Livecyte

Kinetic Cytometer

phasefocus

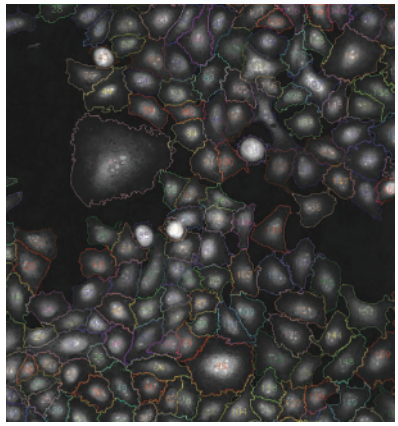
Measure the Motion and Morphology of Every Cell

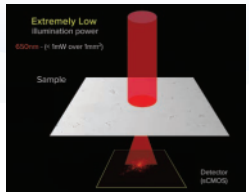
Imaging Modalities: QPI

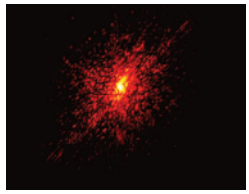
Ptychographic Quantitative Phase Imaging

Livecyte™ utilizes ptychography to capture relative phase shift information, allowing high contrast images to be generated using low level illumination.

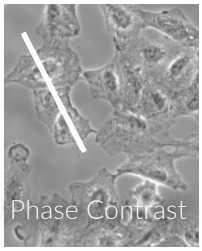
Individual cells can be identified and characterized according to morphological and behavioral characteristics, providing accurate data for quantitative analysis.

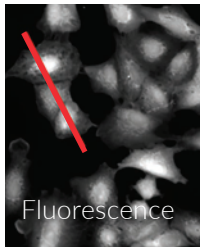


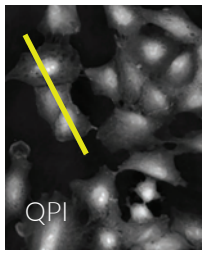




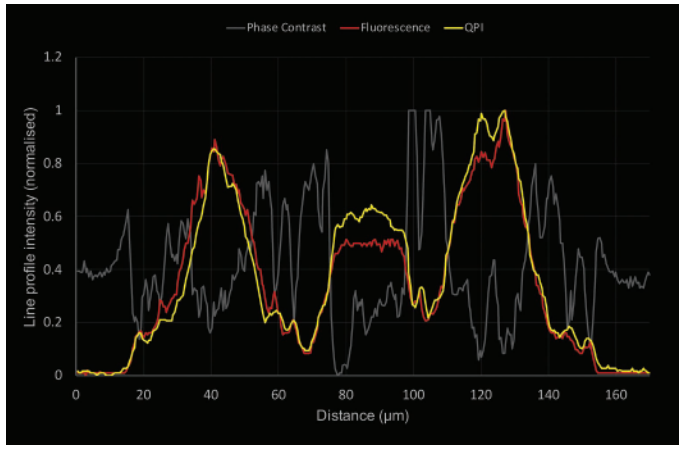
Fluorescence-like images without the compromise





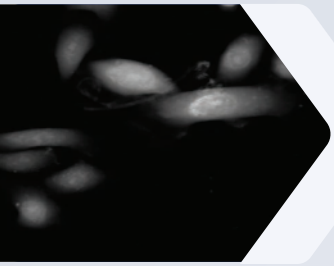


Label-free imaging using low level illumination allows individual cells to be continuously monitored for weeks at a time, without altering cell behavior.

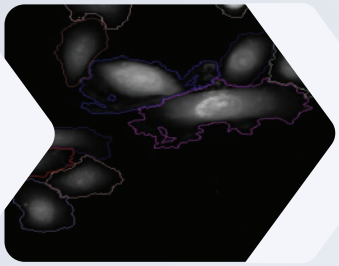


Eliminate the constraints of photo-induced behaviour

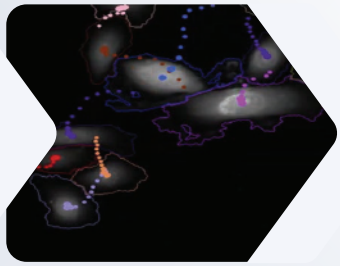
Comprehensive Cell Profiling



Label-free,high-contrast information rich images.



Confident and robust segmentation of cells.



Automatically tracks cells by linking every cell in every frame.

