

# NovoCyte™ Flow Cytometer

**POWERFUL. INTUITIVE. CUSTOMIZABLE.**



**THE NEW STAR OF  
BENCHTOP FLOW CYTOMETRY**

## 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

### THE NEW STAR OF BENCHTOP FLOW CYTOMETRY

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 detections with enhanced sensitivity and resolution.
- **Intuitive** - automated instrument maintenance functions and advanced data analysis capabilities 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 fluorescent and scattering signal intensities eliminates the need for complicated and laborious PMT voltage adjustment. Data acquisition is just load-and-go.

## 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.

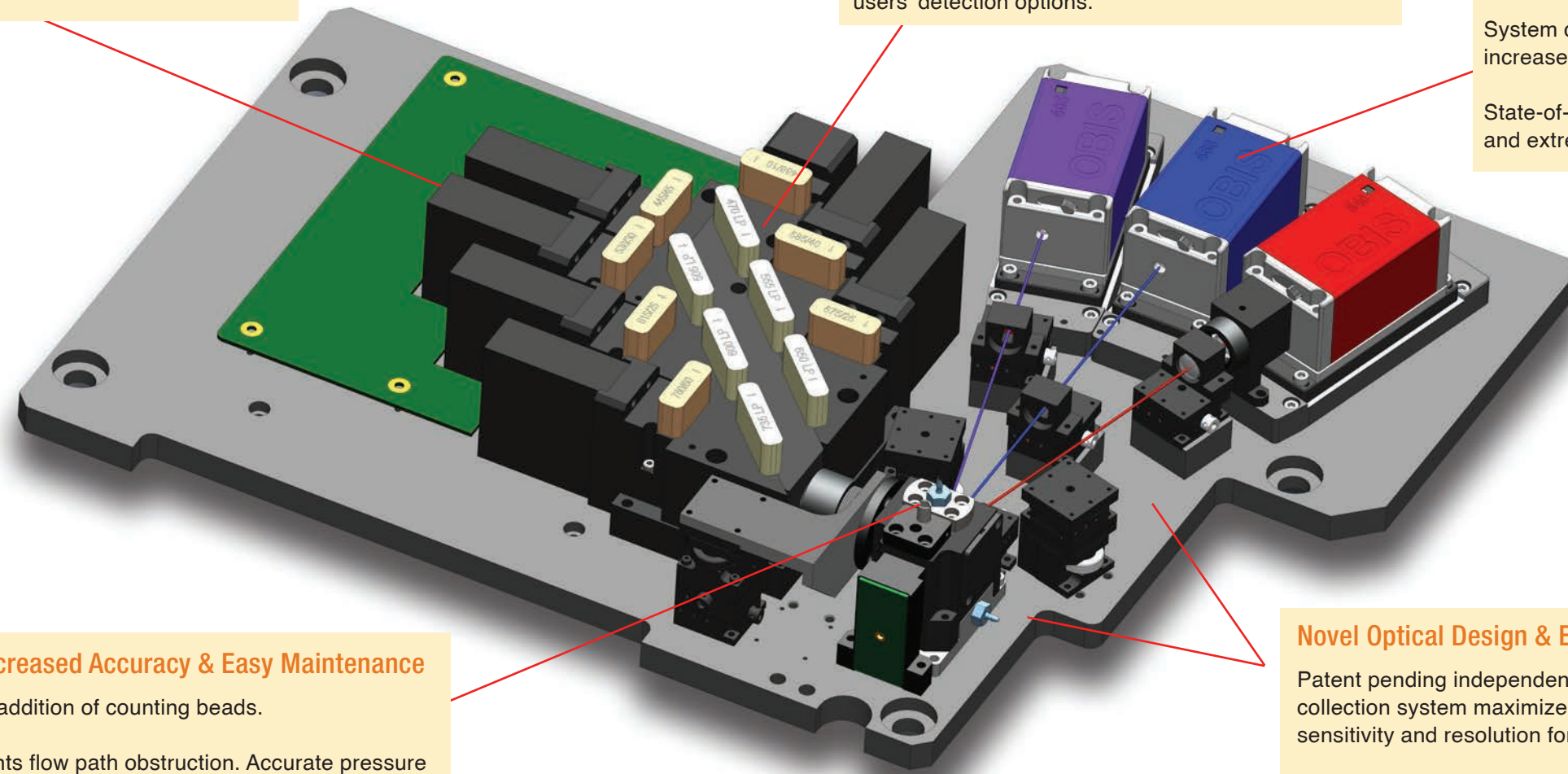
User interchangeable filters and dichroic mirrors broaden available fluorescence channels to expand users' detection options.

