Cellometer® K2

Image Cytometer
for Cell Counting & Analysis

PBMCs
Primary Hepatocytes
Stem Cells
Splenocytes
Tumor Suspension
and Other Primary Cells

Nexcelom Bioscience

Cellometer K2 Image Cytometer

Optimized Analysis of Primary Cells

Features of the Cellometer K2

Dual Fluorescence and Bright Field Imaging: staining of both live and dead cells in heterogeneous samples

User-Friendly Software and Assay Selection: Enhanced inter-operator reproducibility, minimal training, auto-save option

Fast Results: Obtain cell images, counts, size measurements, and viability calculations in 60 seconds

Small Sample Size: Only 20 µl of sample

Broad Dynamic Range: Measurable concentration range of 1 x 10^5 to 1 x 10^7 cells/mL using Nexcelom's proprietary de-clustering function

Many Compatible Dyes: Trypan blue, AO, PI, EB, 7AAD, AO/PI, AO/EB, Calcein AM, CFDA, Calcein AM/PI, CFDA/PI

Advantages of Cellometer Image Cytometer

Cell Imaging

- Verify cell morphology and counted live/dead cells
- Export cell images for presentations and publications

Pattern Recognition Software

- Accurately count cells in clumps
- Count irregular-shaped cells
- Eliminate debris from cell counts
- Differentiate cells based on size

Automated Data Management

- Pre-set assays and automated reports
- Archive sample images and auto-save results

Maintenance-free System

- Disposable counting chambers – no wash steps
- No required instrument maintenance

Learn why thousands of users, including the top ten pharmaceutical companies, trust Cellometer.

On-Line Demonstrations are completed in just 20 to 30 minutes and provide an overview of how Cellometer works using existing images of cells that interest you.

On-Site Demonstrations are a convenient way to test a Cellometer system for a specific application. An experienced Applications Specialist will arrive at your lab for a hands-on session to test your cells and show how Cellometer can enhance your workflow.

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.

Call 978-327-5340 or E-mail info@nexcelom.com today to schedule a free demonstration or technical seminar.

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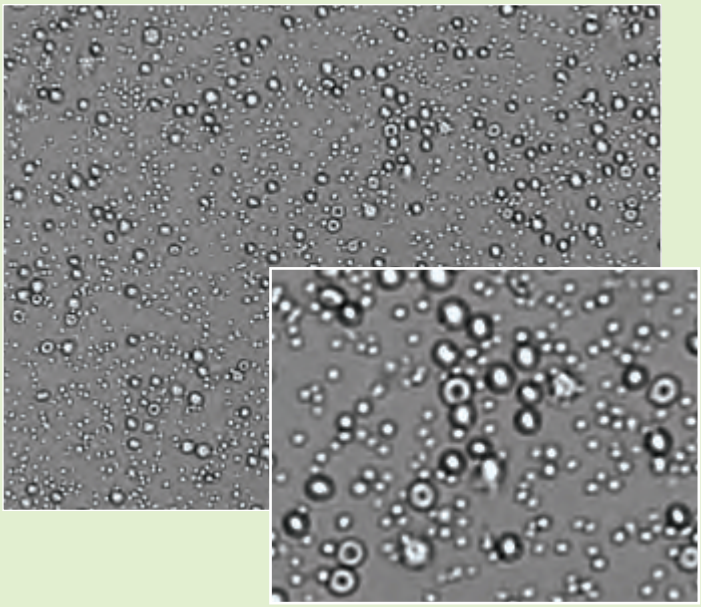
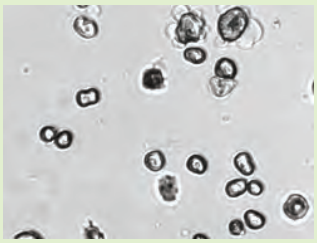
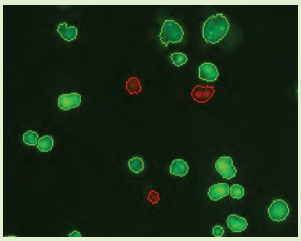


Analysis of Cells from Heterogeneous Samples

- Whole Blood
- Peripheral Blood
- Cord Blood
- Bone Marrow
- Bronchoalveolar Lavage (BAL)

Primary Hepatocytes: Cell Count and Viability





PBMC Analysis in the Presence of Red Blood Cells
Measure PBMCs from whole blood without lysing. Obtain baseline PBMC concentration and viability prior to biomarker studies

