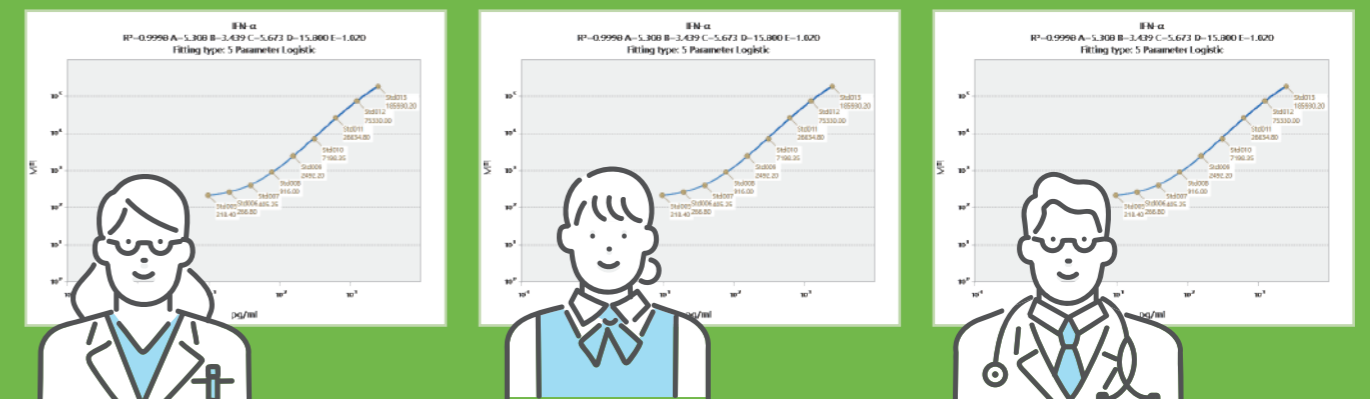
Intensity QC standardizes the settings for each testing item. Eliminate errors between different instruments, operators and time to ensure the consistency of assay results

Automatic identification cell position and gating, eliminating the need for complicated adjustments and simplifying analysis



Weight: **30KG**

Operate without Fluidic reservoirs carts, making little noise



Generate consistent results across different operators, sites and times

Widely Applied Dyes

Laser wavelength	Channel name	Fluorescent channel	Common dyes
488nm	BL1	530/30BP	FITC,Alexa Fluor 488,CFSE,Fluo-3
	BL2	690/50BP	PerCP,PE-Cy5,PE-Cy5.5,PerCP-Cy5.5
638nm	RL1	660/20BP	APC,Alexa Fluor 647,eFluor 660
	RL2	710/20BP	APC-AlexaFluor 700,AlexaFluor700
	RL3	780/60BP	APC-Cy7,APC-AlexaFluor750,APC-H7,APC-eFluor780
561nm	YL1	585/20BP	PE,PI,DsRed,tdTomato
	YL2	610/20BP	mCherry,ECD,PE-CF594
	YL3	667/30BP	PE-Cy5.5,PE-Cy5,PI
	YL4	780/60BP	PE-Cy7
405nm	VL1	450/50BP	Pacific Blue,V450,eFluor 450,BV421
	VL2	530/30BP	KromeOrange,AmCyan,V500,BV510
	VL3	610/20BP	Violet610,BV605,Qdot 605
	VL4	660/20BP	Violet660,BV650,Qdot 655

Main Technical Specifications

Semiconductor laser	High-power semiconductor laser with three-dimensional separation and TEC thermostatic control (25±0.3°C)	
Stable optical system	Independent optical fiber conduction, branch-shaped APD detector, TEC thermostatic control (25±3°C); enclosed optical path system, avoiding dust interference.	
Superior instrument performance	Fluorescence resolution	CV < 2.0%
	Carry-over rate	<0.05%
	Detectable particle diameter	Support the detection of particles with diameters ranging from 0.1 μm to 50 μm, with VSSC capable of detecting particles smaller than 80 nm
Robust software system	Operating language	Bilingual display in English and Chinese
	Fluorescence compensation	Full matrix compensation, supporting offline/online compensation, quick compensation, automatic compensation, and import/export of compensation library
	Voltage and threshold	Adjusted by default or freely
	Dynamic range	Support a dynamic range of 10 ^{7.2}
	Quality control and calibration	One-click automatic QC to monitor the resolution of each fluorescence channel and the stability of median fluorescence intensity (MFI); Levey-Jennings graph tracks and monitors instrument performance
	Intensity QC	Ensure that the relative deviation between the MFI of each assay result and the target value is less than 3%, realize the standardization and quality control of each assay item, and eliminate the error between different operators, time and instruments to guarantee the reliability of the assay results
	Cell cycle DNA fitting	One-click DNA fitting of RCS, Mean, CV, and G2/G1 ratio with clear and intuitive results
Absolute counting	Compatible with volumetric method and beads method for absolute counting	
Audit trail	Comply with 21 CFR Part 11	