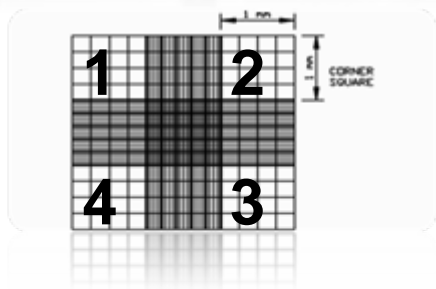
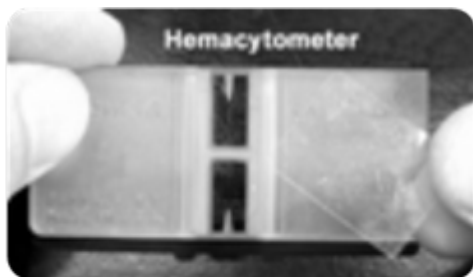


Cellometer Imaging Cell Counter

- Cell counting challenges
- Cellometer counting operation steps
- Advanced Cellometer technology
 - Cell debris
 - De-cluster
 - Irregular shape
- Cellometer accuracy comparison to hemacytometer





Worker safety/satisfaction

Biohazard exposure
Highly laborious process for highly skilled employees

Data Quality Variability

Miscounts/ not counting enough
Loading errors
Not traceable

Time Consuming

Counting/Recording
Calculations
Washing/Drying

Limited Information

No size measurements
Cannot save cell images/data



Cellometer Automated Cell Counter Technology

Count and Analyze Cells in 3 steps



1. Pipette 20uL of cells into disposable counting chamber



2. Insert chamber in Cellometer

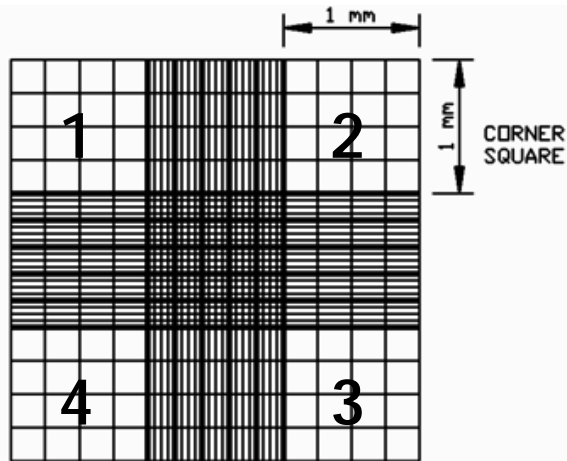
Live Cell Count	742
Adjusted Count	742
Mean Diameter Estimated (micron)	11.25
Viability (%)	74.3
Live Cell Concentration (cells/ml)	1.99×10^6

3. Cell count data generated automatically



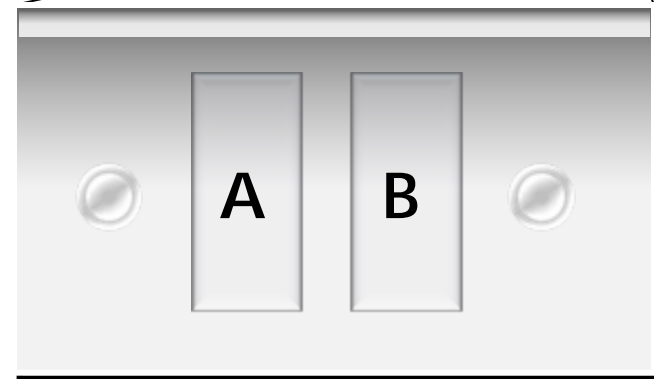
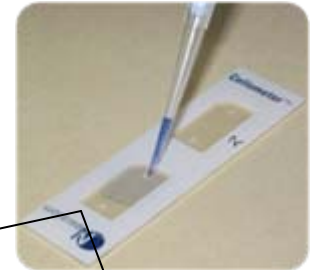
Counting area

Manual hemacytometer



Total area counted: 1+2+3+4
Concentration=
(Total count/4) $\times 10^4$ (cells/ml)