Multi-parametric description of cell behavior.

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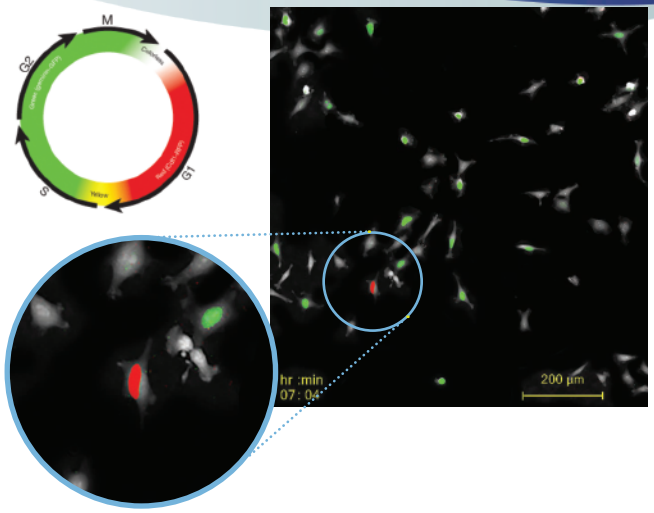
Imaging Modalities: Correlative Fluorescence

Make Better Use of Fluorescent Labels

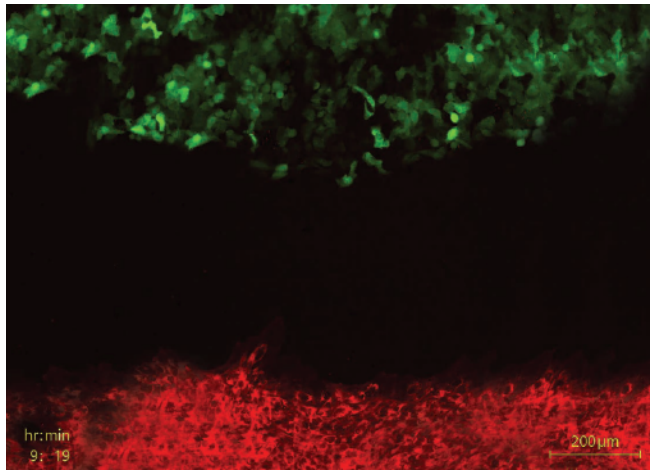
High specification camera and lenses can capture lower intensity images, allowing greater use of fluorescence with a reduced risk of photo-toxicity.

- High NA lenses.
- sCMOS camera.
- Full illumination from UV to far-red.
- Up to 7 filters.



Smart acquisition

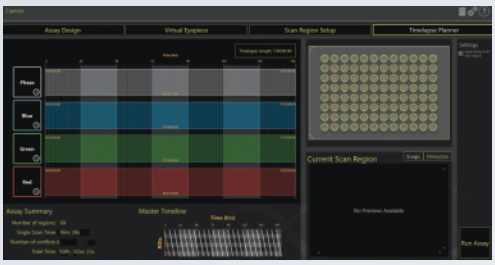
Livecyte's Smart functionality can acquire fluorescence channels at different rates. The system automatically corrects the focus for each channel, at every time point, ensuring every image captured is useable.



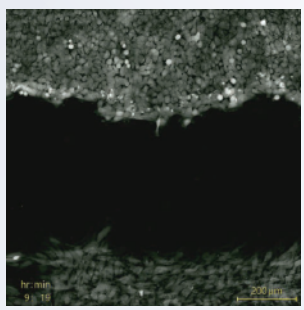
Eliminate chromatic focus errors

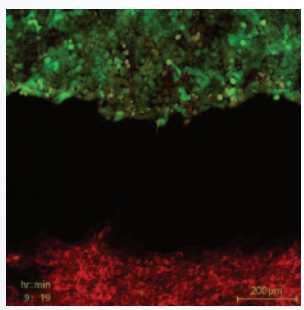
Full Spatiotemporal Correlation

Set fluorescence image capture rates independently from QPI image capture to minimise photo-induced behaviour.



Livecyte software automatically correlates the fluorescence signal relative to the appropriate time sequence QPI image, for each cell.





