



THE NEXT GENERATION HAS ARRIVED

## IncuCyte<sup>®</sup> S3 Live-Cell Analysis System

Real-time automated measurements of cell health, movement and function—*inside your incubator*.

NEW INSIGHTS. NEW DISCOVERIES.

**IncuCyte<sup>®</sup>**  
by ESSEN BIOSCIENCE

## See what your cells are doing and when they do it with the IncuCyte® S3 Live-Cell Analysis System, reagents & consumables

The IncuCyte S3 is a flexible assay platform that sits inside a standard tissue culture incubator and automatically acquires and analyzes HD phase and fluorescent images of living cells, around the clock, for days, weeks, or months. With the IncuCyte, you can...



### Ask new questions

- Devise new experiments not previously possible
- Conduct routine monitoring and get answers to unique scientific questions with kinetic, image-based measurements



### Get new answers

- Never miss a data point with real-time continuous analysis
- Profile cell-specific and time-dependent biological activity
- Visualize and validate results with images and movies



### Improve productivity

- Enjoy walk-away convenience as images are automatically acquired and analyzed
- Multiplex measurements in 96- and 384-well assay formats
- Accommodate multiple users and applications simultaneously

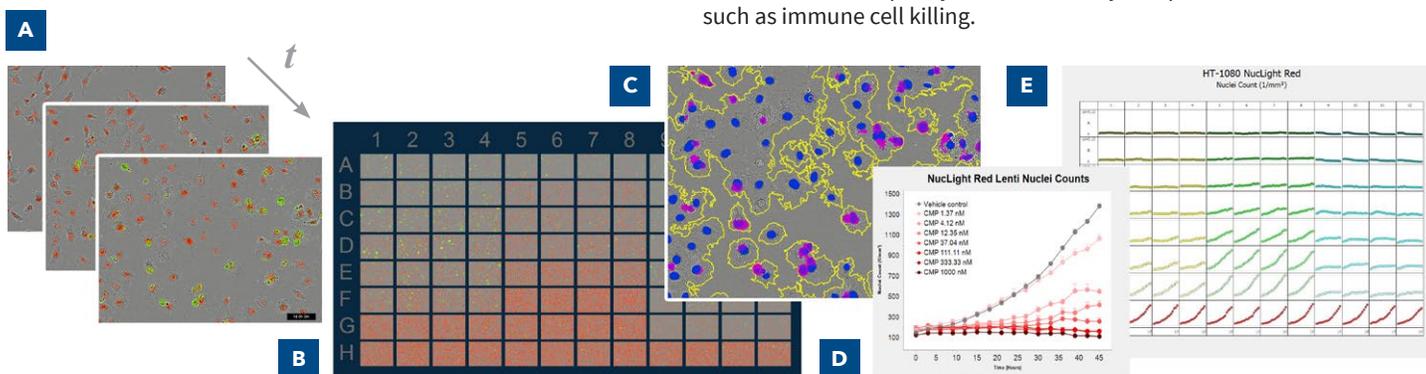


### Protect your cells

- Perform analysis without removing cells from the incubator or disturbing cultures
- Maintain cell health and morphology with non-perturbing reagent formulations

## What is live-cell analysis and what are the benefits?

- Start with viable, living cells**  
 Traditional “live-cell assays” begin with living cells, but the assay process destroys the cells. With IncuCyte S3 live-cell analysis, cells are measured *in situ* in a physiologically relevant environment. Plus, IncuCyte® reagents are non-perturbing to cell health and morphology, further reducing potential artifacts in your experiments.
- And then add insights derived from kinetic analysis and investigation of experimental variables**  
 Don’t limit your data to a single snapshot in time. Continuous analysis ensures you don’t miss a relevant response or interaction. Plus, 96-well and 384-well assay formats enable rapid optimization of experimental variables and treatment conditions, such as seeding densities, concentrations, or coatings.
- And images for information-rich analysis**  
 Image-based measurements provide spatial and morphological information that not only expands the types of questions you can ask, but are also easily validated with images and movies.
- Most importantly, live-cell analysis with the IncuCyte is easy to achieve**  
 No need to disturb your cells by bringing them to the instrument, we bring the instrument to the cells. No more struggling with “environmental control systems” - analyze your cells for days, weeks, or even months as they sit stationary in the stable environment of your tissue culture incubator. The IncuCyte provides accessible, information-rich analysis whether you simply want to improve experimental outcomes with enhanced culture quality control, or study complex cell-cell interactions such as immune cell killing.