## 13 Fluorescent 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.



## Volumetric Fluidics System for Increased Accuracy & Easy Maintenance

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

Real-time monitoring of fluidics prevents flow path obstruction. Accurate pressure sensors monitor fluidic status in real-time, thus the possibility of flow path obstruction is greatly reduced, 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 20,000 events per second.

## 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.

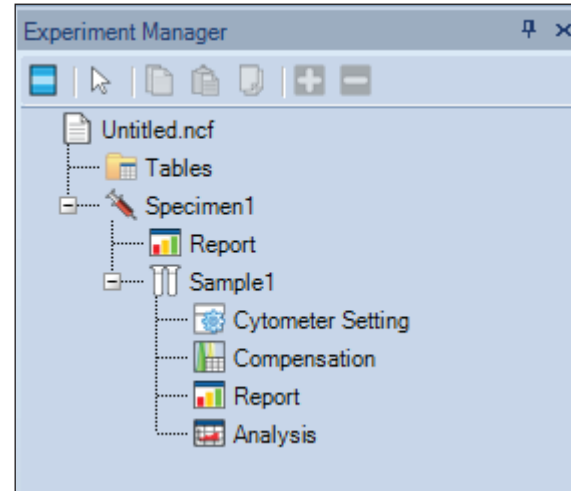
Optimized forward scatter obscuration bar increases sensitivity.

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

# KEY SOFTWARE FEATURES

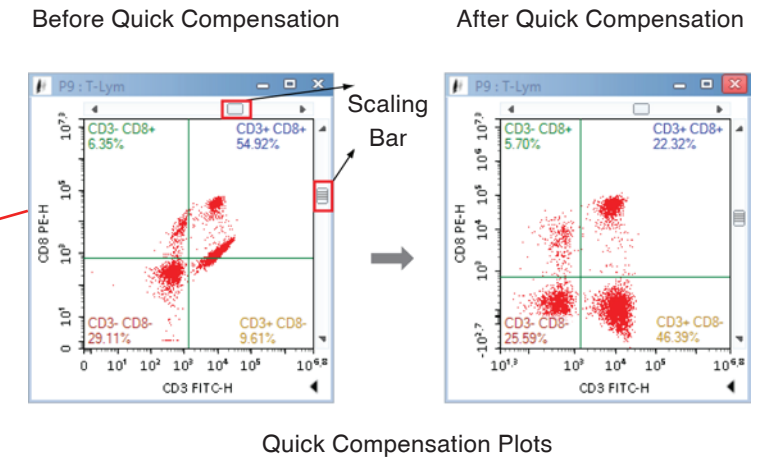
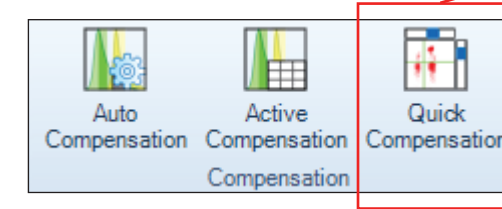
## Experiment Analysis Design

