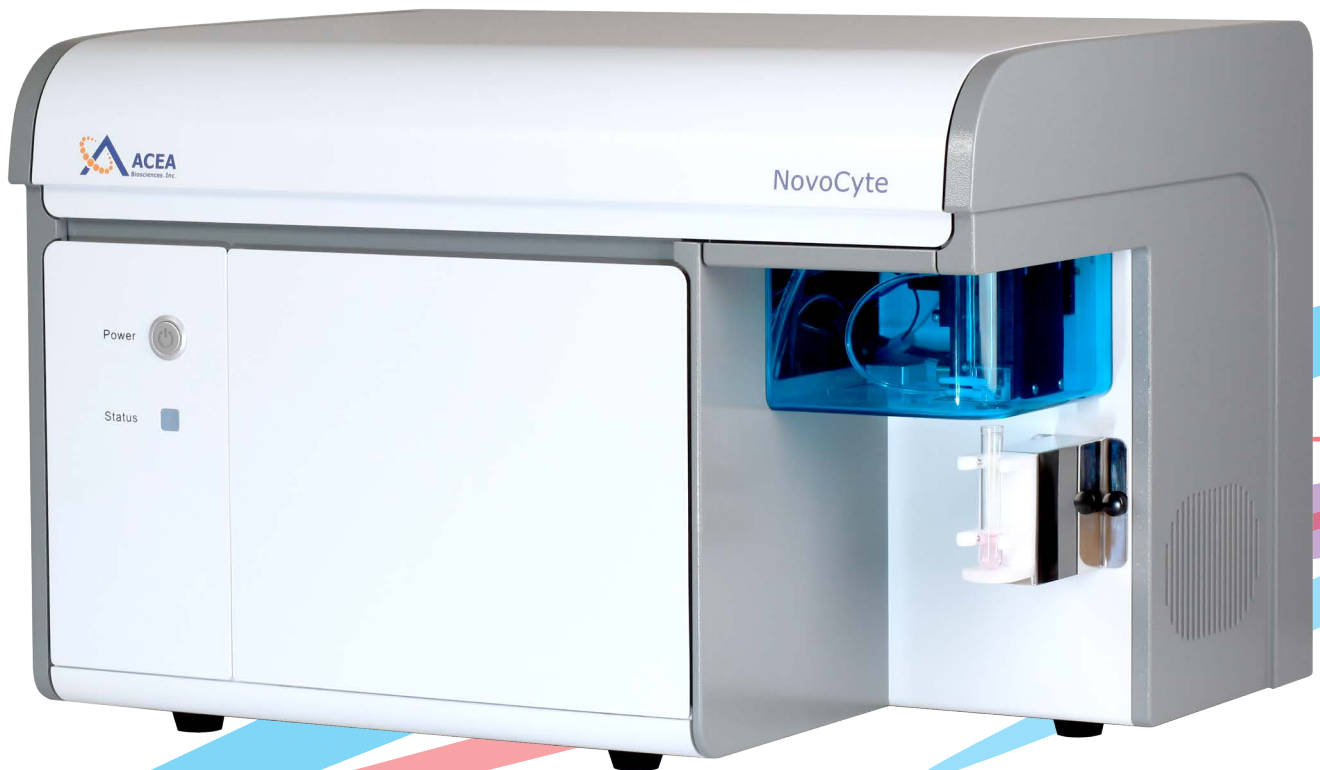


NovoCyte™ Flow Cytometer

POWERFUL. INTUITIVE. CUSTOMIZABLE.



**HIGH PERFORMANCE
FLOW CYTOMETER FOR EVERYONE**

ABOUT ACEA

Established in 2002, ACEA Biosciences, Inc. develops cutting-edge cell analysis platforms for life science research. More than 1,000 ACEA cell analysis instruments are being used by scientists around the world for a wide range of biological research and drug discovery applications. ACEA released their real-time, label-free xCELLigence® System in 2008, and continues to develop new technology. To help ensure success of our customers and their applications, ACEA provides exceptional customer service and expert technical support.



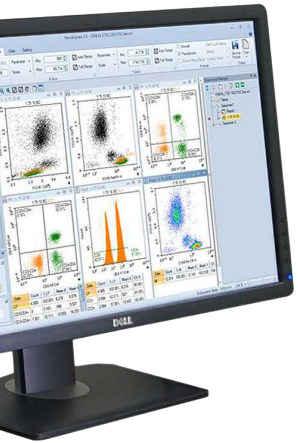
NOVOCYTE

A HIGH PERFORMANCE FLOW CYTOMETER FOR EVERYONE

Address the full range of current and future multi-parameter cellular analysis research needs with the NovoCyte flow cytometer. ACEA brings researchers high performance flow cytometry at a low investment cost with the NovoCyte platform.

ACEA offers a system which is:

- **Powerful** - up to 15 parameter detection with enhanced sensitivity and resolution.
- **Intuitive** - automated instrument maintenance functions and advanced data analysis capability for greater usability.
- **Customizable** - 1 to 3 laser options, exchangeable filters, multiple sampling options and flexible analysis formats.



