

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 biological and medical technologies products. Challenbio is committed to providing users with excellent one-step services of flow cytometry, instruments and reagents. Its product portfolio mainly covers LongCyte™ and FongCyte™ flow cytometry series, as well as auxiliary diagnostic reagent and automatic sample preparation instruments, with nearly 700 users worldwide. Challenbio further offers solutions catering to diverse sectors such as clinical diagnosis, bio-therapy, basic biological and medical research, drug R&D, environmental research, 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

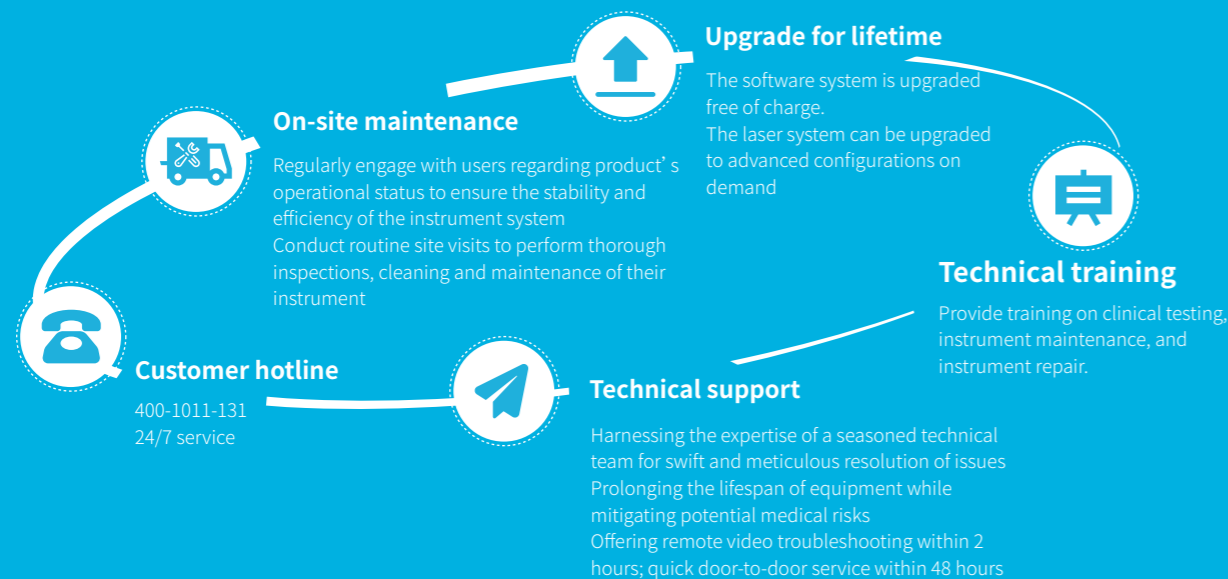
Mission: Colorful World, Beautiful Life!

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



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

Version No.: LDS-BRV-1.0

Colorful World, Beautiful Life



LongCyte® Series Flow Cytometer

Clinical



Beijing Challen Biotechnology Co., Ltd.

Conform to CE and NMPA certification. Registration Certificate No.: BMPA (A) 20222220495

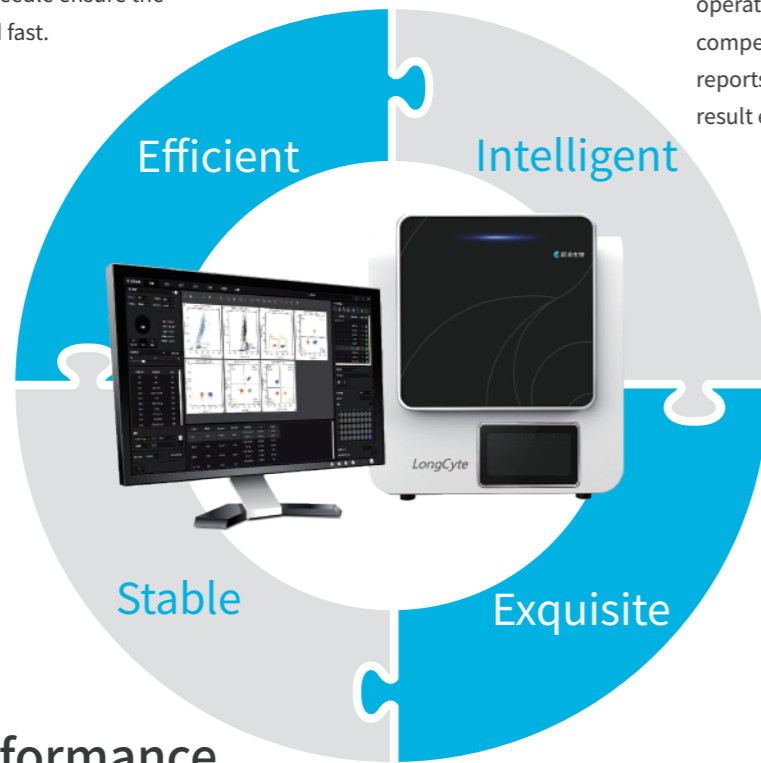
Colorful World
Beautiful Life

LongCyte® Series Flow Cytometer

The LongCyte® series flow cytometers are newly launched as an innovative flow cytometry platform, propelling the domestic flow cytometry to a new level. It can provide up to 3-laser 14-color parametric configuration for researchers, and can be upgraded for more lasers and more fluorescent channels. The incomparable dual temperature optical control design of laser and detector ensures stable performance of instrument; built-in auto-loader realizes flexible sample loading; one-touch startup/shutdown process frees up researchers' manual operation; two unique sample injection modes with patent are suitable for detection in various application.

