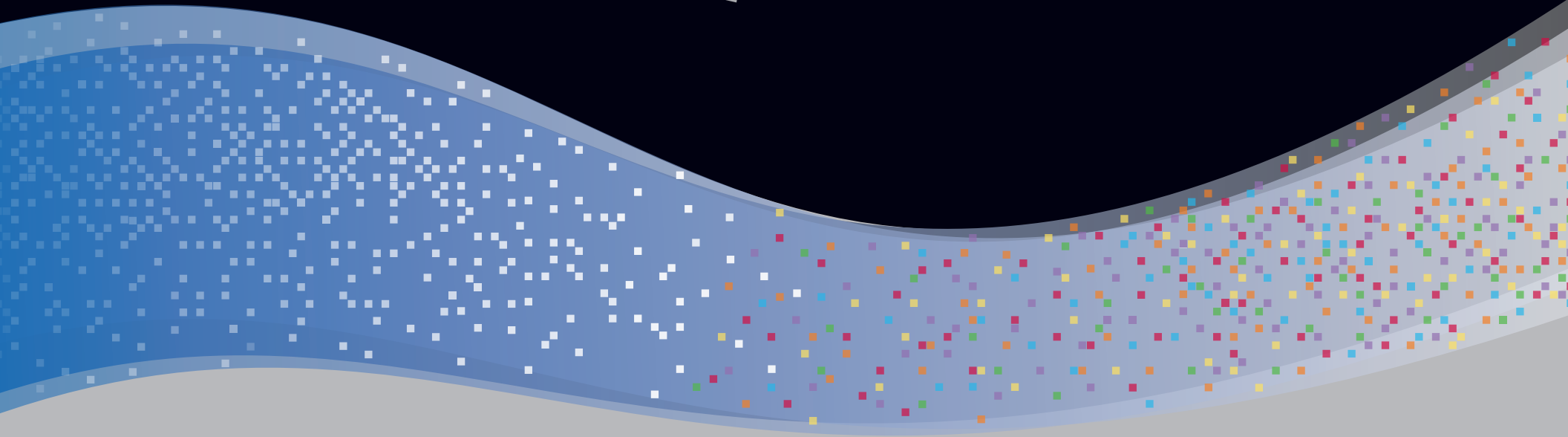




# FlowSight

Flow cytometry with vision



  
amnis®

# Flow cytometry with vision

## Introducing FlowSight

**CAPABLE:** Sensitive and flexible for every need

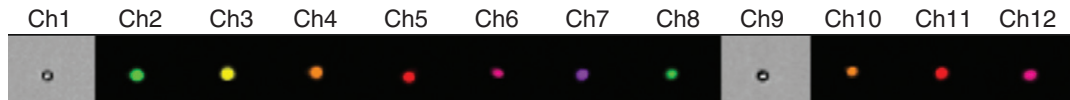
**INTUITIVE:** Easy-to-use, with imagery for every cell

**AFFORDABLE:** Designed and priced for every lab



## SENSITIVE AND FLEXIBLE FOR EVERY NEED

The FlowSight offers high performance in a small package. Its innovative design increases signal and minimizes noise to provide unmatched fluorescence sensitivity. Twelve standard detection channels simultaneously produce brightfield, darkfield and up to ten channels of fluorescence imagery of every cell. With these unique capabilities, the FlowSight enables a broad range of applications.



Twelve channel imagery of 3 micron diameter Spherotech 8-peak Rainbow beads

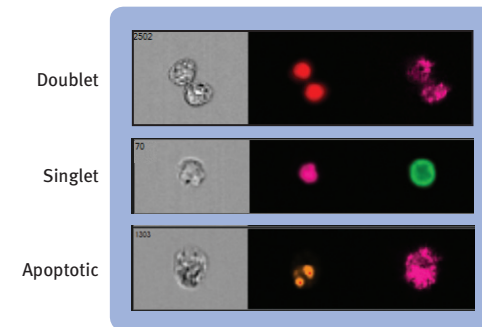
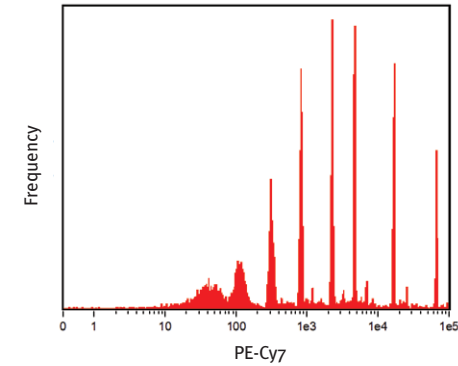
## EASY-TO-USE, WITH IMAGERY FOR EVERY CELL

The FlowSight operates like a conventional flow cytometer but also provides imagery of every cell. Powerful and intuitive analysis software seamlessly links quantitative data to imagery:

- Click on a dot in any plot to see the corresponding cell imagery.
- Click on a bin in any histogram to view all the cells in that bin.
- Draw gates on dot plots and view the resulting populations to validate results.