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



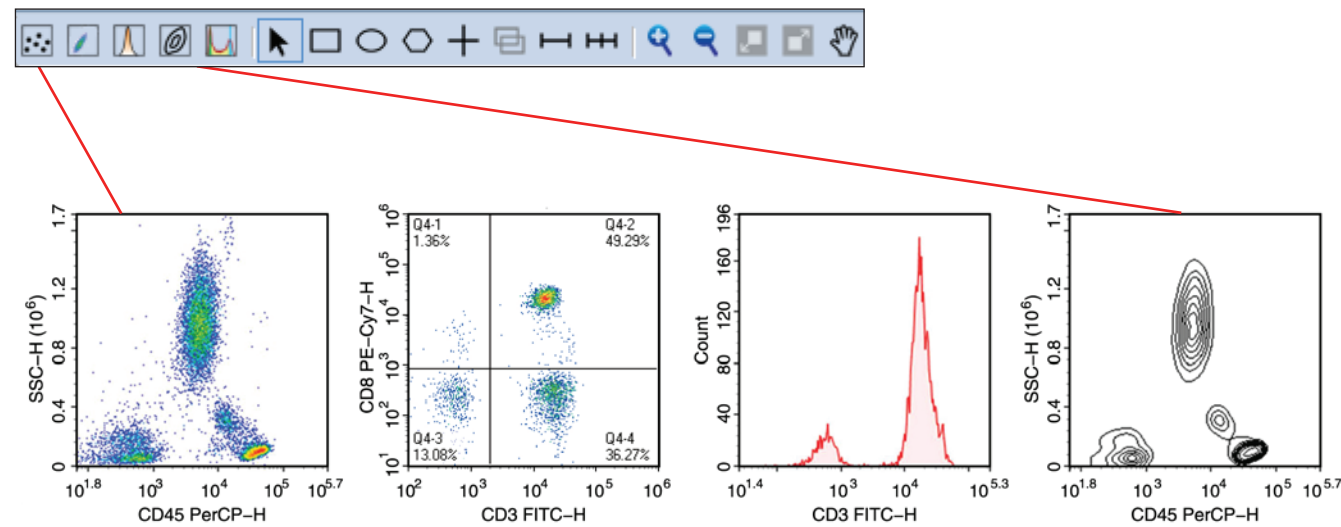
## Pre & Post Acquisition Compensation

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.



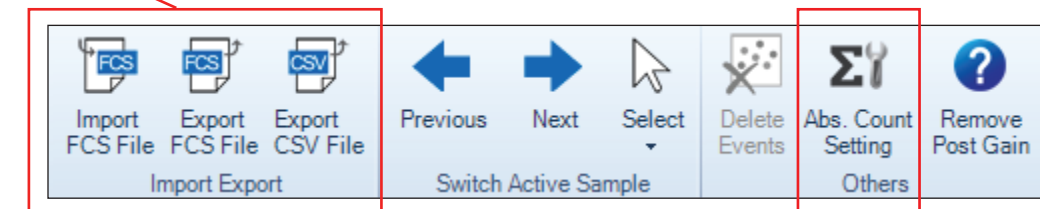
## Automated & Versatile Data Analysis Functions

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.



## 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.



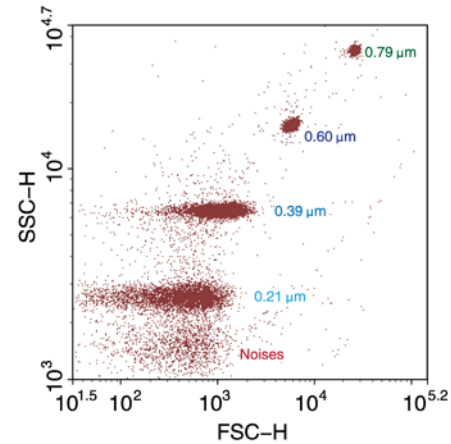
The NovoCyte's volumetric precision pump enables direct absolute counting without the need for reference counting beads. One click enables the concentration of your sample to be calculated.

