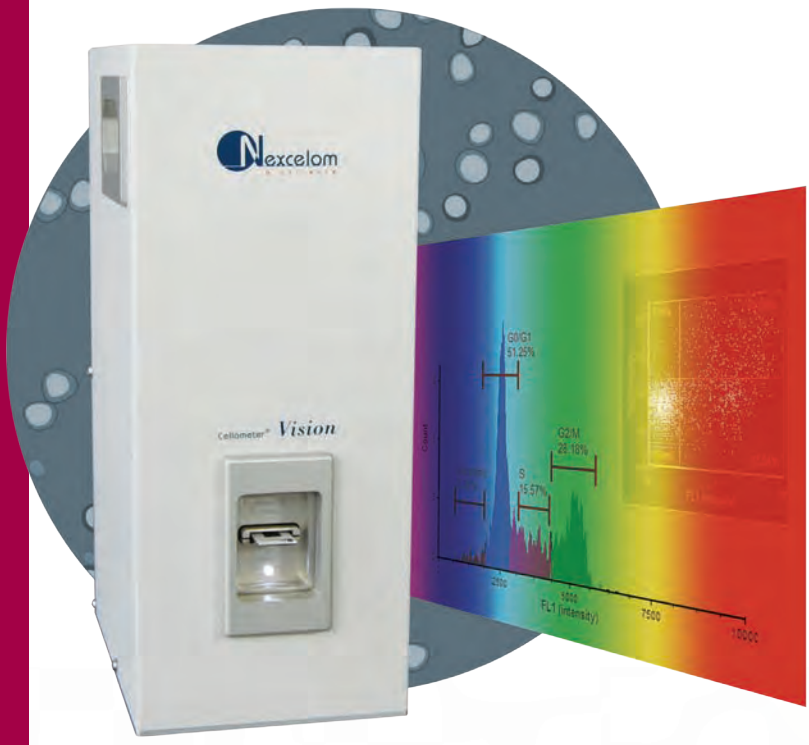
Cellometer® Vision CBA Image Cytometry System

for 20µl Cell-Based Assays



Apoptosis
Autophagy
Cell Cycle
Proliferation
Transfection
Viability
and Others

Nexcelom Bioscience

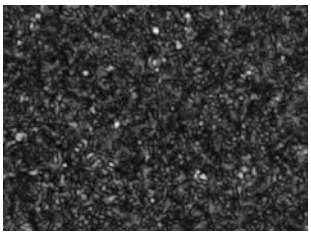
Features of the Vision CBA Image Cytometry System

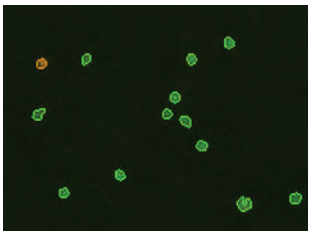
All-in-One System
Basic cell counting, primary cell viability, and cell-based assays.

Dual-Fluorescence for Accurate Primary Cell Viability
No interference from red blood cells. Analyze bone marrow, peripheral blood, and cord blood without lysing.

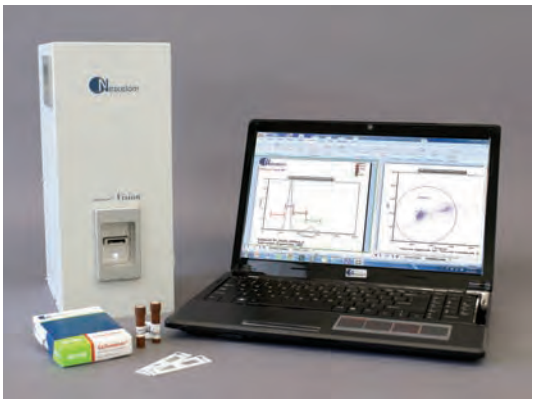
Unique Algorithms for Advanced Cell Analysis
Determine concentration and viability of hepatocytes, adipocytes, and other sophisticated cell types.

Fast Results
Obtain cell images, counts, size measurements, viability calculations, and population data in <3 minutes.