Cellometer Disposable
Counting Chamber



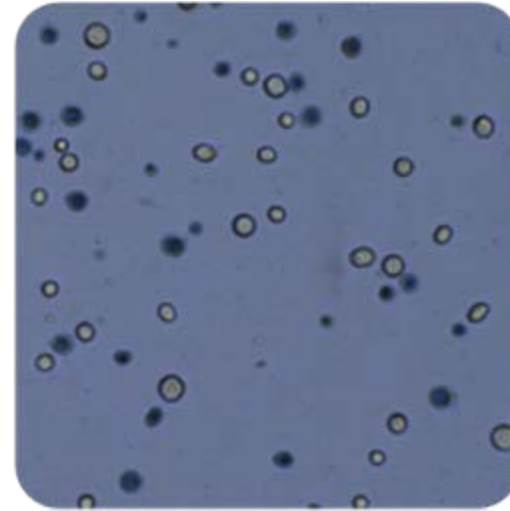
Total area counted: A+B
A+B is equivalent to (1+2+3+4)



Cellometer technology: Non-flow, whole cell imaging



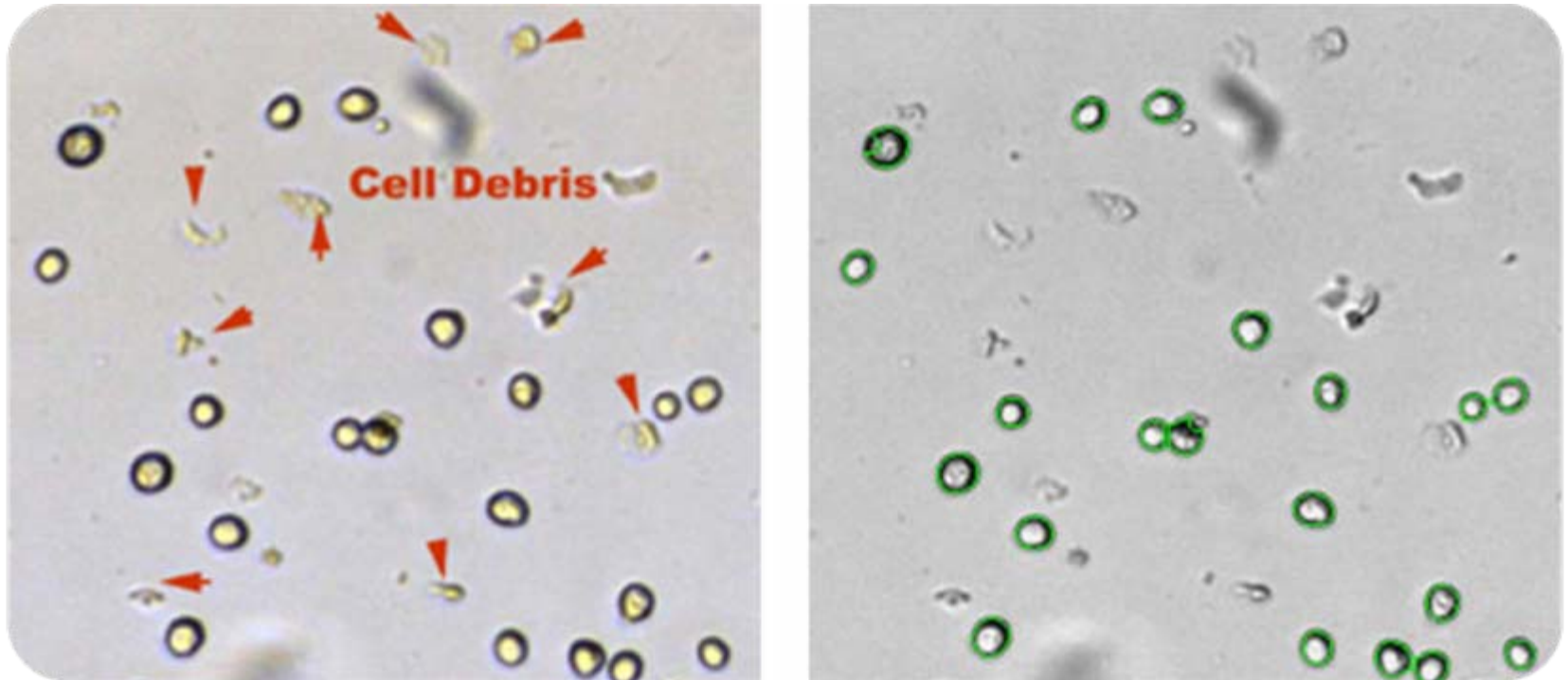
- Small cell sample (20uL)
- Disposable counting chamber
- No-clogging, cleaning, cross-contamination



