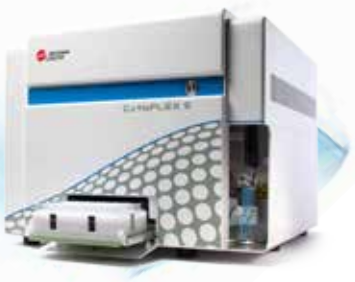
CYTOFLEX S FLOW CYTOMETER

BENCHTOP CYTOMETRY WITHOUT COMPROMISES FOR SPECIAL APPLICATIONS

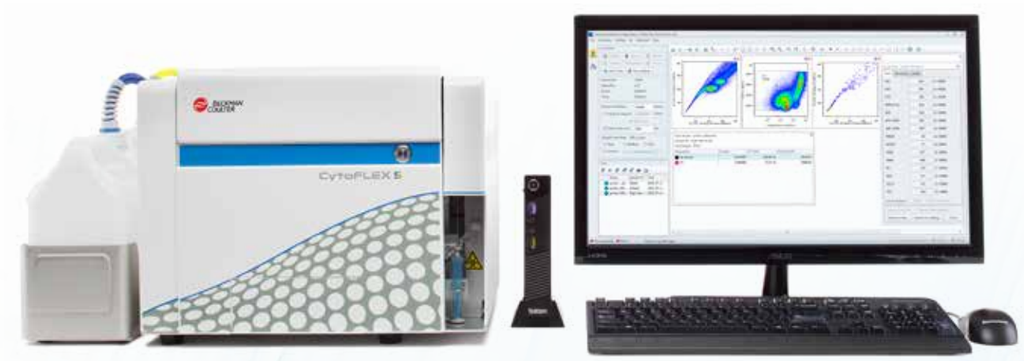


BECKMAN COULTER
Life Sciences

BENCHTOP CYTOMETRY WITHOUT COMPROMISES FOR SPECIAL APPLICATIONS

The CytoFLEX S Flow Cytometer series is an expansion of the CytoFLEX Platform. The CytoFLEX Flow Cytometer offers three laser options, 488 nm, 638 nm, and 405 nm. The CytoFLEX S Flow Cytometer platform expands your research possibilities, with a fourth laser option, multiple configurations and unique filter sets for your science. CytoFLEX S Systems are available in preset configurations with up to four lasers, including 561 nm, 375 nm or lasers in the original palette and up to 13 channels for fluorescence detection.

Just like the CytoFLEX, the CytoFLEX S utilizes the same advanced technology to deliver superior sensitivity and resolution, comparable to or even exceeding instruments four times its size. The CytoFLEX Platform has a unique flow cell design and integrated optics. The innovative Wavelength Division Multiplexing (WDM) detection module includes high efficiency, low-noise Avalanche Photo Diode detectors for excellent performance. The revolutionary system presents optimal excitation and emission, minimizing light loss and maximizing sensitivity. Innovative technology enables the detection of dim populations with a software interface that is easy to use.
The CytoFLEX S is light (less than 22 kg) and compact (H 40.6 cm by W 40.5 cm by D 33 cm). You can install the CytoFLEX S where you need it on the benchtop or inside a standard biological safety cabinet.



Optimal Performance upon Installation

The advanced optical system is precision aligned during manufacturing and does not require any end-user alignment. Laser delays are automatically adjusted as necessary during the daily QC.

Highlighted Features:

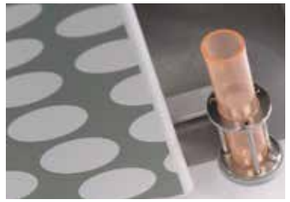
- Provides 7 decades of tunable dynamic range
- Spatially separated lasers reduce cross-talk between fluorochromes
- Using violet laser side-scatter (VSSC) can provide detection for particles as small as 200 nm
- Provides seven decades of tunable dynamic range

Use Less Sample and Maximize Data Collected

Use sample volumes as low as 10 µL. Detect up to 30,000 events per second with 15 parameters. Pick a pre-set flow rate of 10, 30, or 60 µL/min or use the custom setting to adjust over the full range from 10 to 240 µL/min. For higher throughput applications an optional plate loader module can save hands on time without expanding the instrument footprint.

