Cellometer®

Nexcelom Bioscience

Quantitative characterization of cells using automated image analysis

Level Biotechnology Inc.

產品專員 王淑明

Mindy Wang

level

Discovering new boundaries

Cellometer®

Cellometer Automated Cell Counters:
Simplest Solution to Automate Hemacytometer

30 seconds to get more accurate data

Cellometer Auto T4 Plus
Automated Cell Counter

Cellometer Auto M10
Automated Cell Counter with high magnification

Cellometer Vision
Automated Cell Counter with multimode detection (bright field and fluorescence)

Discovering new boundaries

The importance of cell counting

- Application：
- Cell invasion/Migration transwell seeding
- Drug selection
- Condition testing- time course/dose
- Flowcytometry

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The importance of cell counting

- Hemacytometer

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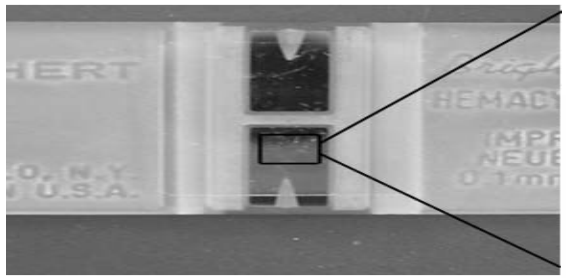
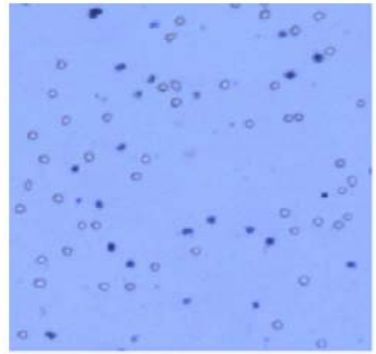
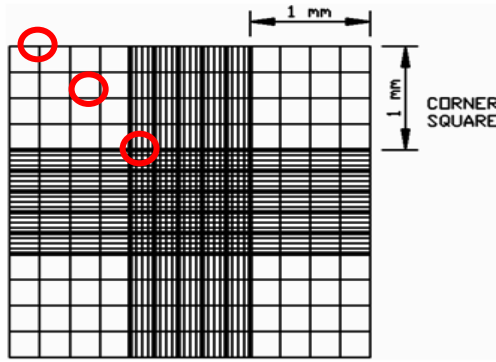


Viabilty with trypan blue





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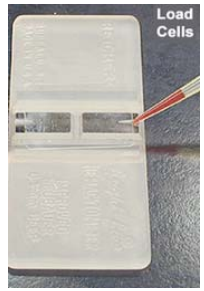
Why need automated cell counter?



	Cellometer® AutoT4			Hemacytometer		
	Concentration	n	CV	Concentration	CV	n
Jurkat	1.17×10^6	4	2.27%	1.11×10^6	8.04%	3
YAC-1	1.38×10^6	4	3.17%	1.41×10^6	11.89%	3
K562	6.36×10^5	4	8.29%	5.58×10^5	9.66%	3
H460	1.32×10^6	4	5.57%	1.16×10^6	20.65%	3
NCI H128	2.46×10^5	4	11.23%	1.50×10^5	49.33%	3
SW620	3.81×10^5	4	2.79%	3.70×10^5	19.49%	3
Hut 102	9.18×10^5	4	0.39%	7.68×10^5	10.60%	3

The importance of cell counting

- Application：
- Cell invasion/Migration transwell seeding
- Drug selection
- Condition testing- time course/dose
- Flowcytometry

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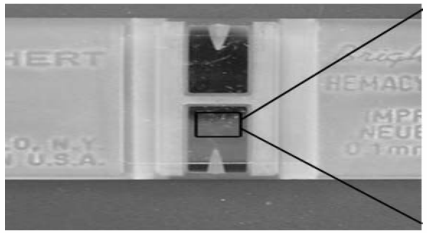
The evolution of cell counting

