

Leap-Count 100/100A Cell Counter



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Cell Counter

Leap-Count 100 / 100A cell counter relies on advanced optical imaging technology and intelligent image recognition technology to provide comprehensive cell related information such as total cells counted, cell concentration, viability, average diameter, average compactness, aggregate, cell morphology, etc. All data results are automatically stored and can be exported in multiple formats to meet various experimental needs.



Leap-Count 100A

Leap-Count 100

Leap-Count 100	Built-in 512 G storage	10.1-inch display screen	Analysis time ≤ 8 s
Leap-Count 100A	No built-in storage	PC connectable	Analysis time ≤ 2 s

Features

01 Automatic Focusing and Precise Counting

No other operation is required when cell counting starts. Leap-Count 100 / 100A will automatically adjust the focal length and light intensity, focus and accurately count. The instrument can also be manually focused to meet various customer needs.

03 Aggregate Cell Recognition

Leap-Count 100 / 100A has advanced algorithms to accurately circle aggregate cells and account for the aggregate.

05 Only 10 μL for a Single Sample

Only 10 μL is required for a single well per assay, and only a small amount of sample is needed for overall analysis.

07 Easy-to-Use Software

Graphic software operation, more intuitive interface. The built-in dilution calculator can calculate the required volume of the original sample based on the current sample concentration. The cell size histogram can display the average diameter of the current sample and the number of cells corresponding to each diameter. It is also possible to select data to form growth curves, detect changes in cell proliferation and support multiple groups of data for comparison.

02 AI Intelligent Algorithm Accurate Recognition

Based on AI deep learning algorithms, Leap-Count 100 series has self-developed feature extraction algorithms, which can effectively highlight and accurately extract high-dimensional image features of multiple types and states of cells, accurately identify the number of cells in suspension under complex scenarios, such as high concentration, low particle size, background interference, aggregate cells (aggregate cell clusters), etc., to meet the needs of different varieties of cell samples.

The neural network can be customized to develop and analyze based on customer's specific samples, providing effective solutions for personalized R&D.

04 High Detectable Concentration

The maximum counting concentration can reach $1 \times 10^9/\text{mL}$.

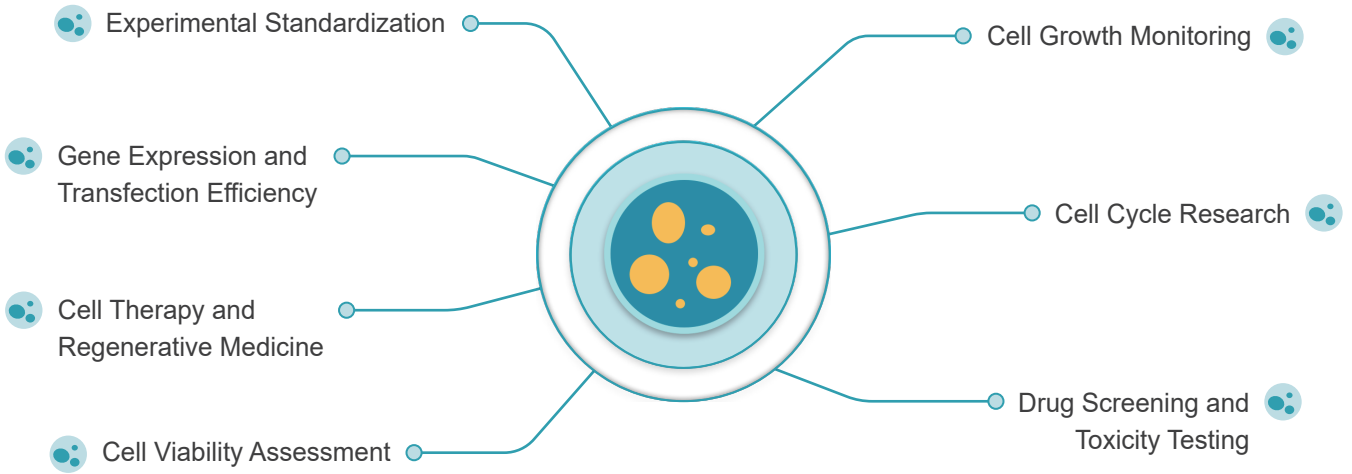
06 General Consumables

The instrument is suitable for various standard 2-well counting slides on the market, enabling precise focusing and accurate readings.