Nucleated Cell Concentration & Viability
Evaluate cord blood and bone marrow samples

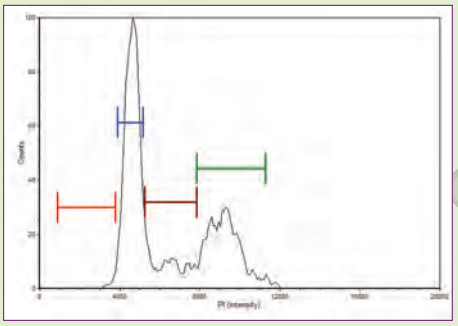
GFP Transfection Efficiency & Viability
Quickly and easily monitor DNA, RNA, and siRNA transfection

Analysis of Clumpy & Irregular-Shaped Cells
Nexcelom's proprietary pattern-recognition software enables accurate analysis of >98% of mammalian cell types

Cell Line Analysis
Automatically capture fluorescent cell images, concentration, Trypan blue or PI viability, and mean diameter in 60 seconds!

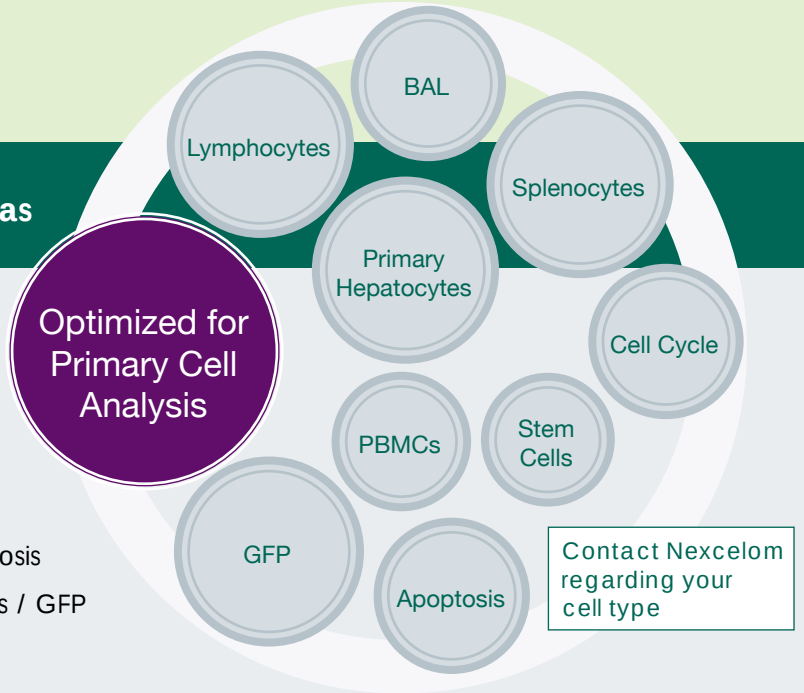
Cell Based Assays

- Cell Cycle
- Apoptosis
- GFP



Proven Performance in Many Research Areas

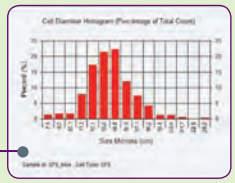
- **Clinical Immunology:** PBMCs
- **DMPK:** Primary Hepatocytes
- **Regenerative Medicine:** Stem Cells
- **Transplantation:** Nucleated Cells
- **Vaccine Development:** Splenocytes
- **Oncology:** Cell Lines, Cell Cycle, Apoptosis
- **Basic Research:** Primary Cells / Cell Lines / GFP