- Cell count & concentration
- Cell size distribution
- Trypan blue viability
- Data saving/export



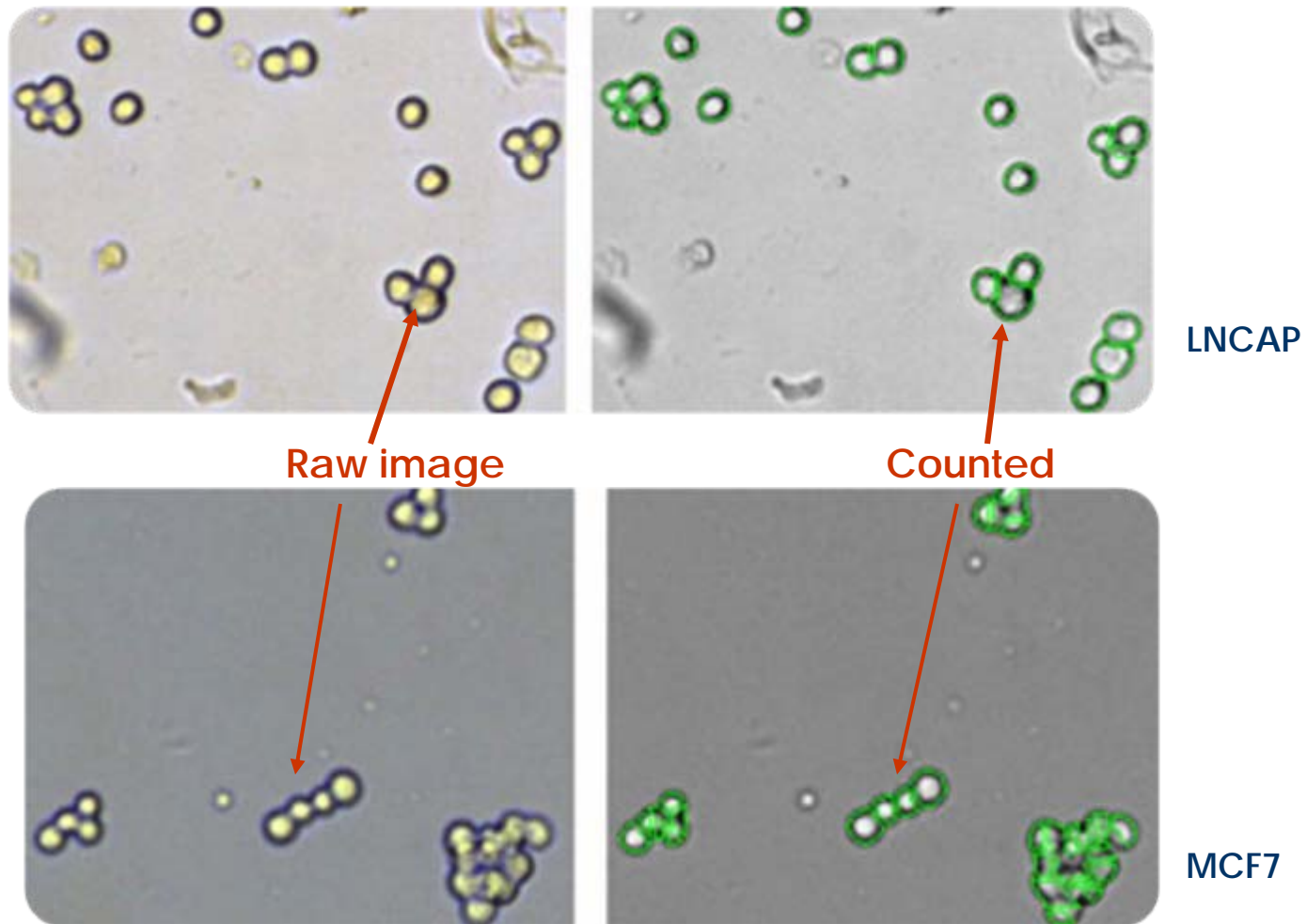
Cellometer technology: Distinguish Cells from Debris