HIGH PERFORMANCE

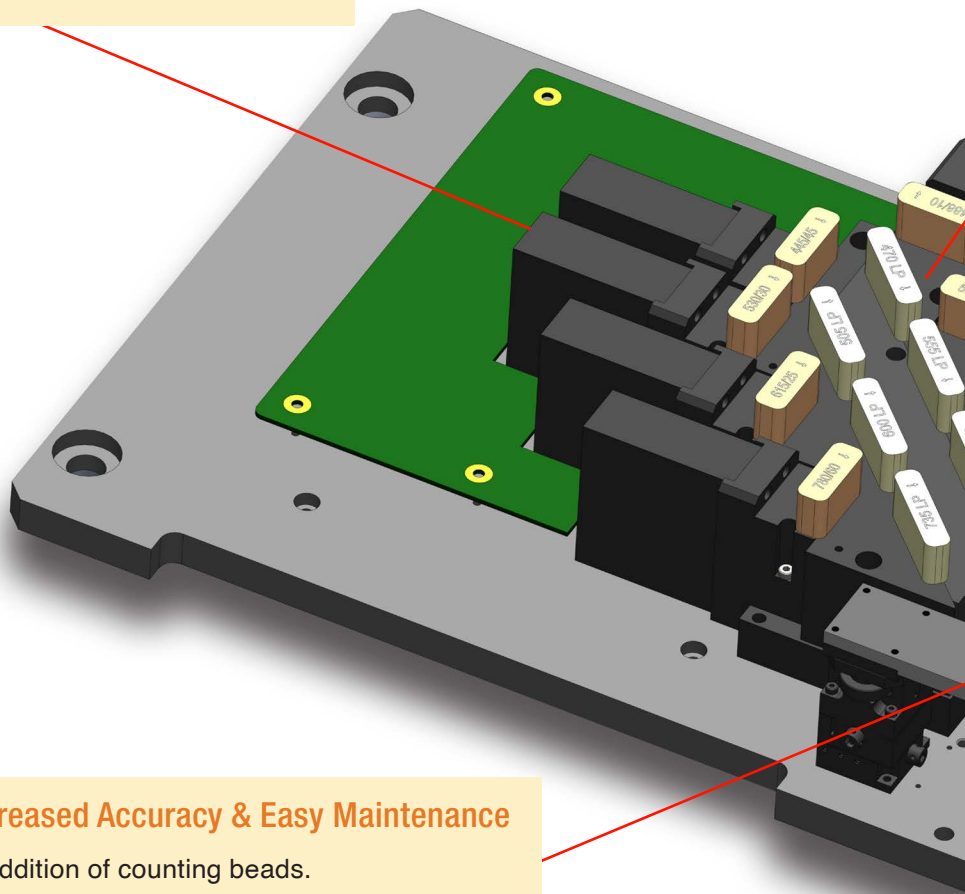
LOW COST

KEY INSTRUMENT FEATURES

Optimized PMT Voltage & 24 Bit Detection Dynamic Range

Provides 10^7 dynamic range for signal detection and processing, offering a broader signal range than other flow cytometers.

Wide range of fluorescence and scattering signal intensities eliminates the need for complicated and laborious PMT voltage adjustment. Data acquisition is simply load-and-go.



Volumetric Fluidics System for Increased Accuracy & Easy Maintenance

Direct absolute counting, no need for addition of counting beads.

Accurate pressure sensors monitor fluidic status in real-time, providing warning messages at abnormal high pressures due to possible flow path obstruction. Automated fluidic functions maintain the instrument at an optimum status, allowing for reliable and accurate data acquisition.

Automated SIP (sample injection probe) washing following sample acquisition minimizes sample carryover and increases capability to detect rare events.

High speed data acquisition of up to 35,000 events per second.

Configurable Fluorescence Detection Channels for Enhanced Assay Flexibility

Customizable selection and upgrade with lasers of different wavelengths allow for personalized, versatile choices of fluorochromes for flow cytometry assays.

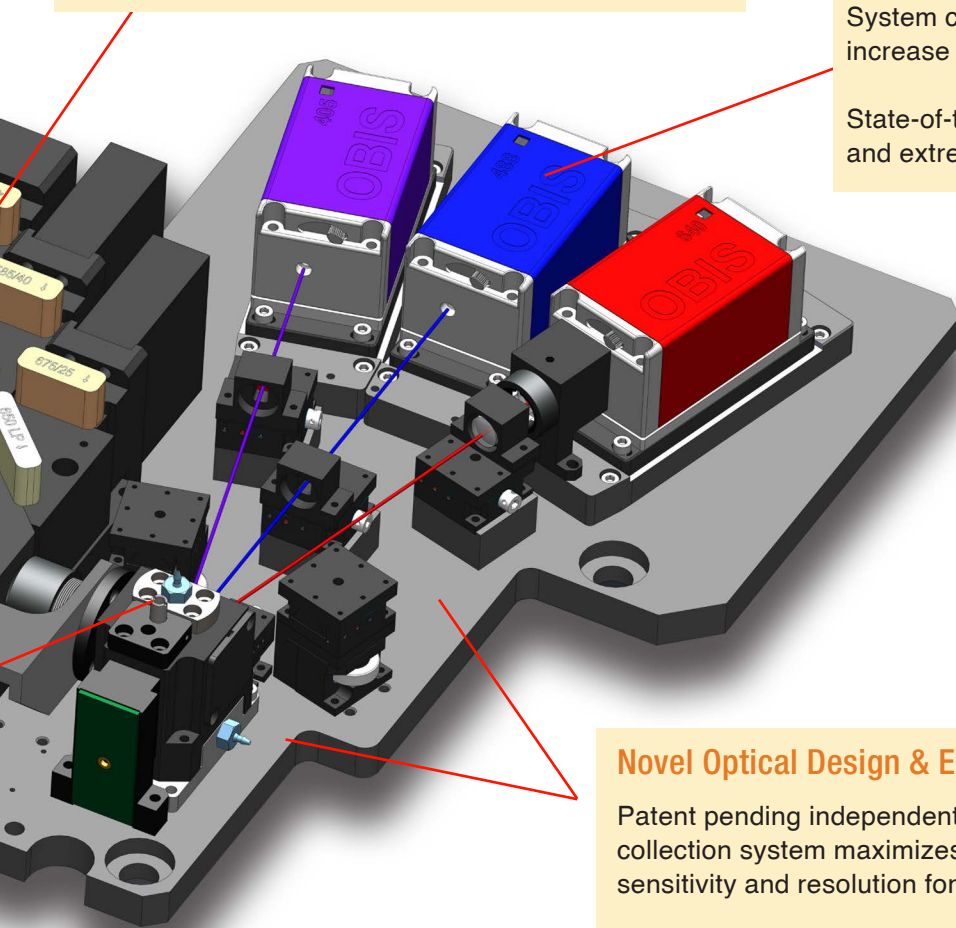
User interchangeable filters and dichroic mirrors broaden available fluorescence channels to expand users' detection options.