08 Large Storage Capacity and Multiple Export Formats

Leap-Count 100 has 512 G of memory and can store 70,000 pieces of data. Support export to PDF, XLS, JPG, TIFF, PNG, etc.

Applicable Experiment

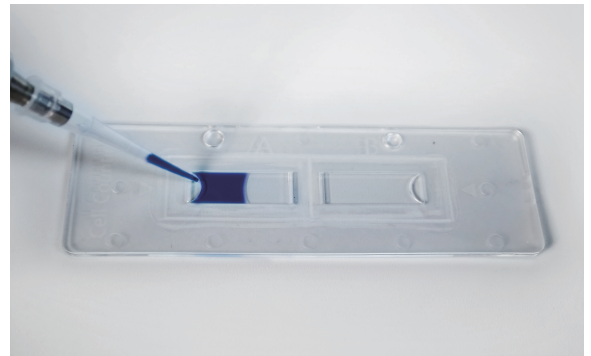


Easy and Fast Operation Process

STEP 1

Load Samples

A universal 2-well counting slide requires only 10 μL per well, saving precious samples.



STEP 2

Operate the Instrument

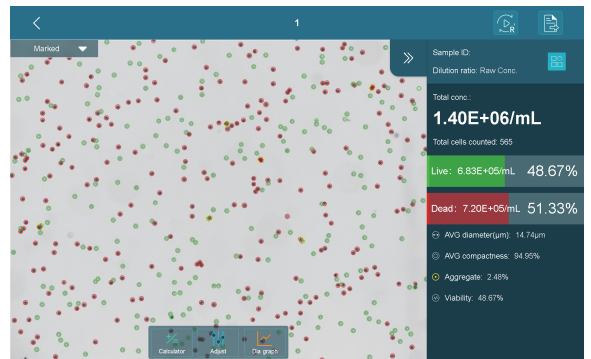
Insert the counting slide into Leap-Count 100 series instrument, after automatic focusing, modify the parameters, and start counting.



STEP 3

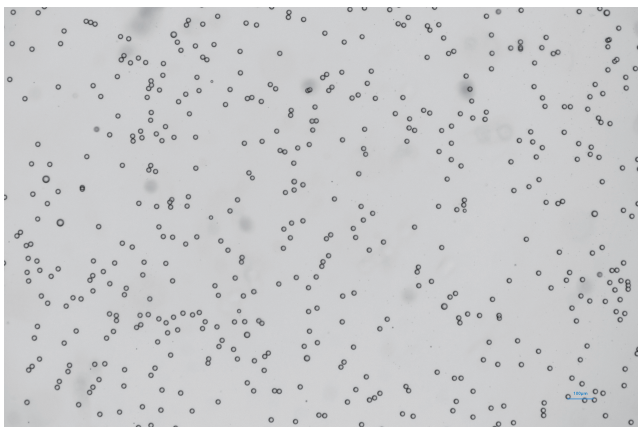
Get Data

The counting results will display cell characteristic parameters such as the total cells counted, concentration, viability, and average diameter, etc.