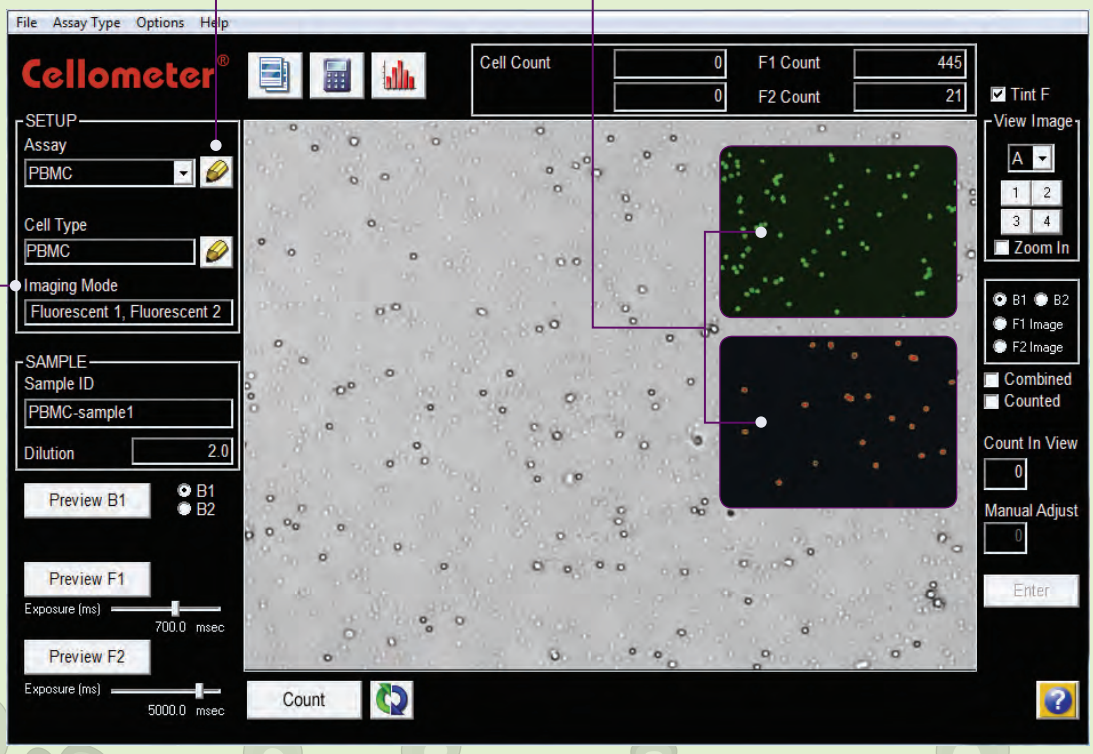


Cellometer K2 Image Cytometer for Cell Counting & Analysis
from Nexcelom Bioscience

FEATURES

- Dual FL/BR Channels
- Easily Edit and Import Assays
- Images for Data Verification
- Cell Size Histograms

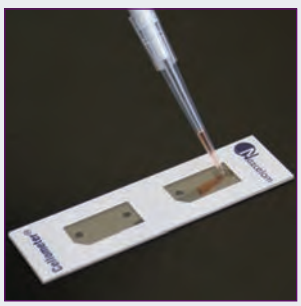




- Analysis of Primary Hepatocytes
- Viability of WBC in Whole Blood
- Accurate PBMC Counts in the Presence of Red Blood Cells
- Total Nucleated Cell Count & Viability
- One-Step Cell Concentration & Viability
- Cell Cycle Analysis
- Apoptosis Analysis
- GFP Detection

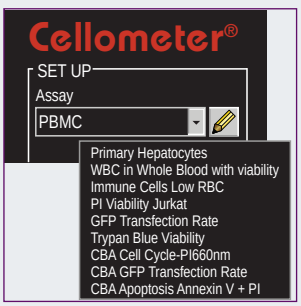
ASSAYS

How It Works

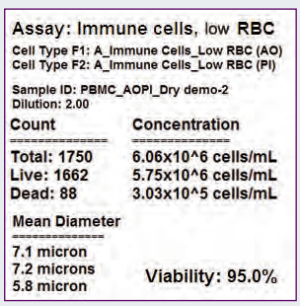


Pipette 20 µl of Cell Sample

Insert Counting Chamber



Select Assay & Click Count



Get Results

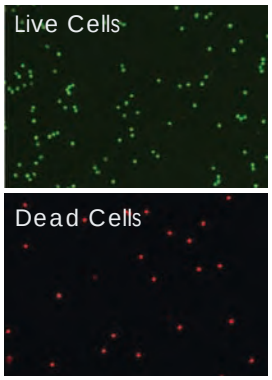
Dual-Fluorescence for Primary Cell Viability in Heterogeneous Samples

Live / Dead Cell Concentration using AO / PI

Dual-Fluorescence Viability, using acridine orange (AO) and propidium iodide (PI), is the recommended method for accurate viability analysis of primary cells, such as PBMCs, splenocytes, and stem cells, in samples containing debris and unwanted non-nucleated cell types including red blood cells.