13 Fluorescence Channel Detection: Multiple Laser Options Providing Flexibility of Choice (405nm, 488nm, 640nm)

Customize the instrument to meet detection needs with blue, red and violet laser options.

System can be upgraded as analytical requirements increase – no need to purchase another instrument.

State-of-the-art solid-state lasers provide high quality and extremely stable optical illumination.



Novel Optical Design & Enhanced Signal Detection

Patent pending independent beam shaping optics and light collection system maximizes signal detection efficiency, increasing sensitivity and resolution for each fluorescence channel.

Fixed optical alignment removes need for daily maintenance and adjustment of optical system, providing convenient operation and superior long-term stability.

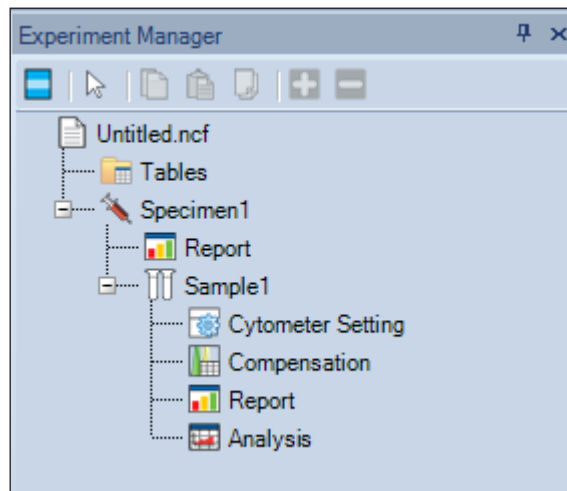
Optimized forward scatter obscuration bar increases sensitivity.

Enhanced small particle detection and resolution as a result of optimized obscuration bar design.

KEY SOFTWARE FEATURES

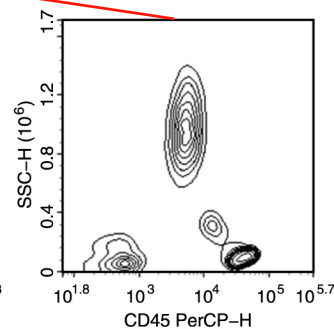
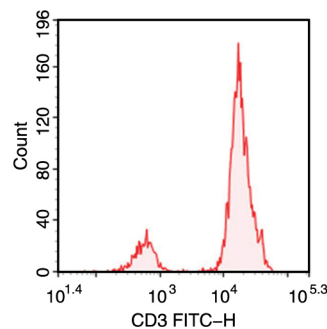
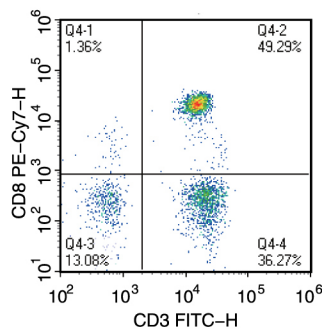
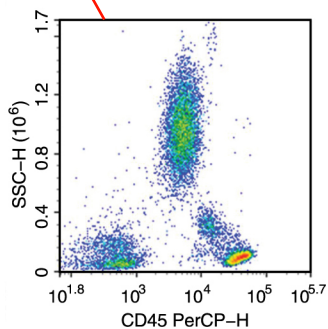
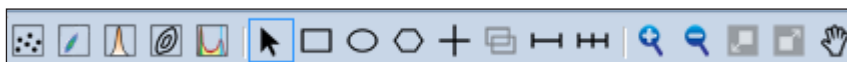
Experiment Analysis Design

Experiment Manager provides a schematic view of the sample analysis being performed. This allows for access to cytometer settings, compensation matrix, report generation and data analysis. Multiple samples can be analyzed with the same settings by a simple drag-and-drop template function.