Efficient measurement and accurate counting

Two unique sample injection modes are suitable for various assay needs in the laboratory; Built-in auto-loader and patented design of single-tub/well stirring and mixing mechanism and anti-collision sampling needle ensure the assay to be safe, efficient and fast.



AI algorithm and intelligent analysis

Embedded automatic AI algorithm for lymphocyte subpopulations, unique cytokines analysis function, allow user free from tedious operations of third-party software; Visual compensation and drag-and-drop operation, supporting fast/automatic compensation; free and customized output reports and templates, supporting one-click result export.

Superior performance, stability and reliability

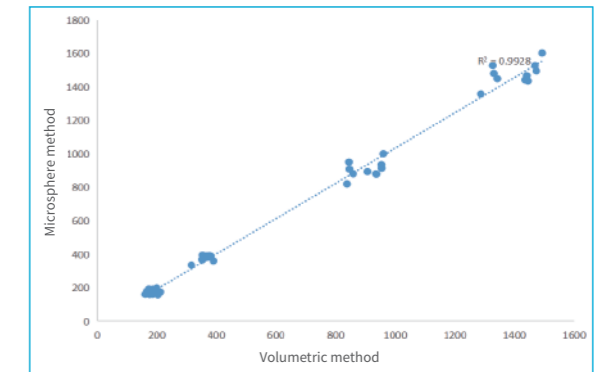
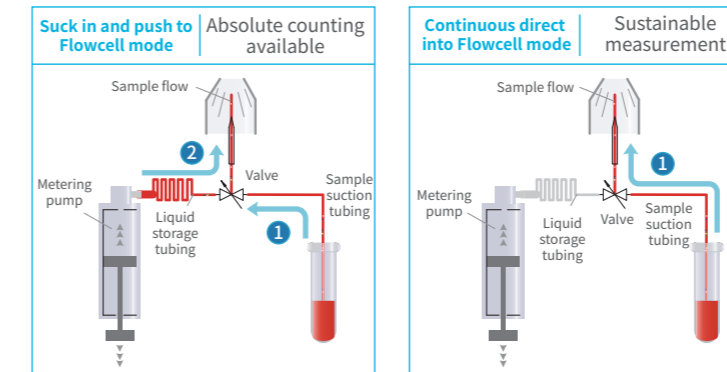
Customized laser ensures spot quality and excitation effect; patented branch-shaped APD detection array and independent optical fiber conduction ensure the stability of the instrument while enhancing the detection sensitivity; Unique dual temperature control design of laser and detector ensures real-time temperature adjustment and the stability of the instrument and assay results.

Unattended, exquisite and user-friendly

Bilingual display in Chinese and English, simple operation and in line with Chinese habits; The design of one-touch startup/shutdown process, automatic cleaning and power-off free up the staff on duty and save time and effort; Small footprint and low operation noise make it flexibly adapt to various assay environments.

Efficient measurement and accurate counting

Two unique patented sample injection modes



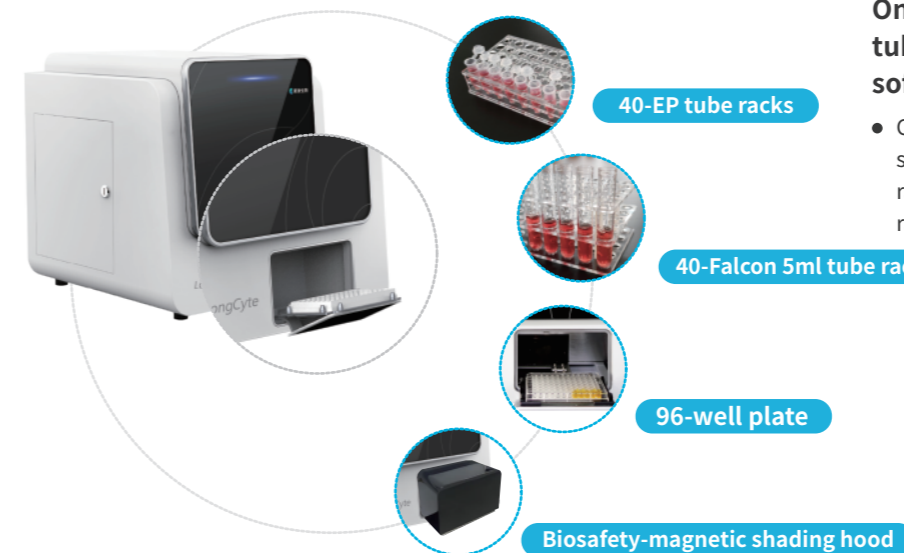
Two sample injection modes are available

- **Quantitative inhalation mode:** High-precision plunger pump minimizes clogging and achieves absolute counting without micro-beads.
- **Continuous direct into Flowcell mode:** Suitable for rare cell detection.

Compatible with both volumetric and micro-beads methods for absolute counting, with correlation coefficient $R^2 > 0.99$.

- Absolute counting of cells using LongCyte directly.