Cell count verification: green outline: live cells, exclude debris



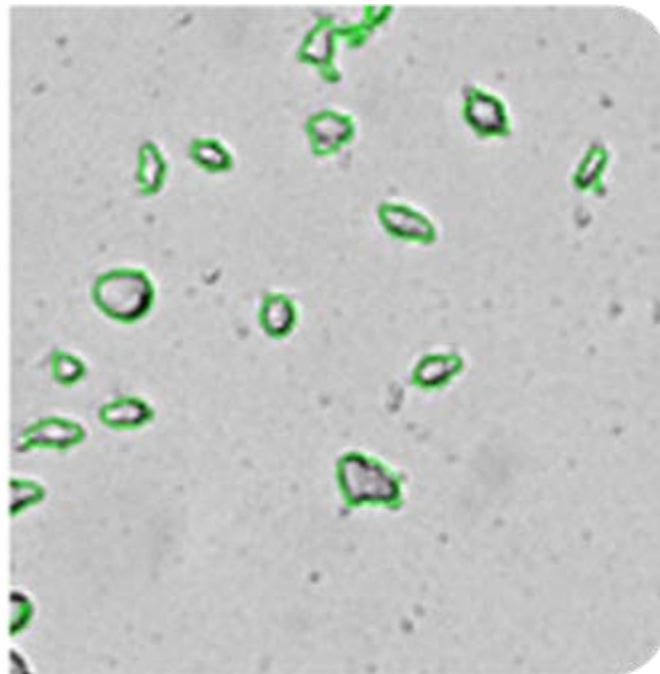
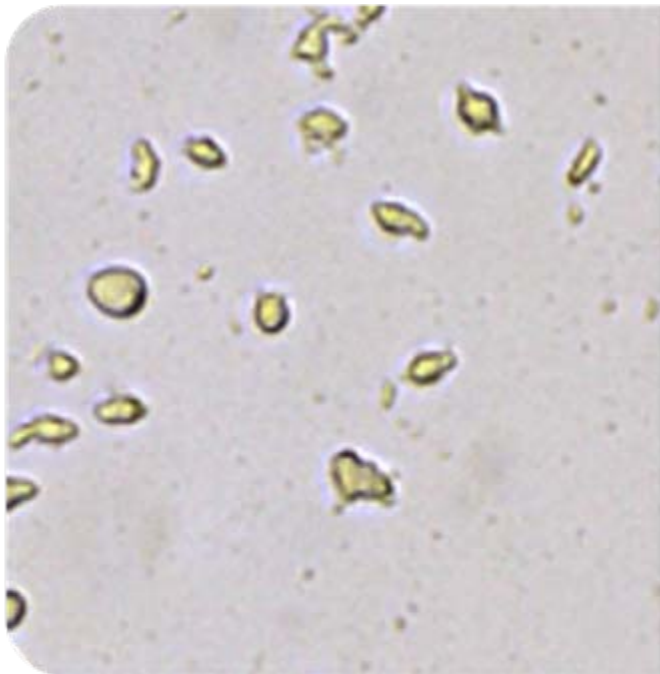
Cellometer Technology: Decluster Cell Clumps