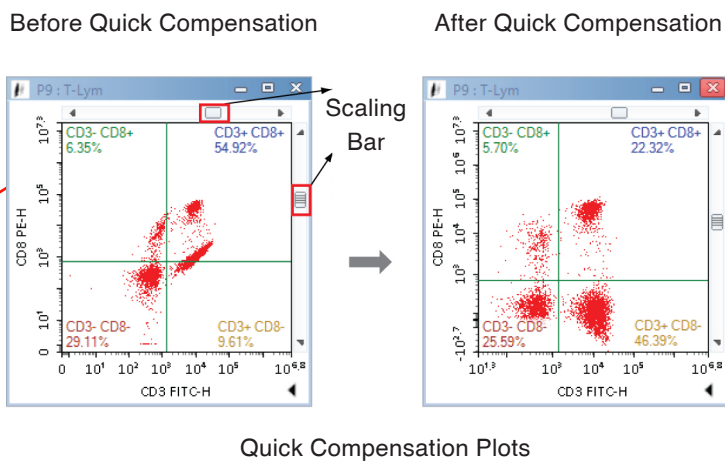
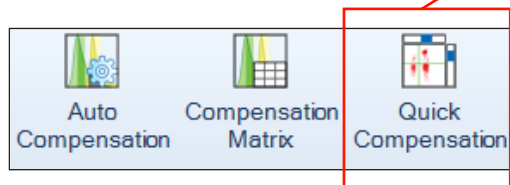
Automated & Versatile Data Analysis Functions

Powerful NovoExpress™ software allows efficient data acquisition, data analysis and report generation. NovoExpress software provides flexible analysis templates and plotting tools, offering enhanced data analysis efficiency.



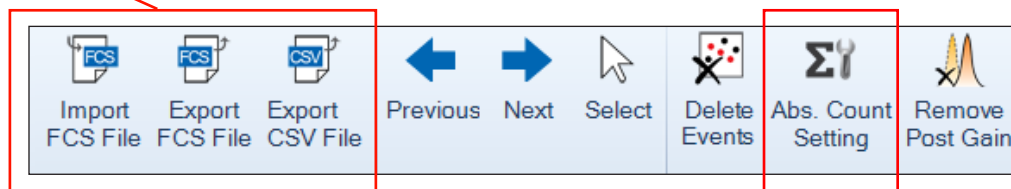
Pre & Post Acquisition Compensation

In addition to automated compensation, instantaneous compensation results can be simply achieved by adjustment of the compensation scaling bar on the plot, allowing rapid and accurate compensation, thus eliminating tedious trial and error adjustments of compensation matrix coefficients.



Rapid Import & Export of Data Files

FCS (Flow Cytometry Standard) 3.0 files can be imported for analysis by NovoExpress. Data can also be exported as a FCS 3.0 file for further analysis in a 3rd party software, or as a CSV (Comma Separated Value) file for analysis in programs such as Microsoft Excel.



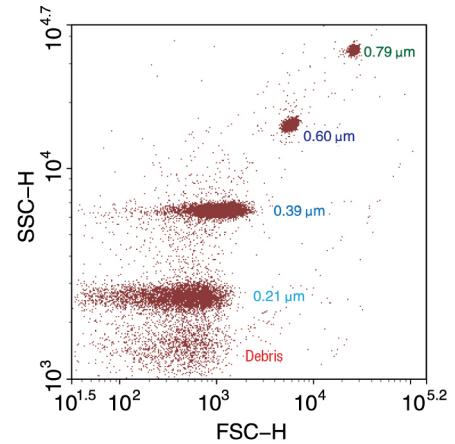
The NovoCyte's volumetric precision pump enables direct absolute counting without the need for reference counting beads. One click enables the concentration of your sample to be calculated.

NOVOCYTE PROVIDES OUTSTANDING PERFO

High Sensitivity & High Resolution Detection

Highly efficient light collection ensures reliable detection of sub-micron particles and dim signals.

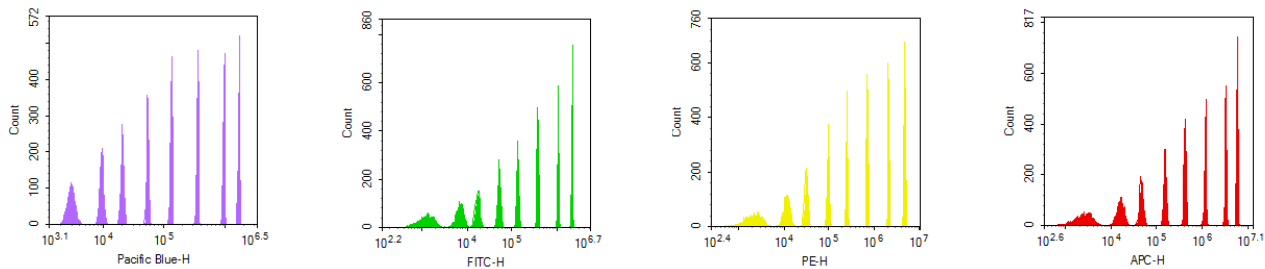
Using innovative optical design for light collection and high quality PMTs, fluorescence signals are efficiently detected with an exceptionally high signal-to-noise ratio, ensuring a high detection sensitivity for weak positive samples and small particles.



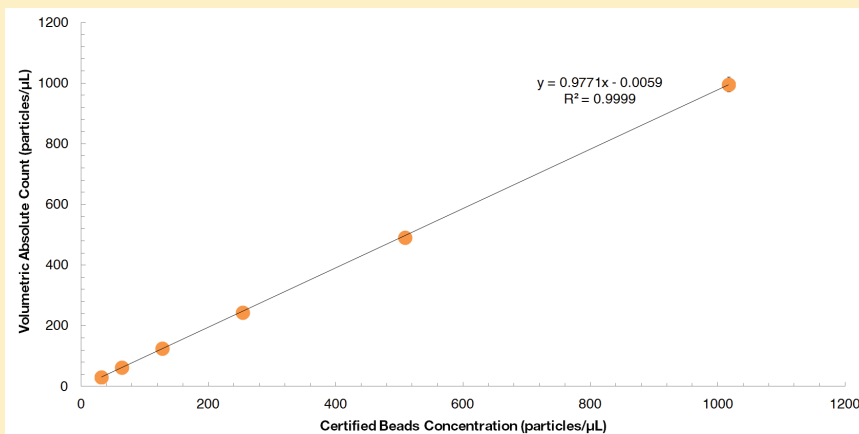
Bangs Laboratories NIST Traceable Particle Size Standards

High Fluorescence Signal Resolution Improves Detection Accuracy

Advanced optical and fluidic system design, premier quality components, and innovative signal processing algorithms collectively ensure accurate extraction of detection parameters with consistently low variation.