Bone Marrow Aspirate: *bright field image and dual-fluorescence image showing live and dead nucleated cells present*



Simple Cell-Based Assays
- Pre-qualified reagents
- Small 20µl sample size
- Simple, image-based analysis
- Pre-defined instrument settings
- Assay-specific data templates
- Accurate, consistent results

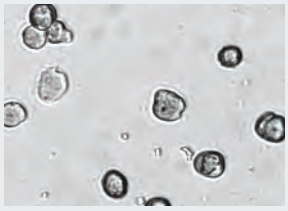
Advantages of Cellometer Image Cytometry

Cell Imaging
- Visually check cell morphology
- Ensure only cells of interest are counted
- Archive and re-analyze cell images
- Export images for publication

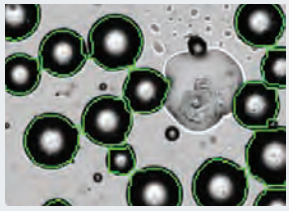
Proprietary Pattern-Recognition Software
- Count individual cells in clusters
- Count irregular-shaped cells
- Count cells based on size
- Eliminate debris from cell counts

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

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



Primary Hepatocytes: *bright field image*



Primary Adipocytes: *bright field counted image*

Cellometer Vision CBA Image Cytometry System for Cell-Based Assays

Vision CBA combines the simplicity of image cytometry with the power of flow analysis software to offer simple, accurate cell-based assays.

Apoptosis Assays

Detect programmed cell death based on Annexin-V binding, Caspase activation, Chromatin condensation, or changes in mitochondrial membrane potential

Aggresome Detection Assay

Detect inclusion body formation in response to the accumulation of aggregating proteins

Autophagy Assay

Detect the breakdown of intra-cellular components by formation of autophagosomes and autolysosomes (special transport vesicles)

Cell Cycle Assays

Determine population distribution by cell cycle phase based on DNA content: resting/growth phase (G0/G1), DNA replication phase (S), cell division phase (G2M)

Multidrug Resistance (MDR) Assay

Detect multidrug resistance based on activity of ABC transporter proteins and the removal of compounds from the cell

Proliferation Assays

Measure cell division based on reduction of original cytoplasmic protein content (and fluorescence intensity) in each generation

Surface Marker Assays

Quantify specific cell populations based on surface marker expression (CD56+ NK cells, CD34+ stem cells, etc.)

Transfection Assays

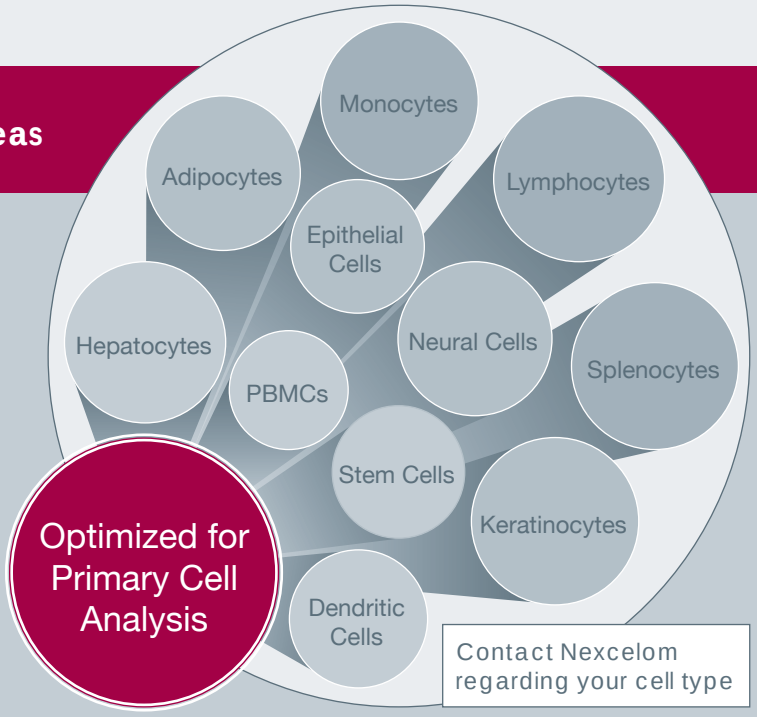
Determine the efficiency of transfection based on CFP, GFP, mCherry, RFP, TdTomato, or YFP expression

Viability Assays

Measure the number, concentration, and percentage of live and dead cells based on membrane integrity and/or metabolic activity

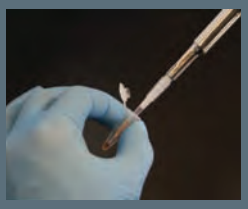
Validated Cell Types for Many Research Areas