Built-in autoloader

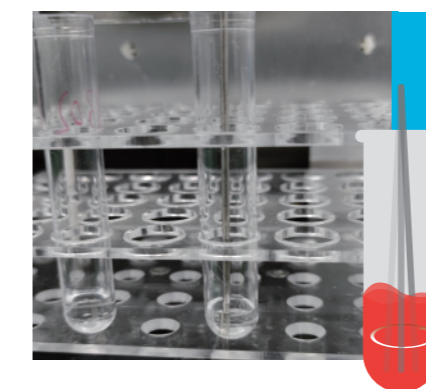


One-click free switching between single tube and high-throughput modes on the software without waiting

- Compatible with various types of adapters: 96-well standard (U- and V-bottom, flat) plates, 40-EP tube racks (1.5 ml and 2 mL), and 40-Falcon 5ml tube racks.

Biosafety-magnetic shading hood

- Ensure biosafety while avoiding light, and facilitate sample addition.



Patent No.:
ZL 2021 2 0205013.8

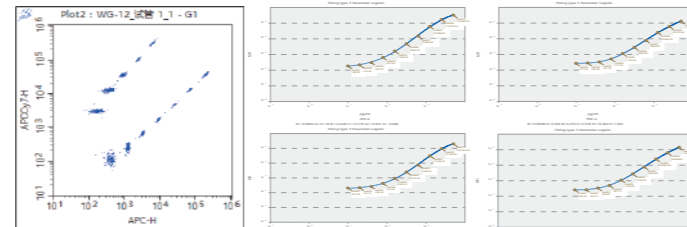
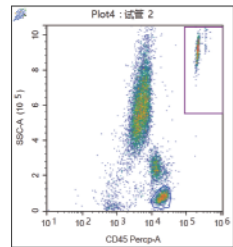
Patented sampling needle mixing and stirring mechanism, with adjustable stirring time and force

- Ensure the consistency of assay results between tubes;
- Intelligent identification of test tube bottom and anti-collision sampling needle system ensure the use safety of the instrument.

AI algorithm and intelligent analysis

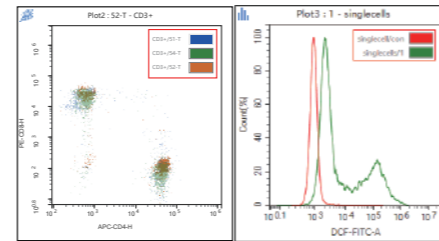
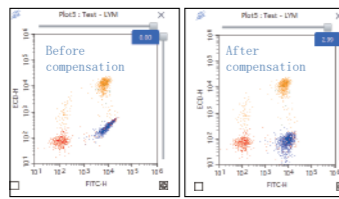
AI algorithm ensures precision and correctness

- Automatic algorithm of lymphocyte subpopulations: auto-gating, automatic adjustment of cell position, and streamlining assay adjustment.
- Cytokine analysis module: 5PL (five parameters) and 4PL (four parameters) are used to fit the standard curve, without the need for tedious operation of third-party software.

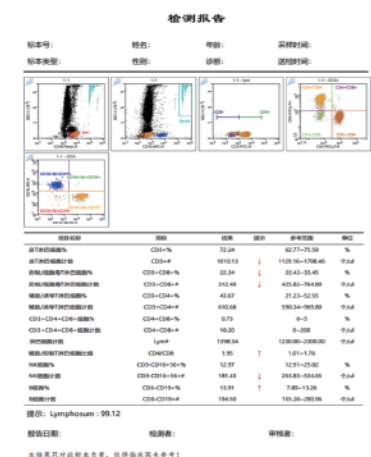
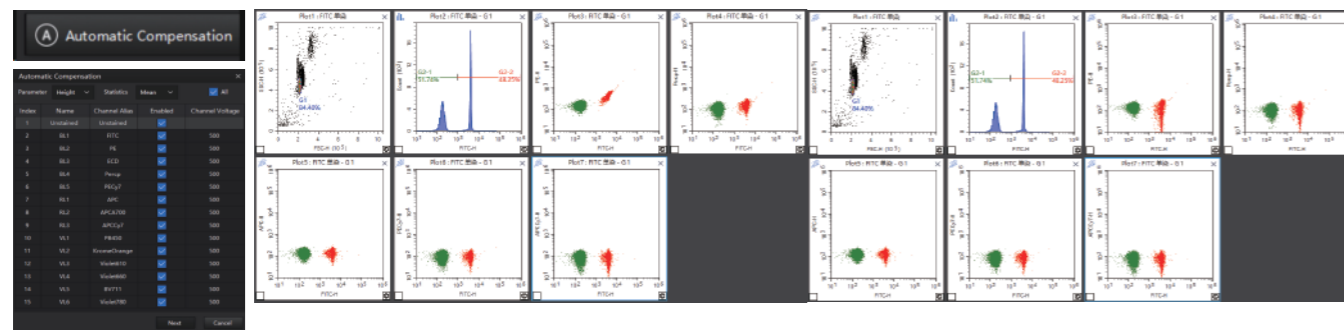


Intelligent analysis and flexible output

- Visual quick compensation and drag-and-drop operation, supporting online and offline compensation as well as import/export of compensation library.
- Support the overlay of histograms and dot plots to visually differentiate between samples.
- Support simultaneous operations of acquisition and analysis, reducing waiting time.



