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 500 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

Door-to-door maintenance

Proactively engage with users regarding product' s operational status to ensure optimal stability/efficiency of the instrumentation system.
Conduct routine site visits to perform thorough inspections, cleaning and maintenance of their instrument.

Upgrade for lifetime

The software system is upgraded free of charge.
Laser systems can be upgraded to advanced versions on demand.

Technical training

Provide training services on clinical testing, instrument maintenance, and instrument repair.

Customer hotline

400-1011-131
24/7 service.

Technical support

Harnessing the expertise of a seasoned technical team for swift and meticulous resolution of issues
Prolonging the lifespan of equipment while mitigating potential medical risks.
Offering remote video troubleshooting within 2 hours; quick door-to-door service within 48 hours.

Beijing Challen Biotechnology Co., Ltd.

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Version No.: FDS-BRVY-1.0

Colorful World, Beautiful Life

层浪生物 Challenbio

FongCyte™ Series Flow Cytometer

Only Use For Research

Beijing Challen Biotechnology Co., Ltd.

Colorful World
Beautiful Life

FongCyte™ Series Flow Cytometer

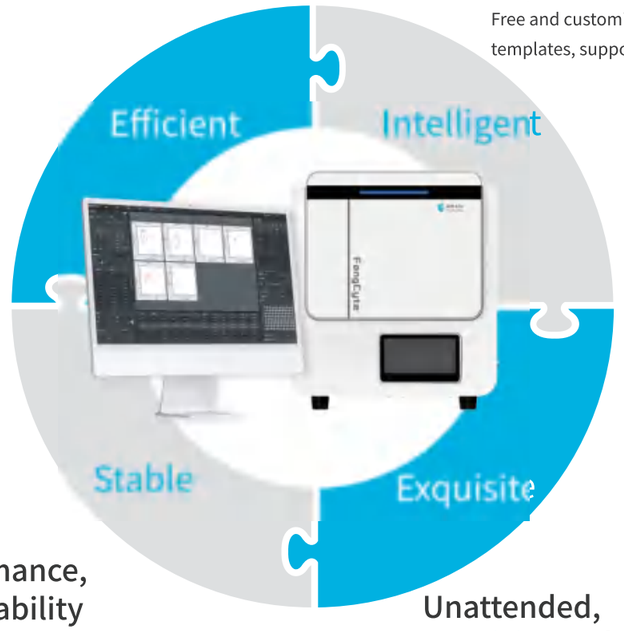
The FongCyte™ series flow cytometers are newly launched as an innovative flow cytometry platform, propelling the domestic flow cytometry to a new level. It can provide up to 3-laser configurations (available in 488 nm, 638 nm, 405 nm and 561 nm lasers) and 14-color parametric analysis for researchers, and support the upgrade for more lasers and more fluorescent channels as well as special laser customization. The incomparable dual temperature control design of laser and detector ensures stable performance of instrument; built-in autoloader realizes flexible sample injection; one-touch startup/shutdown process frees up researchers' manual operation; two unique patented sample injection modes are suitable for detection in various application scenarios.

Efficient measurement and accurate counting

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

Intelligent analysis with robust software

Bilingual display in Chinese and English, simple operation and in line with Chinese habits;
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

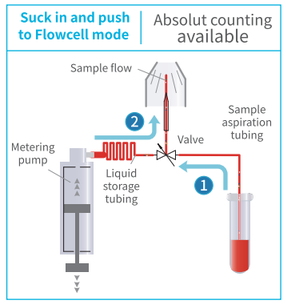
Customized laser ensures spot quality and excitation effect; patented branch-shaped APD detection array and independent optical fiber conduction ensure the stability of the instrument while enhancing the detection sensitivity;
Unique dual temperature control design of laser and detector ensures real-time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