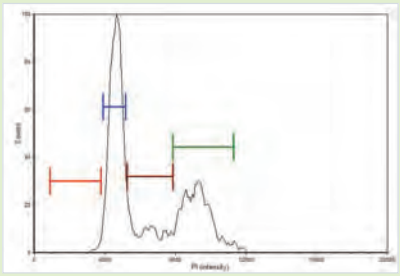
Acridine orange (AO) and propidium iodide (PI) are nuclear staining (nucleic acid binding) dyes. AO is permeable to both live and dead cells and stains all nucleated cells to generate green fluorescence. PI enters dead cells with compromised membranes and stains all dead nucleated cells to generate red fluorescence.

Because mature mammalian red blood cells do not contain nuclei, only live and dead mononuclear cells produce a fluorescent signal. There is no need to lyse red blood cells, saving time and eliminating an extra sample preparation step.



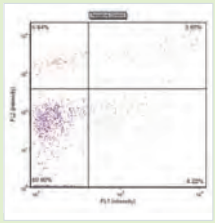
Export to FCS Express* for Flow-Like Data Output

Cell Cycle

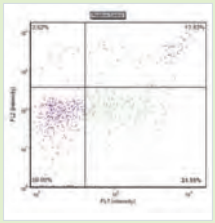


K2	SubG$_1$	G$_0$/G$_1$	S	G$_2$/M
AVE	1.0%	51.1%	13.6%	31.1%
STD	0.4%	1.6%	1.0%	1.1%

Apoptosis



	Untreated (Negative Control)			
	Healthy	Apoptotic	Necrotic	Debris
AVE	81.9%	8.1%	4.0%	6.0%
STD	1.6%	1.3%	0.4%	1.1%
CV	1.9%	16.1%	9.3%	18.3%



	Treated (Positive Control)			
	Healthy	Apoptotic	Necrotic	Debris
AVE	58.8%	24.7%	13.8%	2.7%
STD	1.9%	1.1%	1.2%	0.2%
CV	3.2%	4.3%	9.0%	9.2%

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

Performance of the Cellometer K2 Image Cytometer

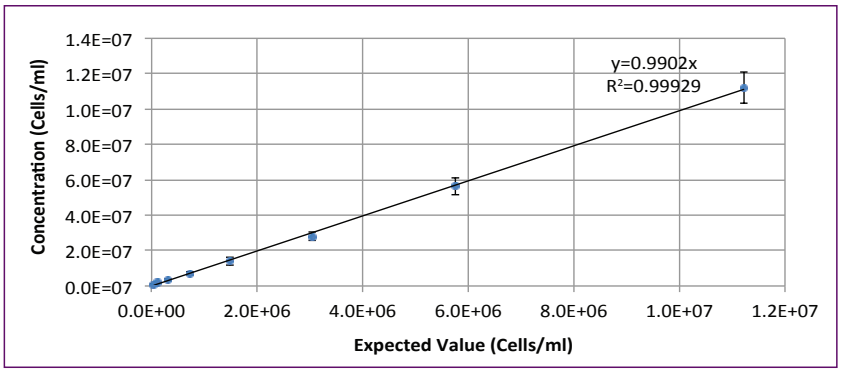


Figure 1. *Table of results for cell concentration dynamic range*

Concentration Dynamic Range
Figure 1 depicts the dynamic range for cell concentration measurements on Cellometer K2. This data set was taken on a concentration series of cultured Jurkat cell line.

Samples from 1 x 10^5 – 1 x 10^7 cells/ml can be counted without further dilution.

The %CV at each concentration was below 10%.

Viability Dynamic Range The viability dynamic range is 0 - 100% for Cellometer K2 Image Cytometer using dual fluorescence AO/PI stain.

Sample	N Value	Average Live Cell Concentration	% Viability	CV of Concentration	CV of Viability
Jurkat	24	3.61E+06	92.2%	8.9%	1.0%
Human PBMC	10	5.94E+06	96.0%	4.7%	0.5%
Mouse Splenocyte	10	1.86E+07	88.6%	5.6%	0.7%

Figure 2. *Table of results for cell concentration and viability using AOPI*

Consistency and Repeability The results indicate the accuracy of the Cellometer K2 instrument in assessing the viability of Jurkat cells using AOPI for cell viability. Jurkat, human PBMC, mouse splenocytes were tested at 24, 10, and 10 sample replications, respectively. The viability average was calculated and plotted. The results show the reliability and accuracy of the Cellometer K2 in measuring cell concentration and viability of mammalian cells.

