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Cell Counting Module

Cell counting is a key step in many experimental workflows. While manual cell counting is the standard method for cell quantification, it is time-consuming and prone to user-to-user variability. The Cell Counting Module for the Exact platform, can automate the process of cell counting, generating accurate and reproducible results in a fraction of the time needed for manual counting.

Overview

With the Cell Counting Module:

- >> Measure cell concentration, size, and viability quickly and accurately
- >> Choose between brightfield or dual fluorescence counting modes
- >> Count various cell types

The Cell Counting Module allows researchers to assess total cell count and viability quickly and reliably. Driven by robust pattern recognition algorithms, the tool can detect individual cells within cellular clusters, evaluate cell viability using Trypan Blue or fluorescent dyes, select a population of interest through cell size gating, or evaluate cell size distribution of a sample.

Output List

Metrics provided by the Cell Counting Module:

- >> Total number of cells (cells/mL)
- >> Live and dead cells (cells/mL)
- >> Viability (%)
- >> Size of live and dead cells (µm)

Related Applications

Cell Counting

Measure cell concentration, size, and viability for single cell or organoid cultures.

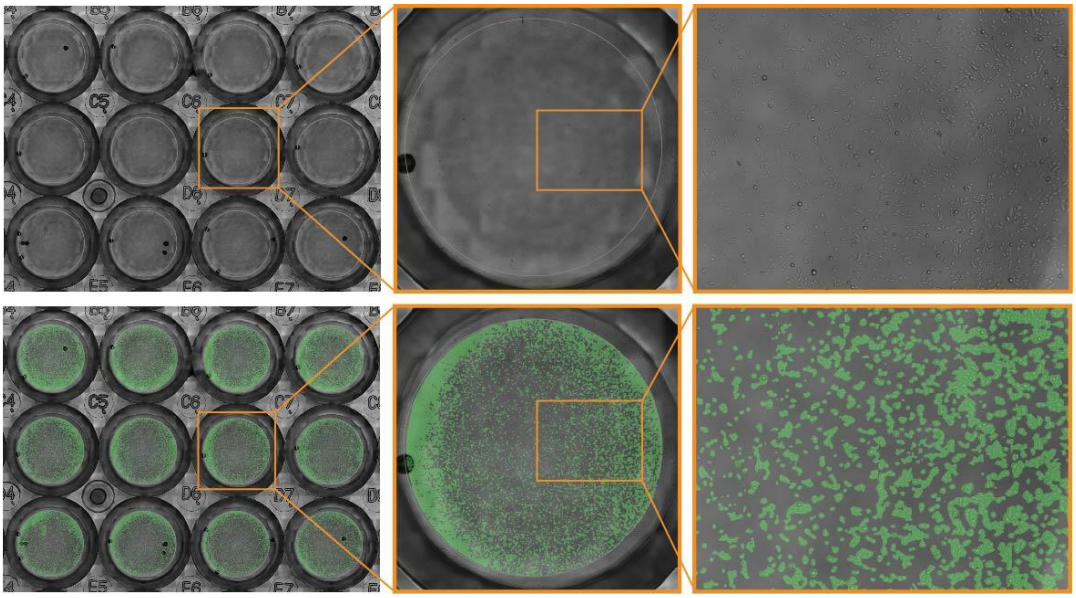
Confluency Module

The Confluency Module measures the percentage of the surface area of a two-dimensional (2D) culture that is covered with cells. Assessing cell confluence is an essential step for many experimental workflows. With the Confluency Module for Omni and Lux platforms, you can assess cell confluency in an unbiased and efficient way.

Overview

With the Cell Confluency Module:

- >> Measure cell confluence using label-free and fluorescence-based analyses
- >> Maintain cellular phenotype and culture quality by properly timing cell passaging
- >> Assess cell confluence and viability in response to compound treatment
- >> Set up notifications to inform you when to passage your cells



The Confluency Module highlights the position of cells on the Omni and Lux platforms to automatically track and quantify cell health and proliferation to improve efficiency and reproducibility of your experiments. Images are automatically acquired and processed by the Confluency Module which can automatically generate reports containing experimental results for cell coverage (brightfield or fluorescence) and fluorescent coverage ratios.

Output List

Metrics provided by the Cell Counting Module:

- >> **Cell coverage (%)** - total cell coverage of an imaged area; when using fluorescence imaging, the percentage of red fluorescence and green fluorescence coverage is also assessed.
- >> **Confluence ratios (%)** – the percentage of coverage ratios of green and red fluorescent objects.