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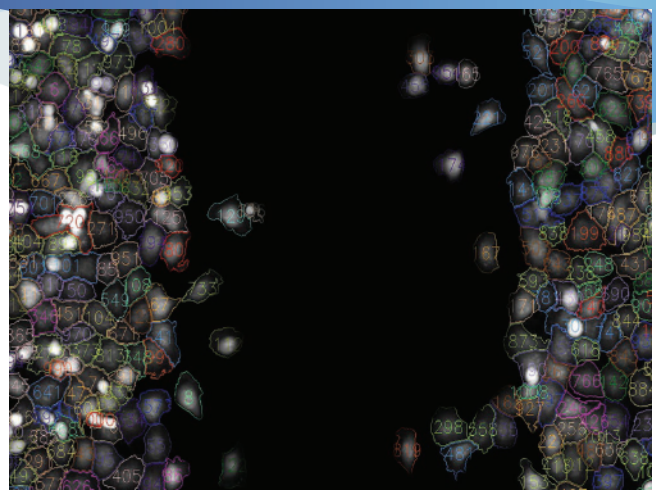
Every Cell Tells a Story

Automated Segmentation of Every Cell

No cell population is truly homogeneous. Cell by cell identification allows the extent of heterogeneity in the cell population to be determined.

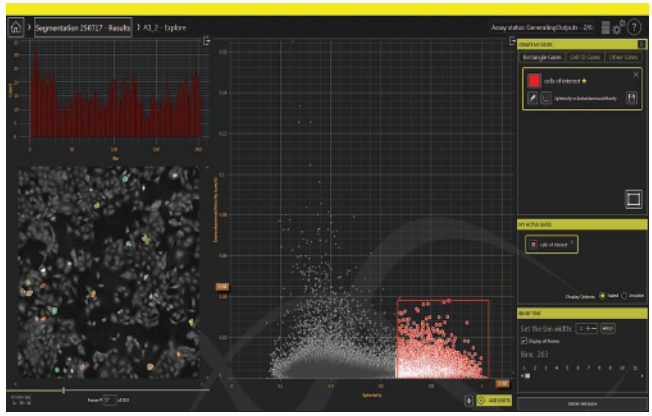
Distinct sub-populations can then be identified and analysed based on cell characteristics, allowing for more specific, realistic and accurate evaluation of cell behaviour.



Overcome the limitations of population level metrics

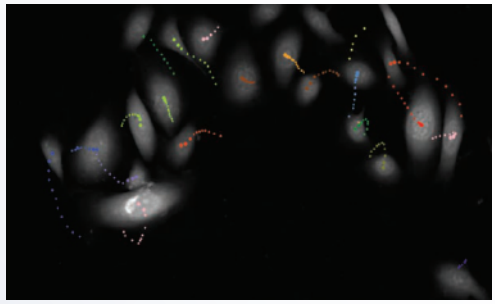
Livecyte automatically tracks and analyses thousands of cells, assessing multiple metrics to create a unique **phenotypic fingerprint** for each cell.

Experimental outputs can be interrogated in detail, allowing previously undiscovered associations to be explored.



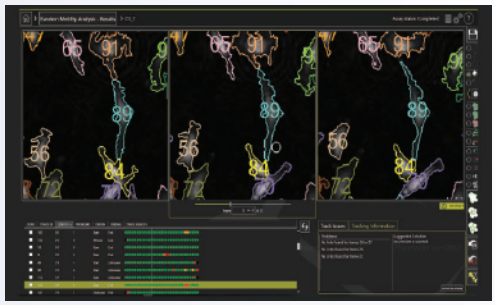
Dig deeper, discover new relationships

Smart Tracking



Livecyte identifies situations where cell trajectories are ambiguous and makes suggestions, allowing the user to optimise tracking performance.

- Investigate **mitotic events** and monitor daughter cells.
- Deal easily with **collision states** and cell clusters.
- Investigate **cell death**.