Cellometer Reagents

Catalog #	Description	Instrument Compatibility	Size	Unit
CS1-0108-5ML	AO (acridine orange) Staining Solution for staining of nucleated cells	Auto 2000, K2, X2, X1, X4, Vision CBA	5 mL	each
CS1-0109-5ML	PI (propidium iodide) Staining Solution for staining of dead nucleated cells	Auto 2000, K2, X2, X4, Vision CBA	5 mL	each
CS2-0106-5ML	AO/PI (acridine orange / propidium iodide) Staining Solution for live/dead **Mammalian** nucleated cells	Auto 2000, K2, X2, Vision CBA	5 mL	each
CS1-0114 CS0-0115-100ML CS1-0116	Cellometer Annexin V-FITC / PI Apoptosis Reagents	X2, K2, Vision CBA		each
K183-100-N K183-25-N	Cellometer Caspase-3 Apoptosis Kit	X2, K2, Vision CBA		each
K188-100-N K188-25-N	Cellometer Caspase-8 Apoptosis Kit	X2, K2,Vision CBA		each
CSK-0112	Cellometer PI Cell Cycle Kit	X1, X2, K2, Vision CBA		each
CSK-0102	Cellometer ViaStain Kit for live/dead **Yeast** concentration including stainer buffer, fluorescent dye mixture	X2, K2, Vision CBA		

Cellometer Counting Chamber

Catalog #	Description	Size	Unit
CHT4-PD100-003	Standard chamber thickness. Packed in microscope slide boxes. Ready to use.	Case of 500 slides for 1,000 counts (10 individual boxes)	1 Case
CHT4-SD100-014	Standard chamber thickness. Packed with protective film on both sides. Remove protective film before use.	Case of 900 slides for 1,800 counts	1 Case
CHT4-PD300-003	3x standard chamber thickness. Packed in microscope slide boxes. Ready to use.	Case of 500 slides for 1,000 counts (10 individual boxes)	1 Case

See www.nexcelom.com/products for updated product selections.

Cellometer Cell Counters, Cell Analysis Systems & Image Cytometry

Nexcelom offers a wide range of Cellometer systems developed and optimized for specific applications and cell types.

Cellometer® Simply Counted

Celigo® S Image Cytometer

Nexcelom Bioscience

Which Cellometer is Right for Me?

Features	Automated Cell Counters					Image Cytometers				
	Mini	Auto T4	Auto 1000	Auto 2000	X4 (10x)	X1	X2	K2	Vision CBA	Vision CBA (10x)
Cell / Sample Type										
Objective Magnification	4X	4X	4X	4X	10X	10X	10X	4X	5X	10X
Cell Line	X	X	X	X				X	X	
Cultured Primary Cells	X	X	X	X				X	X	
Algae					X					X
Platelets					X		X			X
Low Cocnentration Cell Lines				X				X	X	
Yeast (Clean Sample)					X	X	X			
Primary cells (Messy Sample*)				X				X	X	
PBMCs, Splenocytes, Stem Cells				X				X	X	
Yeast (Messy Sample)							X			X
Hepatocytes								X	X	
Adipocytes***				X				X	X	
Cell-Based Assay **						X	X	X	X	X
Apoptosis (Annexin V-FITC/PI)								X	X	X
Apoptosis (Caspase Activity)								X	X	X
Autophagy (CytoID-green)									X	X
Cell Proliferation (CFSE)									X	X
Cell Cycle (PI)						X	X	X	X	X
GFP Transfection				X			X	X	X	X
YFP Transfection									X	X
RFP Transfection									X	X
Mitochondrial Potential (JC-1)									X	X
Multi-drug Resistance (ABC Transporter)									X	X
Surface Marker Analysis									X	X
Vitality (Calcein-AM/PI)							X	X	X	X
Image Cytometry**									X	X

** A messy sample is a heterogeneous sample containing unwanted cell types, such as red blood cells, in addition to the cells of interest.*
*** FCS Express 4 license must be purchased in order to perform Cell Based Assay or Image Cytometry analysis*
**** Cellometer CHT4-PD300 slides are required for cells greater than 80µm in diameter*

For more information, visit www.nexcelom.com

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