Fluorescent Object Count

The Fluorescent Object Count module for the Omni and Lux platforms allows for fluorescent marker visualization and analysis. Quantify the number of fluorescent objects in a culture and track them over time. The Fluorescent Object Count module is perfect for fluorescence-based assays and experiments.

Organoid Analysis Module

Complex models don’t have to mean complex analysis. Organoids represent an exciting avenue for disease research and discovery, bridging the gap between traditional 2D cell cultures and animal models. The Organoid Analysis Module for the Omni systems can identify, track, and analyze large numbers of organoids across an array of culture vessels with advanced machine-learning algorithms for faster, more accurate results. With the latest in live-cell imaging technology, take your research further.

Key Features

- >> **Accurate** – From label-free cell monitoring to fluorescence-based assays, the Omni adds dynamic visual results to any experiment.
- >> **Fast** – Minimize user-to-user variability with advanced image analysis that incorporates innovative machine-learning algorithms.
- >> **Powerful** – Get better data with software that assesses the number, size, eccentricity, and population distribution of organoids in a sample.

Overview

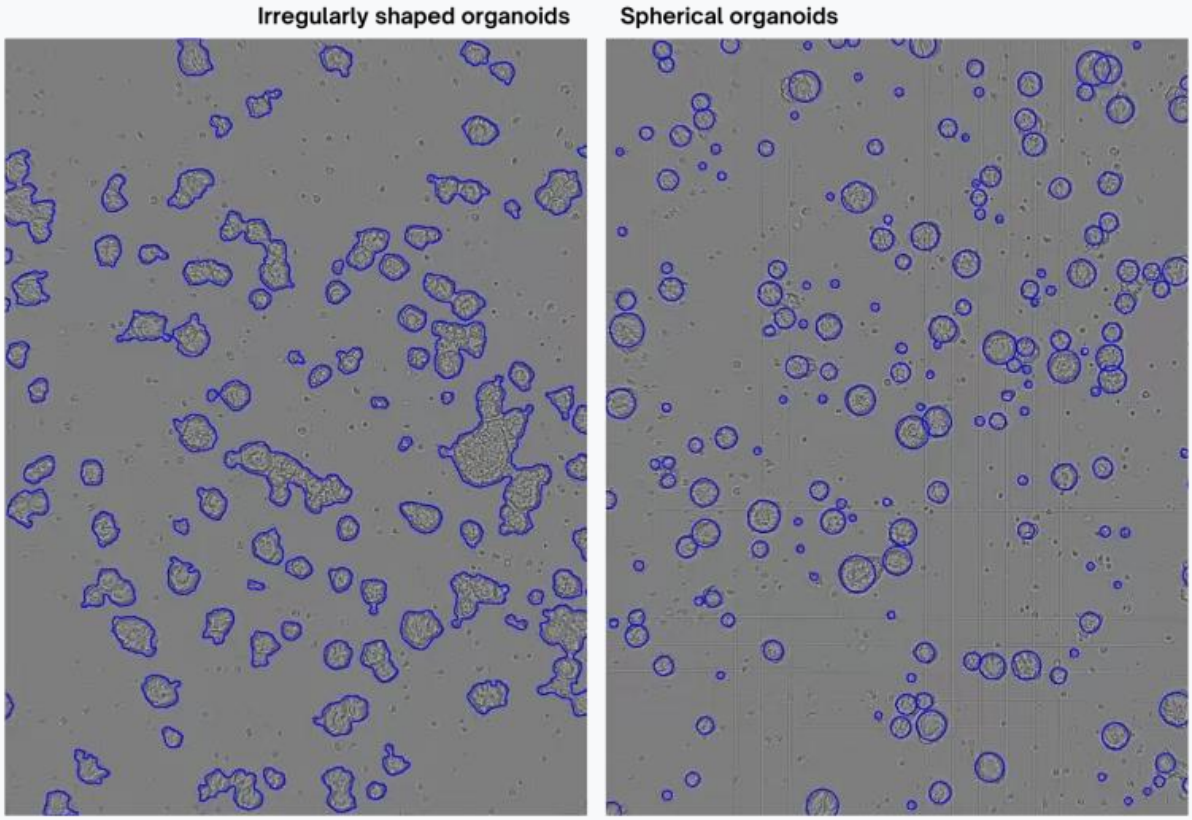
Take out the guesswork with advanced machine-learning algorithms

Manual organoid counting is a common practice in many labs, but this method is time-consuming and user-dependent. With the Organoid Analysis Module, quickly identify organoids, compare conditions, create population distributions, and chart development over time.