Automatically follow thousands of cells, one by one

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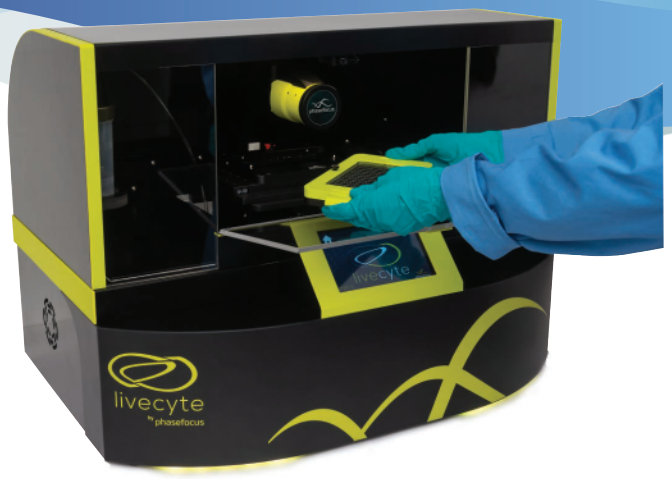
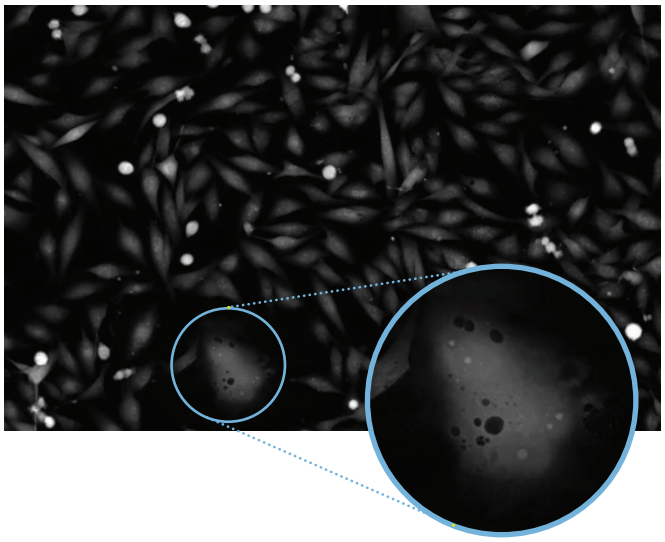
Closer to Real Life



Smart Incubation – Full Environmental Control

- Set temperature from ambient to 45°C ±0.1°C.
- Real time monitoring of humidity, temperature, CO_2 and O_2 at close proximity to cells.
- Culture conditions automatically logged for every time point.
- Accurately correlate changes in cell behavior to cell environment.

Let the treatments make the difference



Long Term Imaging High Resolution Large Field of View

Livecyte allows users to keep more cells in view, for longer, improving the likelihood of capturing rare events.

Automated correction of the meniscus allows even cells on the periphery to be analysed.

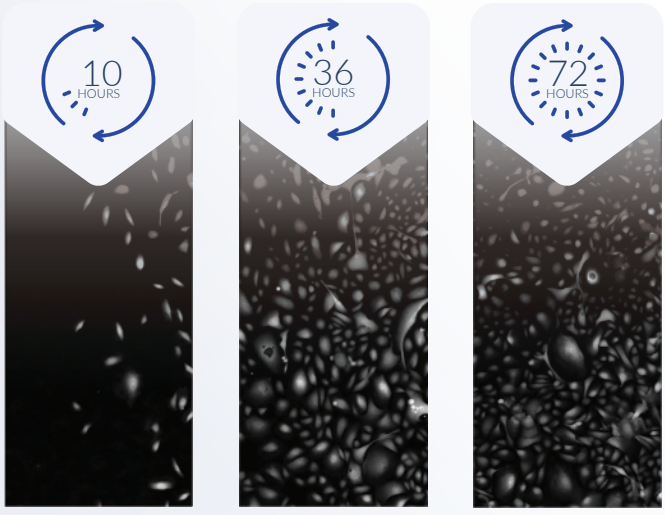
Never miss that important event again

Cells are Precious

Smart incubation and gentle imaging ensures cells remain viable at the end of every experiment.

Researchers can re-use cells for subsequent complementary experiments, supporting more extensive cell characterisation.

Livecyte just borrows your cells



Primary cells measured over 72 hrs

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Livecyte Just Works

Livecyte is a True Assay-driven Tool

Achieve more efficient imaging by utilising every well in **any plate**, up to 96 well format.

Livecyte's unique meniscus correction, perfect focus technologies and accurate environmental control minimise plate edge effects. This allows cells in every well to be reliably tracked and monitored throughout the experiment, making best use of your laboratory resources.

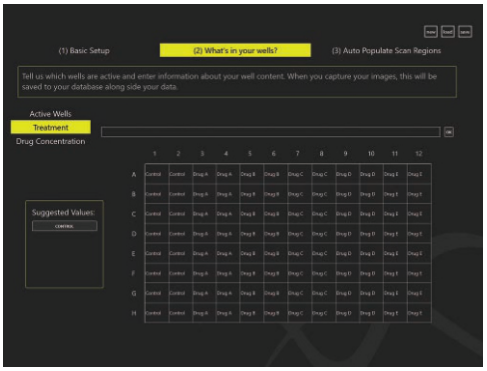
No calibration. No dedicated consumables. No hidden costs.