- From Hemacytometer to Cellometer



Cellometer Automated Cell Counters

- Person to person error
- Labor

- High cost
- Clogging
- More sample volumne
- Unverifiable

Simplest Solution to Automate Hemacytometer

30 seconds to get more accurate data

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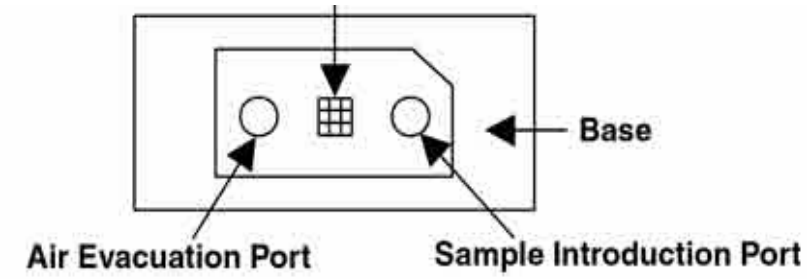
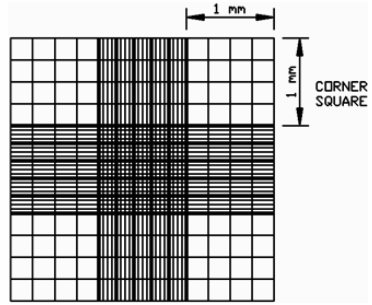
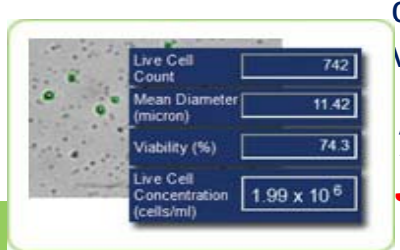
- **Principle of Cellometer is the same with hemacytometer**







Count and Analyze Cells in 3 Steps

Step 1. Pipette 20uL sample into a disposable Cellometer chamber

Step 2. Place chamber into Cellometer

Step 3. Run Cellometer software to obtain cell concentration and viability automatically

Typical cell lines take less than 30 seconds per sample.

- **Cell concentration**
- **Viability**
- **Cell size**
- **On screen image**

Discovering new boundaries

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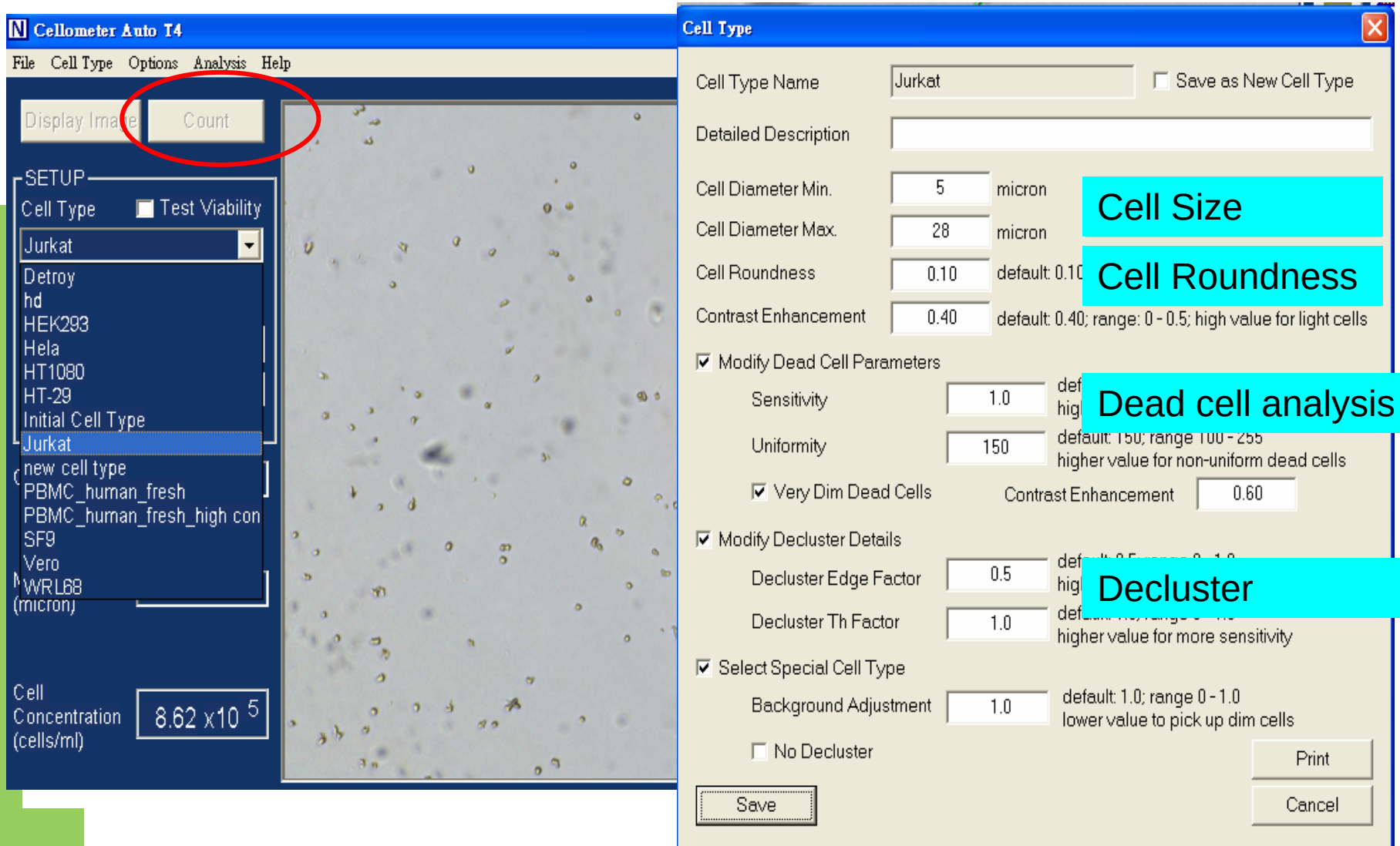
Principle of Cellometer is the image-based analysis