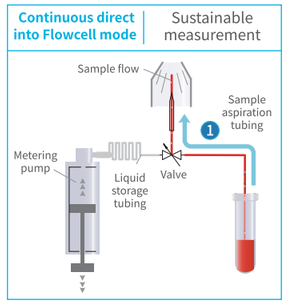
Unattended, exquisite and user-friendly

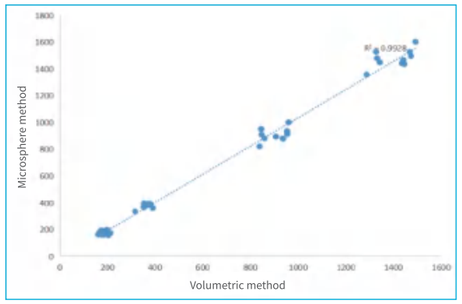
The design of one-touch startup/shutdown process, automatic cleaning and power-off frees up the staff on duty and saves time and effort;
User management mode ensures the confidentiality and level of various assay needs. Audit trail, which is in line with 21CFR Part 11, ensures the validity, reliability and traceability of electronic data;
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







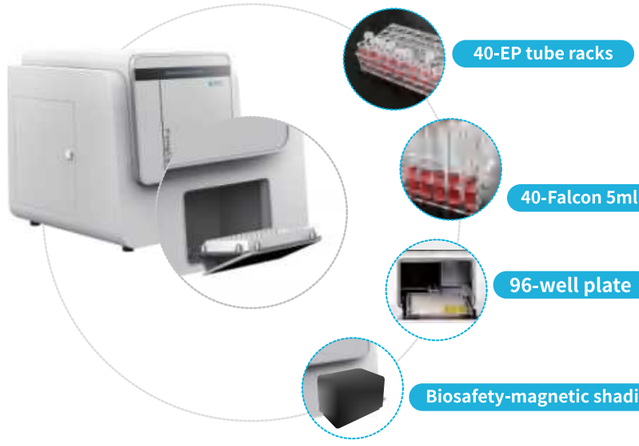
Two sample injection modes are available

- **Suck in and push to Flowcell mode:** High-precision plunger pump minimizes clogging and eliminates the need for absolute counting of microspheres.
- **Continuous direct into Flowcell mode:** Suitable for rare cell detection.

Compatible with both volumetric and microsphere methods for absolute counting, with correlation coefficient R^2>0.99.

- Absolute counting of cells using FongCyte directly.

Built-in autoloader

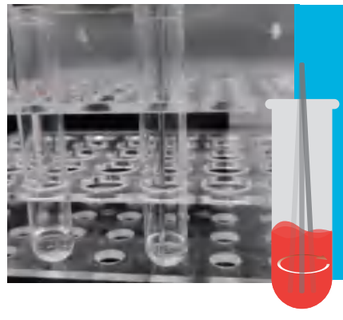


One-click switching between single tube and high-throughput modes without waiting only by software.

- Compatible with various types of plate 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

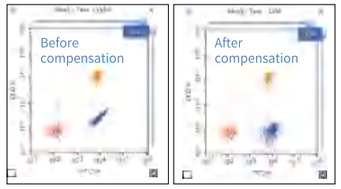
- Ensure the consistency of assay results between tubes;
- Intelligent identification of test tube bottom and anti-collision sampling needle system ensure the use safety of the instrument.

Intelligent analysis and robust software

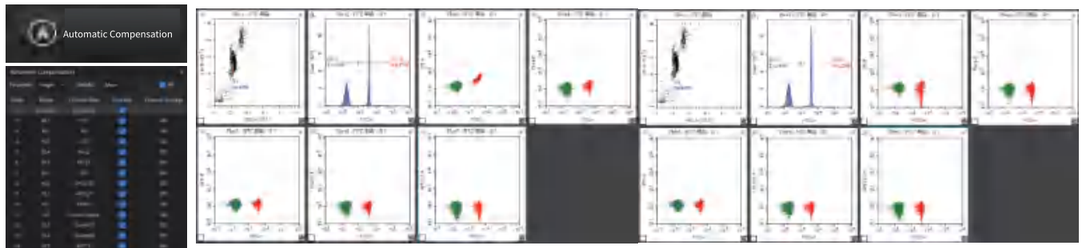
Intelligent, simple and fast analysis

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

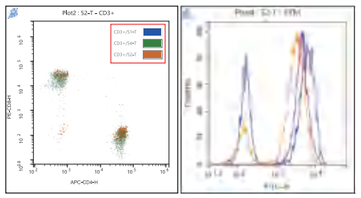
- Visual quick compensation and drag-and-drop operation, supporting online and offline compensation as well as import/export of compensation library.