Cell count verification: de-cluster cells in a clump



Cellometer Technology: Count Irregular Shaped Cells



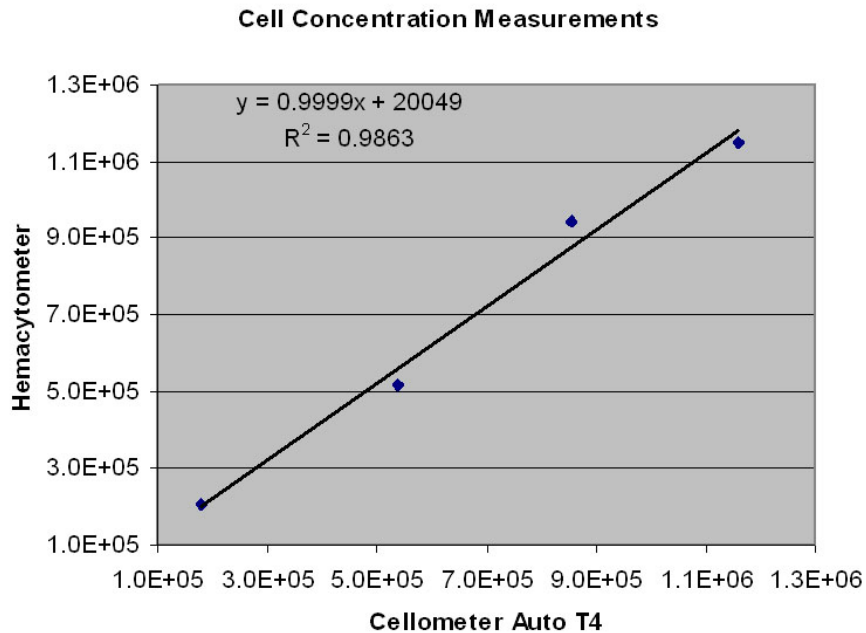
RD cells

Cell count verification: irregular shaped cells

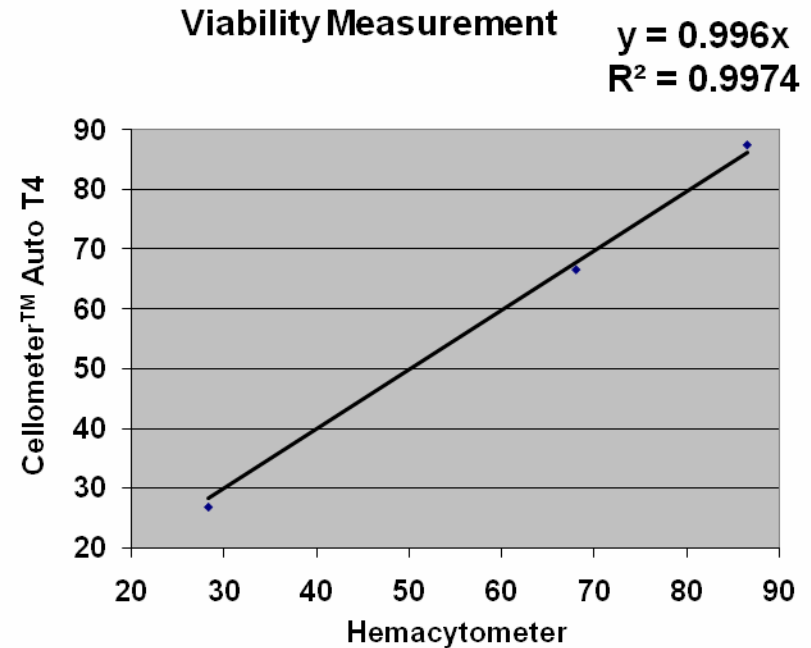


Comparison to Hemacytometer

Cell concentration



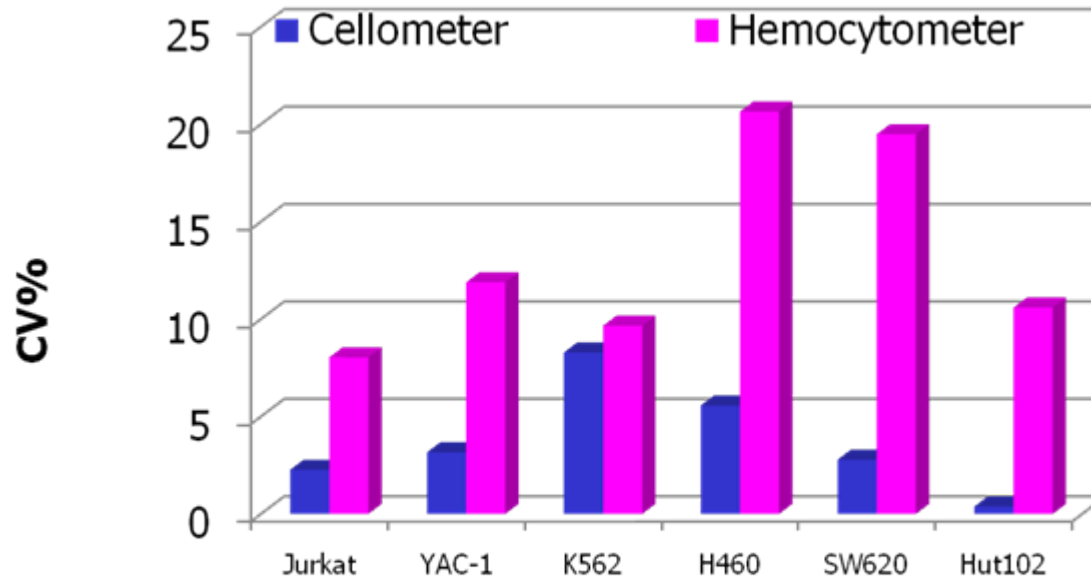
Cell viability



Cell Concentrations and viability by Cellometer and hemacytometer are equivalent.