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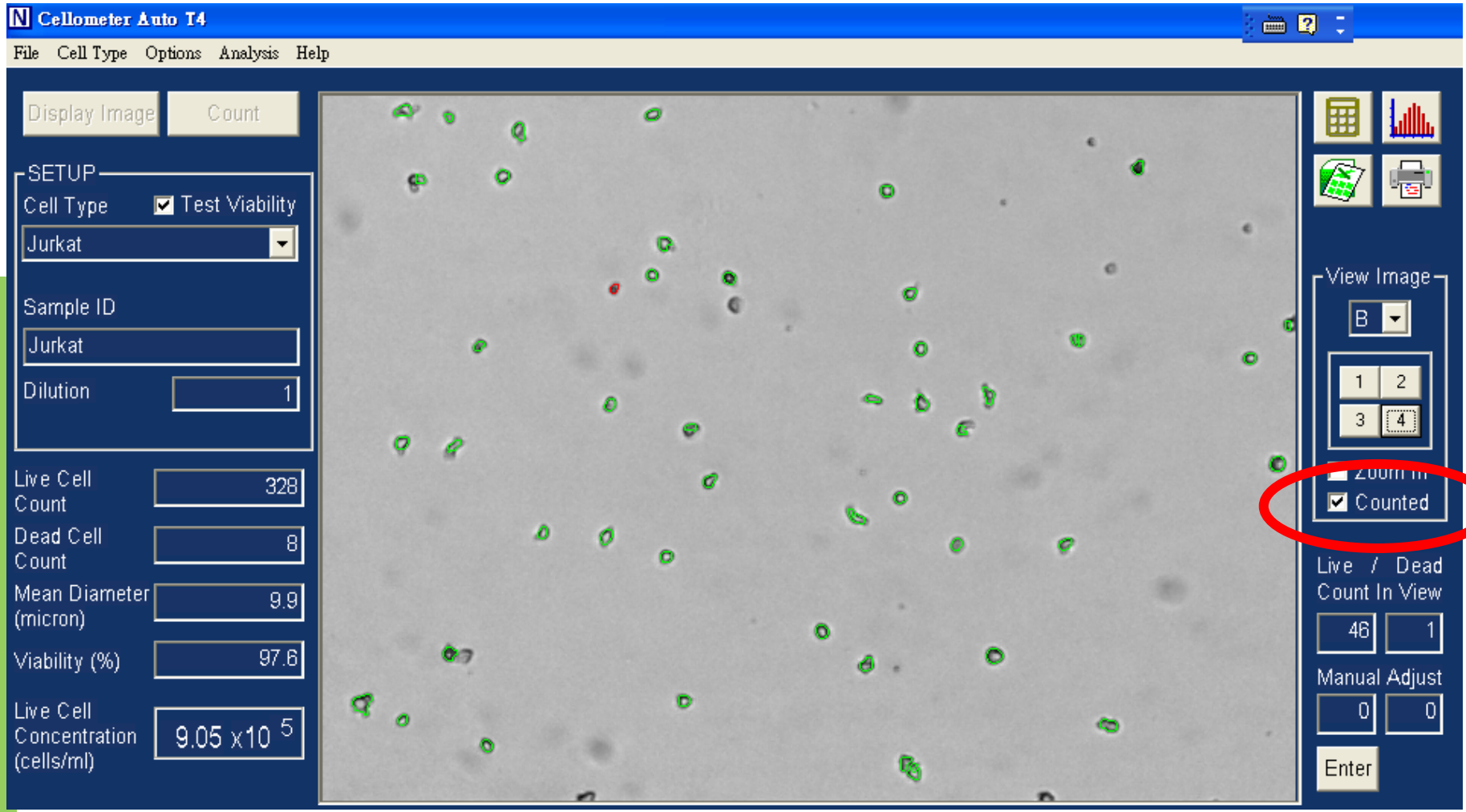
