Livecyte

Kinetic Cytometer

phasefocus

livecyte
by phasefocus
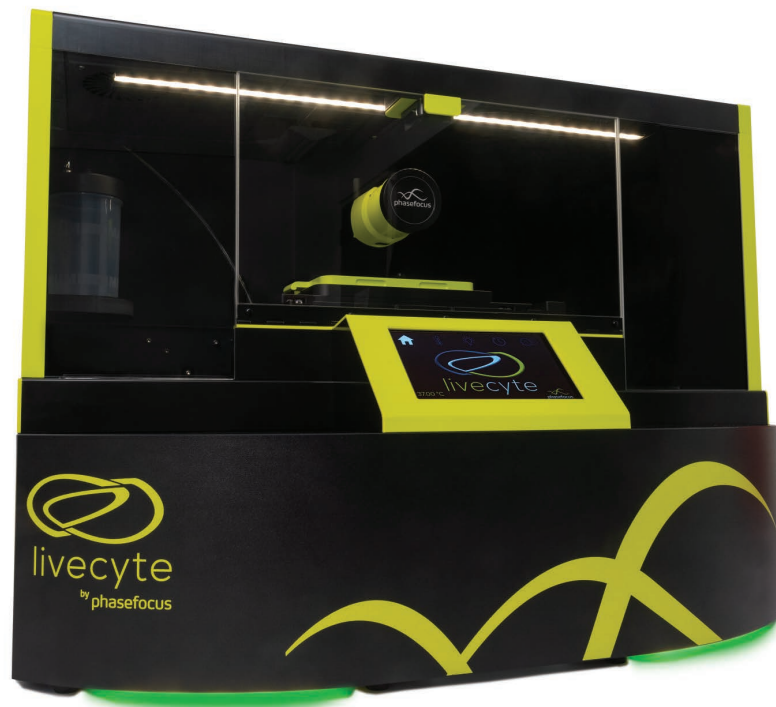
Measure the Motion and Morphology of Every Cell

livecyte

Ptychographic Quantitative Phase Imaging

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

Individual cells can be identified and characterised according to morphological and behavioural characteristics, providing accurate data for quantitative analysis.
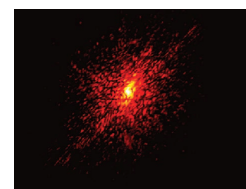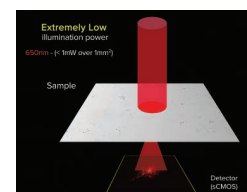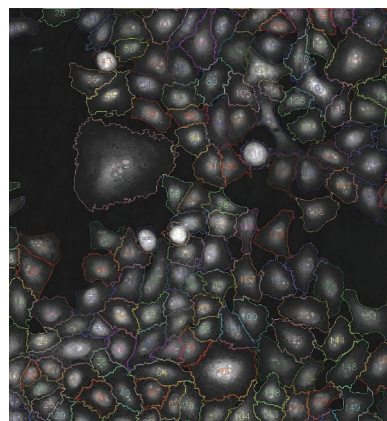
Fluorescence-like images without the compromise
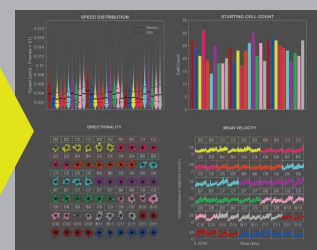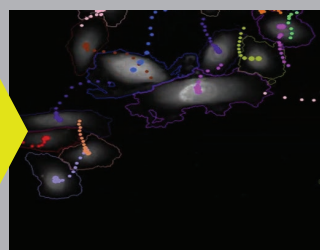