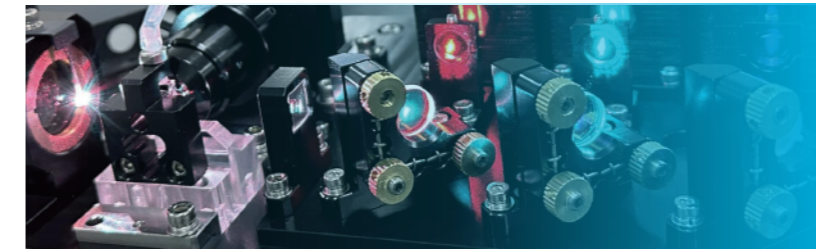
- Automatic compensation calculation function ensures convenience and a reduced workload.



- It has built-in common test reports templates that can be edited by formula and realize four arithmetic operations of multiple door statistics;
- Reports clearly indicate test abnormalities and customizable templates help labs conduct testing easily.

Superior performance, stability and reliability

Unique dual temperature control of laser and detector



25 ± 0.3 °C

Customized semiconductor laser TEC thermostatic control

APD detection system TEC thermostatic control

Status Name	Status Value
Flow Chamber Pressure(-100, 300)	-0.44 kPa
Plunger Pump Pressure(-100, 300)	-0.15 kPa
Waste Pool Pressure(-100, 100)	0.00 kPa
Blue Laser Temperature(10, 40)	24.96 °C
Red Laser Temperature(10, 40)	24.98 °C
Violet Laser Temperature(10, 40)	25.03 °C
Red And Blue Laser Photoelectric Det...	25.14 °C
Violet Laser Photoelectric Detection Te...	25.21 °C
Circuit System Temperature(10, 40)	28.70 °C
Ambient Temperature(10, 40)	30.10 °C

- Superior spot quality and high power;
- Stable power output and reliable detection results.
- Superb photoelectric conversion efficiency;
- Free from temperature fluctuation;
- Significantly increased detection system stability.

Dual temperature control software interface displays and monitors instrument status in real time

Stable position of fluorescence matrix

Patent No: ZL 202120684463.X
ZL202120354911.X

Proprietary optical path design to enhance stability and reliability

Independent optical fiber conduction, branch-shaped detection array

Enclosed hood

Visualized laser spot and liquid flow allows a glimpse into the mystery of flow cytometry core

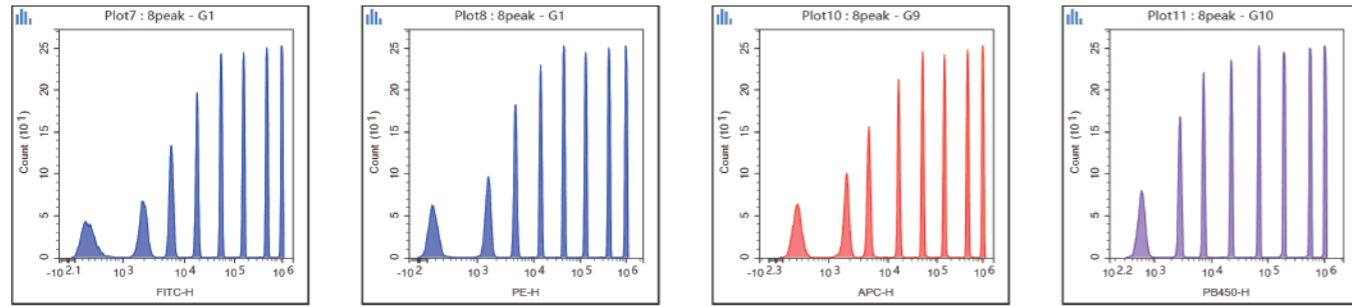
- Stable optical path structure and high shock resistance; free from environmental fluctuations, with stable CV.
- Enclosed optical path system, avoiding dust interference.
- Real-time observation of liquid flow state, independent troubleshooting of instrument faults.

Superior performance, stability and reliability

Superior detection performance

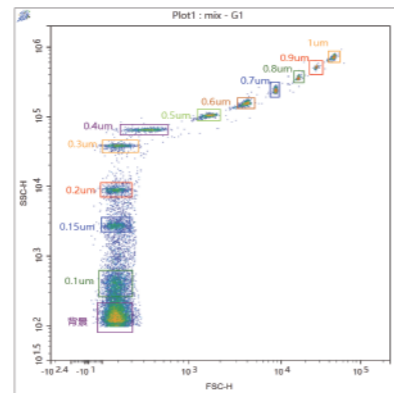
Outstanding instrument sensitivity

- Tests with Rainbow Calibration Particles (8 peaks) exhibit excellent detection sensitivity and perform well both in commonly used detection channels and violet and red light channels.