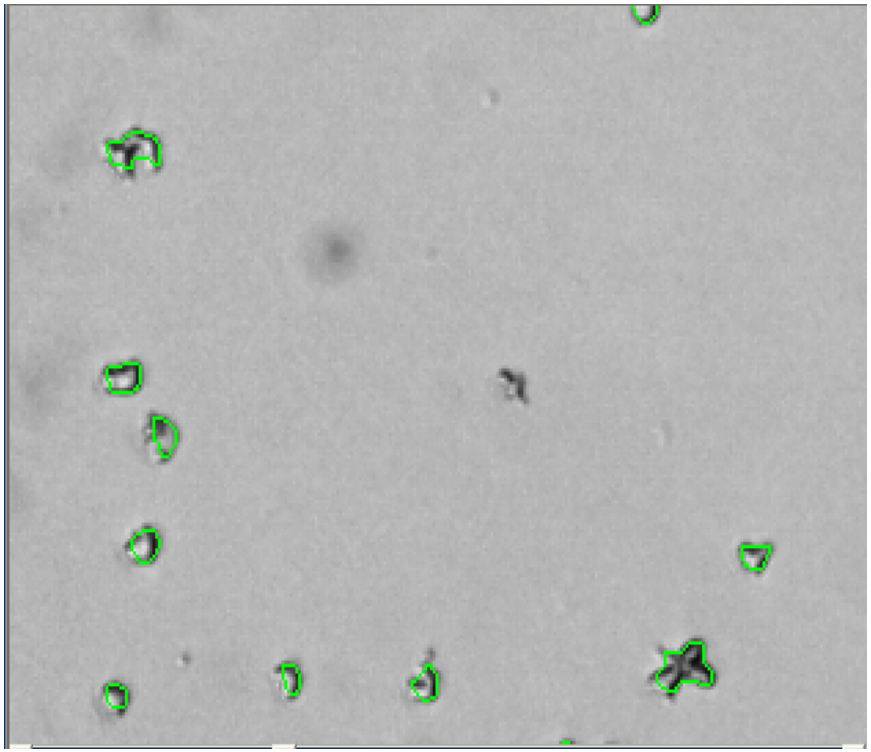
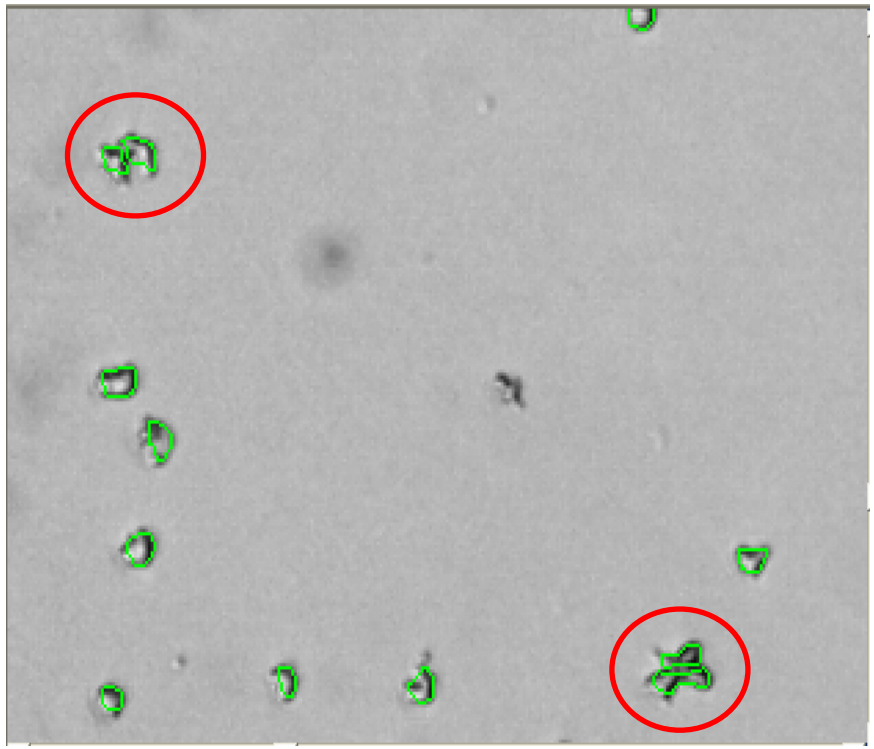

