About Challenbio

An innovative biotechnology company specializing in flow cytometry technology, committed to comprehensive solutions across instruments, reagents, applications, and services.

Service and Support

Challenbio provides instrument development, reagent manufacturing, application support, technical service, and lifecycle upgrade options for flow cytometry laboratories worldwide.

Contact

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LinkedIn	linkedin.com/company/challenbio

Scan to learn more, schedule a demo or download product resources.

SCHEDULE A DEMO

Challenbio

HIGH-THROUGHPUT FLOW CYTOMETER

ElaraCyte™

Advanced Conventional Flow Cytometer

Flexible optics. Small-particle sensitivity. 384-well throughput.



Beijing Challen Biotechnology Co., Ltd .

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

1-4
Lasers, up to 14 Colors

80nm
Optional VSSC Detection

384-well
High-throughput Workflows

ElaraCyte High-Throughput Flow Cytometer

Performance leap. Renewed experience. Expanded scenarios.

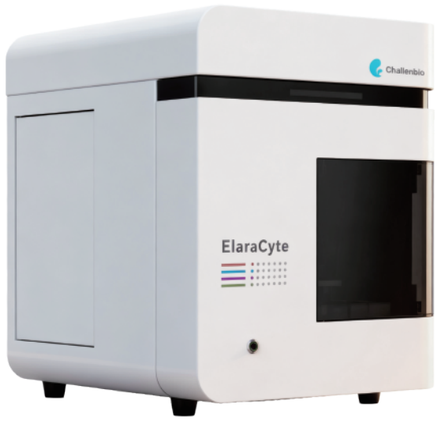
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Launch brochure

Beijing Challen Biotechnology Co., Ltd .

ElaraCyte™ at a Glance

A high-throughput conventional flow cytometer designed for flexible assay development, small-particle research, and scalable plate-based workflows.



Flexible optics

Choose 1-4 lasers and up to 14 colors to support routine assays and more complex multicolor panels.

Small-particle capability

Optional VSSC supports enhanced resolution of submicron particles, including extracellular vesicles.

Scalable throughput

Move from tubes to 96-well and 384-well plates with high-throughput configurations.

Product attributes

One scalable conventional flow cytometry platform for research, core labs, biopharma, and industrial testing, delivering reliable performance, flexible configurations, and the throughput capacity to grow with your needs.

Reliable data

Laser power stabilization, precision temperature control, and stable optical signal transmission.

Simplified operation

One-key startup, automated QC, intelligent monitoring, and walk-away shutdown.

Integrated analysis

IcFlower software supports acquisition, compensation, visualization, and analysis workflows.

Compliance-ready

Optional audit trail, electronic signature, and 3-level user management for regulated settings.

Flexible Optical Configuration

Build the optical configuration that fits your assays today - and upgrade as your needs evolve.

1-4 lasers. Up to 14 colors. 23 optical configurations.

405 nm laser option

488 nm laser option

561 nm laser option

638 nm laser option

Designed for assay flexibility

- Support routine and advanced multicolor assay designs.
- Optional 561 nm laser improves excitation of PE-family dyes and red fluorescent proteins.
- On-instrument upgrade path helps protect your investment as application needs expand.
- Configuration options support immunophenotyping, cell biology, drug screening, and more.