Highlighted Features:

- CytoFLEX Plate Loader option can analyze a 96-well plate in as little as 32 minutes.
- Switch between single tube and plate acquisition in 5 minutes.
- Easy virtual plate layout setup with customizable wash and mix cycles
- Define multiple experiments on a single plate
- Compatible with flat-bottom, U- and V-bottom standard 96-well plates



CytExpert Acquisition and Analysis Software

Highlighted Features:

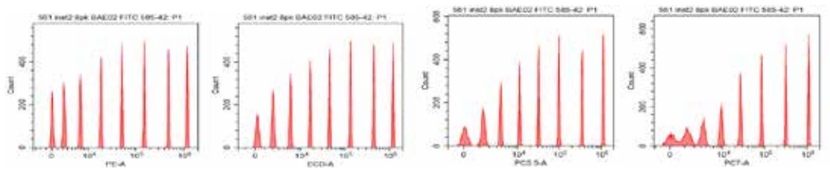
- Store compensation spillover values of dyes in a library to easily determine the correct compensation matrix with new gain settings
- Use the Auto-Threshold function to easily find your target population without worrying about the threshold setting while adjusting gains
- Use the Axis Pan function for visualizing across a high dynamic range axis to pan across the axis range searching for important data, a tool for “gold panning”

CYTOFLEX S 561 NM LASER

The addition of a 561 nm laser to the flow cytometer palette enables additional multicolor assays and allows you to move imaging assays to a flow cytometry format for easy quantitation. In addition, the 561 nm laser is a much more efficient method for exciting red fluorescent proteins, which excite poorly with a 488 nm laser. Use of a 561 nm laser increases the dynamic range and sensitivity you can achieve using these reporter proteins.

Commonly used Fluorescent Dyes	Laser	Fluorescent Channel*	Part Number				
			B78561	B78560	B75812	B75811	B75408
Number of Detectors			8	12	6	9	13
DAPI, Hoechst Blue	375 nm	450/45 BP	•	•			
Hoechst Red		675/30 BP	•	•			
Pacific Blue™ dye, V450, eFluor™ 450, BV421	405 nm	450/45 BP		•			•
Krome Orange, AmCyan, V500, BV510		525/40 BP		•			•
BV605, Qdot® 605		610/20 BP		•			•
BV650, Qdot® 655		660/20 BP		•			•
FITC, Alexa Fluor™ 488, CFSE, Fluo-3	488 nm	525/40 BP	•	•	•	•	•
PE, PI		585/42 BP	•	•			
PC5.5, PC5, PerCP, PerCP-Cy5.5, PI		690/50 BP			•	•	•
PE, PI, DsRed, tdTomato	561 nm	585/42 BP	•	•	•	•	•
ECD, PE-Texas Red®, PE-CF594, PI, mCherry		610/20 BP	•	•	•	•	•
PC5.5, PC5, PerCP, PerCP-Cy5.5, PI		690/50 BP	•	•	•	•	•
PC7		780/60 BP	•	•	•	•	•
APC, Alexa Fluor™ 647, eFluor™ 660	638 nm	660/20 BP				•	•
APC-A700, Alexa Fluor™ 700		712/25 BP				•	•
APC-A750, APC Cy7, APC-H7, APC eFluor™ 780		780/60 BP				•	•

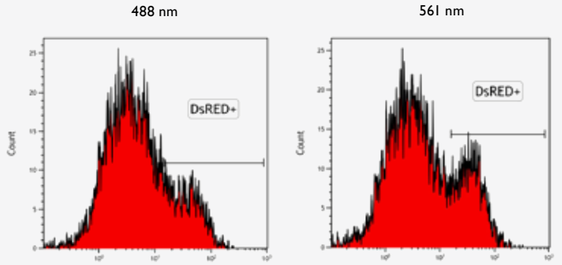
*Additional custom filter sets are also available for user installation. Ask your sales representative for details.



Exceptional instrument sensitivity. Baseline resolution of all peaks using SPHERO™ Rainbow 8-peak beads.