# NOVOCYTE PROVIDES OUTSTANDING PERFORMANCE

## High Sensitivity & High Resolution Detection

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

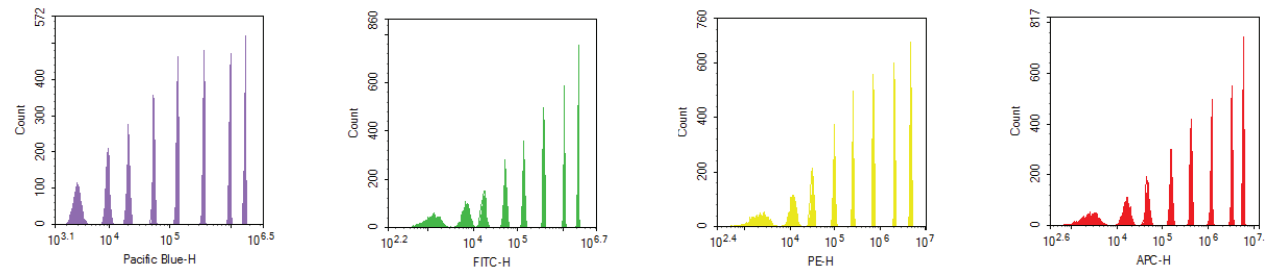
Using innovative optical design for light collection and high quality PMTs, fluorescence signals are efficiently detected with exceptionally high signal-to-noise ratio, ensuring a high detection sensitivity for weak positive samples and small particles.



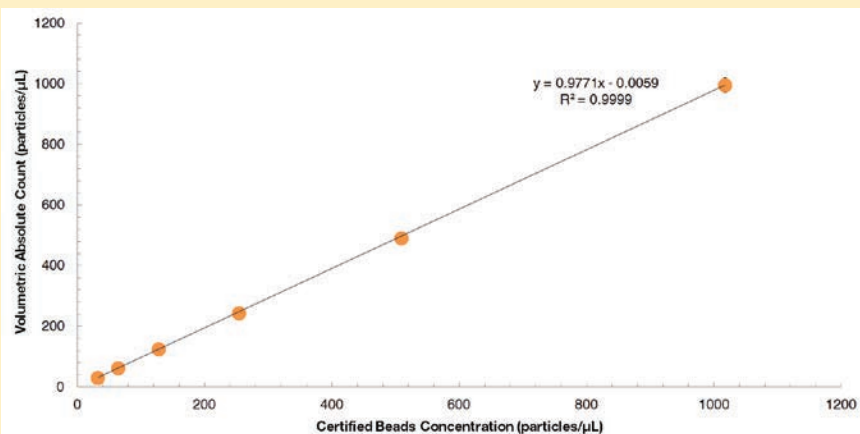
Bangs Laboratories NIST Traceable Particle Size Standards

## High Fluorescent 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



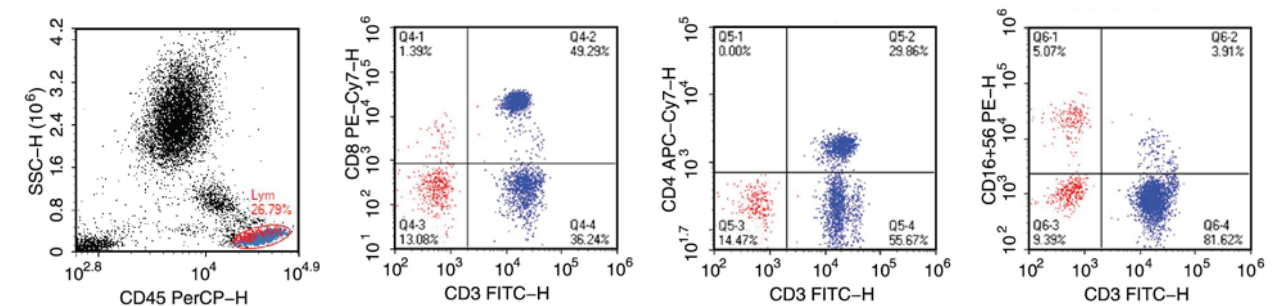
## Volume-Based Direct Absolute Counting, No Additional Counting Beads Required

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.