Configuration overview

Optical configurations

		405nm Laser							488nm Laser					561nm Laser					638nm Laser		
No.	Config	405/10 VSSC	450/50 Pacific Blue	530/30 BV510	610/20 BV605	660/20 BV650	710/50 BV711	780/60 BV786	530/30 FITC	577/25 PE	620/30 PE-Dazzle594	690/50 PerCp-Cy5.5	780/60 PE-CY7	585/20 PE	610/20 PE-Dazzle594	675/30 PE-CY5	710/50 PE-CY5.5	780/60 PE-CY7	660/20 APC	710/20 Alex Fluor700	780/60 APC-Cy7
1	1L4C								√	√		√	√								
2	1L5C								√	√	√	√	√								
3	2L4C								√	√		√							√		
4	2L4C								√	√									√		√
5	2L6C								√	√		√	√						√		√
6	2L6C								√			√		√	√	√		√			
7	2L8C								√	√	√	√	√						√	√	√
8	3L8C		√	√					√	√		√	√						√		√
9	3L8C	√	√	√					√	√		√	√						√		√
10	3L10C		√	√	√				√	√		√	√						√	√	√
11	3L10C	√	√	√	√				√	√	√	√	√						√		√
12	3L10C								√			√		√	√	√	√	√	√	√	√
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14	3L13C	√	√	√	√	√		√	√	√	√	√	√						√	√	√
15	3L13C		√	√	√	√	√	√	√			√		√	√	√	√	√			
16	3L14C		√	√	√	√	√	√	√	√	√	√	√						√	√	√
17	4L13C	√	√	√	√	√			√			√		√	√	√		√	√	√	√
18	4L13C	√	√	√		√	√		√			√		√	√	√		√	√	√	√
19	4L13C	√	√	√	√		√		√			√		√	√	√		√	√	√	√
20	4L13C	√	√	√	√			√	√			√		√	√	√		√	√	√	√
21	4L14C		√	√	√	√	√		√			√		√	√	√		√	√	√	√
22	4L14C		√	√	√	√		√	√			√		√	√	√		√	√	√	√
23	4L14C		√	√	√		√	√	√			√		√	√	√		√	√	√	√

Support on-instrument upgrade

Small-Particle Detection with Optional VSSC

Violet side scatter enhances resolution for microparticles and submicron targets such as extracellular vesicles.

VSSC: Unlock a new micro-world down to 80 nm

The optional violet side scatter channel improves small-particle resolution and supports detection of particles in the 80 nm size range, including bacteria, viruses, nanoscale drug carriers, and extracellular vesicles.

EVs
extracellular vesicles

80 nm
lower detection limit

0.1-50 um
standard particle range

Small-particle resolution example

VSSC significantly enhances resolution for small particles, supporting detection of particles in the 80nm size range, such as bacteria, viruses, nano-scale drug carriers, and extracellular vesicles (EVs), opening the door for research on small particles.



Use cases

- Extracellular vesicle studies
- Microbiology and virus-sized particles
- Nanoparticle drug carriers
- Environmental and food microbiology

Scalable High-Throughput Sample Loading

Move from tubes to plate-based screening with integrated automation and high-throughput visualization.

Scale seamlessly from single tubes to 96-well and 384-well workflows

Tubes
40-position tube racks

96-well
standard plates

384-well
high-throughput assays

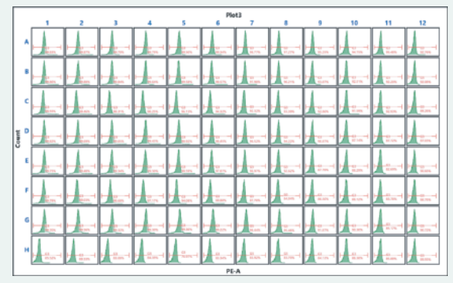
Integrated autosampler



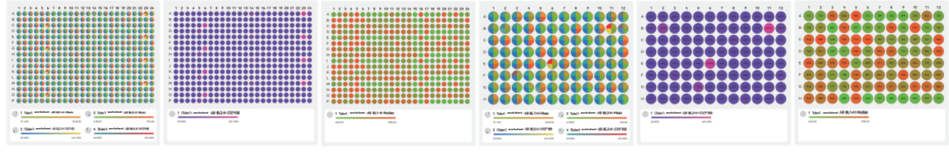
- 40-position flow cytometry tubes rack
- 40-position EP tubes rack (1.5mL and 2mL)
- 96-well plates (U-bottom, V-bottom, flat-bottom)
- 24-, 48-, 384-well plates

One-key switching between single-tube and high throughput modes.

AI-driven demultiplexing



Heatmap visualization for rapid screening



Visualize assay performance across large plate formats to accelerate decision-making.