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



- Support the overlay of histograms and scatter plots to visually differentiate between samples.
- Support simultaneous operations of measurement and analysis, reducing waiting time;



Robust software and flexible output

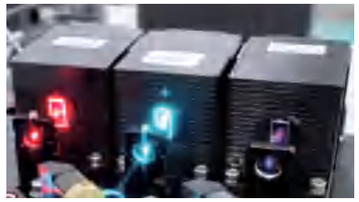
- Export PDF templates that can be edited by formula, realize four operations of multiple door statistics, and compare the differences among samples.
- Freely export and customize test reports, display the user, test time, plot, and table, etc.

Superior performance, stability and reliability

Unique dual temperature control of laser and detector

25±0.3℃

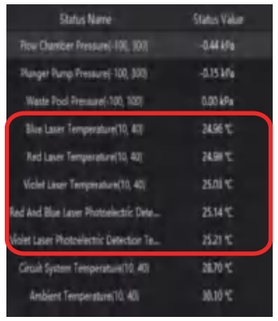
Customized semiconductor laser TEC thermostatic control



- Superior spot quality and high power;
- Stable power output and reliable detection results.

APD detection system TEC thermostatic control

- 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

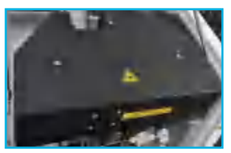
Patent No: ZL 202120684463.X
ZL202120354911.X

Proprietary optical path design to enhance stability and reliability

Independent optical fiber conduction, branch-shaped detection array

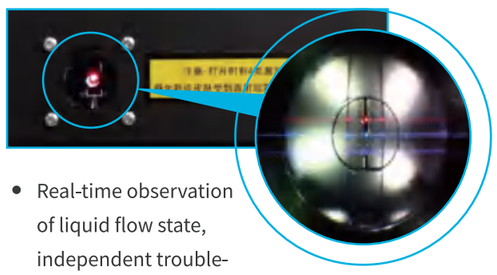
- Stable optical path structure and high shock resistance; free from environmental fluctuations, with stable CV.

Enclosed hood



- Enclosed optical path system, avoiding dust interference.

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



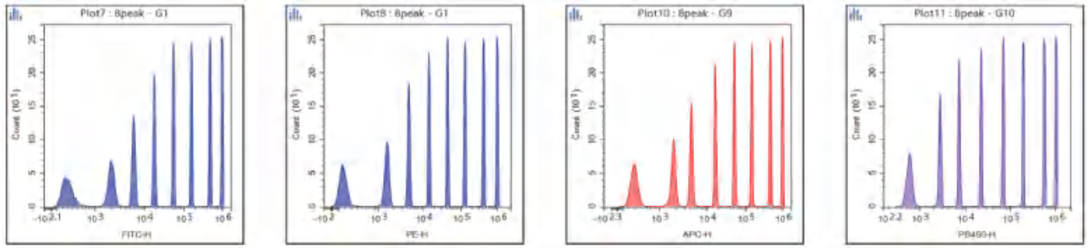
- Real-time observation of liquid flow state, independent trouble-shooting of instrument faults.

Superior performance, stability and reliability

Superior detection performance

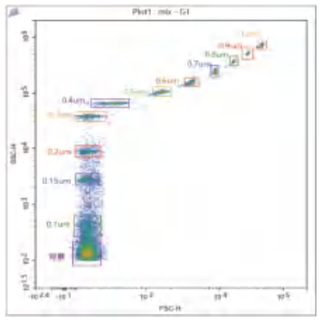
Outstanding instrument sensitivity

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

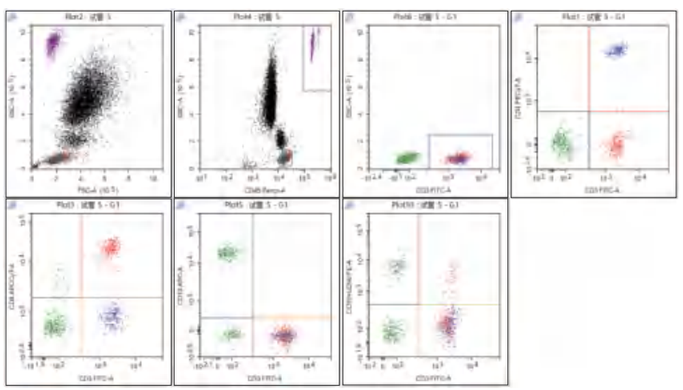


Nano-particles detection

- 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 designed for multi-color analysis of lymphoid subpopulations, hematologic neoplasms, immunophenotyping, etc., expanding the infinite possibilities of scientific research applications.