Small particles detection

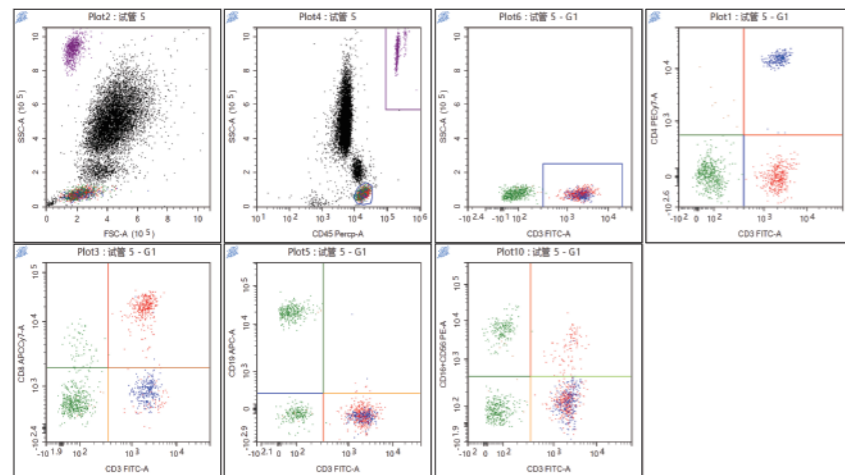
- Able to clearly distinguish tiny particles, platelets, bacteria and micro-nanoparticles of 0.1 μm-1 μm by using FSC/SSC channel.



Reliable multi-color analysis

Multi-color assay with ease

- With 3-laser and 14-color configuration, it is easy to analyze common clinical test items such as lymphoid subpopulations, Leukemia and Lymphoma immunophenotyping, which can expand the infinite possibilities of clinical applications.



Unattended, exquisite and user-friendly

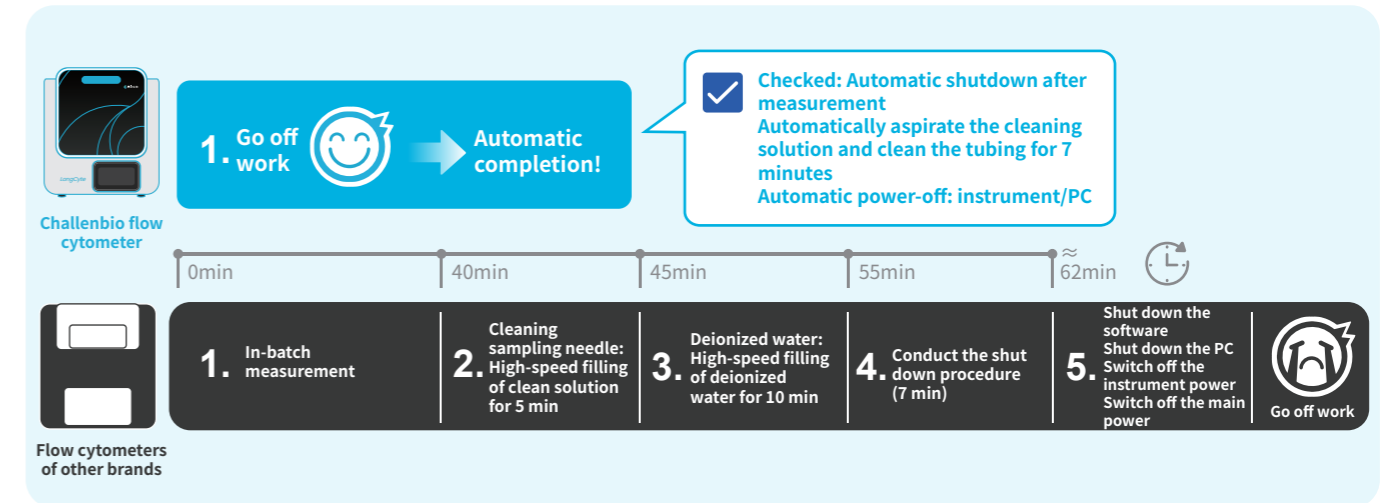
One-touch startup/shutdown without waiting

One-touch startup

The process of instrument self-test, liquid flow initialization, bubble removal, and laser reaching stable temperature just requires 7 min.

One-touch shutdown

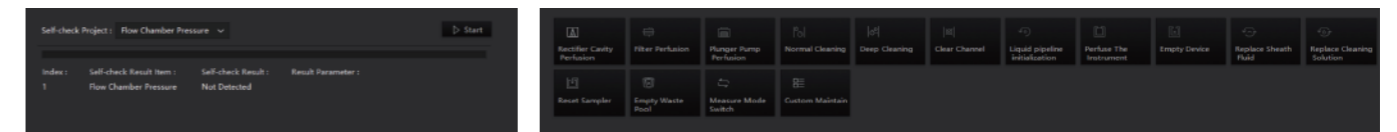
The process of full-automatic liquid path cleaning and maintenance as well as automatic power-off requires no personnel involvement or waiting.



Real-time monitoring and automatic maintenance

One-touch maintenance, automatic detection of instrument status and one-touch troubleshooting ensure time-saving and labor-saving operation and free up manual operation.

- Automatic quality control and monitoring of instrument status, detailed and comprehensive fault monitoring and alarm function, one-touch operation of cleaning-unblocking-flushing.



