Go beyond cell counting to detailed analysis with the Cellometer Spectrum

Advantages of Cellometer® Spectrum image cytometry

Cell imaging

- Visually check cell morphology
- Ensure only cells of interest are counted
- Archive and re-analyze cell images
- Export images for publication
- Cell health and cell-based assays are easily run in seconds

Non-fluidic platform

- Disposable counting chambers - no washing
- Compatible with fragile cells
- Maintenance-free
- Robust optics modules and LED light sources

Proprietary pattern-recognition software

- Count individual cells in clusters
- Count irregular-shaped cells
- Count cells based on size
- Eliminate debris from cell counts

IQ/OQ validation and GMP/GLP accessories

- Installation qualification reagents/protocol
- Operational qualification reagents/protocol
- On-site IQ or OQ performance
- GMP/GLP software module

Cell types for many research areas

- **Clinical Immunology:** PBMCs
- **Diabetes / Obesity:** Adipocytes
- **Immunotherapy:** Leukocytes
- **Microbiology:** Yeast (Spectrum 10x)
- **Oncology:** Cell Lines
- **Regenerative Medicine:** Stem Cells
- **Toxicology:** Hepatocytes
- **Transplantation:** Nucleated Cells
- **Vaccine Development:** Splenocytes

Optimized for primary cell analysis

PBMCs ▪ Stem Cells ▪ Adipocytes ▪ Neural Cells ▪ Hepatocyte ▪ Dendritic Cells ▪ Epithelial ▪ Cells ▪ Keratinocytes
Lymphocytes ▪ Splenocytes ▪ Monocytes

Features of the Cellometer Spectrum image cytometry system

Compact, easy-to-use system
Basic cell counting, primary cell viability, and cell-based assays.

Dual-fluorescence for accurate primary cell viability
No interference from red blood cells. Analyze bone marrow, peripheral blood, and cord blood without lysing.

User changeable fluorescence filters
Choose from six color options to run two color assays.

Unique algorithms for advanced cell analysis
Determine concentration and viability of hepatocytes, adipocytes, and other sophisticated cell types.

Fast results
Obtain cell images, counts, size measurements and viability calculations in < 30 seconds per sample.

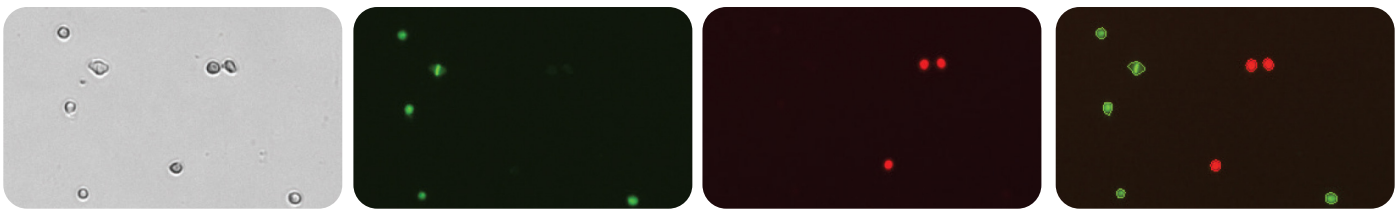
Simple 20 µl cell-based assays

- Cell count, concentration and viability
- Two color antibody assays
- GFP/RFP Transfection
- Cell health and cell-based assays, including:
  - Apoptosis
  - Cell Proliferation
  - Cell Cycle
  - Mitochondrial Potential
  - Phagocytosis
  - Surface Marker Analysis

1. Pipette 20 µl
2. Insert slide and count
3. Get images and data

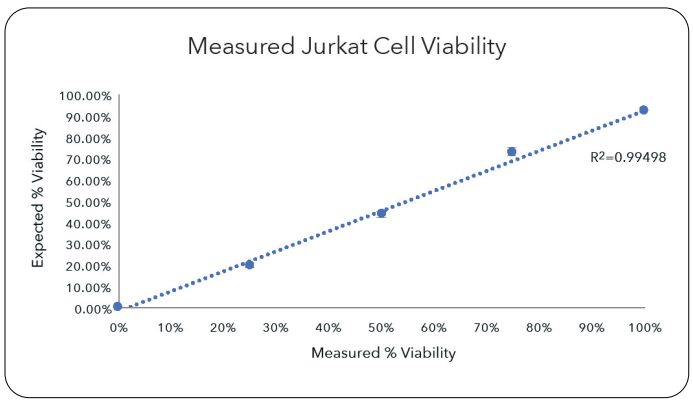
Accurate cell counting, concentration and viability