Unattended, exquisite and user-friendly

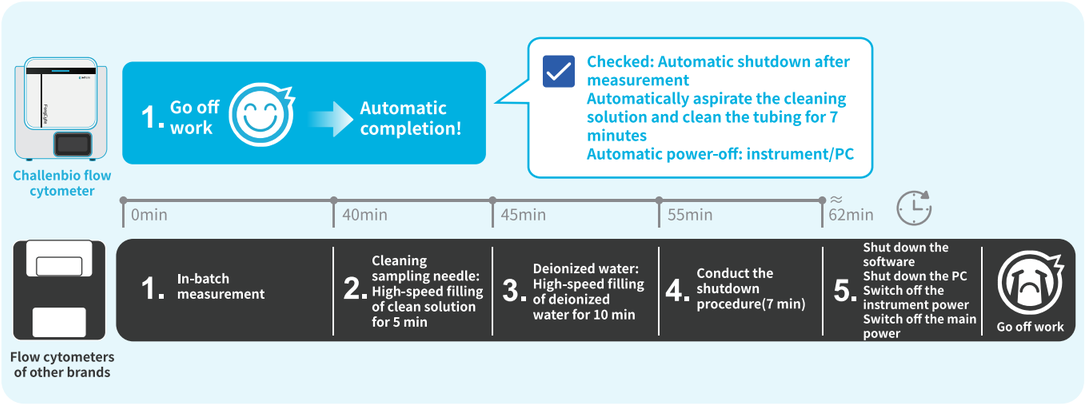
One-touch startup/shutdown without waiting

One-touch startup

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

One-touch shutdown

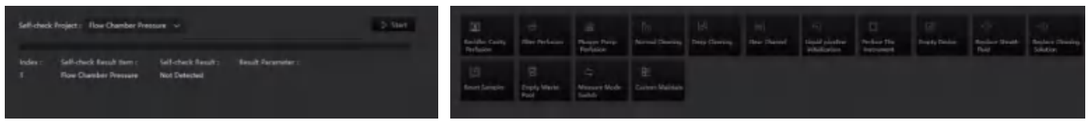
The process of full-automatic liquid path cleaning and maintenance as well as automatic power-off requires no personnel involvement or waiting.



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

Weight: 30 kg

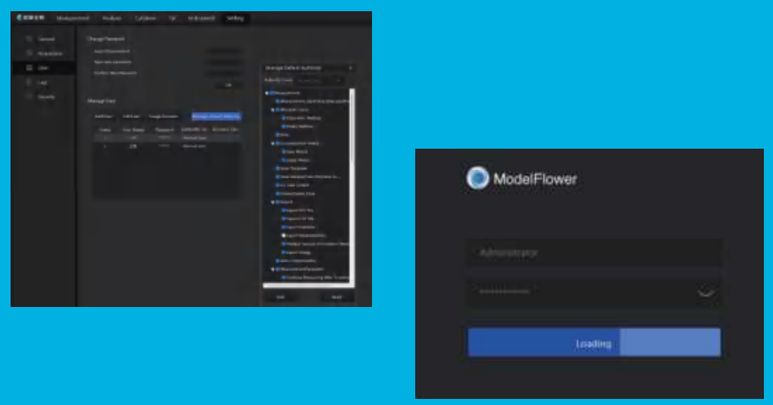
Easily adaptable to various laboratory environments