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

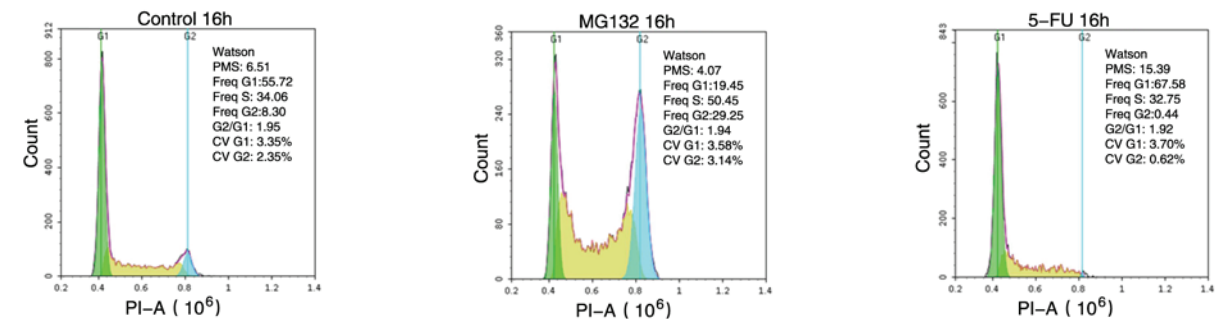
Immunophenotyping quickly identifies candidate cell types, sub-classes and functions. The ACEA NovoCyte flow cytometer can be used for multi-parameter lymphocyte sub-population counting and phenotyping, helper T lymphocyte differentiation and functional study, new sub-population identification, disease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



**Lymphocyte sub-population analysis:** Accurate results were quickly obtained for cytotoxic T cells (CD3+CD8+), T helper cells (CD3+CD4+), and natural killer cells (CD3-CD16+56+).

## 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 μM MG132 or 500 μM 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.

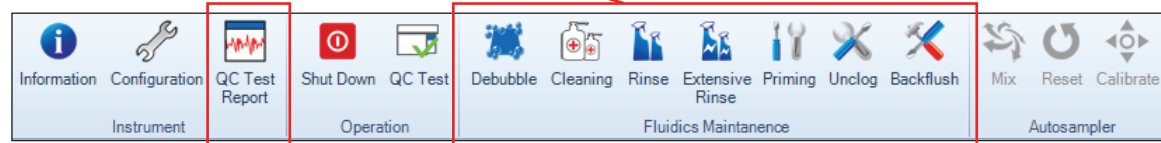
# IMPROVED EASE OF USE

## 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.



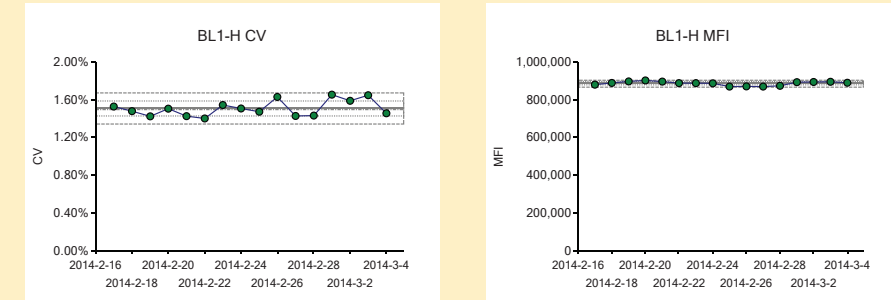
Automated instrument QC test provides information on day-to-day performance of the NovoCyte. QC analysis only takes a couple of minutes to run, providing user reassurance.