Phase Contrast

Fluorescence

QPI
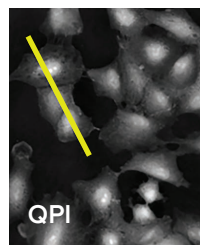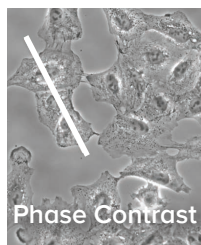
Label-free imaging using low level illumination allows individual cells to be continuously monitored for weeks at a time, without altering cell behaviour.
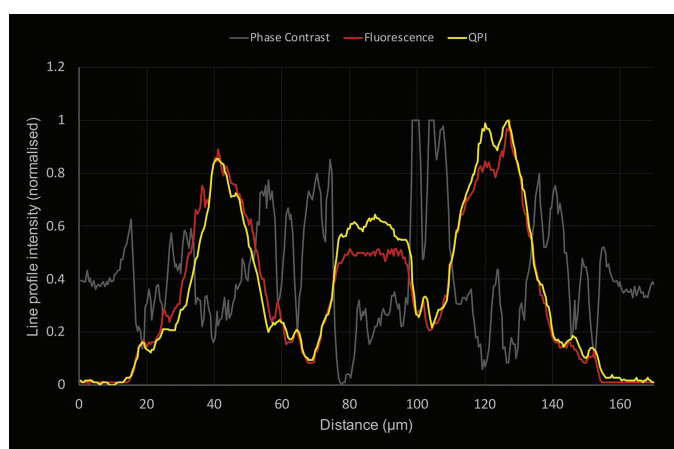
Eliminate the constraints of photo-induced behaviour

Comprehensive Cell Profiling
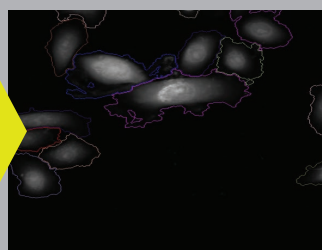
Label-free, high-contrast information rich images.

Confident and robust segmentation of cells.

Automatically tracks cells by linking every cell in every frame.

Multi-parametric description of cell behaviour.

www.phasefocus.com

Make Better Use of Fluorescent Labels

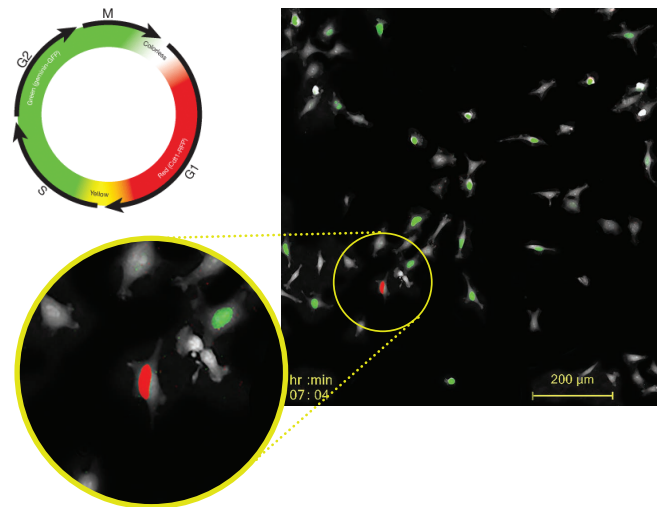High specification camera and lenses can capture lower intensity images, allowing greater use of fluorescence with a reduced risk of photo-toxicity.
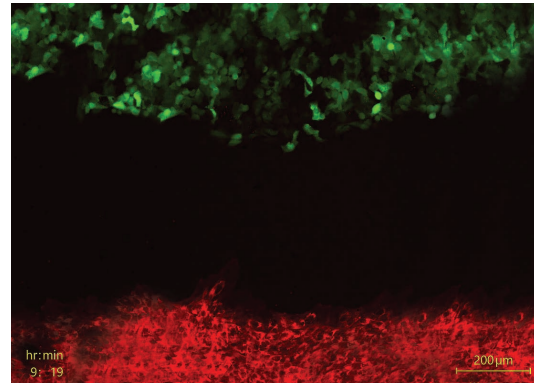
- High NA lenses.
- sCMOS camera.
- Full illumination from UV to far-red.
- Up to 7 filters.

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.
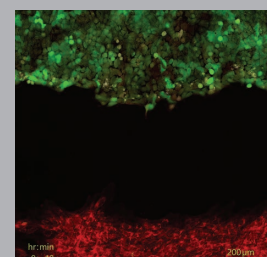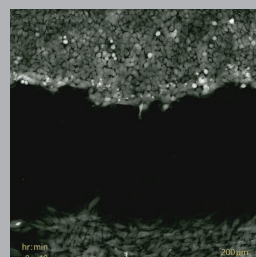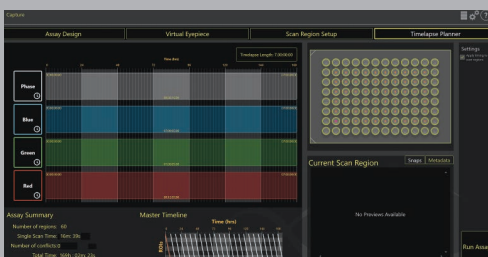
Eliminate chromatic focus errors