- Exquisite model;
- Patented design of magnetic shelf

Intelligent analysis software - ModelFlower

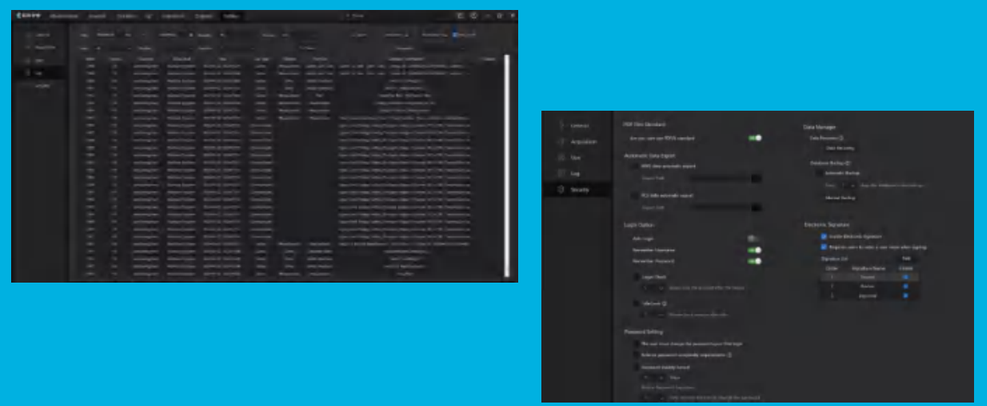
Free upgrade for lifetime

1



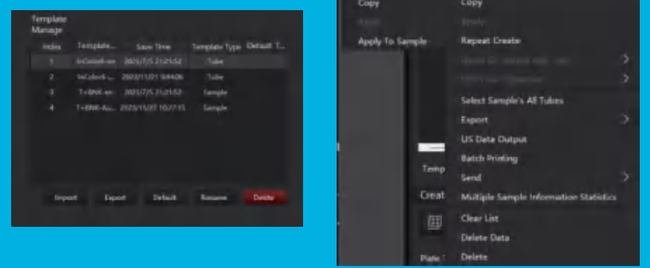
- User management mode ensures the confidentiality and level of various assay needs by assigning authorities to different experimenters and creating multiple accounts by the Administrator.

2



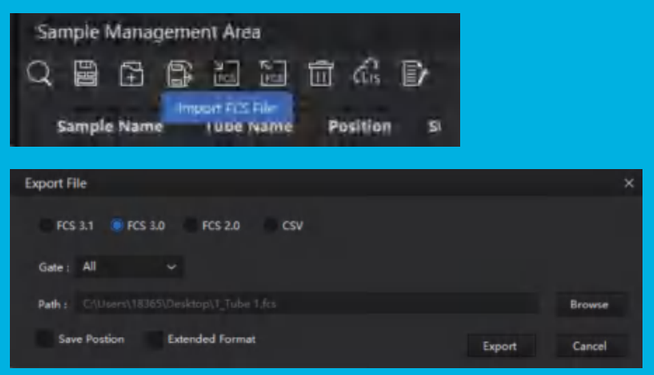
- The system conforms to the relevant provisions of 21 CFR Part 11 and the access to each user is controllable. All the behaviors of each user will be recorded in the audit trail, ensuring that the data recorded by the system is complete and easily traceable in the whole life cycle.

3



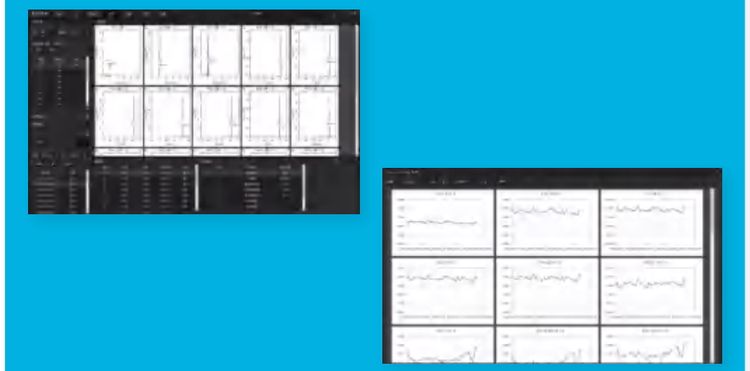
- Create and manage templates. Apply the detection data as a template to other samples, and the template data includes parameters such as voltage, compensation and gate;

4



- Support import in FCS format, compatible with mainstream flow cytometery 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.