Spherotech 8-peak Rainbow Beads



Volume-Based Direct Absolute Counting, No Additional Counting Beads Required

With a high accuracy syringe pump controlling the injected sample volume and minimal cell loss in the fluidics, the NovoCyte flow cytometer achieves accurate direct cell counting without the need for expensive counting beads.

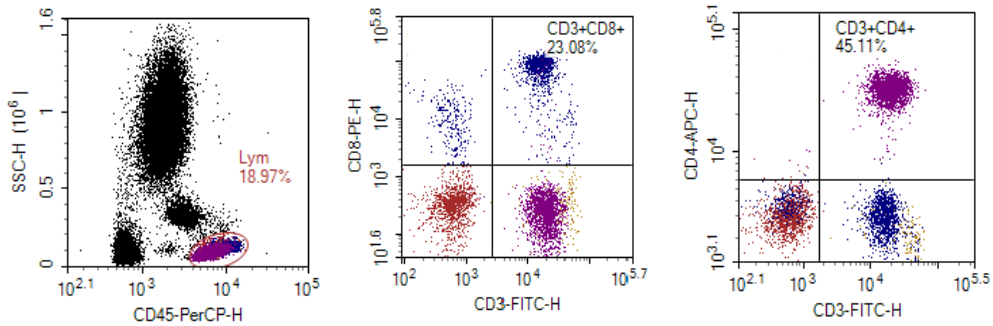
PERFORMANCE

Powerful signal detection and data analysis capabilities, and a user friendly software interface guarantee fast, economic, and accurate flow cytometry data generation and reliable data analysis.

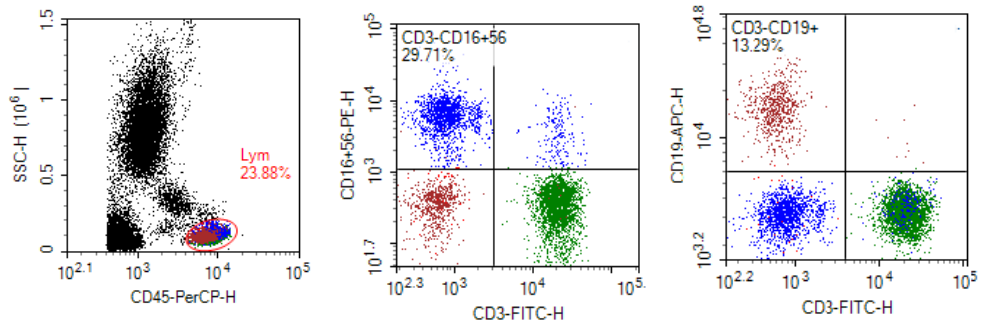
Immunophenotyping

Immunophenotyping quickly identifies candidate cell types, sub-classes and functions. The ACEA NovoCyte flow cytometer can be used for multi-parameter lymphocyte sub-population counting and phenotyping, helper T lymphocyte differentiation and functional study, new sub-population identification, disease-specific sub-population identification, and cell surface marker detection.

