Corning® Cell Counter

Time-saving Technology using the Power of the Cloud

Thomas Scientific

CORNING

For years, the choice between manual and automated cell counting has been a difficult one. Manual cell counting can be accurate, but time-consuming and user-dependent. Automated cell counting is much faster and less user-dependent, but the cost of disposable counting slides can be an issue. A tough choice, but now there is an affordable solution.

The Corning Cell Counter is the first automated cell counter that combines the best of both worlds. It is:

- **Evolving** – periodic, seamless upgrades, added features, and improved functionality.
- **Accurate** – thanks to its cloud-based machine learning algorithm.
- **Improved resolution** – ability to accurately count as small as 4 µm (e.g., PBMC).
- **Low-cost** – works with common reusable glass hemocytometers. No consumables required.
- **Fast** – thanks to its online image processing.

Evolving

Cloud-based processing allows the cell counter to add features and functionality based on user needs, unlike static non-cloud-based cell counters. These updates are efficiently made available to all users at the same time.

Accurate Three-second Cell Counts

The Corning Cell Counter can perform a single cell count in less than three seconds*. This is much faster than most automated cell-counting systems. With traditional systems, the image analysis algorithms must be processed on a relatively small onboard computer. The Corning Cell Counter utilizes the CytoSMART™ App by processing the captured images in the Microsoft Azure Cloud Computing Platform. This cloud computing ability means that it can analyze the images faster than any existing onboard processer can.

Higher Accuracy

The Corning Cell Counter uses a cloud-based machine learning algorithm that manages thousands of parameters to provide accuracy without the need to define mammalian cell types. When Trypan Blue is added (Figure 1) the system can also detect cell viability. The Corning Cell Counter can resolve clusters of cells, which leads to accurate cell counts of "highly concentrated samples" (up to 1 x 10^7 cells/mL). The new multicount feature allows multiple images per sample thus increasing overall accuracy and reproducibility.

Improved Resolution

New algorithm allows resolution of mammalian cells as small as 4 µm without an equipment upgrade. For viability, the range is 5 to 70 µm and can accurately count PBMC and CAR-T cells.

Low Cost Like Manual Counting

This cell counter works with the provided counting chamber or a customer supplied hemocytometer with a 0.1 mm chamber height, enabling users to enjoy the benefits of automated cell counting without the cost of disposable slides. However, for high throughput needs, most major brands of disposable counting chambers are compatible with the Corning Cell Counter.

Easy to Use

The Corning Cell Counter is easy to use. Simply connect the cell counter to your computer or tablet and start the CytoSMART App on your desktop. Place the loaded counting chamber on the stage. Focus on your cells and press the Count button. The simplicity of the cell counter allows anyone working in your lab to easily count cells without the need of extensive training.

Accessible Data Anywhere, Anytime

With the Corning Cell Counter, the report is instantly shown on your computer and sent to the CytoSMART Cloud, enabling you to look up the analyzed image and cell count on your smartphone, tablet, or computer. Since all data is saved in the CytoSMART Cloud, you can gain insight into the health and quality of your cell culture from one experiment to the next.

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*Measured using a 73 Mbps download speed and a 20 Mbps upload speed. Actual speed can vary depending on the internet connection.

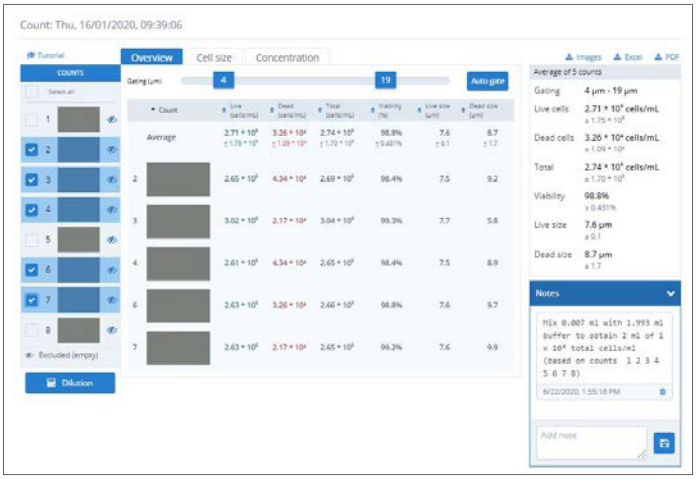

Figure 1. Results page after performing multiple counts using Version 3 of the algorithm. In the top left the sample name is displayed. Underneath this you can see the tutorial button, the counts taken of this sample, and the dilution calculator. The box on the top right contains details of the count. General information is displayed in the "Experiment" box, while notes can be added in the "Notes" box.