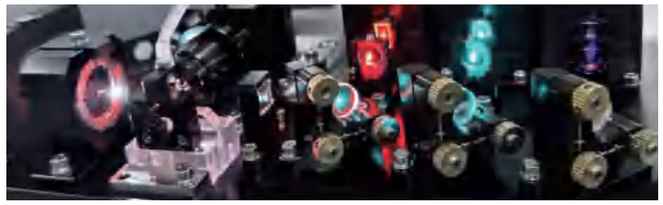
5



- 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.

Configuration parameters and catalog number

The FongCyte™ comes in a standard configuration with B-R-V lasers



- The FongCyte™ comes in a standard configuration with B-R-V lasers, with 26 models available from single laser to three lasers, which are applicable for various application scenarios.

Blue (B) - Laser configuration parameters

- The optimal configuration of the instrument includes five 488 nm (blue) fluorescent channels.
- The instrument is equipped with 5 bandpass filters. You can choose any model if desired, any of which support upgrade for more lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations

Catalog No.	Fluorescent channel	488nm				
		BL1	BL2	BL3	BL4	BL5
		530/30	577/25	620/30	690/50	780/60
		FITC	PE	ECD	PerCP	PE-Cy7
C1040	4	●	●		●	●
C1050	5	●	●	●	●	●

Blue (B)-Red (R)-Laser configuration parameters

- The optimal configuration of the instrument includes five 488 nm (blue) fluorescent channels and three 638 nm (red) fluorescent channels.
- The instrument is equipped with 8 bandpass filters. You can choose any model if desired, any of which supports upgrade for more lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluorescent channel	488nm					638nm		
		BL1	BL2	BL3	BL4	BL5	RL1	RL2	RL3
		530/30	577/25	620/30	690/50	780/60	660/20	710/20	780/60
		FITC	PE	ECD	PerCP	PE-Cy7	APC	APC-A700	APC-Cy7
C2040	4	●	●		●		●		
C2041	4	●	●				●		●
C2050	5	●	●		●		●		●
C2060	6	●	●		●	●	●		●
C2080	8	●	●	●	●	●	●	●	●

Blue (B)-Violet (V)-Laser configuration parameters

- The optimal configuration of the instrument includes five 488 nm (blue) fluorescent channels and six 405 nm (violet) fluorescent channels.
- The instrument is equipped with 11 bandpass filters. You can choose any model if desired, any of which supports upgrade for more lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluorescent channel	488nm					405nm					
		BL1	BL2	BL3	BL4	BL5	VL1	VL2	VL3	VL4	VL5	VL6
		530/30	577/25	620/30	690/50	780/60	450/50	530/30	610/20	660/20	710/50	780/60
		FITC	PE	ECD	PerCP	PE-Cy7	BV421	Krome Orange	Violet610	Violet660	BV711	Violet780
C2042	4	●	●				●	●				
C2061	6	●	●		●		●	●	●			
C2081	8	●	●		●	●	●	●	●	●		
C2082	8	●	●	●	●	●	●	●	●			
C2090	9	●	●		●	●	●	●	●	●		●
C2100	10	●	●	●	●	●	●	●	●	●		●
C2110	11	●	●	●	●	●	●	●	●	●	●	●

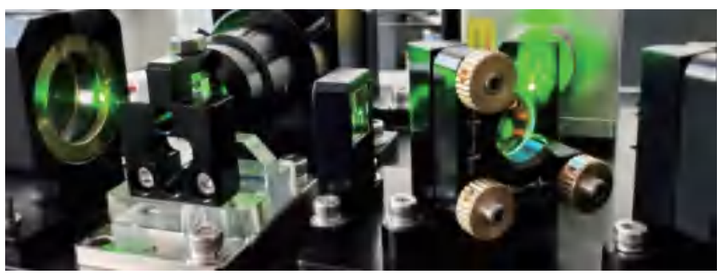
Blue (B)-Red (R)-Violet (V)-Laser configuration parameters