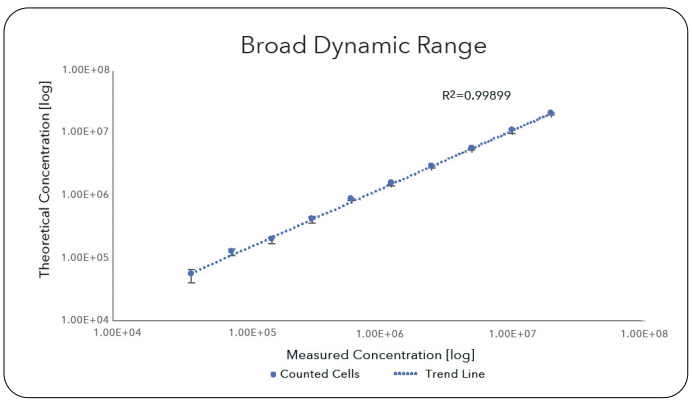
- Determine cell viability, for cell lines or primary samples, using AO/PI in seconds
- Accurately measure cell samples with varying viability (0 - 100%)
- Image and count up to $2x10^7$ cells/mL



Brightfield | Stained AO+ Cells | Stained PI Cells | Combined Counted Cells

Accurately count Live (AO) versus Dead (PI) cells.

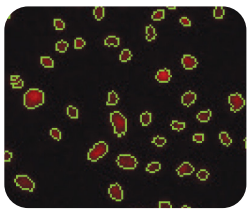




Versatile platform performs cell-based assays

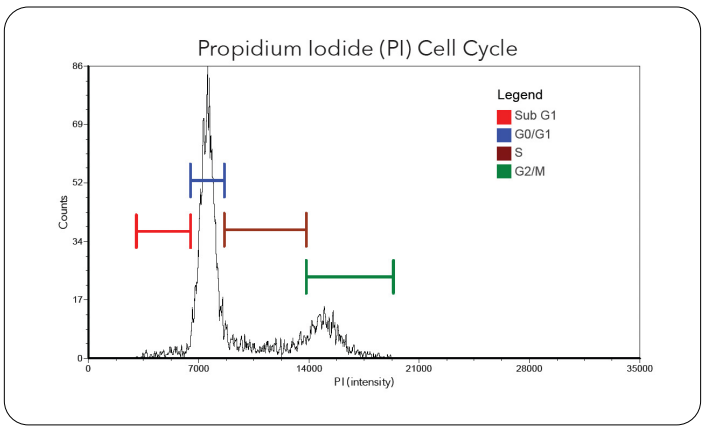
- Perform low-volume (20 µl), cell-based assays
- Export image data into flow cytometry software: FCS Express™*
- Simple work flow: no fluid-stream, no PMT voltages, no forward/side scatter
- Easily perform data analysis using pre-designed templates
- Quickly plot cell population data as a: histogram, scatter, dot or contour plot
- Antibody-based immunofluorescence ICC

* FCS Express™ Flow Cytometry software is a product of De Novo Software™ and is included with the Cellometer Spectrum

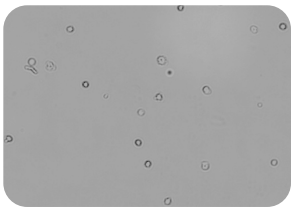


Counted PI+ Cells

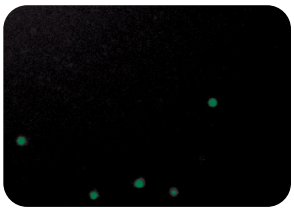
Cell population	% of gated cells	Concentration (106 cells/mL)
Total	100	3.18
Sub G1	3.8	0.12
G0/G1	61.9	1.97
S	15.3	0.49
G2/M	19	0.60



