sartorius

Live-Cell Analysis Inside Your Incubator

IncuCyte® S3 Live-Cell Analysis System

IncuCyte®

A SARTORIUS BRAND

Live-cell analysis
inside your incubator

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.

Start with viable, living 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.

Acquire 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 also allows for easy validation of experimental data.

And then add insights derived from time-lapse 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.

Introducing the IncuCyte S3 Live-Cell Analysis System

The IncuCyte S3 is a flexible assay platform that gives you power to enable real-time, automated measurements of cell health, movement and function - inside your incubator.

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.

Protect your cells

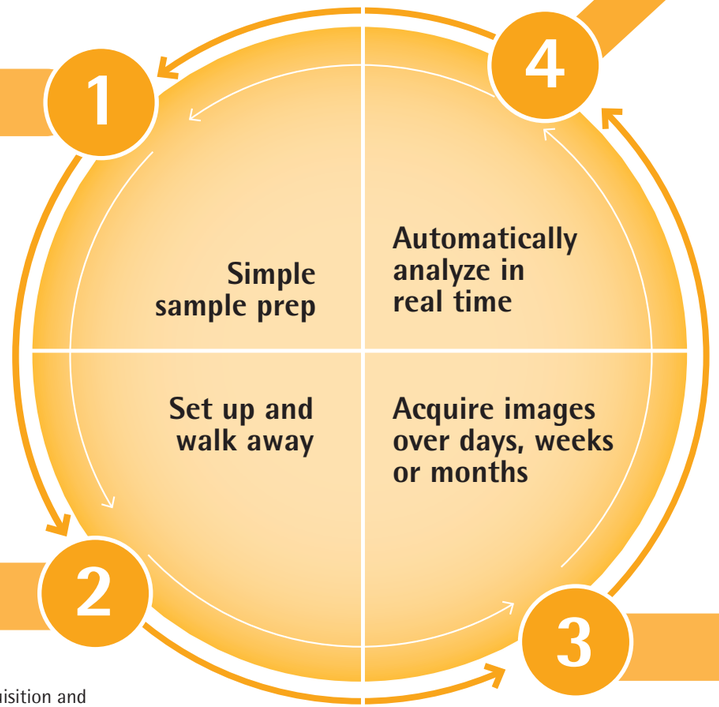
- Perform analysis without removing cells from the incubator or disturbing cultures.
- Maintain cell health and morphology with non-perturbing reagent formulations.

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.

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.
- Reduce time spent optimizing and troubleshooting with validated, live-cell reagents and established protocols.

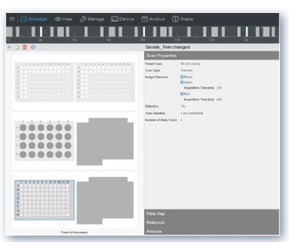
Set up and walk away

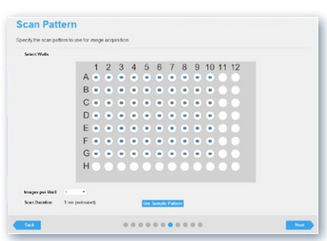
Simple and flexible experimental set up

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

Remote, networked access

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





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

Analyze in real time

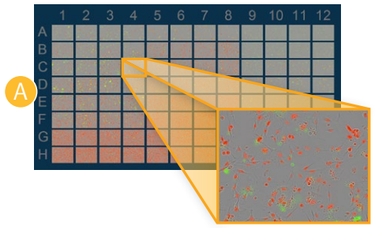
Efficient and reproducible image analysis

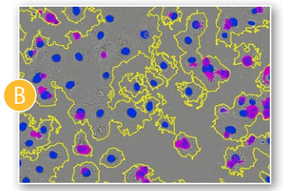
- Application-specific processing and analysis software modules enable reproducible, quantitative analysis on thousands of images and remove operator bias.

Powerful visualization of images and kinetic measurements

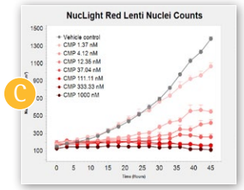
- Flexible, customizable tools developed for biologists enable rapid assessment of results and reduce time to generate data for publication.

Use IncuCyte® VesselView to review images of all locations in the vessel at once and quickly assess experimental results, plus zoom in on images of interest.

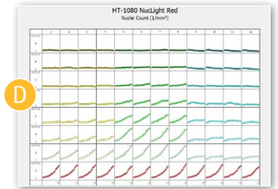




Automatically identify regions of interest via masks.



Generate presentation-ready timelapse graphs.



View all 96- or 384-well kinetic trends at once with IncuCyte® PlateGraph and export data to calculate EC50 or IC50 response values.