Complete 96-well plate screening in as fast as 15 minutes

Excellent Performance, Stable and Reliable

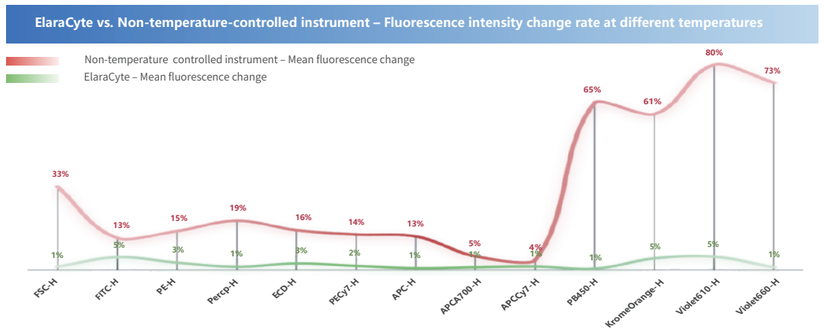
Engineered to maintain signal stability and reliable results across demanding laboratory environments.

1 Laser power stabilization
Patented real-time laser monitoring and adjustment supports stable output power.

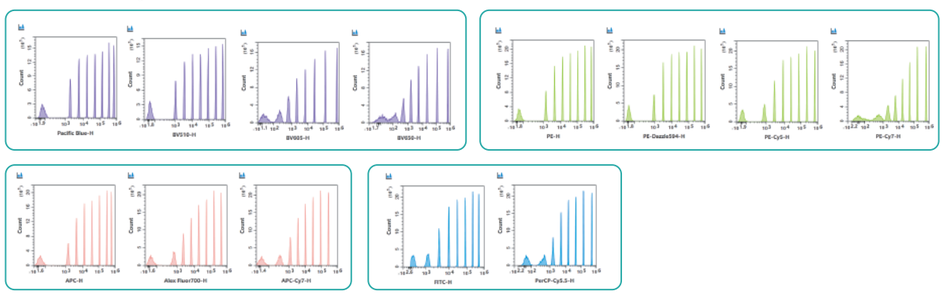
2 TEC temperature control
Laser and detector modules operate under precision temperature control.

3 Anti-vibration optical design
Locking optical path, 3D ring-shaped filter, and fiber transmission improve signal stability.

Fluorescence intensity stability



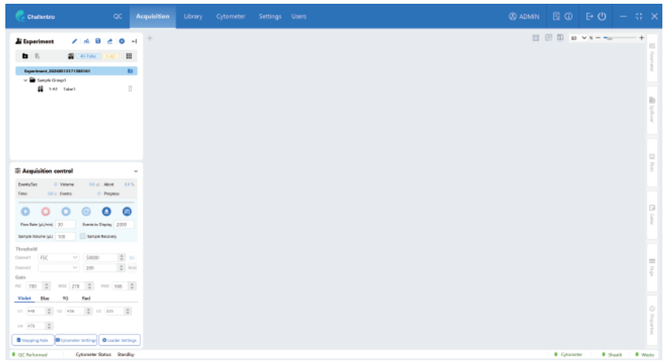
Sensitivity across fluorescence channels



IcFlower Software: From Acquisition to Analysis

Move from tubes to plate-based screening with integrated automation and high-throughput visualization.

Guided acquisition interface



High-performance data — Handles very large event files without lag.

Intelligent adjustment — Voltage-free adjustment mode simplifies operation.

Compensation tools — Online/offline compensation, graphical threshold setting, and library import/export.

Upgradeable plugins — Cell cycle, antibody titration, overlay comparison, heatmap, and more.

Compliance-ready software option

Supports audit trail, electronic signature, and 3-level user management for 21 CFR Part 11-aligned workflows.

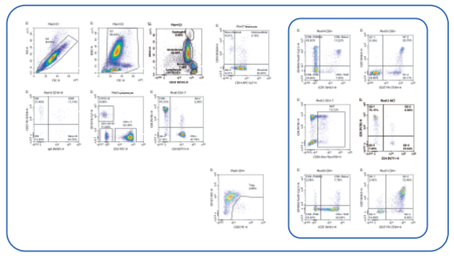
Applications Across Research and Industry

A single platform for multicolor immunology, cell biology, pharmaceutical screening, fluorescent proteins, plants, and microbiology.