T Subsets Analysis



T/B/NK Phenotyping

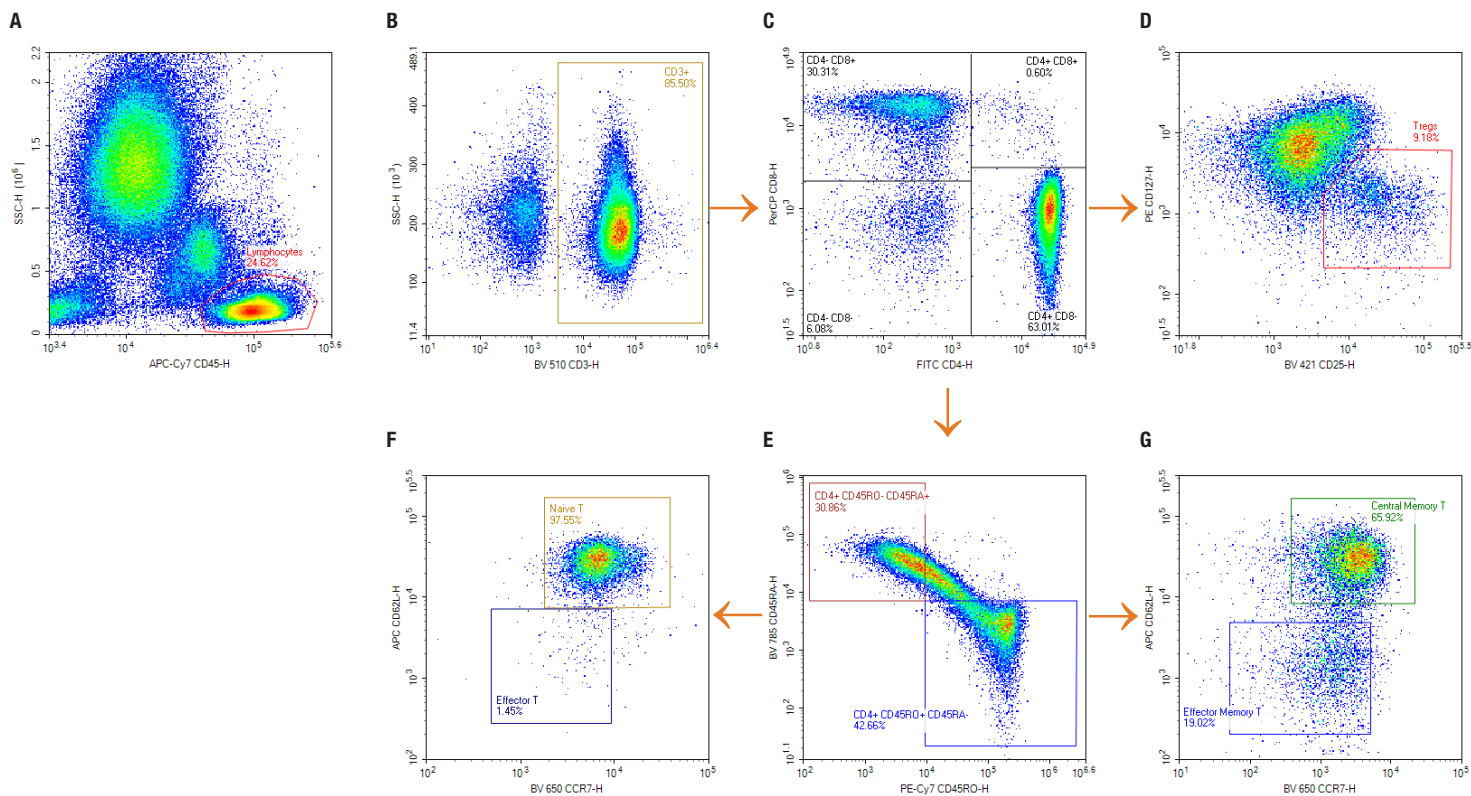


Lymphocyte sub-population analysis: Normal human peripheral blood was stained with T subset (CD3/CD4/CD8/CD45) or T/B/NK (CD3/CD19/CD16+56/CD45) cocktails with RBCs lysed using RBC lysis solution.

NOVOCYTE PROVIDES OUTSTANDING PERF

10-Color Analysis of T Cell Subpopulations

Understanding the function and interaction of the molecular and cellular components of the immune system demands multiparameter analysis. The NovoCyte flow cytometer, with its innovative optical detection design, can simultaneously detect up to 15 parameters in a single experiment, enabling identification and detailed study of subpopulations of cells in blood samples.



CD4⁺ cell subpopulations analysis: Normal human whole blood was stained with a cocktail of 10 mAbs (see Table 1). Cells were analyzed on ACEA NovoCyte™ 3000 (Cat#2010011). In this figure, CD4⁺ T lymphocytes (lower right quadrant of Plot C) were further analyzed. CD4⁺ Treg cells express high levels of CD25 and low levels of CD127 (Plot D). The CD45RO⁺RA⁺ (upper left quadrant of Plot E) population generally represents naïve/effector CD4⁺ T cells, which can be further divided into naïve T and effector T cells based upon different levels of CD62L and CCR7 expression (Plot F). CD45RO⁺RA⁻ cells are mainly activated T cells and memory T cells (lower right quadrant of Plot E). The memory T cells can be further divided into central memory T cells and effector memory T cells by analyzing expression levels of CD62L and CCR7 (Plot G).

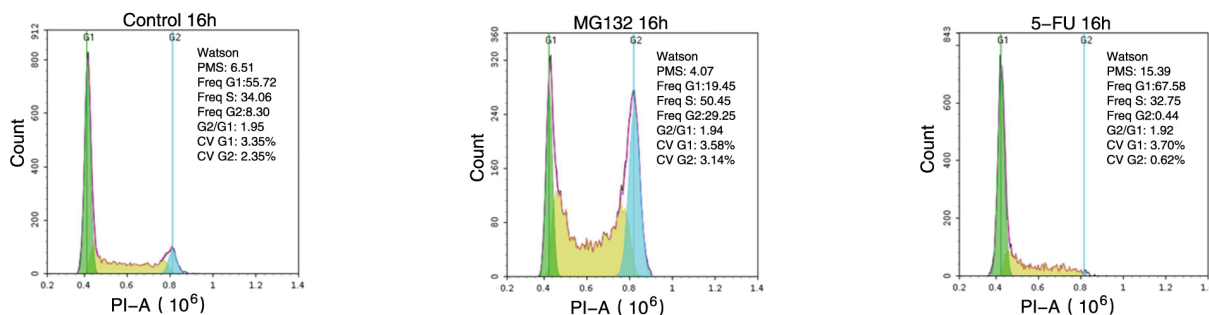
PERFORMANCE (CONTINUED)

Antibody Specificity	Format	Laser (Excitation)	FL Channel on NovoCyte	Filter (Emission)
CD25	BV421	405nm	VL1	445/45
CD3	BV510	405nm	VL2	530/30
CCR7	BV650	405nm	VL5	675/30
CD45RA	BV785	405nm	VL6	780/60
CD4	FITC	488nm	BL1	530/30
CD127	PE	488nm	BL2	585/40
CD8	PerCP	488nm	BL4	675/30
CD45RO	PE-Cy7	488nm	BL5	780/60
CD62L	APC	640nm	RL1	675/30
CD45	APC-Cy7	640nm	RL2	780/60

Table 1. Expanded Detection Channel Capabilities with 3-Laser System: This table summarizes the 10-color experiment antibody combination using the NovoCyte three laser system which includes 4 colors of the 405nm laser, 4 colors of the 488nm laser and 2 colors of the 640nm laser.