Cellometer Auto T4
File
Cell Type
Options
Analysis
Help
Display Image
Count
SETUP
Cell Type
Test Viability
Jurkat
Sample ID
Jurkat
Dilution
1
Live Cell Count
328
Dead Cell Count
8
Mean Diameter (micron)
9.9
Viability (%)
97.6
Live Cell Concentration (cells/ml)
9.05 x10 5
View Image
B
1
2
3
4
Counted
Live / Dead Count In View
46
1
Manual Adjust
0
0
Enter

Modify decluster details：

•Counting declustering cell clumps



Decluster off



Decluster on

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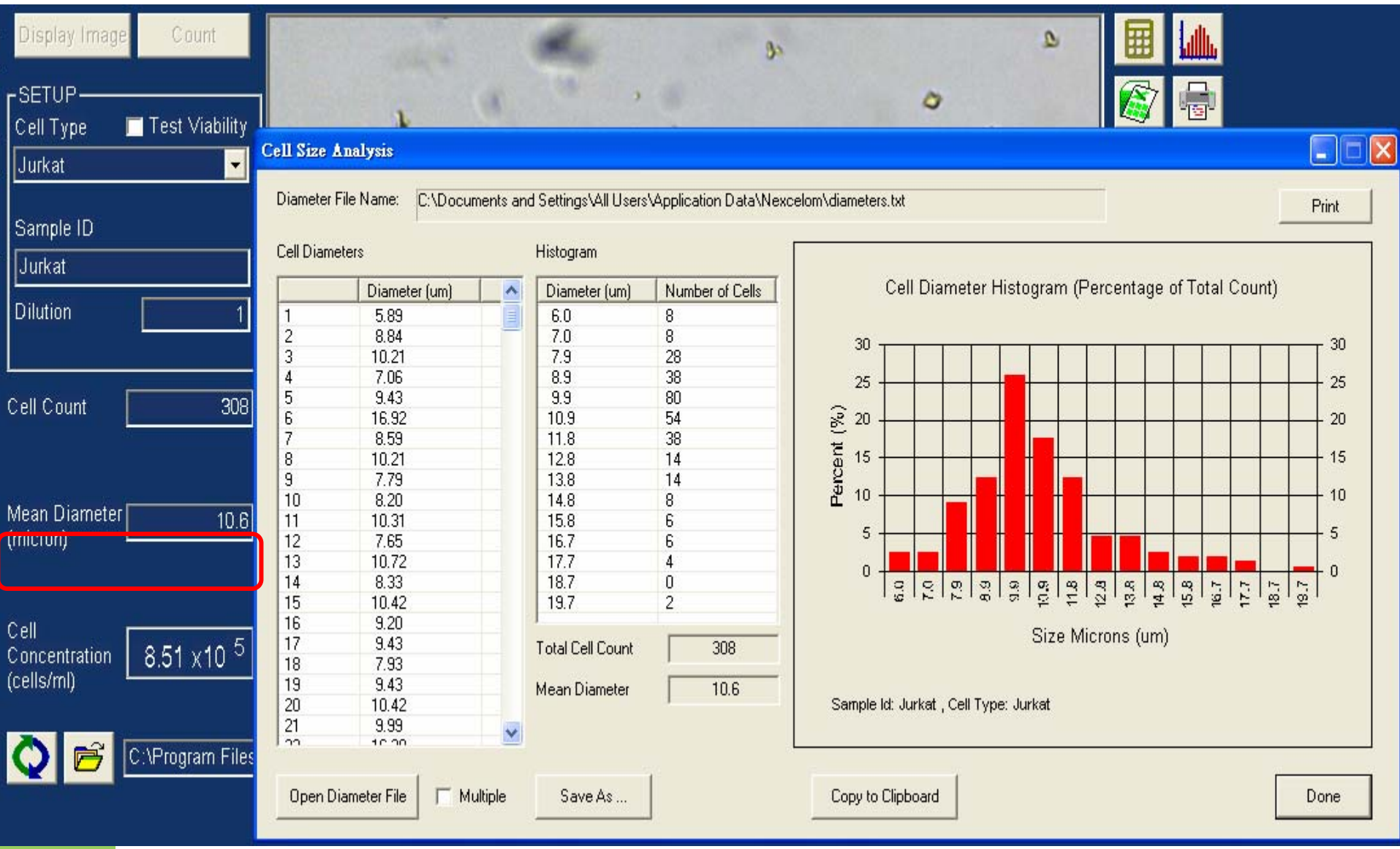
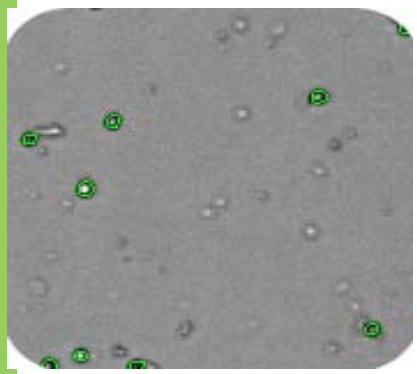