### 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.

## The Levey-Jennings Plots Allow Display of Daily Cytometer QC Results Over Time



# SUPPORTING YOUR RESEARCH

## Technical Support

Our highly skilled technical support team is available to answer questions related to the NovoCyte instrument and software as well as to help address your challenging cellular analysis needs. If your question requires more in depth support we can schedule a visit from our highly trained flow cytometry field applications scientist.

## One Year Warranty

Our standard one-year warranty covers the replacement of any components that may be damaged or faulty through normal recommended use of the NovoCyte instrument.

Following receipt of your NovoCyte instrument, our qualified trained representative will provide instrument installation. The instrument performance will be checked to affirm that the instrument is within standard operating specifications.

In the event of defects occurring during the warranty period, the instrument will be repaired to manufacturer's standard at an ACEA certified repair site. ACEA will cover the cost of repair including parts, labor and shipment costs.

## Extended Service Warranty for Total Reassurance

ACEA offers extended service warranty options to ensure that any instrument fault has minimal impact to your work, limiting down time and loss of productivity.

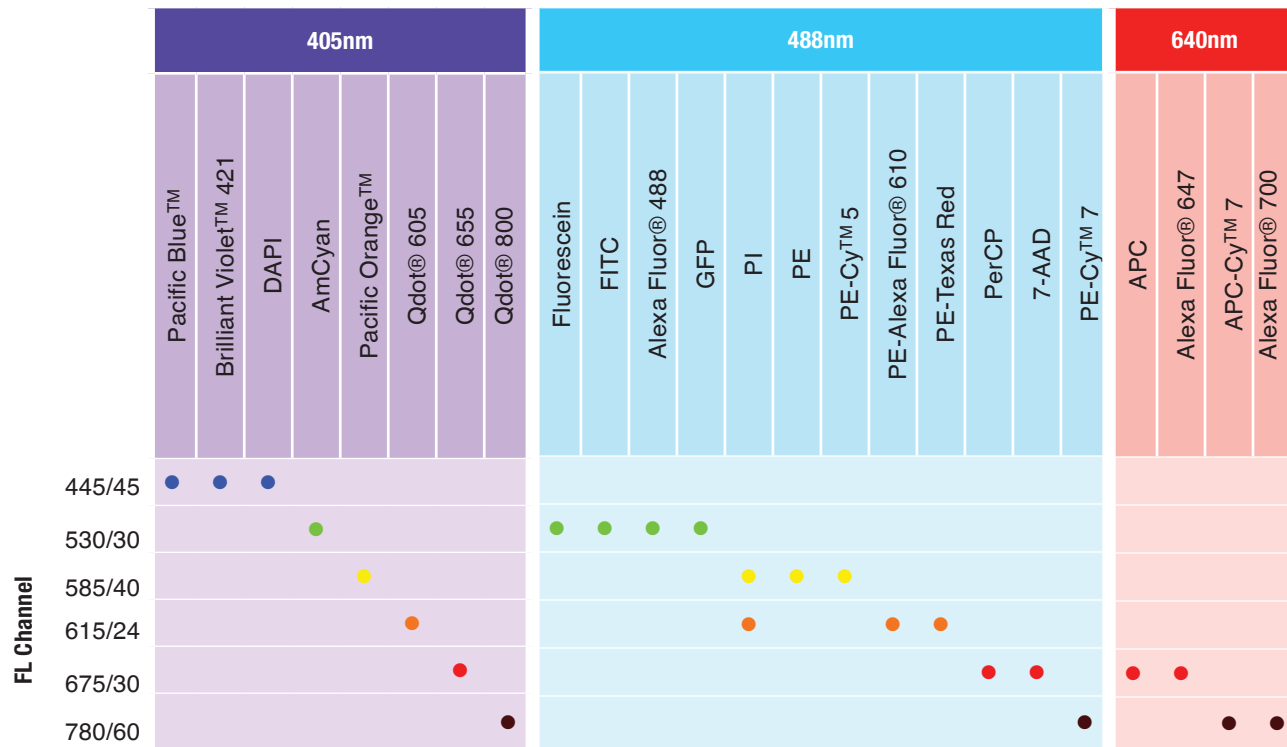
ACEA will fully back the performance of the instrument for the duration of the warranty, giving you total peace of mind – allowing you to focus on your work.