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



Simple, 20µl Cell-Based Assays

Validated Cell-Based Assay Kits

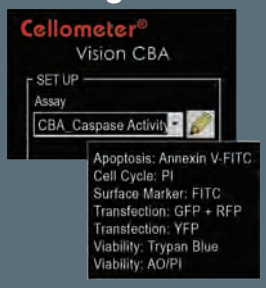


- Optimized reagent concentrations
- Simple staining procedures

1

User-friendly sample preparation

Growing Menu of Optimized Assays

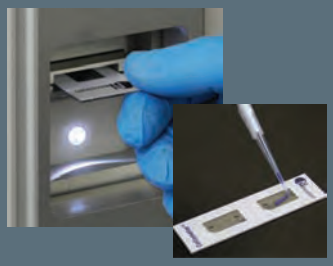


- Pre-set analysis parameters
- Automatic counting and data calculation

2

Consistent results

Non-Fluidic System

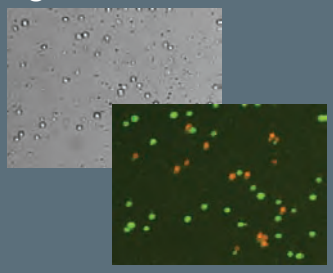


- No washing, clogging or daily calibration
- Pre-defined instrument settings

3

Simple, maintenance-free operation

Bright Field and Fluorescent Cell Images



- Confirmation of counted cells
- Fluorescent cell counting

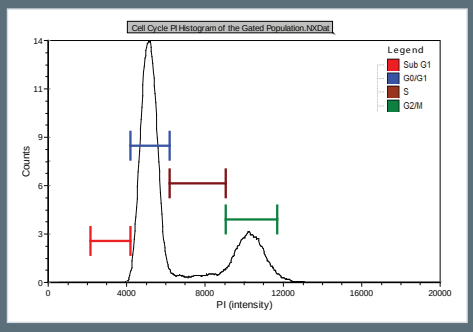
4

Accurate results

Export to FCS Express* for Flow-Like Data Output

- Pre-set data layouts with user-adjustable gates
- Multi-sample analysis options

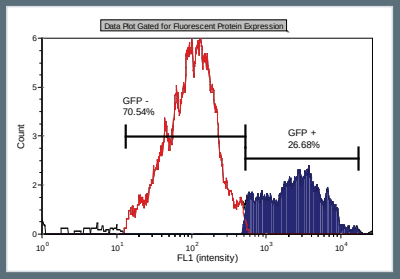
Cell Cycle: PI



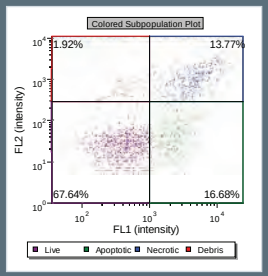
Cell Population	% of Gated Cells	CV	Concentration (10^6 cells/mL)
Total	100		9.2
Sub G1	1.2	5.1	0.1
G0/G1	63.4	10.5	5.8
S	13.9	11.3	1.3
G2/M	21.0	8.2	1.9

*FCS Express 4 Flow Cytometry software is a product of De Novo Software.

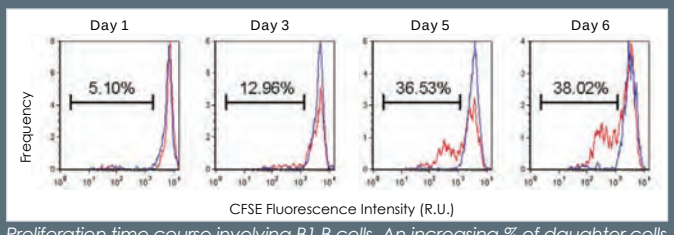
GFP Transfection



Apoptosis: Annexin V-FITC / PI



Cell Poliferation: CFSE



Proliferation time course involving B1 B cells. An increasing % of daughter cells exhibiting decreased fluorescence were observed on days 3, 5, and 6.

5

Comprehensive data: images, graphs, tables

Proven Results

To demonstrate the Vision CBA Image Cytometry System for cell cycle analysis, Jurkat cells were incubated overnight with various concentrations of Nocodazole, a cell cycle-arresting drug. More than 40% of the cell population was arrested at the G2/M phase following incubation with 0.02 µg/mL Nocodazole. Cellometer Vision CBA results showed excellent correlation to results obtained with the LSRII flow cytometer.