14-color leukocyte subset study

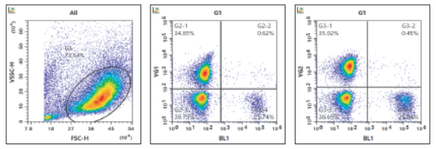
Laser	Fluorescein	Marker
405nm	BV421	CCR7
	BV510	CD45
	BV605	IgD
	BV650	CD16
	BV711	CD4
	BV785	CD8
488nm	FITC	CD3
	PE	CD25
	PE-CF594	CD27
	PerCP-Cy5.5	CD45RA
	PE-Cy7	CD19
638nm	APC	CD127
	Alex Fluor700	CD56
	APC-Cy7	CD14

Multi-color detection readily supports researchers in immunological function, drug target screening, cell biology, tumor markers, and other multi-color analysis, expanding the unlimited possibilities of flow cytometry applications.

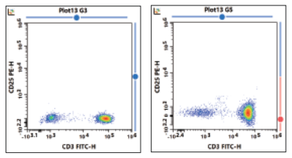


Fluorescent protein detection

Laser	Channel	Marker
488nm	BL1	YFP
561nm	YG1	tdTomato
	YG2	mCherry



Optional 561nm laser – Reduces compensation difficulty among commonly used fluorochromes.



As shown in the figure, when FITC and PE are used together, detection of PE with the 561nm laser results in zero compensation.

Cell Biology
Cell cycle, apoptosis, proliferation, signaling, stem cell research

Medical Research
Immune subsets, biomarker screening, translational research

Pharma Research
Target validation, screening, ADME-Tox

Functional Assays
Cytokine detection, calcium measurements, potency assays

Cell Therapy Research
From discovery to process development & manufacturing

Microbiology
EVs, bacteria, viruses, algae, probiotics and water testing

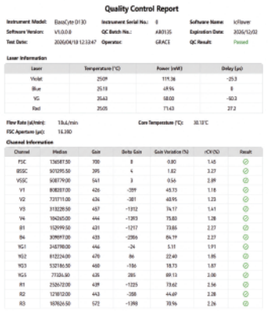
Walk-Away Operation and Smart Maintenance

Automations supports consistent operation, reduces hands-on time, and helps keep the system ready for the next run.

One-key startup

01

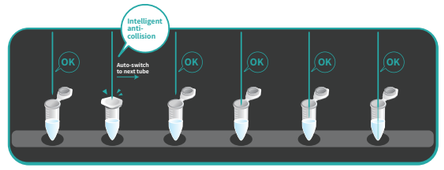
Ready for stable acquisition with automated QC and instrument status checks.



Intelligent troubleshooting

02

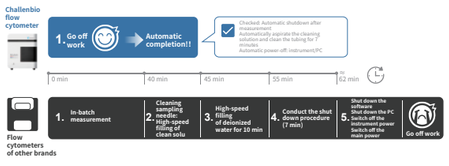
Automatic monitoring manages anomalies during measurement, including anti-collision protection.



Automatic shutdown

03

Automatic cleaning, shutdown, and power-off after the run completes.



Programmable maintenance

02

Recommended and custom combined maintenance protocols support daily, weekly, and monthly routines.

Daily **Weekly** **Monthly**

Customize maintenance and shutdown behavior to match lab SOPs.

Main Technical Specifications

A simplified summary of ElaraCyte capabilities for technical evaluation.

Optics — High-power semiconductor lasers with spatially separated independent excitation; TEC thermostatic control at 25 °C+/- 0.3 °C.

Detection — Independent fiber optic transmission and APD multichannel detector architecture with TEC control.

Particle range — 0.1 um to 50 um standard; optional VSSC supports detection down to 80 nm.

Throughput — Integrated autosampler; tubes, 96-well plates, and 384-well plate workflows.

Fluidics — Selectable sample flow rate range from 5 to 240 uL/min; carryover rate <0.05%.

Software — IcFlower acquisition, compensation, QC, analysis modules, visualization, and language support.