Surface marker analysis

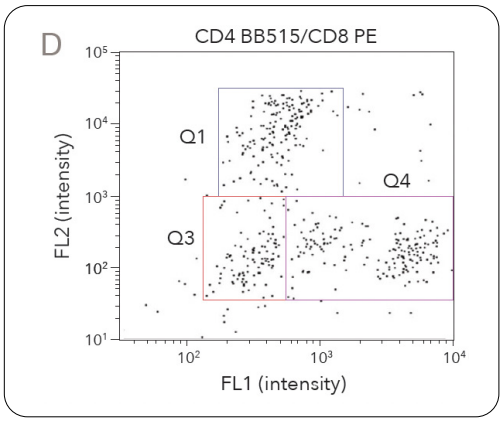


Brightfield



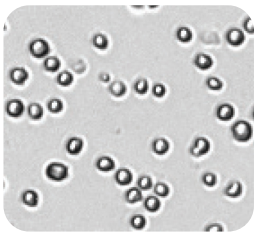
Anti-CD4

Anti-CD8-PE

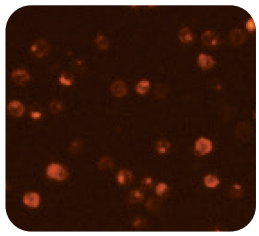


	% Total
Q1: CD8 + (PE)	34.04
Q3: CD4/CD8 -	20.51
Q4: CD4 + (Green)	37.42

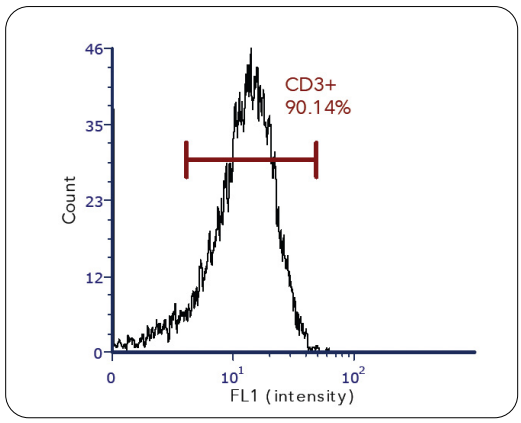
A brightfield image (A) of human PBMCs as well as those stained with human anti-CD4-BB515 (B) and anti-CD8-PE antibodies (C) were imaged on the Spectrum. Population analysis was performed using FCS ExpressTM to determine the percentage of CD4 and CD8 positive cells as well as the percentage of cells that were double-negative (D).



CD3 Brightfield

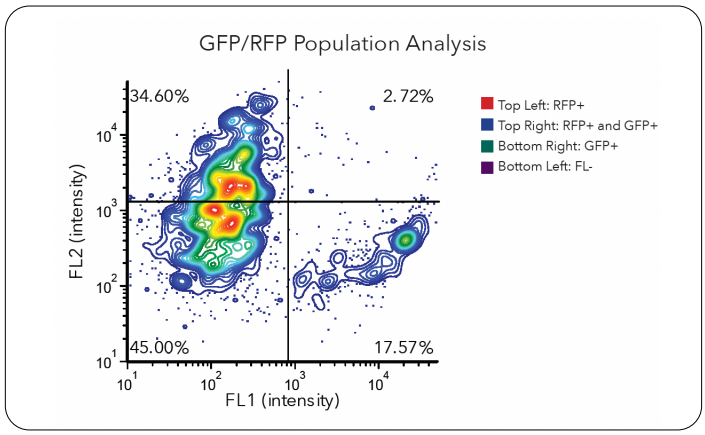


CD3 PE

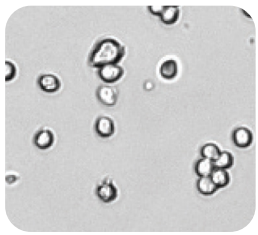


Histogram of PE CD3+ Jurkat cells

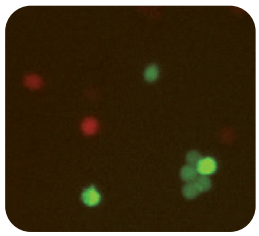
GFP/RFP population analysis



Contour map of Jurkat cells, showing GFP+ and RFP+ intensity profiles.



Brightfield



GFP/RFP Positive Cells

User-changeable fluorescence optics modules*

The Spectrum is designed to hold two user-changeable fluorescence optics modules. Purchase only the modules you need and easily configure the instrument by quickly changing the colors to fit your experimental design.

Optics module	Fluorophores	Nucleic acid stains	Fluorescent proteins and other fluorescent cell reagents
S1-452-365 Ex: 370 nm (BW: 36 nm) Em: 452 nm (BW: 45 nm)	BV421 V450 Pacific Blue	Hoechst 33342 DAPI ViaStain™ Dead Cell Nuclear Blue	Calcein AM Violet CTV (CellTrace Violet) Tracer Blue BFP
S1-534-470 Ex: 470 nm (BW: 42 nm) Em: 534 nm (BW: 42 nm)	FITC AlexaFluor® 488	AO (acridine orange) SYTO®9, SYTO®13 SYTOX®Green SYTO®BC	GFP YFP Calcein AM CFSE JC-1
S1-594-470 Ex: 475 nm (BW: 42 nm) Em: 594 nm (LP – Long Pass)			Chlorophyll A Chlorophyll B
S1-605-527 Ex: 525 nm (BW: 45 nm) Em: 605 nm (BW: 64 nm)	AlexaFluor® 546 AlexaFluor® 555 Cy3® PE (R-phycoerythrin)	PI (propidium iodide) EB (ethidium bromide) SYTOX® Orange	RFP mCherry TdTomato TurboRed TMRE/TMRM JC-1
S1-655-527 Ex: 525 nm (BW: 45 nm) Em: 655 nm (BW: 40 nm)		PI (propidium iodide) EB (ethidium bromide) 7-AAD	Nile Red
S1-692-620 Ex: 628 nm (BW: 40 nm) Em: 692 nm (BW: 40 nm)	AlexaFluor® 647 APC (allophycocyanin) Cy5®	SYTOX® Red	iRFP670 CellTrace Far Red Cell Tracker Deep Red

*This table is a partial list of compatible fluorophores, nucleic acid stains, and fluorescent proteins.
Please contact Revvity technical support regarding compatibility of other reagents.
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