**Derive deeper insights with real-time live-cell analysis.** (A) Automatically acquire images over time, (B) use IncuCyte® VesselView to view images of all locations in the vessel at once and quickly assess experimental results, plus zoom in on images of interest (C) automatically identify regions of interest via masks (D) generate presentation-ready timelapse graphs, and (E) view all 96- or 384-well kinetic trends at once with IncuCyte® PlateGraph and export data to calculate EC50 or IC50 response values.

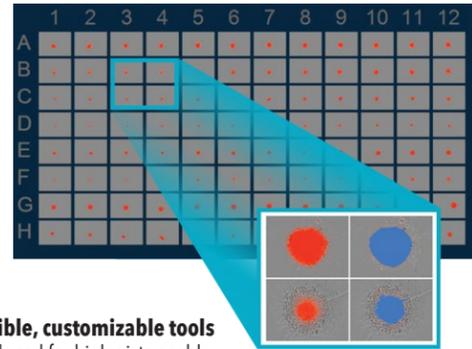
## View and analyze in real-time

### Efficient and reproducible image analysis

- Application-specific processing and analysis software modules enable reproducible, quantitative analysis
- Define image segmentation parameters once on a sample set, then use to process multiple experiments
- Unique image calibration process allows for re-use of image processing parameters on experiments performed now...and in the future.

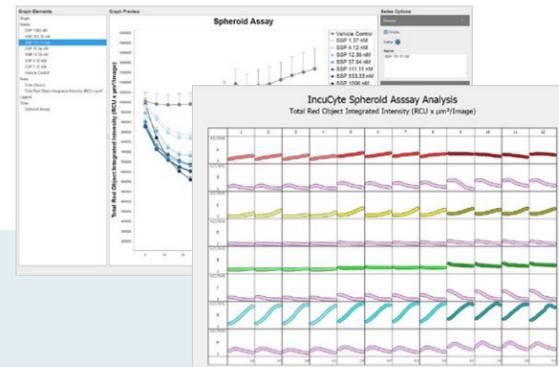
### Powerful visualization of images and kinetic measurements

- View images of all locations in the vessel at once, then zoom in on images of interest with VesselView. Quickly assess trends and outliers.
- Visualize timecourses for an entire experiment using the PlateGraph — graph areas, counts, or intensities over time in 96 or 384 wells at once
- Create presentation-ready graphs without using third-party software
- Easily compare images and metrics to draw conclusions rapidly



**View all of your wells at once with new VesselView.** SKOV-3 transduced with IncuCyte® NuLight Red Lentivirus were grown in ULA U-bottom 96-well plates for 3 days then treated with  $\pm 1 \mu\text{M}$  camptothecin, showing disruption of compact spheroid.

**Flexible, customizable tools** developed for biologists enable publication-ready graphs of kinetic trends and effects (below).



## Acquire images over days or weeks

### Minimize disturbance of cells

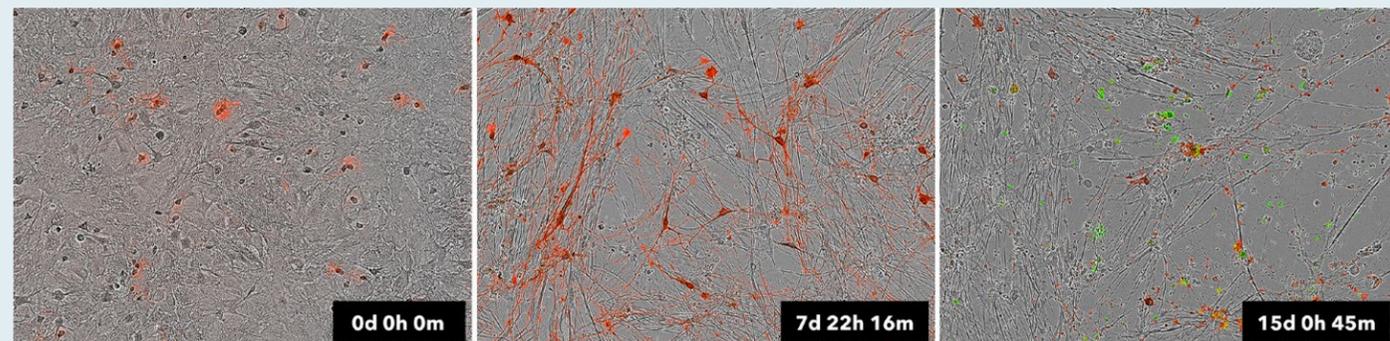
- Cells remain in the incubator while images are acquired

