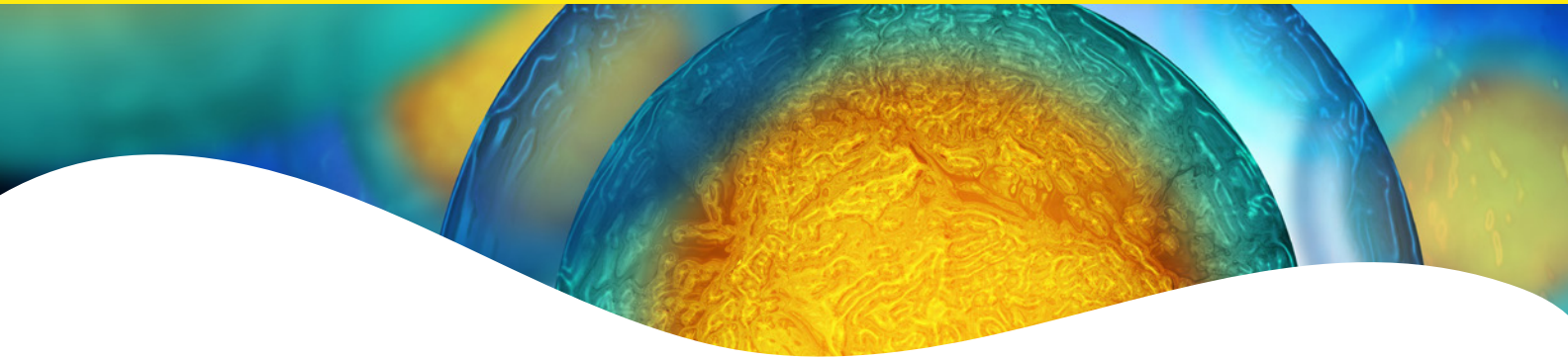
Designed for precise cell counting and fluorescent analysis.



Cellometer K2 fluorescent cell counter

The Cellometer® K2, powered by Matrix software, utilizes brightfield imaging and dual-fluorescence imaging to quickly and accurately identify and count individual cells across many cell types including PBMCs, primary hepatocytes, stem cells, splenocytes, tumor suspension, and other primary cells.

Features

- **Dual fluorescence and brightfield 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 Revvity'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 the Cellometer K2 fluorescent cell counter

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

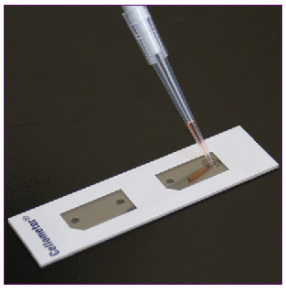
Automated data management

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

Maintenance-free system

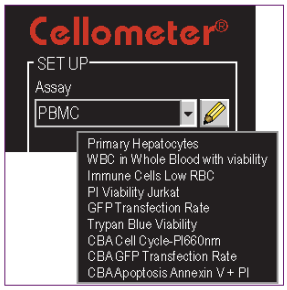
- Disposable counting chambers – no wash steps
- No required instrument maintenance

How it works

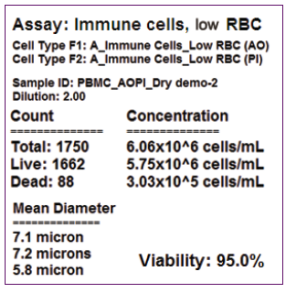


Pipette 20 µL of cell sample

Insert counting chamber



Select assay & click count



Get results

Applications

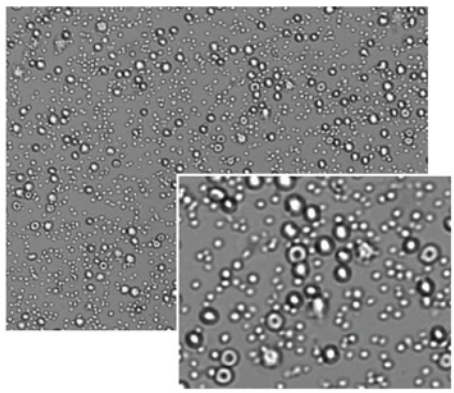
PBMC analysis in the presence of red blood cells
Measure PBMCs from whole blood without lysing. Obtain baseline PBMC concentration and viability prior to biomarker studies