Optimal Detection of Fluorescent Proteins

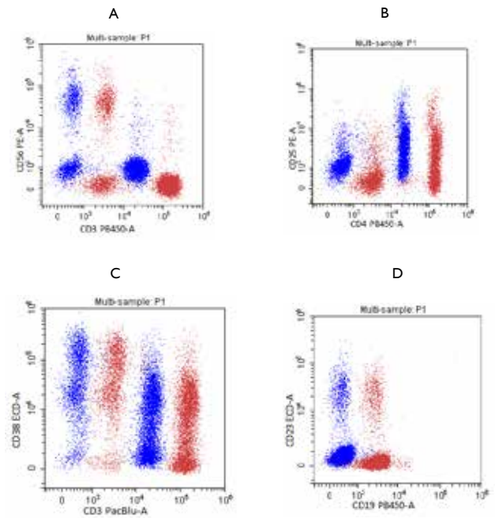
The use of fluorescent protein reporter constructs has enabled a wide array of analyses including gene regulation, localization, and protein-protein interactions. Fruit fluorescent proteins provide added breadth to experiments however excite poorly with a 488 nm laser. Using the 561 nm laser of the CytoFLEX S Flow Cytometer allows you to see the fluorescent proteins, including the fruit dyes, you want.



Comparison of DsRed Signal Using 488 and 561 nm Lasers. DsRed expressing cell lines were analyzed on the CytoFLEX S Flow Cytometer using the PE channel configured with a 561 nm laser and 595/20 BP filter and a CytoFLEX Flow Cytometer using the ECD channel configured with a 488 nm laser and standard 595/20 BP filter.

Resolving Power for Dim Population Analysis

The complexity of heterogeneous cell population analysis continues to increase as more markers are needed to differentiate functional cell sub populations. With up to 13 channels for fluorescent detection, the CytoFLEX S Flow Cytometer has the capabilities needed to meet increased immunophenotyping demands for detecting rare cell types and dim populations.



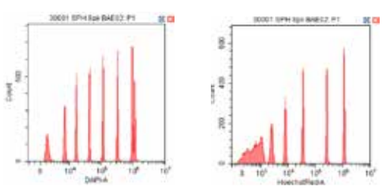
Detection of Immune Cell Populations in Human Blood. 100 µL of normal donor blood was stained with the appropriate volumes for each reagent. Samples were incubated for 15 minutes at room temperature in the dark. The stained blood samples were then lysed using VersaLyse™ Lysing Solution and incubated for 15 minutes at room temperature in the dark. Samples were acquired on both the CytoFLEX Flow Cytometer and CytoFLEX S Flow Cytometer using the 561 nm laser. Panel A (top left) shows staining with CD56 and CD3 and identifies CD3 single positive T cell, CD3 dim and CD56 positive NK cells, and CD3 positive CD56 positive NKT Cells. Panel B (top right) shows staining with CD 25 and CD4 and identifies double positive T reg cells. Panel C (bottom left) shows staining with CD38 and CD3 and identifies CD3 positive T cells and double positive activated T cells. Panel D (bottom right) shows staining with CD23 and CD3 and identifies double positive B cells. The 561 nm configuration of the CytoFLEX S Flow Cytometer shows increased dynamic range allowing more dim cells to be identified.

CYTOFLEX S 375 NM LASER

CytoFLEX S 375 nm laser is a new addition to the CytoFLEX family of benchtop flow cytometers. The addition of the 375 nm laser, in a spatially separated discrete beam spot, enables excellent excitation of Hoechst, DAPI and brilliant UV dyes. This allows for experimentation with these dyes/fluorochromes without incurring the cost of a true UV laser.