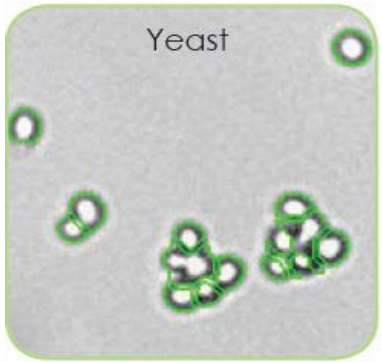
Revolution of Cellometer

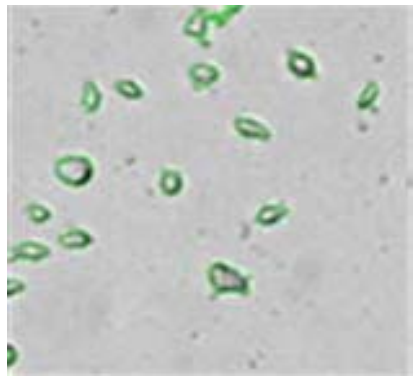
Advanced imaging technology ：

1. Counting specific cells in a heterogeneous sample (ex: PBMC)
2. Counting declustering cell clumps
3. Counting irregular shaped cells (activated T cell)
4. Differentiation of cell population by size (SF9 virus infection)
5. New cell types are easily added via a New Cell Type Wizard or manual configuration