## DESIGNED AND PRICED FOR EVERY LAB

The FlowSight is powerful enough for the core lab but sized and priced for any lab. The system can be factory configured or field upgraded with up to four excitation lasers (405, 488, 561, 642 nm), a 96-well plate AutoSampler, and a powerful quantitative image processing option. Whether in a base configuration or fully optioned, the FlowSight sets a new standard of value.



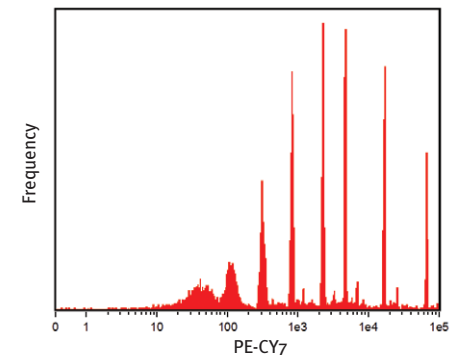
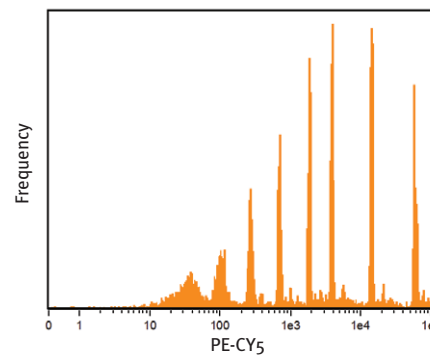
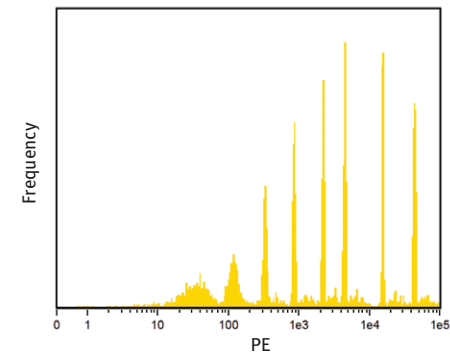
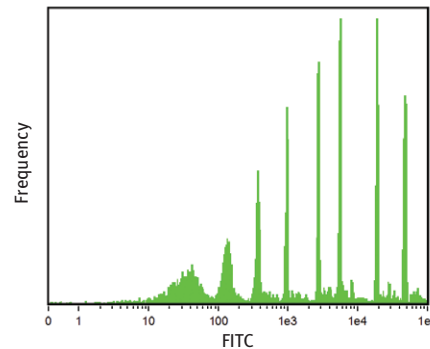
# Powerful Flow Cytometry

Expand your application range with high performance and flexibility

With 12 detection channels and up to four excitation lasers, the FlowSight can measure up to 10 fluorescent probes simultaneously with unrivalled sensitivity. Numerous thoughtful design details like a dedicated 785 nm scatter laser, adjustable laser intensities, and brightfield imagery for the direct measurement of cell size allow the FlowSight to resolve cell populations more effectively than far more expensive cytometers. The ease of use, outstanding performance, and imagery of each cell allow the FlowSight to meet the needs of beginners and experts alike.

## UNPARALLELED FLUORESCENCE SENSITIVITY

The patented architecture of the FlowSight provides unparalleled fluorescence sensitivity in all fluorescence detection channels. The four plots to the right demonstrate the ability of the FlowSight to discriminate all intensities in the Spherotech 8-peak calibration bead set across the spectrum from FITC to Cy7. The FITC and PE channels exhibit excellent peak separation using less than 5% of the available laser power. The red (PE-Cy5) and far-red (PE-Cy7) channels exhibit peak separations exceeding the best flow cytometers.