### Unique optical design

- Cells remain stationary while optics move – perfect for sensitive and non-adherent cell types
- Includes 4x, 10x, and 20x objectives and motorized turret

### Multiple imaging modes

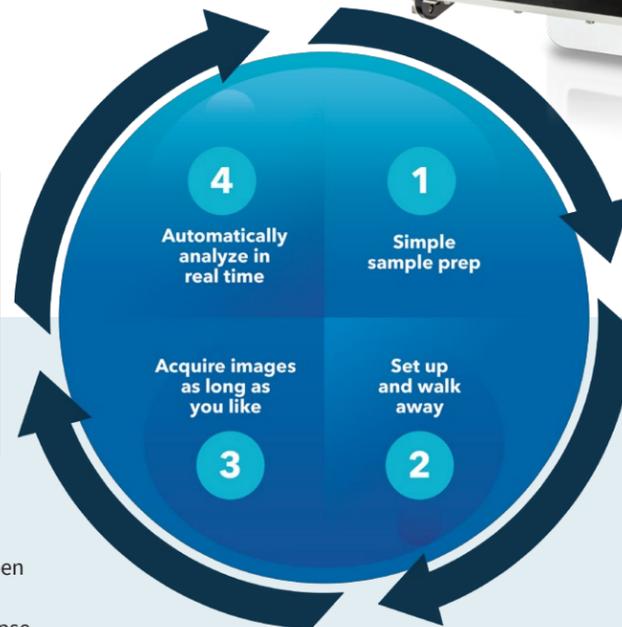
- Acquire high quality HD phase plus red and green fluorescent images and movies
- Quickly select regions to image and set time lapse intervals



**Profile biological activity over time with multiple imaging channels.** Neuronal network formation of iCell® GlutaNeurons (Cellular Dynamics International) transduced with IncuCyte® NeuroLight Red Lentivirus co-cultured with astrocytes (left, middle), followed by cell apoptosis (IncuCyte® Caspase-3/7 Green) and neurite disruption after treatment with 1 mM glutamate (right).

# How IncuCyte transforms research

A simple, yet powerful workflow that supports your entire research team day and night



## Simple, flexible sample prep

### Compatible with a wide range of culture vessels and applications

- Monitor flasks or dishes to ensure cell health before your experiment with label-free confluence analysis
- Conduct a wide variety of assays in 96- and 384-well microplates, up to six at a time simultaneously

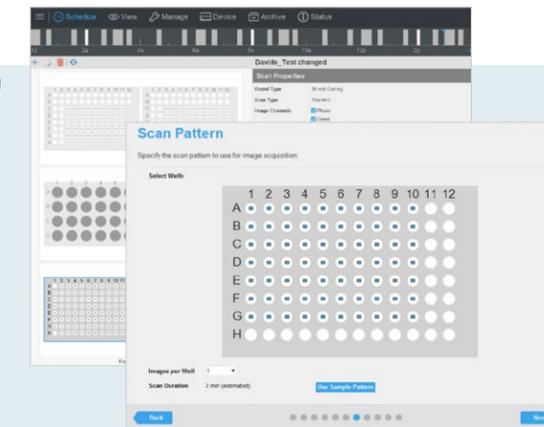
### Maximize efficiency with IncuCyte® reagents

- Maintain cell health and morphology with non-perturbing reagent formulations
- Proprietary formulations reduce time spent selecting and troubleshooting reagents from multiple vendors that are not validated for live-cell assays
- Mix-and-read reagents and protocols save time – no washing, no fixing, no lifting

## Set up & walk away

### Simple and flexible experimental set up

- Interface guides users through set up of automated acquisition and analysis parameters
- Multiple users can schedule experiments using different acquisition frequencies and magnifications



### Track experimental conditions from setup through analysis

- PlateMap Editor creates a visual record of user-defined parameters including cell line, seeding density, and treatment conditions
- Set up the PlateMap before you initiate experiments to keep track of experimental variables automatically during acquisition and analysis

### Remote, networked access

- Control the IncuCyte from any networked location using unlimited, free licenses for your lab or facility

	1	2	3	4	5	6	7	8	9	10	11	12
A	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
B	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
C	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
D	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
E	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
F	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
G	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											
H	HT-1080 (Lentiv. NR) (1.2, 5K) / well Caspase-3/7											

Guided interface enables rapid experimental set up, even for first time users (above).