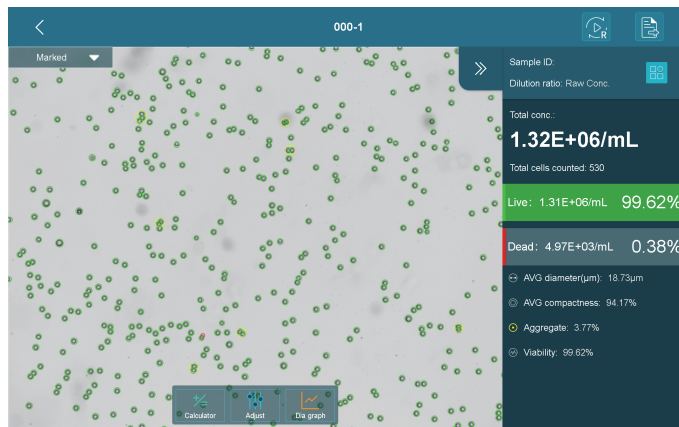


Function 01---Cell Counting

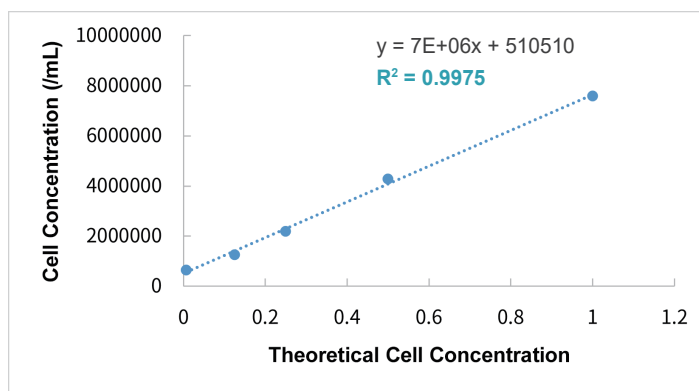
Cell counting is a fundamental biological experimental technique used to determine the number of cells in a cell sample. The right side of the result will show the total concentration, total cells counted, concentration of live and dead cells, average diameter, average compactness, aggregate, viability, etc.



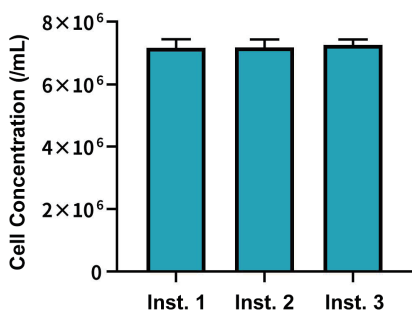
Cell Counting Original Image



Cell Counting Result

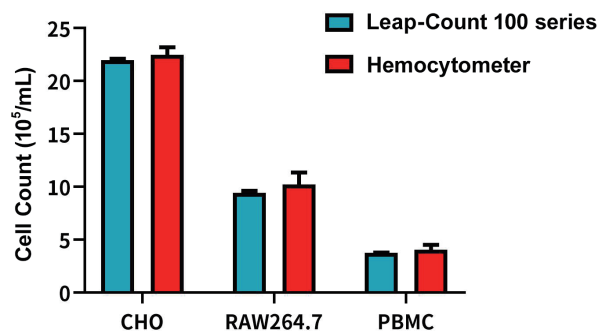


Cell Counting Linear Result



Cell Counting Concentration Repeatability, Inter-Model-Agreement CV <5 %

Leap-Count series instruments measure the same cell sample, with each instrument repeating the measurement 9 times. The histograms represent the average of 9 independent counts, and the error bars represent the standard deviations of 9 independent counts.



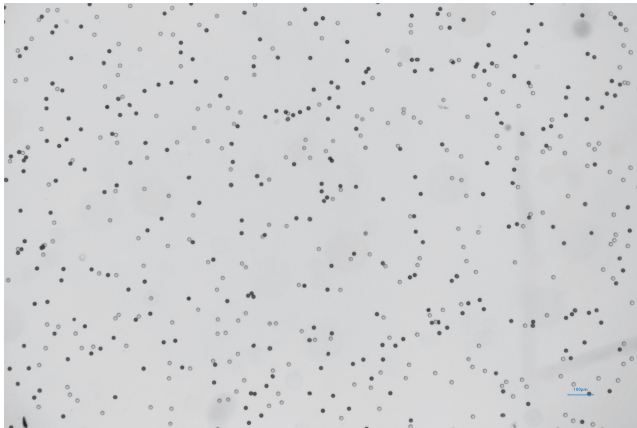
Leap-Count 100 Series Has Smaller Counting Result Errors

Compare the accuracy between Leap-Count 100 series automatic cell counter and hemocytometer. In the figure, Leap-Count 100 (blue histogram) and the hemocytometer (red histogram) are used for automatic and manual cell counting of CHO cells, RAW264.7 and PBMC, respectively. The histograms represent the average of 3 independent counts; the error bars represent the standard deviations of 3 independent counts.