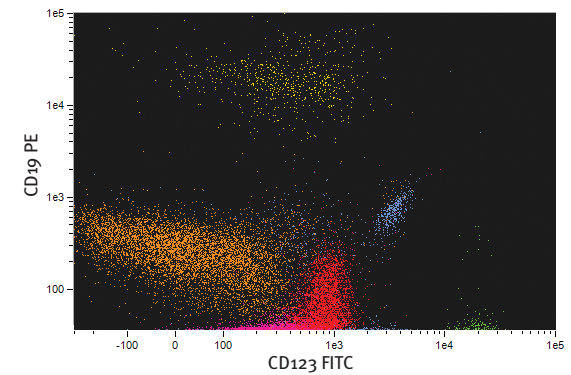
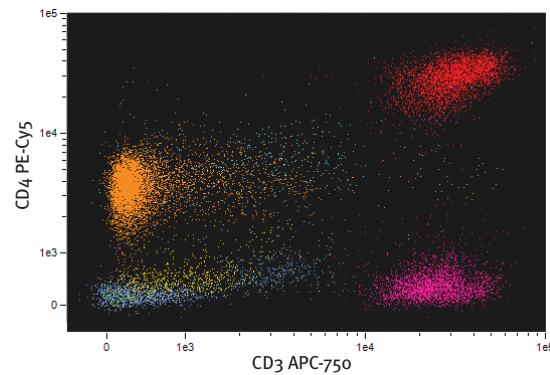
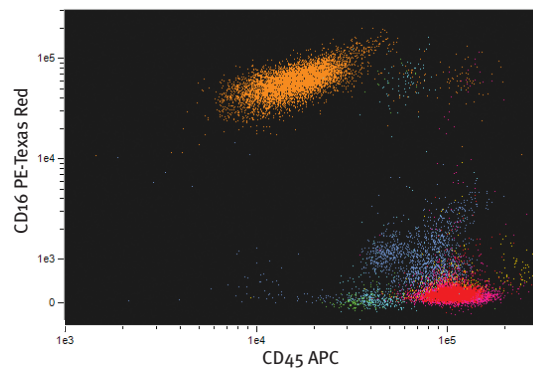
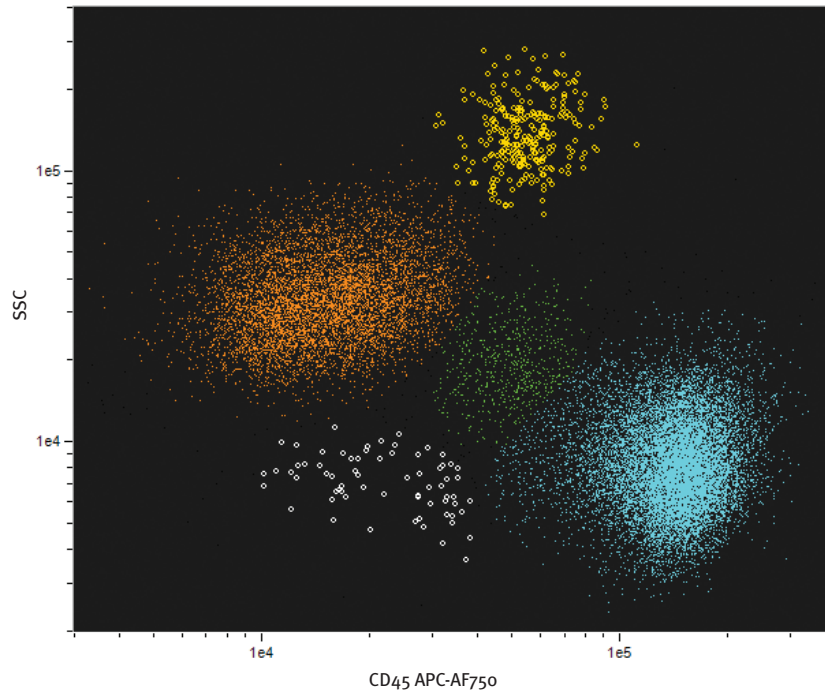


## FIVE-PART WHITE BLOOD CELL DIFFERENTIAL

The FlowSight excels at the resolution of mixed sub-populations in heterogeneous samples. In this example, human peripheral blood mononuclear cells (PBMC) were partitioned into five distinct populations using CD45 and side scatter. High fluorescence sensitivity and tight CVs resolve monocytes (green) from lymphocytes (blue) and facilitate the detection of rare basophils (white). The dedicated scatter laser clearly resolves eosinophils (yellow) from neutrophils (orange) and monocytes (green).