With the Organoid Analysis Module, you can measure:

- >> Number
- >> Diameter
- >> Area
- >> Aspect ratio
- >> Eccentricity/Roundness

Quantify organoids of all shapes and sizes



Organoids come in many shapes and sizes due to a variety of factors, including cell type, disease phenotype, and even culture conditions. The Organoid Analysis Module is able to detect and quantify a diverse range of organoid phenotypes.

Organoid Counting Module

The Organoid Counting module for the Exact platform can detect organoids and spheroids of various shapes and sizes. In addition to counting the total number of organoids, the module can quantify organoid size and distribution. With the latest in image analysis algorithms, quickly and accurately count your organoids and spheroids.

Key Features

>> Accurate – Consistently count the number of organoids in your sample.

>> Fast – Minimize user-to-user variability with advanced image analysis that incorporates innovative machine-learning algorithms.

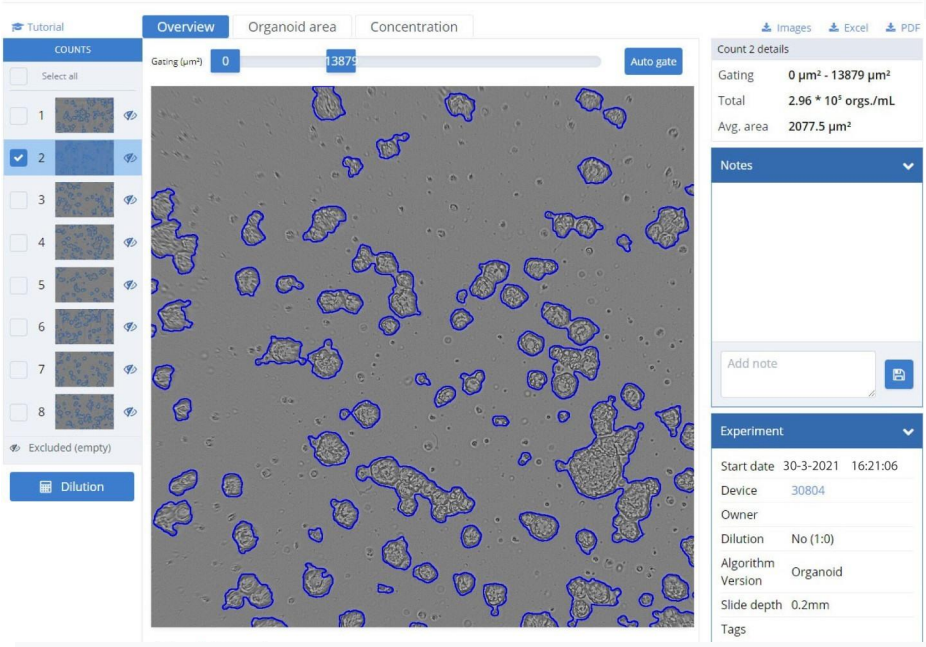
>> Powerful – Get better data with software that assesses the number of organoids or spheroids in a sample.

Overview

With the Organoid Counting Module:

- >> Quantify organoids and spheroids automatically
- >> Measure organoid size and distribution

The Organoid Counting Module enables robust and accurate quantification of organoids and spheroids in a sample. The module can also assess the size and population distribution of organoids and spheroids, making it an excellent tool for studying and optimization of 3D cell models.



Metrics provided by the Organoid Counting Module:

- >> **Organoid concentration** (organoids/mL) - average concentration and concentration of individual counts
- >> **Organoid area** (µm²) - Organoid area

Scratch Assay Module

Wound healing assay or scratch assay is a commonly used method to study collective cell migration *in vitro*. With the Scratch Assay Module for Omni and Lux platforms, you can visualize and measure the progression of wound closure or cell invasiveness over the course of the experiment.

Overview

With the Scratch Assay Module:

- >> Monitor cell migration in real time and label-free
- >> Evaluate the effect of treatments and conditions on the course of cell migration
- >> Quantify the rate of wound closure

The Scratch Assay Module allows real-time visualization and quantification of wound closure, from your incubator. The tool automatically selects the cell-free ('scratch') areas; and quantifies the gap closure and cell migration speed.

Output List

Metrics provided by the Cell Counting Module:

- >> **Scratch area (µm^2)** – scratch area over time
- >> **Speed (µm^2/s)** cell migration speed

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