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
Revvity's proprietary pattern-recognition software enables accurate analysis of >98% of mammalian cell types

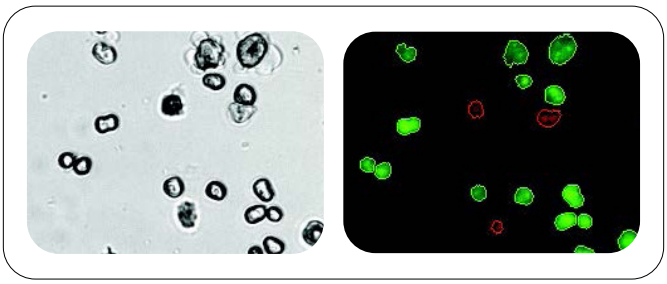
Cell line analysis
Automatically capture fluorescent cell images, concentration, Trypan blue or PI viability, and mean diameter in 60 seconds!



Analysis of cells from heterogeneous samples

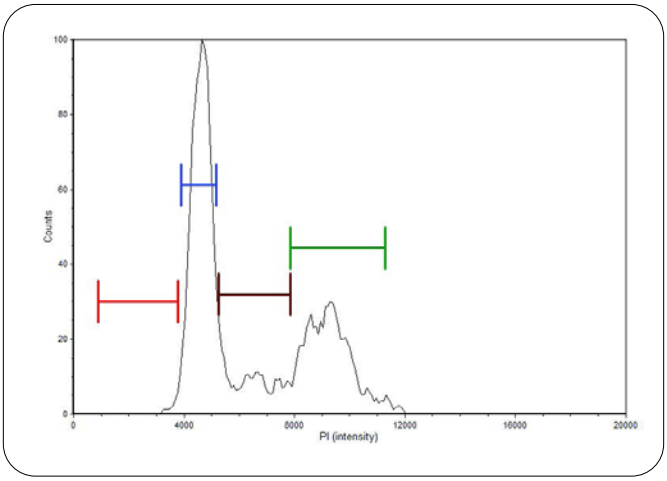
- Whole Blood
- Peripheral Blood
- Cord Blood
- Bone Marrow
- Bronchoalveolar Lavage (BAL)

Primary hepatocytes: Cell count and viability



Cell based assays

- Cell Cycle
- Apoptosis
- GFP



Cell cycle histogram

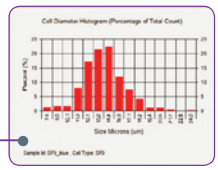
Proven performance in many research areas

- **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 user interface and preconfigured assays