## EIGHT-COLOR IMMUNOPHENOTYPING

The FlowSight is the only compact flow cytometer with twelve channels of detection. Shown below is an eight-color immunophenotype of human PBMC using antibodies against CD45, CD14, CD16, CD19, CD3, CD4 and CD123, plus DAPI. The arrangement of detection channels, available laser options, and automated compensation wizard allow the straightforward separation of complex cell populations.



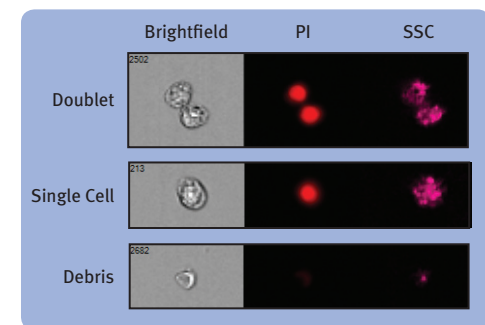
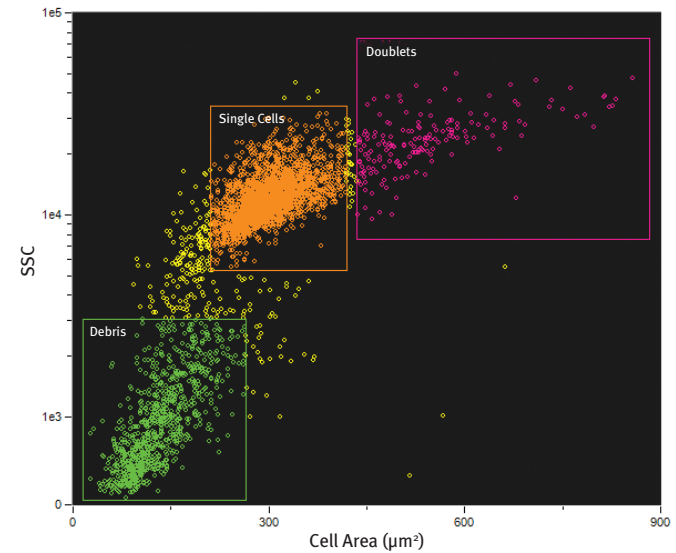
# Intuitive Visual Verification

## Better flow cytometry through imaging

The FlowSight stands apart from other flow cytometers by producing up to 12 images of each and every cell. The unique image collection system simultaneously produces a side scatter (darkfield) image, one or two transmitted light (brightfield) images, and up to 10 fluorescence images. The FlowSight operates with a pixel size of 1 micron (~20X magnification) allowing visualization of fluorescence from the membrane, cytoplasm, or nucleus. Identifying cell conjugates or distinguishing single cells from doublets and debris is effortless. The data acquisition and analysis software allows you to click on a dot in any plot, select a bin in any histogram, or draw a gate on any dot plot to see the corresponding cell imagery. Flow cytometry has never been so intuitive.