Create a visual record of your parameters and track all of your experimental variables throughout your workflow.

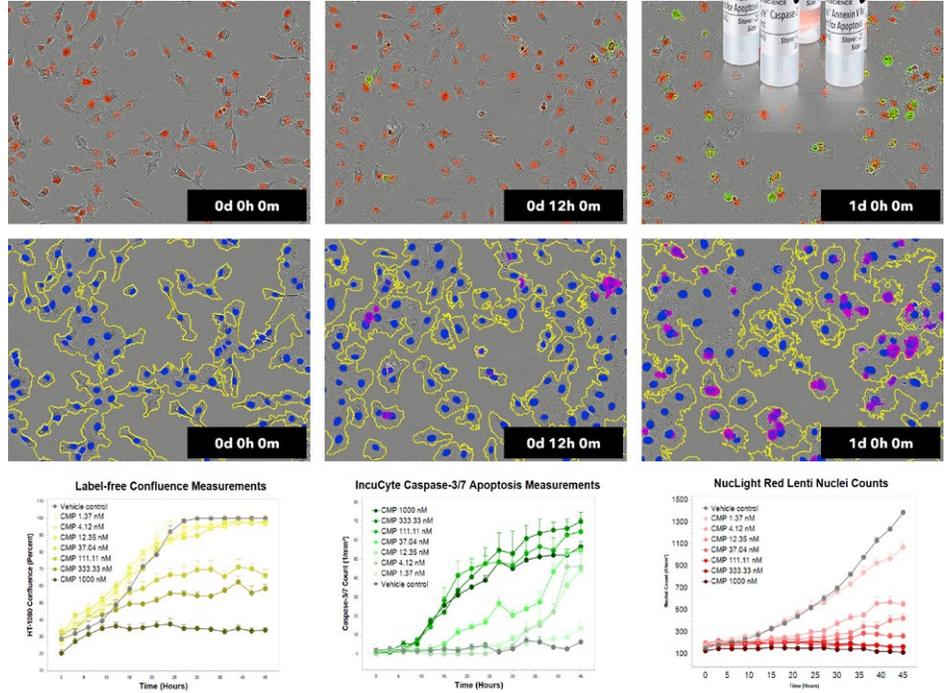
# Maximize productivity and efficiency IncuCyte® reagents & consumables

## Cell Health Assays

Continuously monitor proliferation, cytotoxicity, and apoptosis:

- Proliferation — label-free or IncuCyte NuLight reagents to label nuclei for cell counts
- Cytotoxicity — IncuCyte® Cytotox reagents to detect cell death
- Apoptosis — IncuCyte® Caspase 3/7 and Annexin V reagents to detect apoptosis

**HT-1080 IncuCyte NuLight Red treated with 3-fold decreasing concentrations of camptothecin and imaged every 3 hours.** Images were automatically masked to measure confluence, number of apoptotic cells (IncuCyte Caspase 3/7), and number of viable cells (IncuCyte NuLight Red Lentivirus) over time.

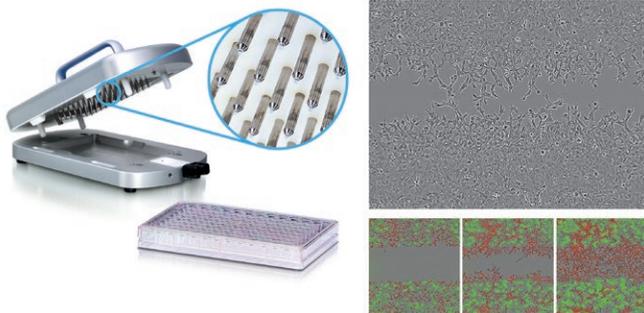


## Migration & Invasion Assays

Innovative solutions for studying migration and invasion

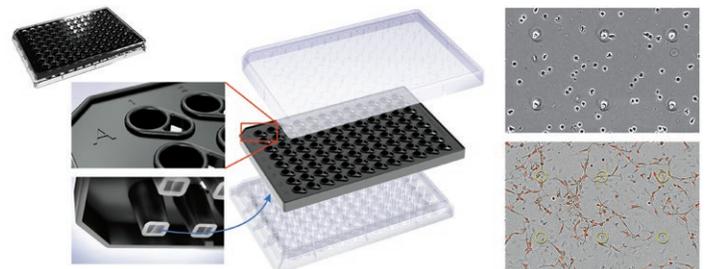
### IncuCyte Scratch Wound Assay

Unique WoundMaker™ 96-pin tool creates 96 precise, uniform cell-free zones with the touch of a button. Visualize and analyze wound closure in real-time in ImageLock™ plates.