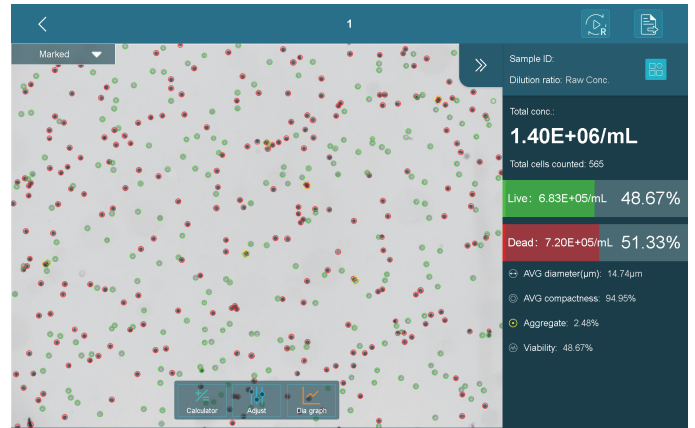
Function 02---Trypan Blue Staining

Trypan blue is a cell transmembrane dye. The structure of the live cell membrane is complete, trypan blue cannot pass through, and the cell appears transparent in the center with a clear outline. The permeability of the dead cell membrane changes, trypan blue can cross over the dead cell membrane and enter the cell, deepening the color of the cell and presenting solid black dots, which is obviously different from the state of the live cell with a transparent center and a clear outline. Based on the difference, live cells and dead cells can be distinguished and counted differently.

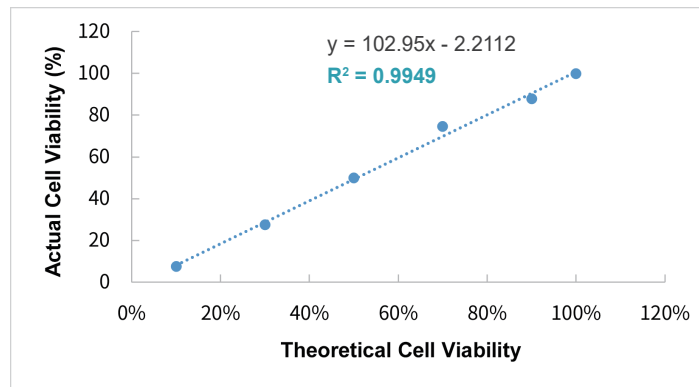
The right side of the trypan blue staining result will show the total concentration, total cells counted, concentration of live and dead cells, average diameter, average compactness, aggregate, viability, etc.



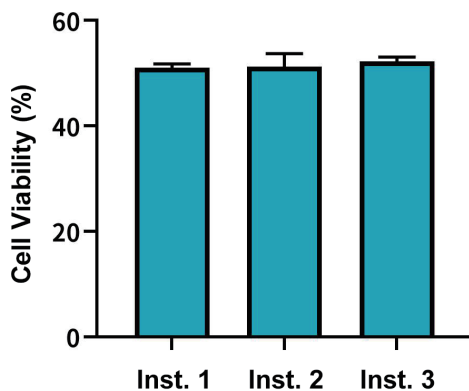
Trypan Blue Original Image



Trypan Blue Result



Linear Result of Trypan Blue Cell Vitality



Trypan Blue Staining Cell Viability, Inter-Model-Agreement <5 %

3 Leap-Count series instruments measure the same cell sample, with each instrument repeating the measurement 9 times. The histograms represent the average of 9 independent counts, and the error bars represent the standard deviations of 9 independent counts.