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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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
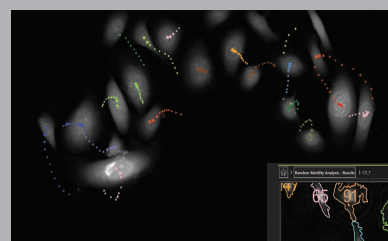

Smart Tracking
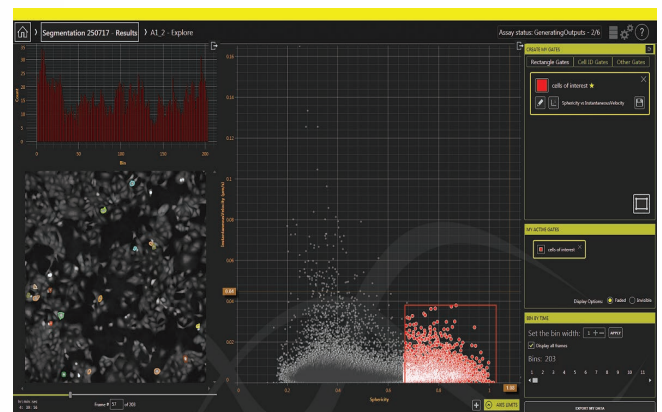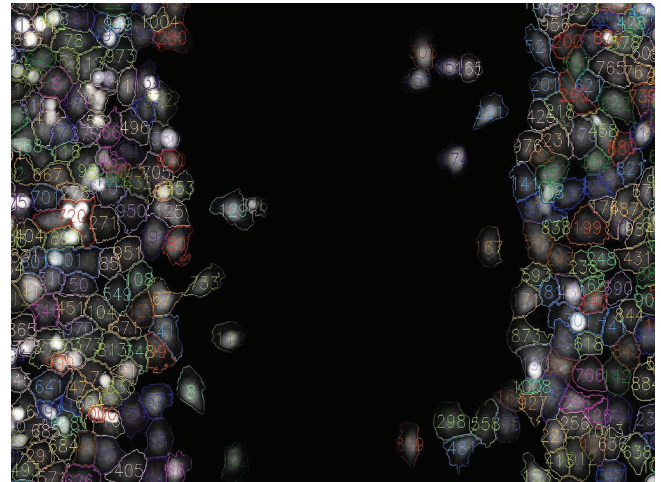
Livecyte identifies situations where cell trajectories are ambiguous and makes suggestions, allowing the user to optimise tracking performance.

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

Follow thousands of cells, one by one

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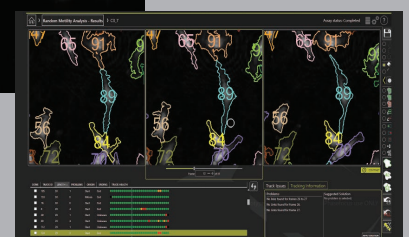
Smart Incubation –
Full Environmental Control

- 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 behaviour 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.