Space efficiency and versatility

Easily adaptable to various laboratory environments

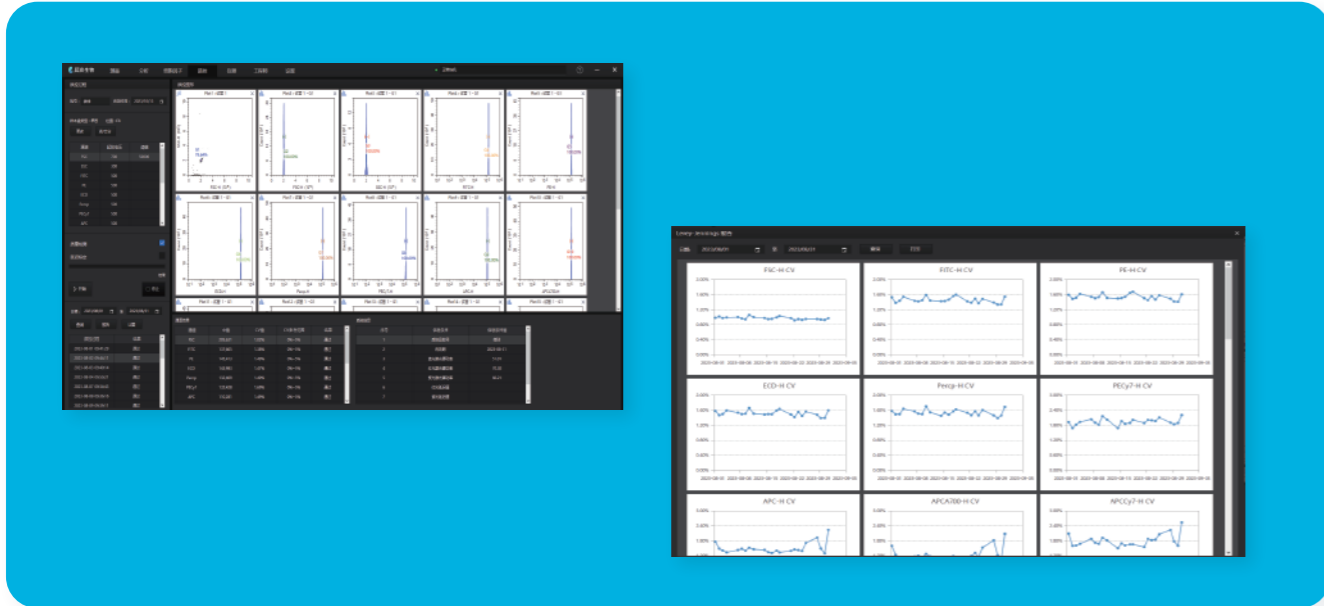
- Exquisite model;
- Patented design of magnetic shelf



Free upgrade for lifetime of intelligent analysis software - ModelFlower

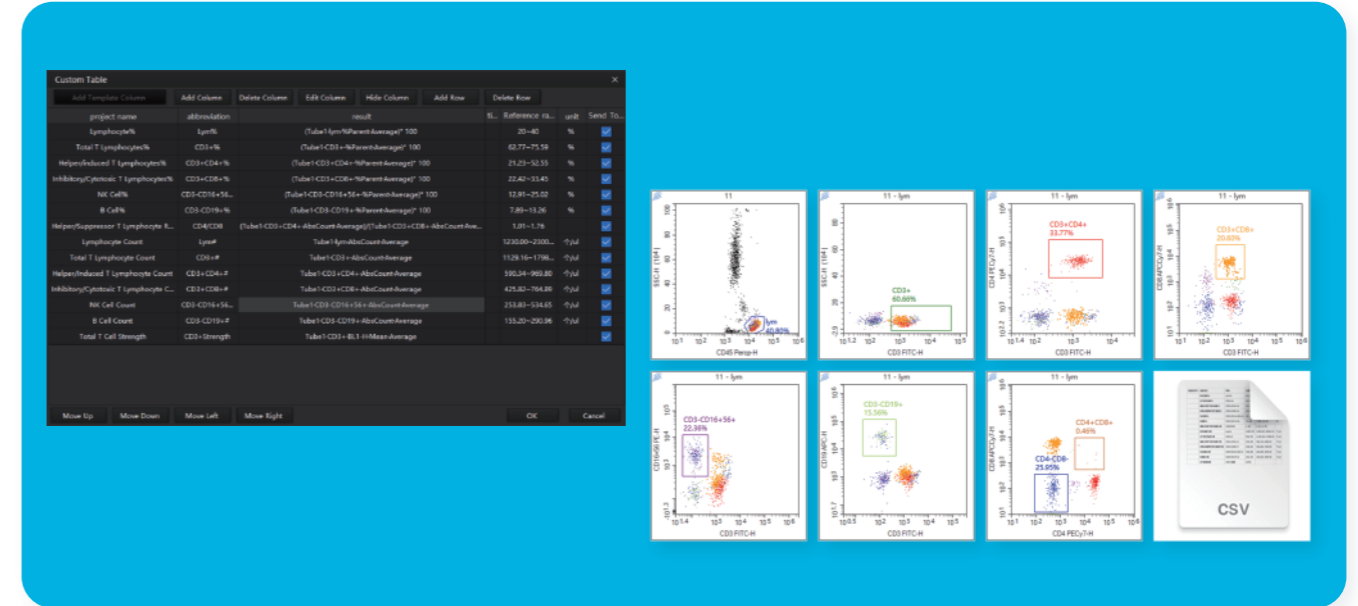
Bilingual display in Chinese and English, simple operation with graphical tools and wizard;