Cell Cycle Analysis

Normal human somatic cells are diploids containing a constant amount of DNA. During cell cycle progression, DNA synthesis results in a doubling of total DNA content, followed by restoration of the normal DNA content after mitosis. With the NovoCyte flow cytometer, detailed cell cycle analysis can be performed to understand tumor cell differentiation, cell transformation and cell-compound interaction.



A549 cell cycle analysis with PI: After treatment with 10 μ M MG132 or 500 μ M 5-FU for 16 hours, A549 cells were analyzed for cell cycle distribution with the ACEA Novocyte flow cytometer. With the NovoExpress built-in cell cycle analysis module, the plot shows cells in G0/G1 phase (green), S phase (yellow), and G2/M phase (blue). Compared to normal untreated cells, MG132 treated cells were arrested at G2/M phase, while 5-FU treated cells were arrested at G0/G1 phase.

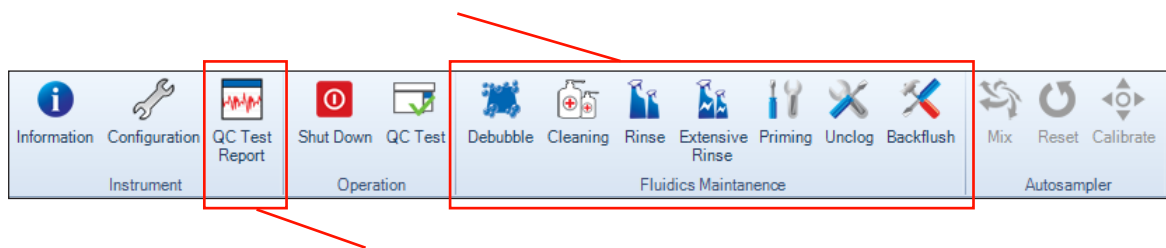
IMPROVED EASE OF USE

Convenience of Operation & Maintenance

With accurate pressure sensors monitoring fluidic status in real-time, the possibility of flow path obstruction is greatly reduced, allowing for reliable and accurate data acquisition.

Automated cleaning and de-contamination functionality simplifies routine maintenance.

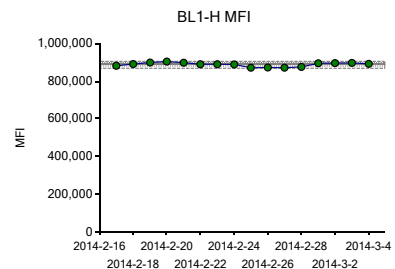
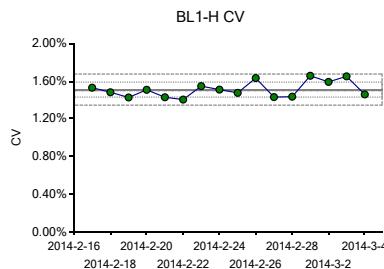
A simple click of a button initiates the automated cleaning and de-contamination process and effectively removes any residual samples in the fluidics path, saving users' valuable time from laborious manual cleaning and decontamination routines.



Automated instrument QC test provides information on day-to-day performance of the NovoCyte. QC analysis only takes a couple of minutes to run, providing user reassurance.

Integrated Quality Control

The Levey-Jennings plots allow display of daily cytometer QC results over time.



Autosampler Option for High-Throughput Analysis of Multiple Samples

Modular autosampler is compatible with sample tubes (24 tubes) and 24/96 well plates, allowing for versatile loading modes and increased throughput.

SUPPORTING YOUR RESEARCH

Technical Support

Our skilled technical support team is available to provide field- or phone-based assistance. As highly qualified flow cytometry experts, our support team will address your needs in both NovoCyte and application support.

Warranty

ACEA ensures success in your research by providing technical expertise and knowledge in maintaining the high level performance of your NovoCyte™ system. Our technical team provides reliable service to maintain productivity, accuracy and high performance throughout the instrument's life cycle.

Full Warranty and Extended Warranty includes:

- One PM during a twelve-month period, includes One (1) One-Year Fluidic System Maintenance Kit
- Software Revisions that are released during the Agreement term
- Unlimited service visits during the term of the agreement
- 48-hour guaranteed response to a request for emergency on-site service
- Unlimited telephone support for instruments will be provided at no additional charge

ACEA NOVOCYTE COMPATIBLE FLUOROCHROMES

FL Channel	405nm										488nm								640nm										
	Pacific Blue™	Brilliant Violet™ 421	DAPI	AmCyan	Brilliant Violet™ 510	Pacific Orange™	Brilliant Violet™ 570	Qdot® 605	Brilliant Violet™ 605	Qdot® 655	Brilliant Violet™ 650	Qdot® 800	Brilliant Violet™ 785	FITC	Alexa Fluor® 488	GFP	PI	PE	PE-Texas Red	PE-Alexa Fluor® 610	PE-Cy™ 5	PerCP	7-AAD	PE-Cy™ 7	APC	Alexa Fluor® 647	APC-Cy™ 7	Alexa Fluor® 700	
445/45	●	●	●																										
530/30				●	●								●	●	●														
585/40						●	●										●	●											
615/24							●	●									●		●	●									
675/30										●	●										●	●	●		●	●			
780/60												●	●											●		●	●		