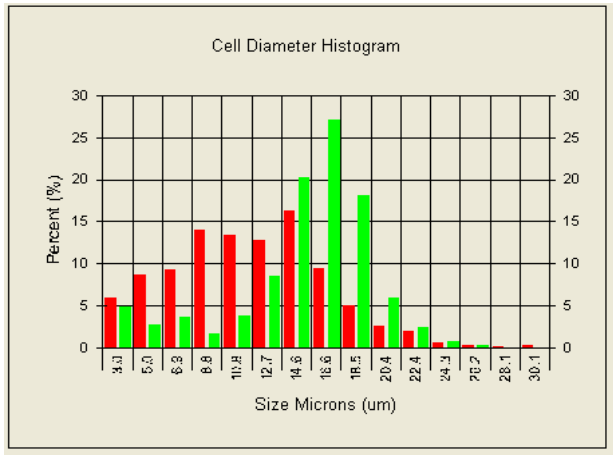


PBMC in Platelets





Irregular shaped cells



SF 9 insect cell – virus infection

Correlation between T4 and hemacytometer

- Breast cancer cell line concentration measured by T4 and hemacytometer

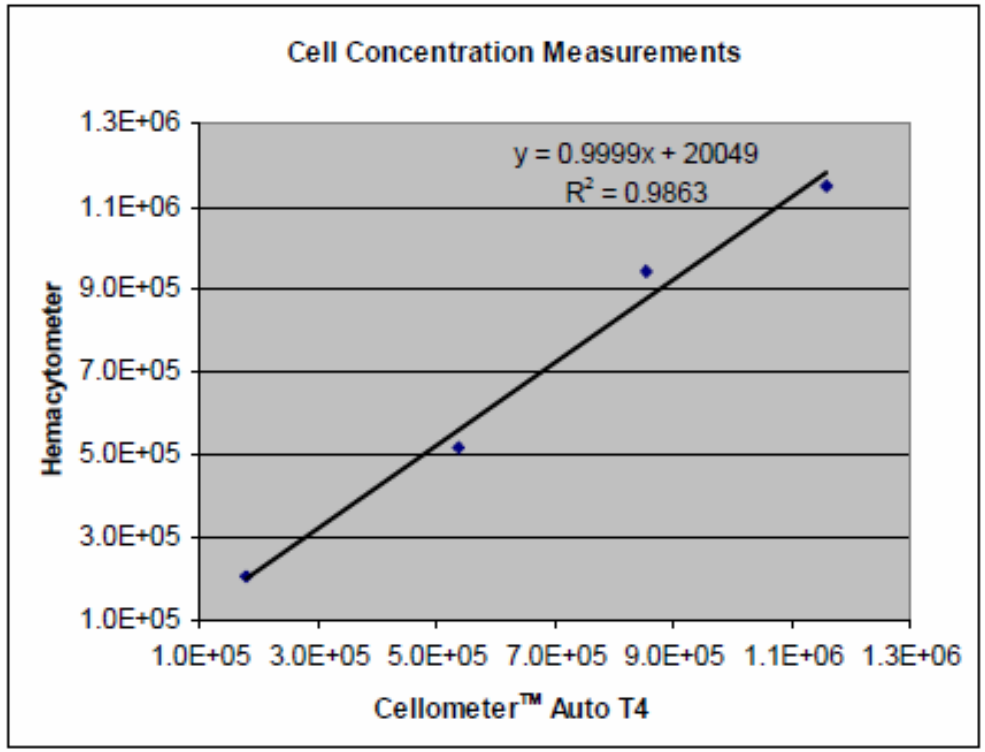
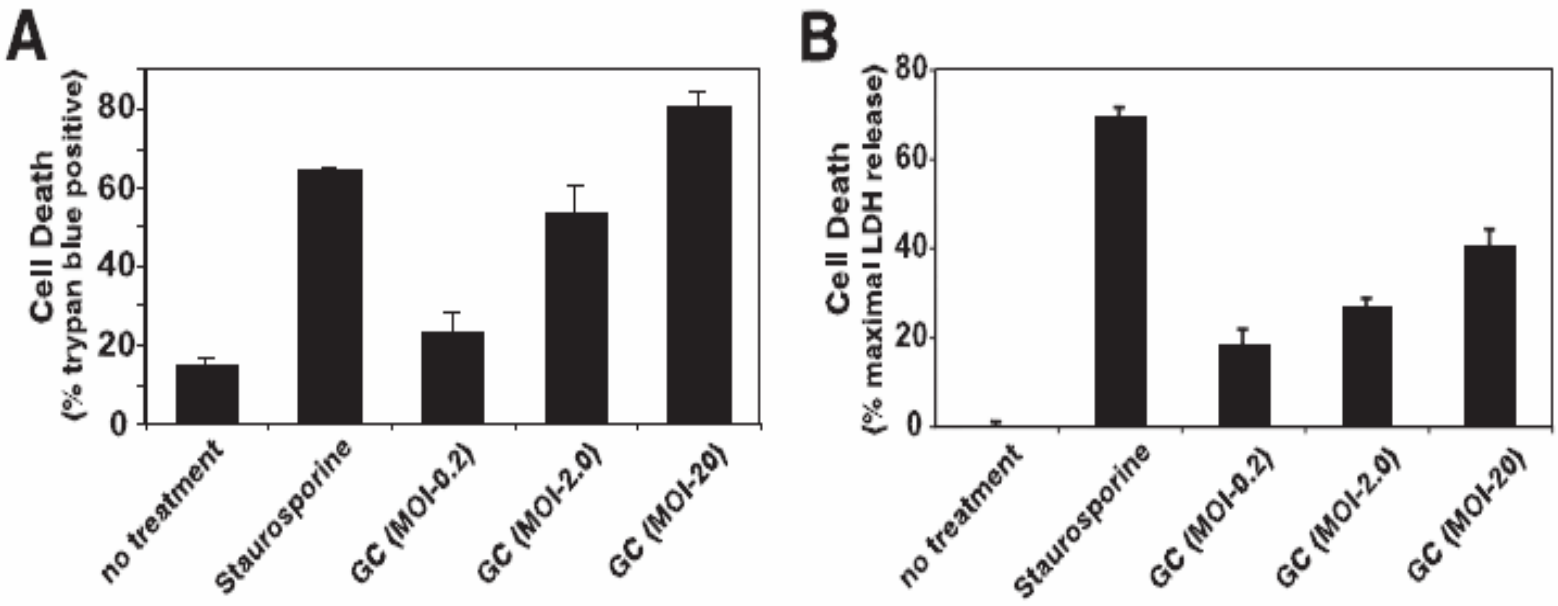