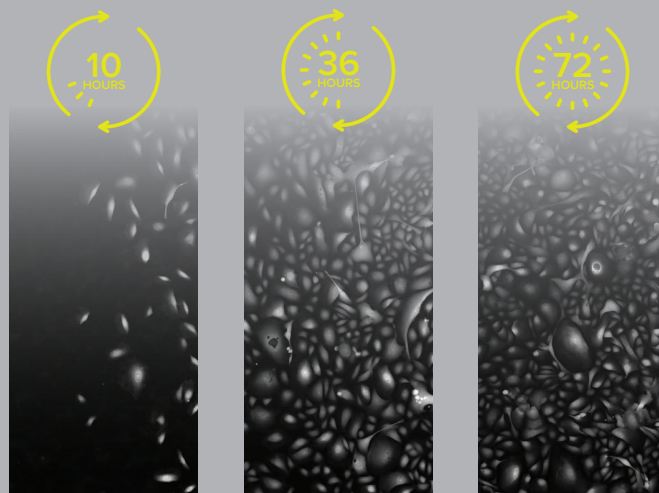### Never miss that important event again
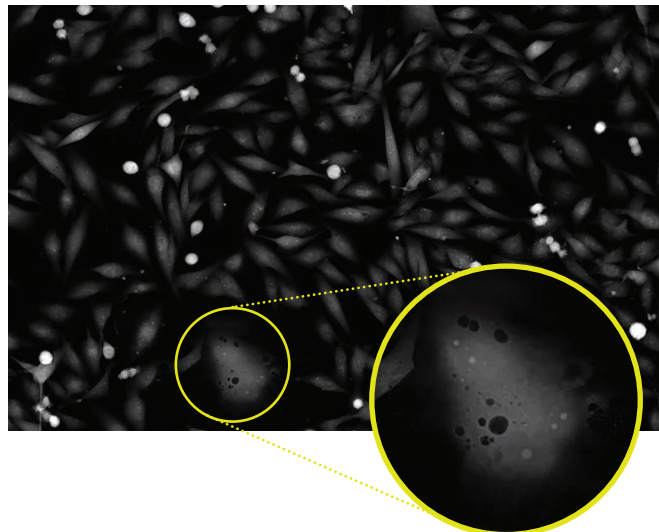
Cells are Precious

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

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.
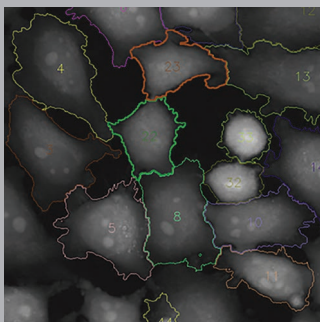
Set up a full 96 well plate experiment in under 10 mins by quickly defining experimental conditions and control wells.
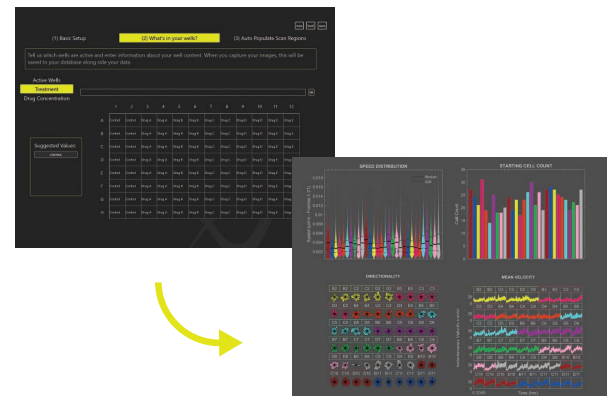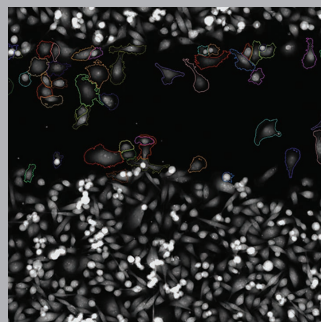
Open data: Import into any 3rd party software such as ImageJ, FIJI, Graphpad etc.
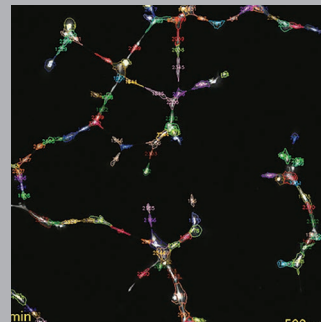
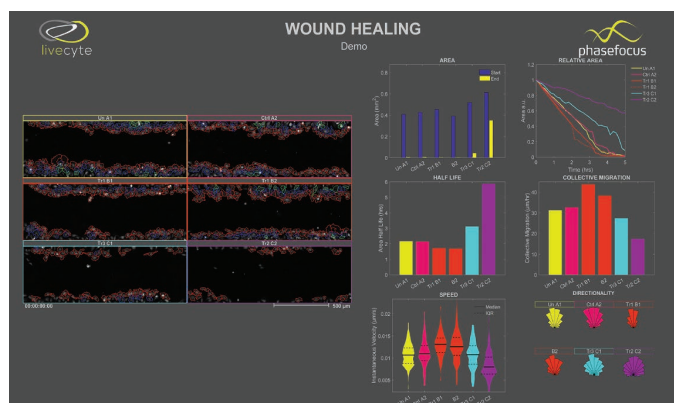## Example Applications