Specifications

Counting range	5 x 10^4 to 1.0 x 10^7 cells/mL
Counting range	4 to 70 µm; 5 to 70 µm with viability
Measurement time	<3 sec.*
Compatibility	Reusable and disposable counting chambers
Sample volume	10 µL
Weight	1.0 kg
Multicount capability	Maximum of 8
Field of view	2.0 x 1.5 mm or 1.39 x 1.39 mm
Magnification	200X
Image resolution	2048 x 1536
Exported formats	PNG
Light source	LED
Camera	5 MP CMOS
Unit dimensions	122 x 122 x 125 (L x W x H)
Operating environment	5°C to 40°C, 20% to 95% humidity
Requirements	Windows 10 PC or Tablet Internet connection Mammalian cells USB 3.0 port

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Ordering Information

Thomas No.	Mfr. No.	Description	Qty/CS
1159B19	6749	Corning Cell Counter	1
21A00J884	480200	Counting Chamber	1
B003L40	25-900-CI	Trypan blue 0.4%, 100 mL	1

Contact your local Thomas Scientific Sales Representative to request a demonstration of the Corning Cell Counter.

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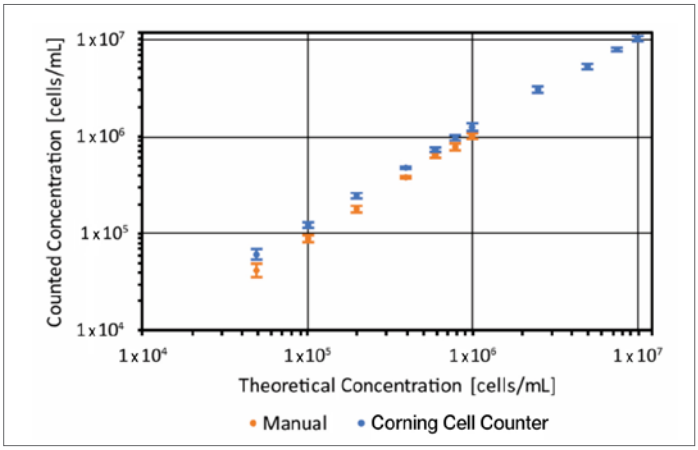

Figure 2. Different concentrations of C6 cells were counted manually and using the Corning Cell Counter (n = 3). In both cases, the count corresponds well with the theoretical concentration (error bars represent the standard deviation).

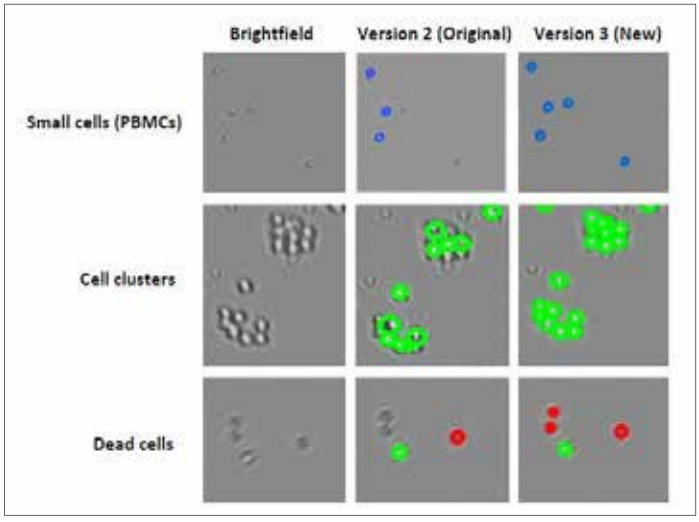

Figure 3. Visualization of the improvements of the Version 3 algorithm. The columns (from left to right) represent the Brightfield images, the Version 2 (Original) processed image, and the Version 3 processed image, respectively. The rows (from top to bottom) represent samples that contain small cells, cell clusters, or dead cells, respectively.

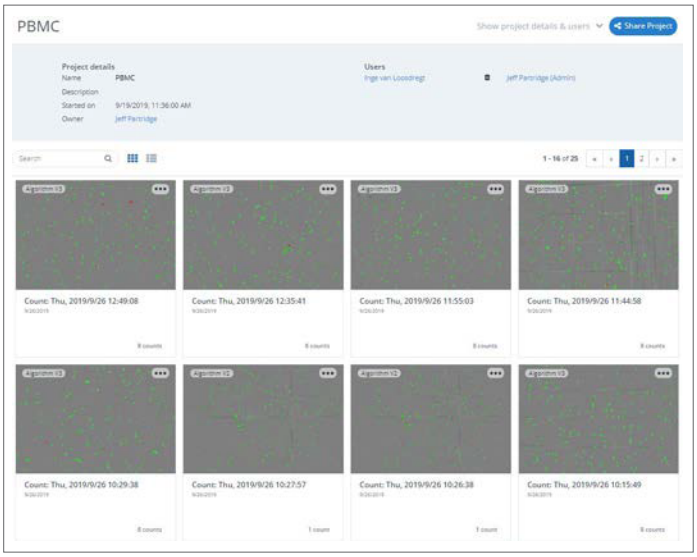

Figure 4. Your data is saved on the CytoSMART cloud and accessed by logging into Cloud.cytosmart.com, unlimited storage.

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