Discuss with an ACEA representative to understand more about how the Extended Service Warranty will enhance your NovoCyte experience.

# NOVOCYTE WARRANTY OVERVIEW

Coverage	One Year Manufacturer Warranty	One Year Extended Service Warranty	Two Year Extended Service Warranty
Instrument Installation	●	●	●
Shipment Costs (Repair Related)	●	●	●
Manufacturer Certified Replacement Parts	●	●	●
Maintenance Kit (Cat# 320200090)		●	●
Software Upgrades	●	●	●
Instrument Installation Following Repair	●	●	●

# EXAMPLES OF COMPATIBLE FLUORESCENT LABELS



\* Contact ACEA or your local distributor for complete compatibility list

# NOVOCYTE SPECIFICATIONS

	Model Number	1000	2000	2060	3000				
Detectors	Specification	488 nm	488 nm	640 nm	488 nm	640 nm	405 nm	488 nm	640 nm
	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	20,000 events/second							
	Volumetric Absolute Count Precision	< 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							
	Parameters	Height and Area for FSC, SSC and all Fluorescent Channels, Width and Time							
	Dynamic Range	24 bit; 7.2 decades logarithmic scale; no need for PMT voltage adjustment							
Data Processing	Compensation	Full inter-beam matrix, during or post acquisition							
	Output Data Files	FCS 3.0; CSV; Batch Reports							
	Workstation	Dell OptiPlex 7010/7020 SFF with 23" LCD Monitor							
	Computer Operating System	Microsoft Windows® 7 Professional (64 bit)							
Sampling	Software	ACEA NovoExpress™							
	Manual Sample Loading	12 X 75mm tube							
Operating Conditions	Automatic Sample Loading	Optional - compatible with 12 x 75mm tube, 1.5 & 2mL tubes, 24-well and 96-well microtiter plates							
	Instrument Dimension (W X D X H)	23 x 17 x 15 in. (59 x 43 x 39 cm)							
	Instrument Weight	77 lb (35 kg)							
Power Requirements	Power Requirements	100/115/230 VAC, 50-60 Hz							
	Environment Requirements	Temperature: 15-32°C ; Relative Humidity: 80% maximum							

# ORDERING INFORMATION

## Instrument

Laser Configuration	Description	Catalog Number
Blue Laser (488 nm)	3 color, FSC, SSC, Workstation & NovoExpress Software	320100010
Blue / Red Laser (488/640 nm)	4 color, FSC, SSC, Workstation & NovoExpress Software	320100040
Blue / Red Laser (488/640 nm)	6 color, FSC, SSC, Workstation & NovoExpress Software	320100020
Blue / Red / Violet Laser (488/640/405 nm)	13 color, FSC, SSC, Workstation & NovoExpress Software	320100110

## Accessories

Description	Catalog Number
Autosampler	00 320 200 010
One year supply of fluidics spare parts	00 320 200 090
ACEA NovoFlow™ Sheath Fluid (1X; 20L)	871B601
ACEA NovoFlow™ Sheath Fluid (10X; 5L)	872B601
ACEA NovoClean™ Solution (1X; 5L)	871B602
ACEA NovoRinse™ Solution (1X; 5L)	871B603

## Extended Warranties - Service Complete Plans

Description	Catalog Number
1 Year Extended Service Warranty	00 320 400 010
2 Year Extended Service Warranty	00 320 400 020

# INSPIRED TO ADVANCE YOUR DISCOVERY



IMPEDANCE-BASED REAL-TIME, LABEL-FREE SYSTEM SINCE 2008



**CUTTING-EDGE CELL ANALYSIS PLATFORMS  
FOR LIFE SCIENCE RESEARCH**





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