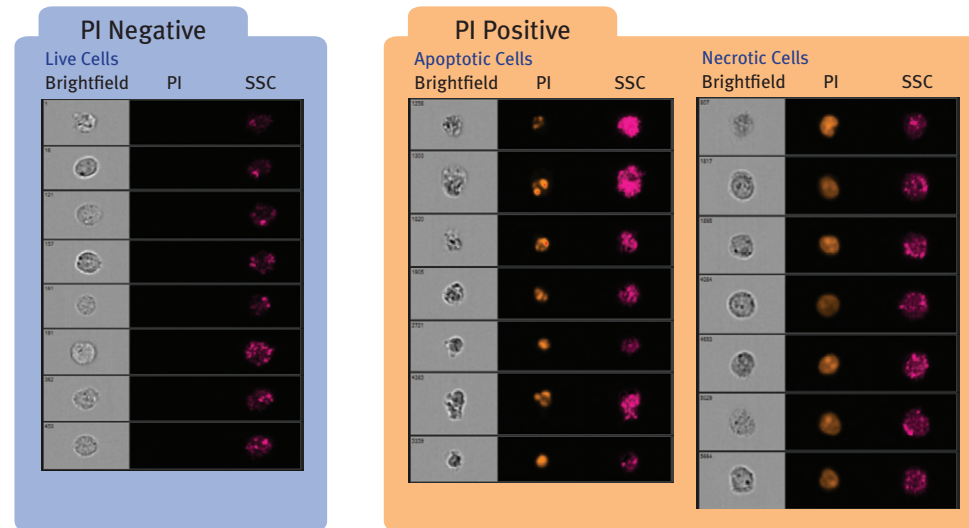
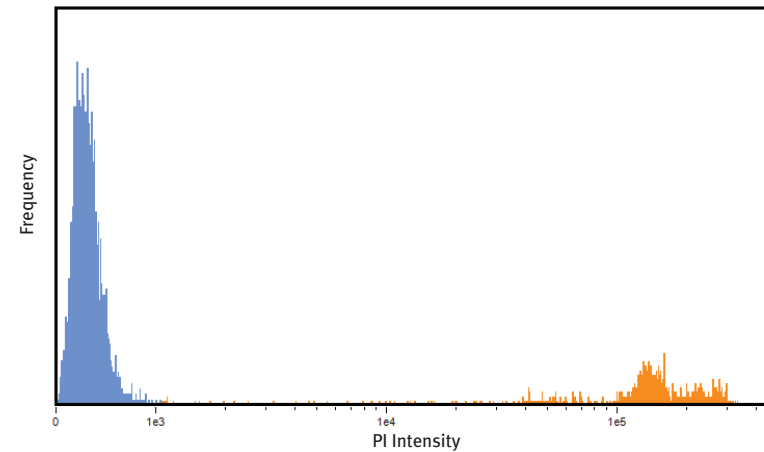
## GATING WITHOUT GUESSWORK

With the imaging capabilities of the FlowSight, you'll never wonder about those outliers or whether your gates are in the right place. Once you've drawn a gate on a plot you can click inside and out to determine if it's in the right place, as shown in the single cell identification example at right. With visual feedback, you can optimize your gate size, shape, and position for better data quality.



## NECROSIS VERSUS APOPTOSIS

Conventional flow cytometers can use membrane-impermeant dyes to identify dead or dying cells that have lost membrane integrity. However, it can be difficult to determine if cell death is via apoptosis or necrosis. The FlowSight simplifies this determination by revealing the nuclear morphology of every cell. As shown in this sample of THP-1 cells labeled with propidium iodide, the nuclei of necrotic cells have normal nuclear morphology while the nuclei of apoptotic cells are shrunken and fragmented.



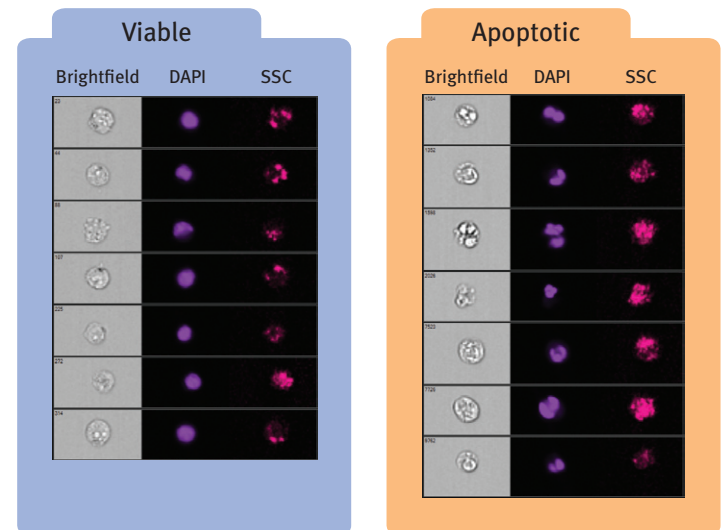
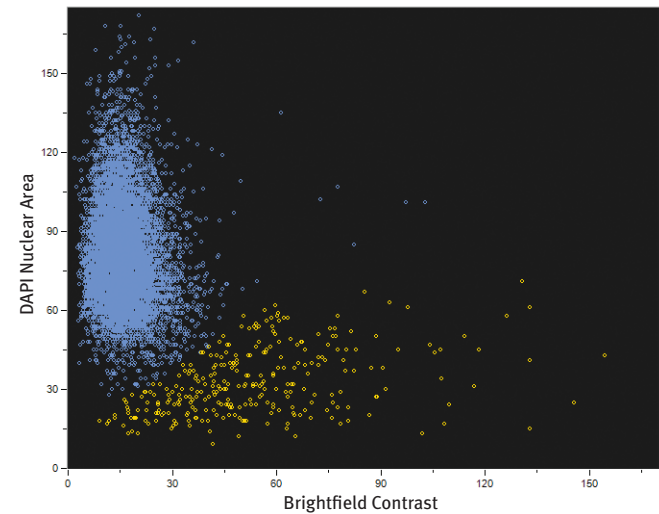
# Quantitative Imaging