Oncology
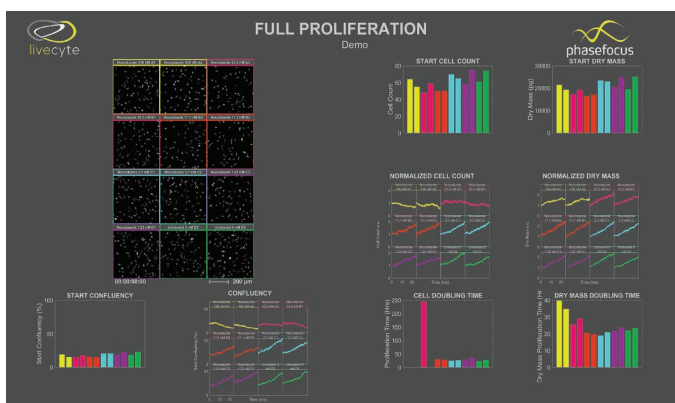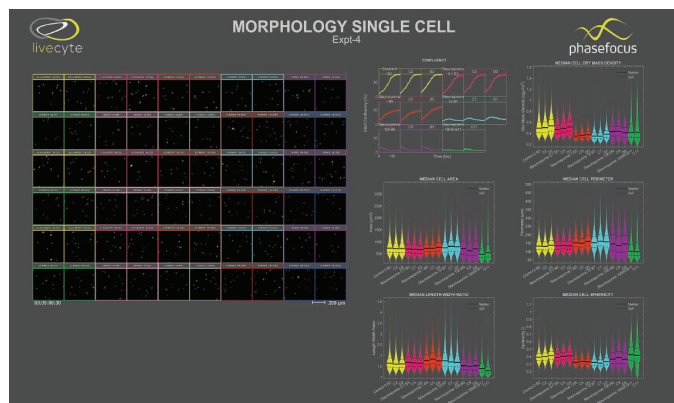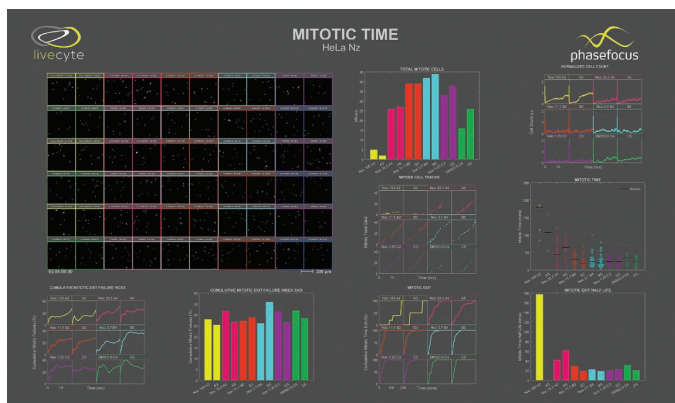
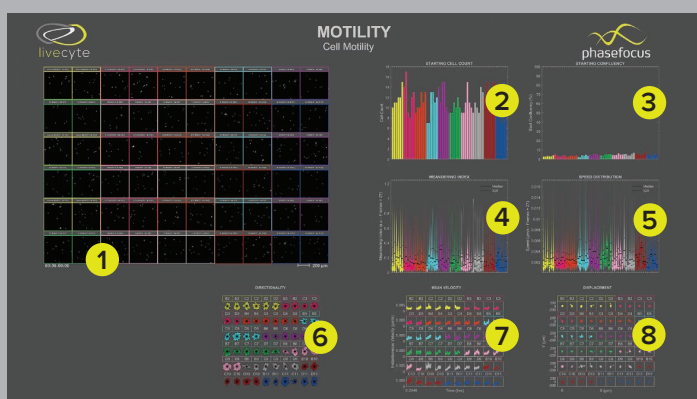### Wound healing

Angiogenesis

Stem cells

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Application-specific Dashboards

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

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: Motility Dashboard

1. Multi-panel video
2. Start cell count
3. Start confluency
4. Meandering index
5. Speed distribution
6. Directionality
7. Mean velocity
8. Displacement

Go Beyond Traditional Microscopy

Livecyte's bundle format provides the flexibility to develop your imaging capabilities as requirements and resources dictate.

Simply choose the bundle to suit your existing needs and supplement with additional functionality as and when necessary.

Go to **www.phasefocus.com/livecyte/bundles** for details.

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