### ClearView Chemotaxis Plate

Achieve real-time visualization of chemotaxis in a 96-well format. Our proprietary ClearView chemotaxis plates combine the optical clarity of microfluidics devices with the throughput of transwell assays.



Find more IncuCyte reagents & consumables at [essenbio.com/reagents](https://essenbio.com/reagents)

Ordering information

Contact us at [sales@essenbio.com](mailto:sales@essenbio.com) to place an order or for more information.

PRODUCT	DESCRIPTION	CAT. NO.
IncuCyte® S3 Live-Cell Analysis System	Includes image acquisition and analysis system with: <ul style="list-style-type: none"> <li>• 4x, 10x, and 20x objectives</li> <li>• Controller with 16.4 TB storage</li> <li>• Unlimited software licenses for standard acquisition and basic analyzer (additional modules are required for certain applications)</li> </ul>	4647
IncuStore® S Storage Unit	Additional 32.7 TB storage for IncuCyte S3	4689

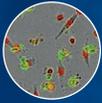
## See what you can do with the IncuCyte® System

Learn more at [www.essenbioscience.com/applications](http://www.essenbioscience.com/applications)

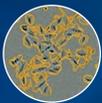
### Cell Health



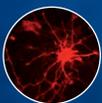
**Apoptosis**  
Detect apoptosis in living cells and in real time using simple mix-and-read protocols.



**Cytotoxicity**  
Measure real-time cell viability with simple mix-and-read protocols suitable for screening.



**Proliferation**  
Automatically measure label-free growth or count living cells with NuCLight™ nuclear labeling in real time.

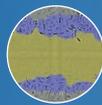


**Neurite Analysis**  
Measure neurite dynamics automatically and in real-time in neuronal monocultures and co-cultures with astrocytes.

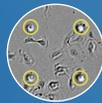


**Tumor Spheroids**  
Track and quantify tumor spheroid formation, growth and shrinkage in real time.

### Migration & Invasion

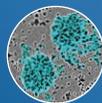


**Scratch Wound Migration and Invasion**  
Investigate treatment effects on cell migration across a 2D substrate or invasion through a 3D gel matrix.

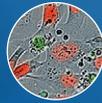


**Chemotaxis**  
Visually confirm chemotactic migration or invasion towards chemoattractants with ClearView™ 96-well plates.

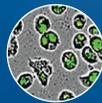
### Cell Function



**Immune Cell Clustering**  
Visualize and quantify expansion and clustering without removing your cultures from the incubator.



**Immune Cell Killing**  
Detect tumor cell death directly by counting NuCLight™ nuclear-labeled cells or measuring apoptosis with IncuCyte® Caspase 3/7 reagent.

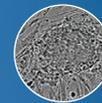


**Phagocytosis**  
Continuously analyze and generate movies of phagocytes engulfing pHrodo® labeled bioparticles or target cells.



**Angiogenesis**  
Kinetically measure vascular tube formation using our complete co-culture assay kit.

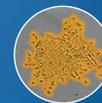
### Cell Monitoring and Other Workflows



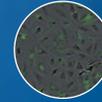
**Stem Cell Monitoring and Reprogramming**  
Monitor stem cell reprogramming and differentiation events without removing cells from the incubator.



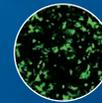
**Cell Culture QC**  
Monitor cell morphology and proliferation – label-free and without removing cells from the incubator.



**Dilution Cloning**  
Automatically scan for clones and verify monoclonality with whole well analysis.



**Transfection Efficiency**  
Monitor and quantify the efficiency and timecourse of gene transfection using GFP/RFP constructs.



**Reporter Genes**  
Measure activity of any promoter driven recombinant GFP/RFP reporter gene expression in real time.

Learn more at [www.essenbioscience.com](http://www.essenbioscience.com) or contact us at [Sales@essenbio.com](mailto:Sales@essenbio.com)

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