1



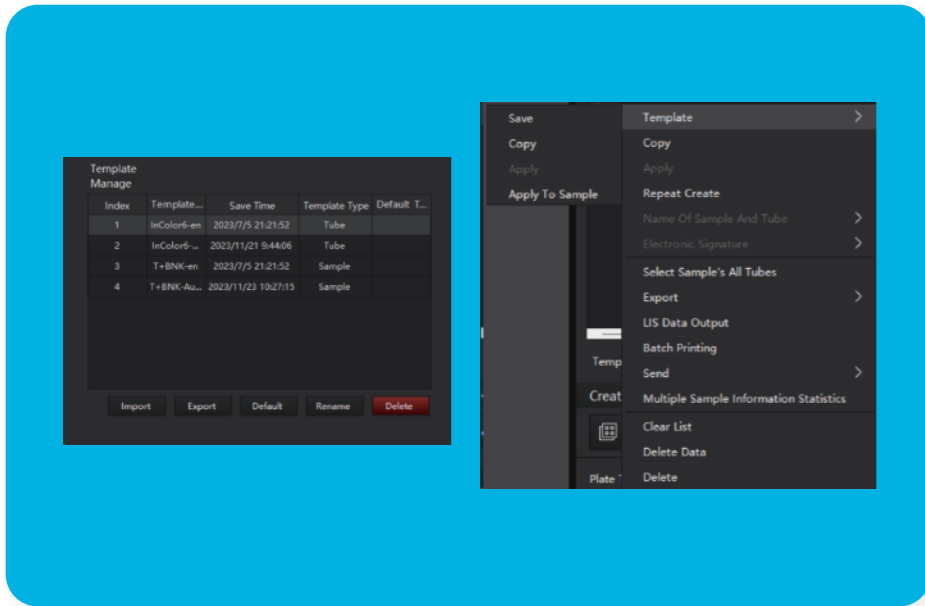
- One-touch automatic QC to monitor the resolution of each fluorescent channel and the stability of median fluorescence intensity (MFI);
- Levey-Jennings graph tracks and monitors instrument performance.

2



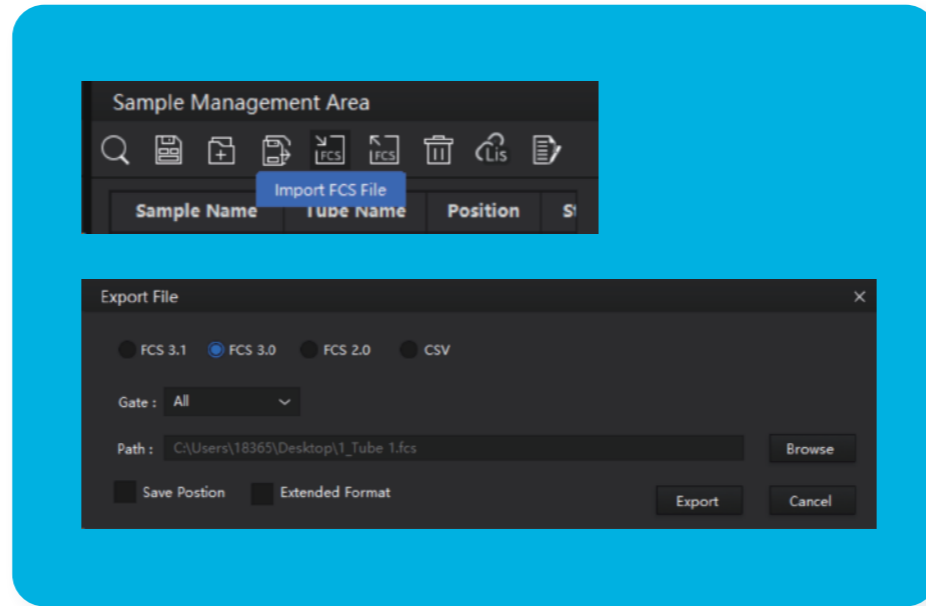
- Support LIS statistics and graphic sharing function, which is suitable for intra-hospital systems;
- Export contents to LIS with flexible format configuration. Edit items in the report, where each line has a check mark whether to export to LIS or not. After being checked, related items will be directly exported to LIS, which is convenient and quick.

3



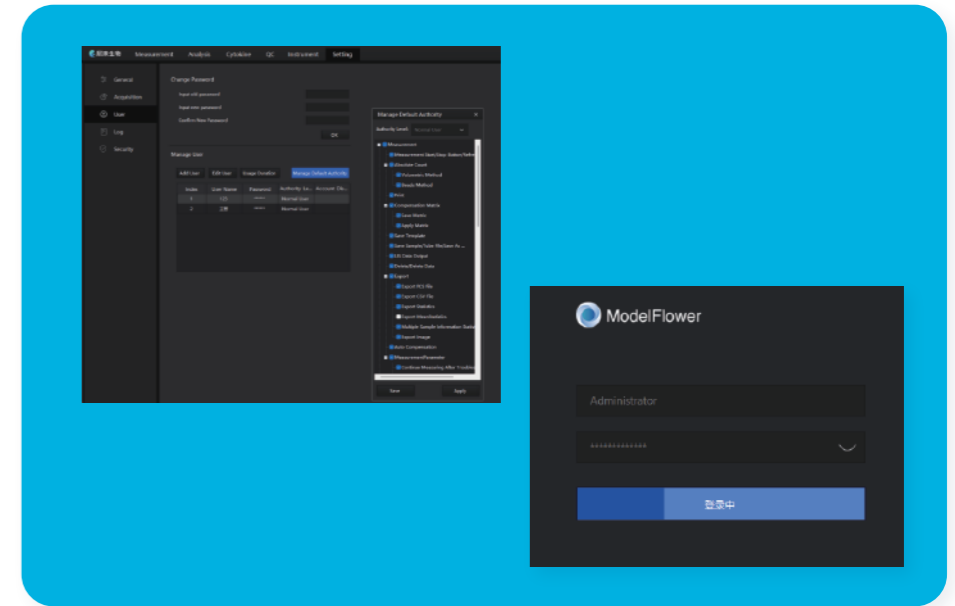
- Create and manage templates. Apply the detection data as a template to other samples, and the template data includes parameters such as voltage, compensation and gate;

4



- Support import in FCS format, compatible with mainstream flow cytometry analysis in the market;
- Save files in FCS 3.1, FCS 3.0, FCS 2.0, CSV and other formats, Suitable for various analysis software.