Fig. 2

Citation

N. gonorrhoeae-induces NLRPs-dependent cell death in THP-1 cells



The percentage of viable cells was counted using the Nexcelom Cellometer Auto T4

The Journal of Immunology, 2009, 182; 6460-6469

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Appendix 3 - Citations

20 articles found ⊞ Too many results? View tools to help narrow your search

All Articles | Articles Indexed by Subject

1-10 of 20 articles View: Next 10 Results »

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For checked items below: view abstracts download to citation manager Go

Product Focus: Automation and Robotics
J Biomol Screen, Dec 2006; 11: 1044 - 1052.

... ...For more information, visit www.velocity11.com. **Nexcelom** Bioscience, LLC has launched its CellometerTM...information and application notes are available from **Nexcelom** Bioscience at www.**nexcelom**.com. The Automation Partnership (TAP) announces... ...

PDF ($30.00)
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HEAD AND NECK CANCER:
Intratumoral Epidermal Growth Factor Receptor Antisense DNA Therapy in Head and Neck Cancer: First Human Application and Potential Antitumor Mechanisms
Stephen Y. Lai, Priya Koppikar, Sufi M. Thomas, Erin E. Childs, Ann Marie Egloff, Raja R. Seethala, Barton F. Branstetter, William E. Gooding, Ashok Muthukrishnan, James M. Mountz, Vivian W.Y. Lui, Dong M. Shin, Sanjiv S. Agarwala, Rita Johnson, Larry A. Couture, Eugene N. Myers, Jonas T. Johnson, Gordon Mills, Athanassios Argiris, and Jennifer R. Grandis
J. Clin. Oncol., Mar 2009; 27: 1235 - 1242.

... ...in Lipofectamine 2000 (Invitrogen, Carlsbad, CA). After 24 hours, viable cells were counted on the **Nexcelom** automated cell counter (**Nexcelom** Bioscience, Lawrence, MA). The cell proliferation experiments were independently performed four times... ...

Abstract
Full text
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INFLAMMATION:
***Neisseria gonorrhoeae* Activates the Proteinase Cathepsin B to Mediate the Signaling Activities of the NLRP3 and ASC-Containing Inflammasome**
Joseph A. Duncan, Xi Gao, Max Tze-Han Huang, Brian P. O'Connor, Christopher E. Thomas, Stephen B. Willingham, Daniel T. Bergstralh, Gary A. Jarvis, P. Frederick Sparling, and Jenny P.-Y. Ting
J. Immunol., May 2009; 182: 6460 - 6469.

($40 for 14 days)

... ...sample) and counted using the automated Cellometer Auto T4 (**Nexcelom** Bioscience) according to the manufacturers protocols. Cell...blue and the percentage of viable cells was counted using the **Nexcelom** Cellometer Auto T4. B, Culture supernatants from infected cells... ...

Abstract
Full text ($10)
PDF ($10)
extra: Data Supplement
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Current Customers:

- Cellometer is used by hundreds of customers all over the world
- Biotech, Pharmaceutical, University, Academic and Government Research labs

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Product Comparison

Counting Cell Lines	Auto T4/M10	Auto X4	Vision duo	Vision trio
Cell line concentration	■	■	■	■
Trypan blue viability	■	■	■	■
Cell size measurements	■	■	■	■
Using Flourescence to Count Primary Cells				
Primary Cells- Live/Total cell concentration		■	■	■
Primary Cells- Viability				■
Fluorescence Population Assays				
Viability with fluorescence stains- Cell Lines		■	■	■
GFP transfection rates			■	■
Annexin-V Apoptosis				■
Specialty Cells (Adipocytes, Hepatocytes)				■

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Thanks for your attention !

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