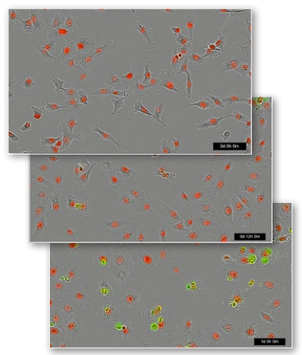
Acquire and view images over time

Multiple imaging modes

- Capture high quality HD phase plus red and green fluorescent images and movies.
- Address a variety of applications in parallel using 4x, 10x or 20x objectives on an automated turret.

Minimize disturbance of cells

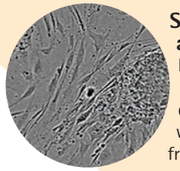
- Unique mobile optical design means cells stay stationary while optics move - perfect for sensitive and non-adherent cell types.
- Non-invasive and non-perturbing image acquisition captures the full, long-term timecourse of the biology as it unfolds.



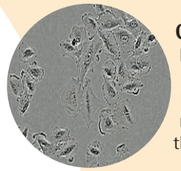
Automatically acquire images over time.

Live-Cell Analysis System Applications

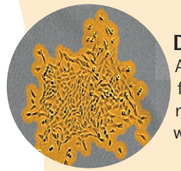
Cell Monitoring & Other Workflows



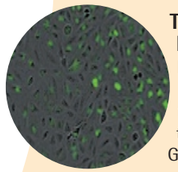
Stem Cell Monitoring and Reprogramming
Monitor stem cell reprogramming and differentiation events without removing cells from the incubator.



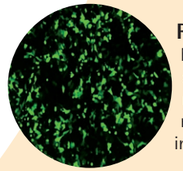
Cell Culture QC
Monitor cell morphology and proliferation, label-free and without removing cells from the incubator.



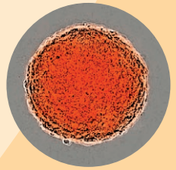
Dilution Cloning
Automatically scan for clones and verify monoclonality with whole well analysis.



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

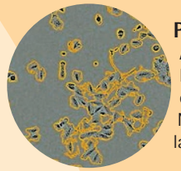


Reporter Genes
Measure activity of any promoter driven recombinant GFP/RFP reporter gene expression in real time.

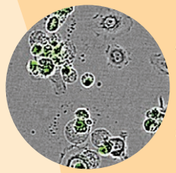


Tumor Spheroids
Track and quantify tumor spheroid formation, growth and health in real time.

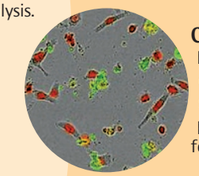
Cell Health



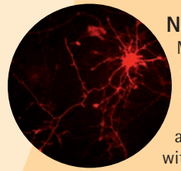
Proliferation
Automatically measure label-free growth or count living cells with NucLight™ nuclear labeling in real time.



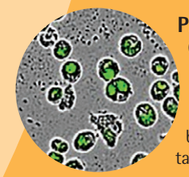
Apoptosis
Detect apoptosis in living cells and in real time using simple mix-and-read protocols.



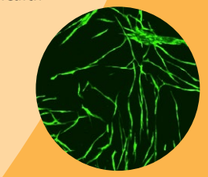
Cytotoxicity
Measure real-time cell viability with simple mix-and-read protocols suitable for screening.



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

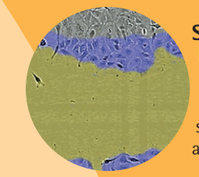


Phagocytosis
Continuously analyze and generate movies of phagocytes engulfing pHrodo® labeled bioparticles or target cells.

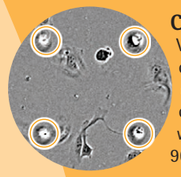


Angiogenesis
Kinetically measure vascular tube formation using our complete co-culture assay kit.

Migration & Invasion

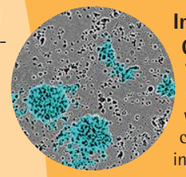


Scratch Wound Migration and Invasion
Investigate treatment effects on cell migration across a 2D substrate or invasion through a 3D gel matrix.

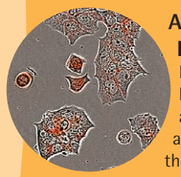


Chemotaxis
Visually confirm chemotactic migration or invasion towards chemoattractants with ClearView™ 96-well plates.

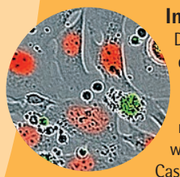
Cell Function



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



Antibody Internalization
Perform rapid, kinetic, high throughput assays suitable for antibody screening or therapeutic profiling.



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

Learn more at **www.essenbioscience.com/applications**

To view a complete listing of our reagents to fit your application needs, visit: **www.essenbioscience.com/reagents**

From incubation to publication - IncuCyte is enabling science

With 1,300 publications and counting, IncuCyte is not only acquiring and analyzing data for researchers like you to get answers faster - our technology is generating presentation-ready images and graphs that help get discoveries published.