Nocodazole Dose Response

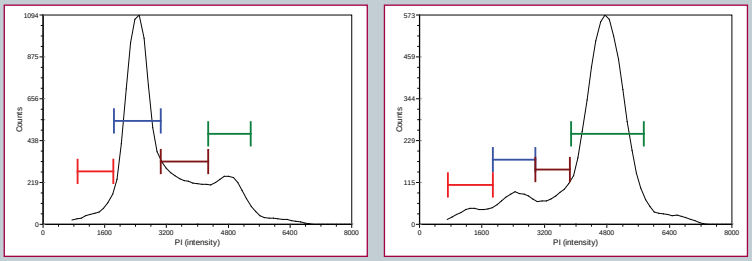


Figure 1. *Cell cycle histogram following incubation with 0.004, and 0.1µg/mL Nocodazole*

Correlation to Flow

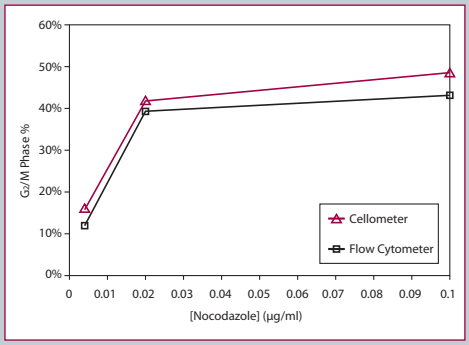
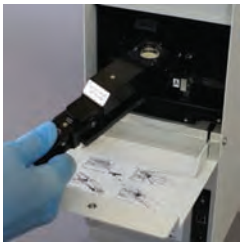


Figure 2. *Percent of cells arrested at G2/M Phase*

View Nexcelom Vision CBA Publications at:
www.nexcelom.com/CellometerPublications

Review data for cell cycle, proliferation, apoptosis and other cell-based assays; including correlation to traditional flow cytometry.

User-Changeable Fluorescence Optics Modules*



Individual Cellometer assays are designed to utilize specific optics modules for maximum performance and discrimination between fluorescence channels. Each Vision instrument accommodates two optics modules at one time. To change a module, users simply open the access panel at the rear of the instrument, depress the lever and remove the appropriate optics module, then insert the new one in its place. Standard modules are listed in the table below. Custom fluorescence optics modules are also available.

Optics Module	Fluorophores	Nucleic Acid Stains	Fluorescent Proteins
VB-450-302 Ex: 375 nm Em: 450 nm	AlexaFluor® 350	DAPI Hoechst 33342 Hoechst 33258	BFP CFP
VB-535-402 Ex: 475 nm Em: 535 nm	Calcein FITC AlexaFluor® 488	AO (acridine orange, +DNA) SYTO®9, SYTO®13	GFP YFP
VB-595-502 Ex: 525 nm Em: 595 nm	AlexaFluor® 546 AlexaFluor® 555, Cy3® PE (R-phycoerythrin) Rhodamine B	PI (propidium iodide) EB (ethidium bromide) SYTOX® Orange	57.5
VB-660-502 Ex: 540 nm Em: 660 nm	AlexaFluor® 647 7-AAD Nile Red	PI (propidium iodide) EB (ethidium bromide) AO (acridine orange, +RNA)	Ds Red RFP TdTomato
VB-695-602 Ex: 630 nm Em: 695 nm	AlexaFluor® 647, Cy5® APC (allophycocyanin)	SYTOX® Red	Crimson

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

See for Yourself Why the Top Ten Pharmaceutical Companies Trust Cellometer

On-Site Demonstrations are a convenient way to evaluate the Vision CBA System. An experienced Applications Specialist will arrive at your lab for a hands-on session to test your cells and demonstrate the Vision CBA for your application.

Technical Seminars are an excellent way to introduce Cellometer systems to a lab group or collaborators in different laboratories within an organization. A trained biologist will discuss and demonstrate the capabilities and advantages of Cellometer image cytometry for cell viability and cell-based assays.

Schedule a FREE on-line demonstration, on-site demonstration or technical seminar with a Nexcelom Applications Specialist today.

Call 978-327-5340 or E-mail info@nexcelom.com

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