Compliance — 21 CFR Part 11-ready options: audit trail, e-signature, and 3-level user management.

Detailed specification reference

Optical System	High-power semiconductor lasers with spatially separated independent excitation and TEC thermostatic control (25±0.3°C)	
	Independent fiber optic transmission and independent array-based multichannel detectors (APD) with TEC thermostatic control (25±0.3°C)	
	Detectable particle diameter	Particle detection range: 0.1μm to 50μm With violet side scatter (VSSC): detectable down to 80nm
Fluidics System	High Throughput	Supports high-throughput sampling mode for rapid screening
	Sample recovery	User selectable sample recovery option
	Carryover rate	<0.05%
Electronic System	Electronic response speed	100000 EPS

Software	Language	Chinese / English
	Compensation	Supports multiple modes including independent automatic compensation, automatic compensation adjustment with gain changes, and manual quick compensation. Compensation automatically performs positive/negative gating. One-click single-stain library entry function allows compensation recall at any time
	Voltage & Threshold	Default or freely adjustable; supports graphical threshold clipping
	QC	One-key automatic QC; monitors the resolution and fluorescence intensity (MFI) stability of each fluorescence channel; Levey-Jennings QC plot tracking; automatically monitors instrument performance
	Automated monitoring	Alerts for fluidics pressure, bubbles, and empty sample
	Absolute Counting	Volumetric absolute counting; compatible with bead-based method
Audit Trail	Compliant with 21 CFR Part 11 requirements, supports audit trail electronic signature, and provides 3-level user management	

For full model and configuration details, consult the specification table and configuration matrix.

Optical Configurations

ElaraCyte supports multiple configurations and on-instrument upgrades to align with evolving assay requirements.

		405nm Laser							488nm Laser					561nm Laser					638nm Laser		
No.	Config	405/10 VSSC	450/50 Pacific Blue	530/30 BV510	610/20 BV605	660/20 BV650	710/50 BV711	780/60 BV786	530/30 FITC	577/25 PE	620/30 PE-Dazzle594	690/50 PerCp-Cy5.5	780/60 PE-CY7	585/20 PE	610/20 PE-Dazzle594	675/30 PE-CY5	710/50 PE-CY5.5	780/60 PE-CY7	660/20 APC	710/20 Alex Fluor700	780/60 APC-Cy7
1	1L4C								√	√		√	√								
2	1L5C								√	√	√	√	√								
3	2L4C								√	√		√							√		
4	2L4C								√	√									√		√
5	2L6C								√	√		√	√						√		√
6	2L6C								√			√		√	√	√		√			
7	2L8C								√	√	√	√	√						√	√	√
8	3L8C		√	√					√	√		√	√						√		√
9	3L8C	√	√	√					√	√		√	√						√		√
10	3L10C		√	√	√				√	√		√	√						√	√	√
11	3L10C	√	√	√	√				√	√	√	√	√						√		√
12	3L10C								√			√		√	√	√	√	√	√	√	√
13	3L13C		√	√	√	√		√	√	√	√	√	√						√	√	√
14	3L13C	√	√	√	√	√		√	√	√	√	√	√						√	√	√
15	3L13C		√	√	√	√	√	√	√	√		√		√	√	√	√	√			
16	3L14C		√	√	√	√	√	√	√	√	√	√	√						√	√	√
17	4L13C	√	√	√	√	√			√			√		√	√	√		√	√	√	√
18	4L13C	√	√	√		√	√		√			√		√	√	√		√	√	√	√
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20	4L13C	√	√	√	√			√	√			√		√	√	√		√	√	√	√
21	4L14C		√	√	√	√	√		√			√		√	√	√		√	√	√	√
22	4L14C		√	√	√	√		√	√			√		√	√	√		√	√	√	√
23	4L14C		√	√	√		√	√	√			√		√	√	√		√	√	√	√

23 configurations

1-4 lasers

14 colors

Upgrade on-instrument

Configuration details may vary by model or application requirements. Please contact Challenbio or our local distribution partners to select the optimal optical layout that best fits your assay and workflow requirements.