5



- User management mode ensures the confidentiality and level of various assay needs by assigning authorities to different experiment users and creating multiple accounts by the Administrator.

Main configurations and technical parameters

Parameter configuration

The LongCyte™ series flow cytometers are equipped with 3 lasers (B-R-V), with up to 14 fluorescent channels. There are 26 models available from single laser to three lasers, all of which have registration certificates, supporting upgrade for more lasers and more fluorescent channels and meeting a wide range of clinical testing needs.

Catalog No.	Laser	Fluorescent channel	Blue laser 488 nm					Red laser 638 nm			Violet laser 405 nm					
			BL1	BL2	BL3	BL4	BL5	RL1	RL2	RL3	VL1	VL2	VL3	VL4	VL5	VL6
			530/30	577/25	620/30	690/50	780/60	660/20	710/20	780/60	450/50	530/30	610/20	660/20	710/50	780/60
			FITC	PE	ECD	PerCP	PE-Cy7	APC	APC-A700	APC-Cy7	BV421	Krome Orange	Violet610	Violet660	BV711	Violet780
C1040	1	4	•	•		•	•									
C1050	1	5	•	•	•	•	•									
C2040	2	4	•	•		•		•								
C2041	2	4	•	•				•		•						
C2042	2	4	•	•						•	•					
C2050	2	5	•	•		•		•		•						
C2060	2	6	•	•		•	•	•		•						
C2061	2	6	•	•		•				•	•	•				
C2080	2	8	•	•	•	•	•	•	•							
C2081	2	8	•	•		•	•			•	•	•	•			
C2082	2	8	•	•	•	•	•			•	•	•				
C2090	2	9	•	•		•	•			•	•	•	•		•	
C2100	2	10	•	•	•	•	•			•	•	•	•		•	
C2110	2	11	•	•	•	•	•			•	•	•	•	•	•	
C3080	3	8	•	•		•	•	•		•	•					
C3090	3	9	•	•		•	•	•		•	•	•				
C3100	3	10	•	•		•	•	•	•	•	•	•				
C3101	3	10	•	•	•	•	•	•		•	•	•				
C3110	3	11	•	•	•	•	•	•	•	•	•	•				
C3111	3	11	•	•		•	•	•		•	•	•		•	•	
C3112	3	11	•	•	•	•	•	•		•	•	•		•		
C3130	3	13	•	•	•	•	•	•	•	•	•	•		•	•	
C3131	3	13	•	•	•	•	•	•	•	•	•	•	•		•	
C3132	3	13	•	•		•	•	•	•	•	•	•	•	•	•	
C3133	3	13	•	•	•	•	•	•		•	•	•	•	•	•	
C3140	3	14	•	•	•	•	•	•	•	•	•	•	•	•	•	

Main technical parameters

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 < 3.0%
	Carry-over rate	< 0.1%
	Detectable particle diameter	0.2 μm-50 μm.
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
	LIS connection	Support LIS statistics and graphic sharing function
	Quality control and calibration	One-touch automatic QC to monitor the resolution of each fluorescent channel and the stability of median fluorescence intensity (MFI); Levey-Jennings graph tracks and monitors instrument performance
	Absolute counting	Compatible with volumetric method and microsphere method for absolute counting

Main clinical applications

Types	Main clinical test items	Main applicable department
Immunity-related items	Lymphocyte subpopulation assay	All departments
	Cytokine (plasma/cell) assay	Infection/Oncology/Respiratory
	Assay of activation, quiescence, effector, killing, inhibition and regulation of T cells.	Infection/Respiratory/Immunology Department
	PD-1 assay	Oncology
	Sperm nuclear integrity	Reproductive Medicine/Andrology
	Blocking antibody	Reproductive Medicine Center
	B cell subpopulation assay	Infection/Pediatrics/Oncology
	Myeloid-derived suppressor cells (MDSCs) assay	Hematology
	Immunoassay items (T, B, NK, Mono, DC, Gran, Th1, Th2, Th17, etc.)	Rheumatology/Pediatrics/Oncology
Hematology-related items	Assay of platelets (activation function/membrane surface glycoprotein, etc.)	Hematology/Blood Transfusion
	CD34 counting	Hematology/Oncology/Stem Cell Bank
	PNH	Hematology
	Cerebrospinal fluid immunophenotyping	Oncology/Hematology
	Leukemia/lymphoma/myeloma	Hematology
	MRD	Hematology
	Monitoring of post-transplantation immune function	Hematology/Oncology
Infection-related items	Leukocyte immunophenotyping	Hematology
	CD64	Infection/Pediatrics
	CD161	Infection
	Septicopyemia	Infection/ICU
	mHLA-DR	Infection