- The optimal configuration of the instrument includes five 488 nm (blue) fluorescent channels, three 638 nm (red) fluorescent channels and six 405 nm (violet) fluorescent channels.
- The instrument is equipped with 14 bandpass filters. You can choose any model if desired, any of which supports upgrade for more fluorescent channels lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluorescent channel	488nm					638nm			405nm					
		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
C3080	8	●	●		●	●	●		●	●	●				
C3090	9	●	●		●	●	●		●	●	●	●			
C3100	10	●	●		●	●	●	●	●	●	●	●			
C3101	10	●	●	●	●	●	●		●	●	●	●			
C3110	11	●	●	●	●	●	●	●	●	●	●	●			
C3111	11	●	●		●	●	●		●	●	●	●		●	●
C3112	11	●	●	●	●	●	●		●	●	●	●		●	
C3130	13	●	●	●	●	●	●	●	●	●	●	●		●	●
C3131	13	●	●	●	●	●	●	●	●	●	●	●	●		●
C3132	13	●	●		●	●	●	●	●	●	●	●	●	●	●
C3133	13	●	●	●	●	●	●		●	●	●	●	●	●	●
C3140	14	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Configuration parameters and catalog number

The FongCyte™ is equipped with a 561 nm laser



- Equipped with a 561 nm laser to improve the detection sensitivity and resolution of PE, PE family dyes, mCherry and other fruit series fluorescent proteins.

Yellow-green (Y) - Laser configuration parameters

- The optimal configuration of the instrument includes five 561 nm (yellow-green) fluorescent channels.
- The instrument is equipped with 5 bandpass filters and supportupgrade for more lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluorescent channel	561nm				
		YL1	YL2	YL3	YL4	YL5
		585/20	610/20	667/30	710/50	780/60
Y1050	5	●	●	●	●	●

Blue (B)-Yellow-green (Y) - Laser configuration parameters

- The optimal configuration of the instrument includes three 488 nm (blue) fluorescent channels and five 561 nm (yellow-green) fluorescent channels.
- The instrument is equipped with 8 bandpass filters. You can choose any model if desired, any of which support upgrade for more lasers and more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluores-cent channel	488nm			561nm				
		BL1	BL2	BL3	YL1	YL2	YL3	YL4	YL5
		530/30	620/30	690/50	585/20	610/20	667/30	710/50	780/60
BY2040	4	●		●	●	●			
BY2060	6	●		●	●	●	●	●	
BY2061	6	●			●	●	●	●	●
BY2080	8	●	●	●	●	●	●	●	●

Blue (B)-Red (R) - Yellow-green (Y)- Laser configuration parameters

- The optimal configuration of the instrument includes three 488 nm (blue) fluorescent channels, three 638 nm (red) fluorescent channels and five 561 nm (yellow-green) fluorescent channels.
- The instrument is equipped with 11 bandpass filters. You can choose any model if desired, any of which supports upgrade for more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluorescent channel	488nm			638nm			561nm				
		BL1	BL2	BL3	RL1	RL2	RL3	YL1	YL2	YL3	YL4	YL5
		530/30	620/30	690/50	660/20	710/20	780/60	585/20	610/20	667/30	710/50	780/60
BRY3080	8	●		●	●		●	●	●	●	●	
BRY3090	9	●		●	●		●	●	●	●	●	●
BRY3091	9	●		●	●	●	●	●	●	●	●	
BRY3100	10	●		●	●	●	●	●	●	●	●	●
BRY3110	11	●	●	●	●	●	●	●	●	●	●	●

Blue (B)-Violet (V) - Yellow-green (Y)- Laser configuration parameters

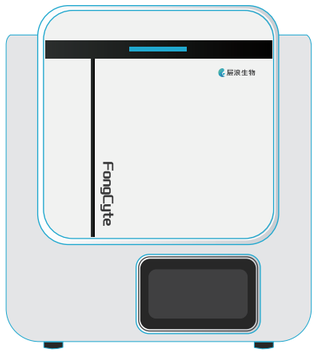
- The optimal configuration of the instrument includes three 488 nm (blue) fluorescent channels, six 405 nm (violet) fluorescent channels and five 561 nm (yellow-green) fluorescent channels.
- The instrument is equipped with 14 bandpass filters. You can choose any model if desired, any of which supports upgrade for more fluorescent channels. Please refer to the configuration table for the currently available preset configurations.