Partial Verified Cell Types

Cell Name	Cell Variety	Cell Type	Cell Name	Cell Variety	Cell Type
Vero	Monkey	Kidney	SW480	Human	Colorectum
C2C12	Mouse	Muscle	HCT116	Human	Colorectum
RAW264.7	Mouse	Macrophage	Caco-2	Human	Colorectum
CHO	Hamster	Ovary	A549	Human	Lung
K562	Human	Blood	HepG2	Human	Liver
Jurkat, Clone E6-1	Human	Blood	HEK293T	Human	Kidney
MDA-MB-231	Human	Galactophore	Hela	Human	Neck of Uterus
MCF7	Human	Galactophore	LNCAP	Human	Prostate
U2OS	Human	Bone	HT1080	Human	Muscle

Cell Counting Slide

- **Economical**

Disposable consumables, each counting slide is individually sealed and packaged, with 2-well for independent counting.

- **Easy to Operate**

No need to clean counting slides and cover slips, reducing operational steps and the risk of biological hazards.

- **Save Time**

No need for cleaning and high-pressure sterilization treatment, saving steps and time for experiment preparation, and improving experimental efficiency.





- **Lightweight Materials**

The polymethyl methacrylate (PMMA) material is lightweight and sturdy, effectively preventing surface damage or destruction. High transmittance also improves counting accuracy.

- **Save Samples**

Accurately control the sampling volume, with only 10 μL per well, saving precious samples.

Sample channel	Dimension (WxDxH)	Well Dimension (WxDxH)
2-channel	74.8×24.6×1.6 mm	17×6.4×0.1 mm

Specification

	Leap-Count 100	Leap-Count 100A
Measuring diameter range	3-60 μm	3-60 μm
Concentration range	1×10^4 - 1×10^8 /mL	1×10^4 - 1×10^8 /mL
Sample detection volume	1	1
Analysis time	≤ 8 s	≤ 2 s
Detect optimal cell concentration range	1×10^5 - 1×10^7 /mL	1×10^5 - 1×10^7 /mL
Cell viability detection range	0-100 %	0-100 %
Detection accuracy	CV<5 %	CV<5 %
Required sample volume	10 μL	10 μL
Objective magnification	3 x	3 x
Imaging element	6 megapixel CMOS camera	6 megapixel CMOS camera
Working temperature	10-40 $^{\circ}\text{C}$	10-40 $^{\circ}\text{C}$
Working humidity	<80 %	<80 %
Consumables	Cell counting slide, 0.4 % trypan blue	Cell counting slide, 0.4 % trypan blue
Built-in storage	512 G	\
Screen	10.1-inch, 1920x1200 resolution	\
Data export format	PDF, XLS, TIFF, PNG, JPG	PDF, XLS, TIFF, PNG, JPG

	Leap-Count 100	Leap-Count 100A
Operating system	Windows 10	Windows 10 and above
Instrument port	2xUSB3.2 gen2; 1xEthernet port	USB3.0 BF type port
Dimension (WxDxH)	268×260×245 (flat) 268×260×376 (upright) mm	268×260×216 mm
Power supply	100-240 V 50 / 60 Hz 12 V 4 A 48 W	100-240 V 50 / 60 Hz 12 V 4 A 48 W
Weight	6.5 kg	5 kg

Ordering Information

Code	Product description
AS-32010-00	Leap-Count 100A cell counter (bright field)
AS-32020-00	Leap-Count 100 cell counter (bright field-with touch screen)

Supporting Consumables

Code	Product description	Specification
AS-32011-01	Cell counting slide	50 piece/box, 2 well/piece
AS-32011-02	Trypan blue stain solution (0.4%)	1 mL/tube
AS-32011-03	Trypan blue stain solution (0.4%)	10 mL/bottle