Consistency of Counting Results



	Auto T4			Hemocytometer		
	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
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



Cell Counting Results

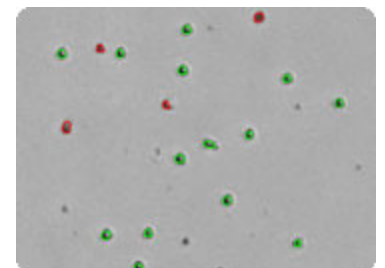
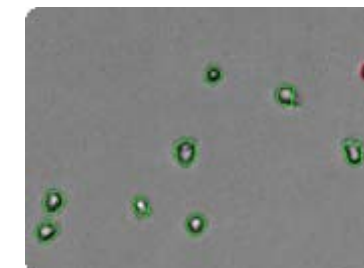
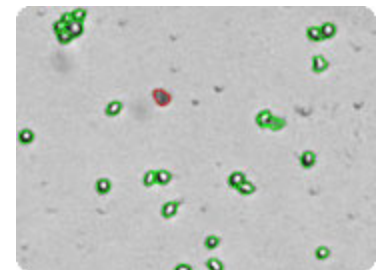
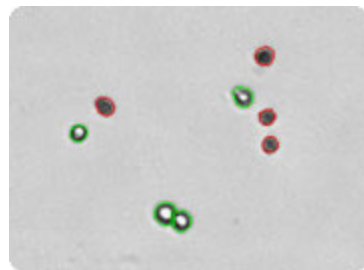
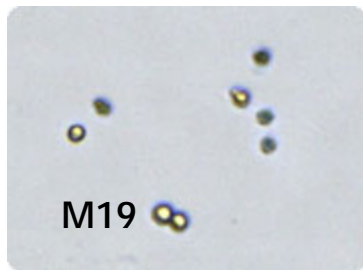
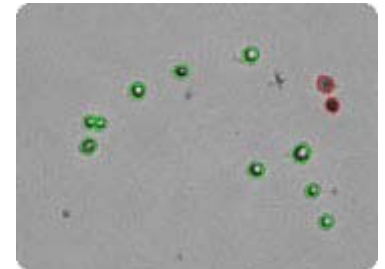
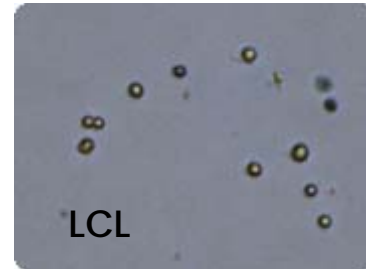
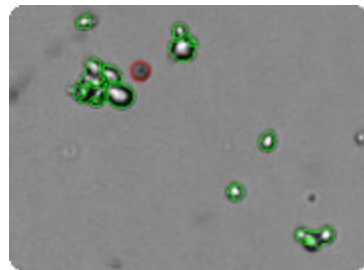
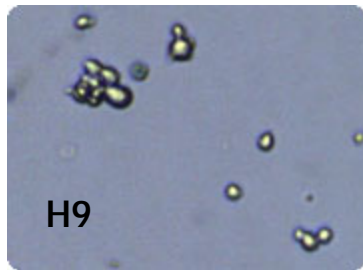
Cell Type	Mean	Std	CV	N
Mouse CD4 #1	2.2×10^6	7.7×10^4	3.5%	5
Mouse CD4 #2	2.1×10^6	1.3×10^5	6.5%	10
Mouse CD4 #3	2.1×10^6	1.4×10^5	6.6%	14
Zebra fish red blood cells	1.7×10^6	1.4×10^5	8.3%	7
Mouse B cell	9.7×10^6	7.5×10^4	7.8%	7
Jurkat	2.5×10^6	2.5×10^5	10.0%	5
HEPG2	1.1×10^6	9.9×10^5	8.9%	4
L929	1.5×10^6	1.4×10^5	9.4%	8

Std: standard deviation
CV: coefficient of variance
N: number of sample tested



More Than 300 Cell Lines

Live Cell Concentration and Trypan Blue Viability



Green outlines indicate counted cells, red outlines indicate trypan blue positive, dead cells