Notable Publications

Oncology and Immuno-Oncology

Drug-tolerant persisters (DTPs) are overcome by disruption of epigenetic state as revealed by researchers at Genentech, including Dr. Jeff Settleman, in collaboration with Epinomics and Active Motif.

Guler GD et al. "Repression of Stress-Induced LINE-1 Expression protects cancer cell subpopulations from lethal drug exposure", *Cancer Cell.* 2017 Aug 14; 32(2):221-237.

A team of researchers at MD Anderson, led by Dr. Mien-Chie Hung and including Dr. James Allison, study the kinetics of PD-1 binding to live cells and also monitor T-cell mediated tumor cell killing.

Li CW et al. "Glycosylation and stabilization of programmed death ligand-1 suppresses T-cell activity", *Nat Commun.* 2016 Aug; 7:12632-12643.

Triple therapy to improve head and neck cancer treatment and prognosis from a collaboration of researchers including Dr. Nicolas Magné at Université Lyon, Institut de Cancérologie de la Loire - Lucien Neuwirth, and INSERM.

Guy JB et al. "Dual "mAb" HER family blockade in head and neck cancer human cell lines combined with photon therapy", *Sci Rep.* 2017 Sep 22; 7(1):12207.

Researchers including team leader Dr. Marc Ferrer at the National Center for Advancing Translational Sciences, NIH, establish real-time 3D spheroid assays for cancer drug discovery.

Lai-Nag M et al. "Exploring drug dosing regimens *in vitro* using real-time 3D spheroid tumor growth assays", *SLAS Discov.* 2017 Jun; 22(5):537-546.

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Immunology

Dr. Douglas R. Green from the Department of Immunology at St. Jude's Research Hospital in collaboration with researchers from the Karolinska Institutet and the University Hospital of Cologne, reveal that ESCRT-III helps preserve the plasma membrane in immune cells undergoing necroptosis, contributing to cell survival.

Gong YN et al. "ESCRT-III acts downstream of MLKL to regulate necroptotic cell death and its consequences", *Cell.* 2017 Apr 6; 169(2):286-300.

Dr. Andrew Oberst and colleagues at University of Washington collaborate with Dr. Stephen Tait at the Cancer Research UK Beatson Institute use the IncuCyte to investigate cell death kinetics in THP-1 monocytes.

Gutierrez KD et al. "MLKL activation triggers NLRP3-mediated processing and release of IL-1 independently of gasdermin-D", *J. Immunol.* 2017 Jan 27; 198(5).

Drug Discovery

A one-two punch cancer therapy model using senolytic agents from researchers at Netherlands Cancer Institute.

Wang L et al. "High-throughput functional genetic and compound screens identify targets for senescence induction in cancer", *Cell Rep.* 2017 Oct 17; 21(3):773-783.

Quantitative chemotaxis assays for lead optimization screening across multiple drug discovery platforms developed by Dr. Jing Chen and colleagues at Bristol-Myers Squibb.

Dr. Chen J et al. "Leveraging the IncuCyte technology for higher-throughput and automated chemotaxis assays for target validation and compound characterization", *SLAS Discov.* 2017 Sep 1: 2472555217733437.

Ordering information

Product	Description	Cat. No.
IncuCyte® Live-Cell Analysis System and Accessories		
IncuCyte® S3 Live-Cell Analysis System	Includes image acquisition and analysis system with: • 4x, 10x, and 20x objectives • Controller with 16.4 TB storage • Unlimited software licenses for standard acquisition and basic analyzer (additional modules are required for certain applications) • One year manufacturer's software and service warranty • Onsite installation and training	4647
IncuCyte® S3 Live-Cell Analysis System with additional year of warranty	Same as 4647 plus additional year of warranty (two year total warranty)	4695
IncuCyte® S3 Live-Cell Analysis System with two additional years of warranty	Same as 4647 two additional years of warranty (three year total warranty)	4696
IncuStore® S Storage Unit	Additional 32.7 TB storage for IncuCyte S3	4689

Make data driven decisions with purpose built acquisition and analysis algorithms for a wide range of phenotypic live-cell assays

IncuCyte® Software Modules		
IncuCyte® S3 Spheroid Software Module	Quantify spheroid growth and health over time	9600-0019
IncuCyte® Cell Migration Software Module	Quantify cell movement into cell-free zones (for use with Woundmaker and ImageLock plates)	9600-0012
IncuCyte® Chemotaxis Software Module	Quantify the dynamics of chemotactic migration (for use with ClearView™ Chemotaxs plates)	9600-0015
IncuCyte® NeuroTrack Software Module	Quantify the dynamics of neurite outgrowth	9600-0010
IncuCyte® Angiogenesis Software Module	Quantify the dynamics of tube formation during angiogenesis	9600-0011

Harness the power of live-cell analysis with a full range of IncuCyte reagents and consumables to revolutionize the way you quantify cell behavior. To view a complete listing of our reagents and consumables visit: **essenbioscience.com/reagents**

To place an order or request additional information

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