Catalog No.	Fluore-scent channel	488nm			405nm						561nm				
		BL1	BL2	BL3	VL1	VL2	VL3	VL4	VL5	VL6	YL1	YL2	YL3	YL4	YL5
		530/30	620/30	690/50	450/50	530/30	610/20	660/20	710/50	780/60	585/20	610/20	667/30	710/50	780/60
BVY3080	8	●		●	●	●					●	●	●	●	
BVY3100	10	●		●	●	●	●		●		●	●	●	●	
BVY3101	10	●		●	●	●			●		●	●	●	●	●
BVY3110	11	●		●	●	●	●		●		●	●	●	●	●
BVY3111	11	●		●	●	●	●	●	●		●	●	●	●	
BVY3120	12	●		●	●	●	●	●	●	●	●	●	●	●	
BVY3121	12	●		●	●	●	●	●	●		●	●	●	●	●
BVY3130	13	●		●	●	●	●	●	●	●	●	●	●	●	●
BVY3140	14	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Main technical parameters and application scenarios

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±0.3°C); Enclosed optical path system, avoiding dust interference.	
Superior instrument performance	Fluorescence resolution	CV < 2.0%
	Carry-over rate	<0.05%
	Detectable particle diameter	0.1 μm-50 μm
Robust software system	Operating language	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
	Quality control and calibration	One-touch 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
	Absolute counting	Compatible with volumetric method and microsphere method for absolute counting



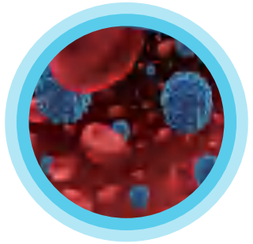
Application scenarios

Cytobiological research

Cytobiology is a science that explores and reveals the basic law of cell life activities, and it is the lowest logic of life science research. Challenbio provides a variety of tools for cell research and facilitates the scientific research in the field of cutting-edge single cells and stem cells.

Medical research

As a vital technology of cell analysis, flow cytometry has become one of the most potent means of modern biological and medical clinical testing.

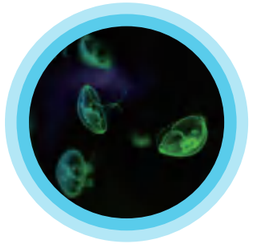


Hematological and oncological research

Challenbio offers a wide range of tools for hematological, oncological and immunological researches from sample preparation to cell analysis. Its flow cytometry provides a multi-parameter research approach for both hematological diseases and solid tumors.

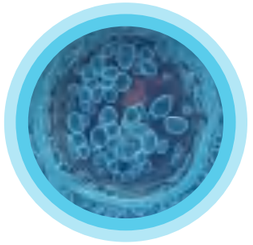
Pharmaceutical research

Flow cytometer is ideally suited for large-scale drug R&D and assays, such as drug target screening, organoid identification, and CAR-T cell therapy, by virtue of its high throughput and speed.



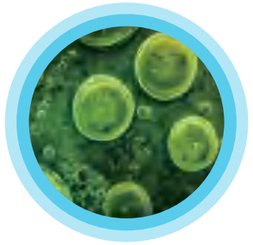
Research on fluorescent protein

Equipped with a 561 nm laser, the FongCyte™ series flow cytometers excite RFP and its derivatives (e.g., DsRed, HcRed) more efficiently than 488 nm blue laser. Therefore, cells expressing GFP, YFP, DsRed and HcRed, as well as fruit series proteins such as mCherry can be analyzed.



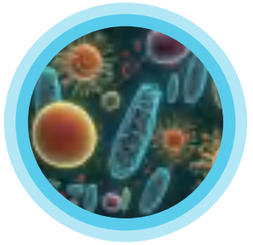
Research in plant field

Flow Cytometer is extensively used in the field of plants by virtue of its advantages of high efficiency, rapidity and multi-parameter analysis, such as plant ploidy analysis, chlorophyll research, plant resistance research, etc.



Research in environmental field

At present, it is also a vitally valuable research means to investigate algae and microorganisms in the environment by flow cytometer to count or evaluate the disinfection effect. Relevant high-scoring papers have also been published at home and abroad, and relevant industry standards have been issued.



Research in microbiological field

Researches on intestinal flora, water bacteria, virus, and probiotic in the food field are currently prevalent.Challenbio's flow cytometers are capable of detecting particles with diameters ranging from 0.1 μm to 50 μm, facilitating research in the field of microbiology.