## Accelerate discovery with quantitative image analysis

A Quantitative Imaging (QI) upgrade includes optical, computer, and software enhancements that increase the imaging and analysis capabilities of the FlowSight even further. The QI option incorporates a powerful but intuitive image processing package with thousands of analysis parameters and optimized analysis wizards for many common image-based applications, including nuclear translocation, shape change, internalization, and apoptosis.

### APOPTOSIS DETECTION BY IMAGE ANALYSIS

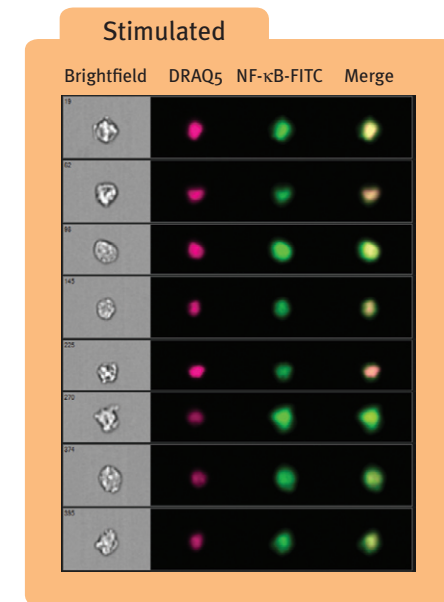
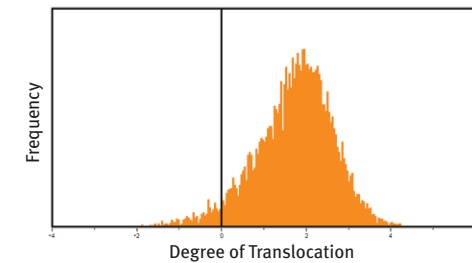
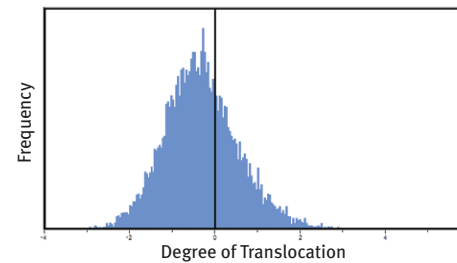
The QI upgrade includes a wizard for the automated identification of apoptotic cells. The wizard analyzes nuclear morphology and the cell's brightfield image contrast to identify apoptotic cells in any sample containing a nuclear stain, as shown at right.





## CELL SIGNALING VIA NUCLEAR TRANSLOCATION

The QI upgrade includes a wizard to determine the degree of translocation between the cytoplasm and the nucleus of any labeled signaling molecule. The example at right illustrates the translocation of transcription factor NF- $\kappa$ B (green) from the cytoplasm to the nucleus (magenta). The cells of the control (left gallery) exhibit primarily cytoplasmic-localized NF- $\kappa$ B and negative nuclear translocation scores. The cells of the stimulated sample (right gallery) exhibit primarily nuclear localized NF- $\kappa$ B and positive nuclear translocation scores.



# Modular Options

Expand the range of performance

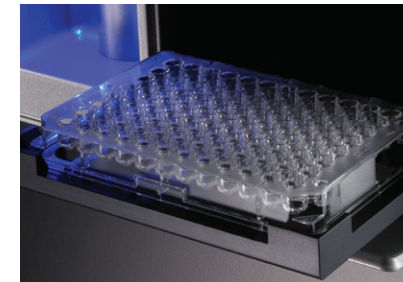
## EXCITATION LASERS

The standard 488 nm blue laser of the FlowSight system may be augmented with up to three additional lasers at 405 nm (violet), 561 nm (green), and 642 nm (red) wavelengths. Adding excitation lasers increases experimental flexibility by permitting a broader palette of fluorescent markers. All lasers are intensity adjustable to ease protocol development.