Go from seeding cells to publishable results with **Livecyte's** intuitive workflow.

Design Acquire Analyse

Simple three step process guides the user through experimental design, image capture and data analysis.

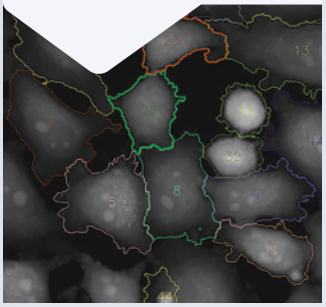
Set up a full 96 well plate experiment in under 10 mins by quickly defining experimental conditions and control wells.



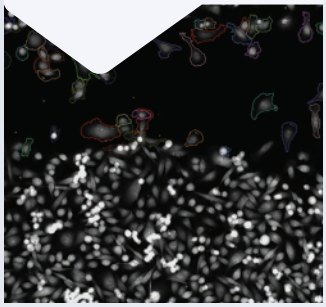
Open data: Export to any 3rd party software such as ImageJ, Graphpad, Excel etc.

Example Applications

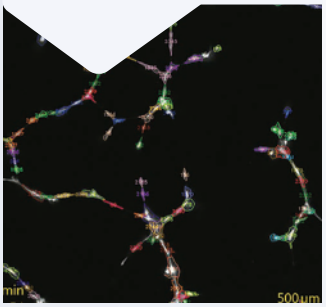
Oncology



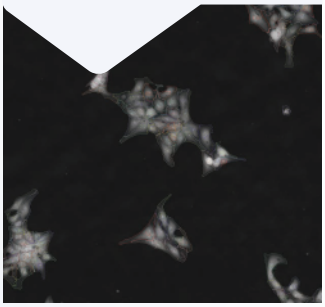
Wound healing



Angiogenesis



Stem cells



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Dashboards

Application-specific Dashboards

Livecyte software automatically combines multi-panel video with multi-parametric data into a single Dashboard, for publication ready outputs.

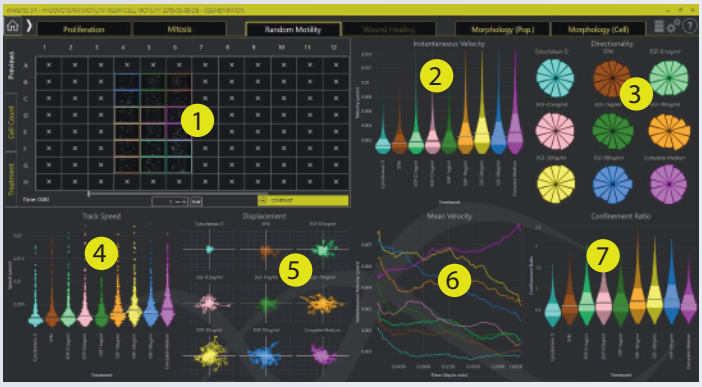
Proliferation Dashboard

Morphology Dashboard

Mitosis Dashboard

Wound Healing Dashboard

Get the Full Story of How the Cell Population Behaves



Combine multiple metrics and behaviour over time to gain a comprehensive profile.

One Experiment, Multiple Outputs

Example: Random Motility Dashboard

1. Multi-panel video
2. Velocity distribution
3. Directionality
4. Average track speed
5. Displacement
6. Mean Velocity
7. Confinement Ratio

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Livecyte Bundles

Perform High Content Live Cell Assays

Livecyte is the only instrument optimised for high-content long-term live cell assays with automated cell tracking

- Perform a wide range of label-free assays with Livecyte's unique ptychographic quantitative phase imaging mode - with or without up to seven complementary fluorescence channels
- Explore phenotypic behaviour from an assay level dashboard view down to individual lineage and single-cell properties over time with Livecyte's multi-scale analysis software
- Make faster decisions, and quickly uncover phenotypic differences, with graphical proliferation, morphology, scratch-wound and motility dashboards available immediately after each experimentSimply choose the bundle to suit your existing needs and supplement

Go to **www.cellink.com/livecyte** for details.

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