* Contact ACEA or your local distributor for complete compatibility list

NOVOCYTE SPECIFICATIONS

	Model Number	1000	2000		2060		3000		
	Specification	488 nm	488 nm	640 nm	488 nm	640 nm	405 nm	488 nm	640 nm
Detectors	445/45 nm						•		
	530/30 nm	•	•		•		•	•	
	585/40 nm	•	•		•		•	•	
	615/24 nm						•	•	
	675/30 nm	•	•	•	•	•	•	•	•
	780/60 nm				•	•	•	•	•
Optics	Laser Configuration	Spatially separated beams with 10 x 80 µm elliptical spots							
	Optical Alignment Procedure	Fixed, no operator alignment required							
	Flow Cell	170 x 290 µm rectangular quartz flow cell							
	FSC/SSC Resolution	FSC: < 0.5 µm; SSC: < 0.2 µm							
	Cell Size	0.2 - 50 µm							
	Fluorescence Threshold Sensitivity	FITC < 75 MESF; PE < 50 MESF							
	Fluorescence Resolution	< 3% CV for CEN							
	Filters	User Exchangeable							
Fluidics	Sample Acquisition Rate	35,000 events/second							
	Volumetric Absolute Count Precision	CV < 5%							
	Sample Flow Rate	5-120 µL/min							
	Sheath Flow Rate	6.5 mL/min							
	Sample Aspiration Volume	10 - 100 µL							
	Fluid Container Capacity	3 L sheath, 3 L waste, 500 mL cleaning, 500 mL decontamination							
	Carryover	< 0.1%							
	Fluidics Maintenance	Automated startup, cleaning, decontamination and shutdown							
Data Processing	Parameters	Height and Area for FSC, SSC and all Fluorescence Channels, Width and Time							
	Dynamic Range	24 bit; 7.2 decades logarithmic scale; no need for PMT voltage adjustment							
	Compensation	Full inter-beam matrix, during or post acquisition							
	Output Data Files	FCS 3.0; CSV; Batch Reports							
	Computer Operating System	Microsoft Windows® 7 Professional (64 bit)							
	Software	ACEA NovoExpress™							
Sampling	Manual Sample Loading	12 x 75 mm tube							
	Automatic Sample Loading	Optional - compatible with 12 x 75 mm tube, 1.5 & 2mL tubes, 24-well and 96-well microtiter plates							
Operating Conditions	Instrument Dimension (W X D X H)	23.6 x 17.7 x 15.4 in (60 x 45 x 39 cm)							
	Instrument Weight	86 lb (39 kg)							
	Power Requirements	100/115/230 VAC, 50-60 Hz							
	Environment Requirements	Temperature: 15-32°C ; Relative Humidity: 80% maximum							

ORDERING INFORMATION

Instrument - Includes Workstation & NovoExpress Software

Model	Laser Configuration	Description	Catalog Number
ACEA NovoCyte™ 1000	Blue Laser (488 nm)	3 color, FSC, SSC	2010001
ACEA NovoCyte™ 2000	Blue / Red Laser (488/640 nm)	4 color, FSC, SSC	2010002
ACEA NovoCyte™ 2060	Blue / Red Laser (488/640 nm)	6 color, FSC, SSC	2010004
ACEA NovoCyte™ 3000	Blue / Red / Violet Laser (488/640/405 nm)	13 color, FSC, SSC	2010011

Accessories, Reagents and Kits

Description	Catalog Number
ACEA NovoSampler™	2020001
NovoCyte™ QC Particles (2ml; 50 tests)	8000001
NovoCyte™ 1-Year Fluidic System Maintenance Kit	2030006
NovoCyte™ 6-Month Fluidic System Maintenance Kit	2030008
NovoFlow™ Sheath Fluid (1X; 10L)	875B601
NovoFlow™ Sheath Fluid (6X; 10L)	876B601
NovoClean™ Solution (1X; 500mL)	872B602
NovoClean™ Solution (5X; 500mL)	873B602
NovoRinse™ Solution (1X; 500mL)	872B603
NovoRinse™ Solution (5X; 500mL)	873B603

Extended Warranties - Service Contract Options

Description	Catalog Number
One-Year Extended Service Warranty for NovoCyte™ One-Laser System	2040003
Two-Year Extended Service Warranty for NovoCyte™ One-Laser System	2040004
One-Year Extended Service Warranty for NovoCyte™ Two-Laser System	2040005
Two-Year Extended Service Warranty for NovoCyte™ Two-Laser System	2040006
One-Year Extended Service Warranty for NovoCyte™ Three-Laser System	2040007
Two-Year Extended Service Warranty for NovoCyte™ Three-Laser System	2040008



Corporate Headquarters

ACEA Biosciences Inc.
6779 Mesa Ridge Road Ste 100
San Diego, CA 92121

t | 858.724.0927
f | 858.724.0928
toll-free | 866.308.2232

www.aceabio.com

**For life science research only.
Not for use in diagnostic procedures.**

© 2014 ACEA Biosciences, Inc. All rights reserved.

NovoCyte, NovoExpress, NovoFlow, NovoClean, NovoRinse, xCELLigence, and ACEA Biosciences are trademarks of ACEA Biosciences, Inc. in the US and other countries.

All other product names and trademarks are the property of their respective owners.