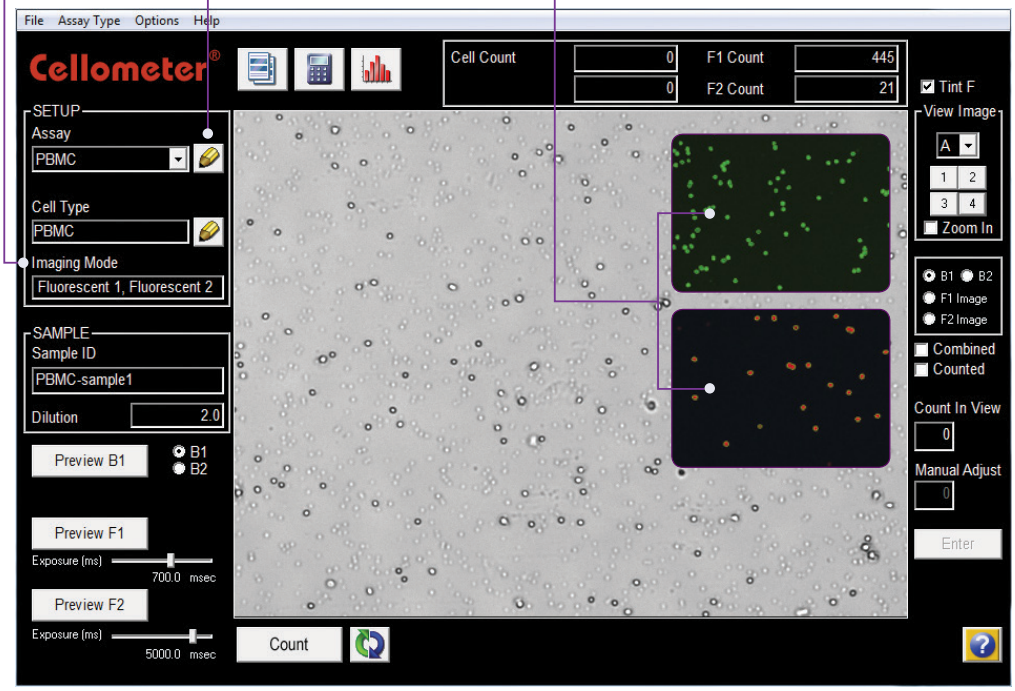
FEATURES

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



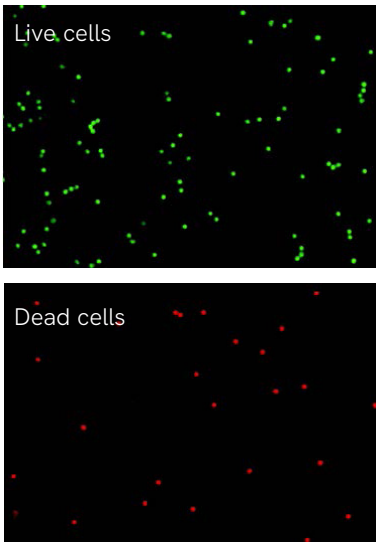
ASSAYS

- 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



Dual-fluorescence for primary cell viability in heterogeneous samples

Live/Dead cell concentration using AO/PI



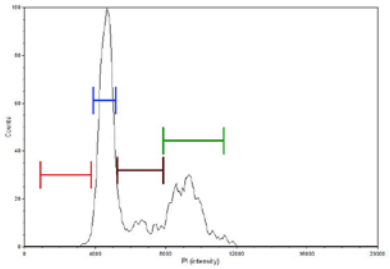
Dual-fluorescence viability, using acridine orange (AO) and propidium iodide (PI), is the recommended method for accurate viability analysis of primary cells, such as PBMCs, splenocytes, and stem cells, in samples containing debris and unwanted non-nucleated cell types including red blood cells.

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.

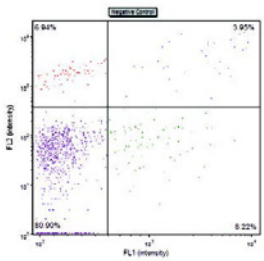
Export to FCS express* for flow-like data output

Cell cycle

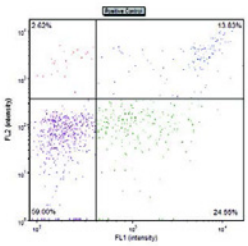


K2	SubG$_1$	G$_0$/G$_1$	S	G$_2$/M
AVE	1.0%	51.1%	13.6%	31.1%
STD	0.4%	1.6%	1.0%	1.1%

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 fluorescent cell counter

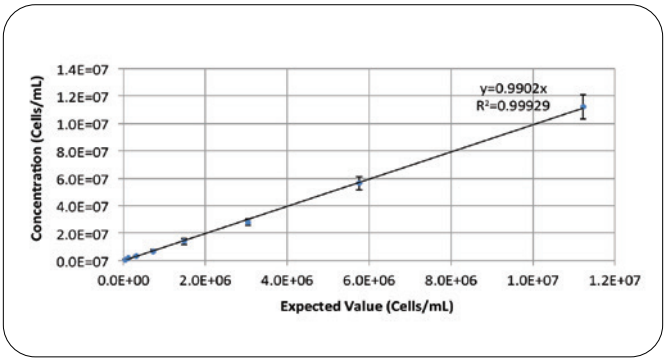


Figure 1: Table of results for cell concentration dynamic range

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 fluorescent cell counter 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.

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