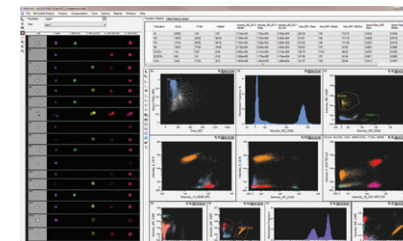
## 96 WELL AUTOSAMPLER

The AutoSampler option for the FlowSight enhances productivity with unattended sample loading from 96 well plates. The fully integrated AutoSampler option greatly facilitates dose-response and time-course studies.



## QUANTITATIVE IMAGING UPGRADE

The Quantitative Imaging upgrade includes optical, computer, and software enhancements that increase the performance of the FlowSight. Improved optics yield better image quality, better sensitivity and more brightfield options. The post-acquisition image processing software allows highly quantitative determinations of the location and strength of fluorescence signals for applications such as nuclear translocation, shape change, internalization, and apoptosis.



# FlowSight Specifications

Innovation and advanced engineering create exceptional performance

## PERFORMANCE CHARACTERISTICS

**Detection:** 12 channels standard – two brightfield images, one darkfield (SSC) image and up to 10 fluorescence images

### Illumination:

- Excitation – 488 nm standard; 405, 561, and 642 nm optional
- Side scatter – 785 nm standard
- Brightfield – fixed channel 1/9 standard, multi-channel optional

**Collection:** 20X magnification at 0.6NA with a 1.0 micron pixel size

**Event Rate:** Up to 2,000 cells per second

## AUTOMATED INSTRUMENT OPERATIONS

- Start up, sterilize, shut down
- Sample load and acquisition
- Laser alignment, focus adjustment, calibration and self test

## OPERATIONAL REQUIREMENTS

- 400W, 90-240 VAC, 50-60 Hz
- No external air or water necessary

## PHYSICAL CHARACTERISTICS

- 17.7 W x 18.3 H x 24.7 D inches (450mm x 465mm x 635mm)
- 135 lbs. (61 kg)

## SPECTRAL IMAGING BANDS AND APPLICABLE DYES

CHANNEL 1 430-480 nm	CHANNEL 2 505-560 nm	CHANNEL 3 560-595 nm	CHANNEL 4 595-642 nm	CHANNEL 5 642-740 nm	CHANNEL 6 740-800 nm	CHANNEL 7 430-505 nm	CHANNEL 8 505-560 nm	CHANNEL 9 560-595 nm	CHANNEL 10 595-642 nm	CHANNEL 11 642-740 nm	CHANNEL 12 740-800 nm
Brightfield	FITC	DsRed	7-AAD	PerCP	PE-Cy7	DAPI	Alexa Fluor 430	Qdot 565	Qdot 605	Qdot 705	Qdot 800
	GFP	Dil	PE-Texas Red (ECD)	PerCP-Cy5.5	PE-Alexa Fluor 750	Hoechst 33258	Pacific Orange	Qdot 585	Qdot 625	eFluor 650	APC-Cy7
	YFP	Cy3	Propidium Iodide	PE-Alexa Fluor 647		CFP	Cascade Yellow		eFluor 605	Nile Blue	APC-Alexa Fluor 750
	Acridine Orange	R-phycoerythrin	Spectrum Orange	PE-Alexa Fluor 680		Alexa Fluor 405	Lucifer Yellow	Brightfield		APC	APC-H7
	Alexa Fluor 488	OFP	MitoTracker Red	PE-Cy5		Marina Blue	Qdot 525		APC-Cy5.5	DyLight 649	APC-eFluor780
	Alexa Fluor 500	Alexa Fluor 546	LysoTracker Red	PE-Cy5.5	Darkfield (SSC)	Pacific Blue	Qdot 545		DyLight 750	MitoTracker Deep Red	
	Alexa Fluor 514	Alexa Fluor 555	RFP	DRAQ5		Cascade Blue				Alexa Fluor 647	
	SYTO	DyLight 549	mCherry	Nile Blue		LIVE/DEAD Violet				Alexa Fluor 660	
	Spectrum Green	Calcium Orange	Alexa Fluor 568			DyLight 405				Alexa Fluor 680	
	LysoTracker Green		Alexa Fluor 594			eFluor 450				DRAQ5	
	DyeCycle Green		Alexa Fluor 610			Spectrum Aqua				Cy5	
	Calcium Green-1		DyLight 594							Cy5.5	
MitoTracker Green		Texas Red									
DyLight 488											



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