Commonly used Fluorescent Dyes	Laser	Fluorescent Channel*	Part Number				
			B78558	B78559	B78561	B78560	B78557
Number of Detectors			6	10	8	12	13
DAPI, Hoechst Blue	375 nm	450/45 BP	•	•	•	•	•
Hoechst Red		675/30 BP	•	•	•	•	•
Pacific Blue™ dye, V450, eFluor™ 450, BV421	405 nm	450/45 BP				•	•
Krome Orange, AmCyan, V500, BV510		525/40 BP				•	•
BV605, Qdot® 605		610/20 BP				•	•
BV650, Qdot® 655		660/20 BP				•	
FITC, Alexa Fluor™ 488, CFSE, Fluo-3	488 nm	525/40 BP	•	•	•	•	•
PE, PI		585/42 BP	•	•	•	•	•
ECD, PE-Texas Red®, PE-CF594, PI		610/20 BP	•	•			•
PC5.5, PC5, PerCP, PerCP-Cy5.5, PI		690/50 BP	•	•			•
PC7		780/60 BP		•			•
PE, PI, DsRed, tdTomato	561 nm	585/42 BP			•	•	
ECD, PE-Texas Red®, PE-CF594, PI, mCherry		610/20 BP			•	•	
PC5.5, PC5, PerCP, PerCP-Cy5.5, PI		690/50 BP			•	•	
PC7		780/60 BP			•	•	
APC, Alexa Fluor™ 647, eFluor™ 660	638 nm	660/20 BP		•			•
APC-A700, Alexa Fluor™ 700		712/25 BP		•			•
APC-A750, APC Cy7, APC-H7, APC eFluor™ 780		780/60 BP		•			•

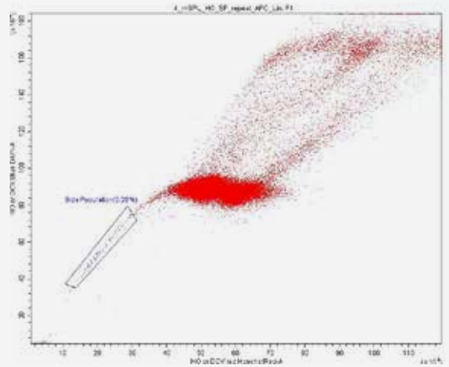
*Additional custom filter sets are also available for user installation. Ask your sales representative for details.



Exceptional instrument sensitivity.
Baseline resolution of peaks using SPHERO™ Rainbow 8-peak beads demonstrating resolution of all eight peaks in the DAPI channel and five peaks in the Hoechst Red channel.

Analysis Using Hoechst and DAPI

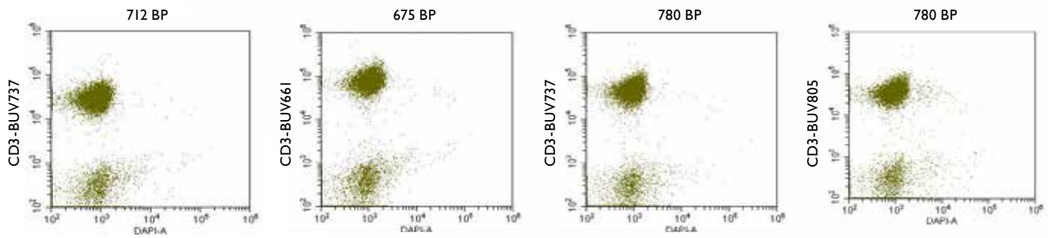
DNA intercalating dyes such as Hoechst and DAPI, which are both excited by the near UV laser, can both be used for cell cycle analysis. Hoechst dye is used to characterize "side population" through the elimination by ABC transporters; stem cells and early progenitor cells will eliminate Hoechst, while more mature cells will not, thus can be identified by low Hoechst fluorescence. Using the 375 nm laser, the CytoFLEX S Flow Cytometer can easily detect these populations.



Demonstration of side population by Hoechst staining.
Identification of side population from 129/C57B/6 mouse bone marrow utilizing Hoechst 33342 exclusion. Lineage negative and double positive for sca-1 and c-kit.

Analysis of Brilliant UV Dye Excitation by Near UV Laser.

Brilliant UV fluorochromes (BUV) can be utilized when designing high complexity cocktails and give additional flexibility in panel design.



Whole blood stained with CD3 antibodies with BUV 661, BUV 737, and BUV 805.
A variety of Brilliant UV dyes were detected using different band pass filters, as specified. Excellent separation between positive and negative samples is observed with all of the BUV dyes.

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For over 80 years Beckman Coulter has driven innovation. We remain committed to shaping flow cytometry technology to fit seamlessly into your lab's workflow and to provide an optimal user experience. When you choose a Beckman Coulter instrument you receive the highest level of expertise, innovation, and quality assurance.

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