



**TOGETHER
DELIVERING A
STREAMLINED
WORKFLOW
IN 3D CELL
BIOLOGY**

SPHERICALPLATE 5D®

The 3D multicellular spheroids offer an exciting model to investigate *in vivo*-like functionality where cells are grown in physiologically relevant conditions compared to monolayer 2D cell culture. Nevertheless its wide applications are currently limited due to lack of reliable, reproducible and automated methods.

Sphericalplate 5D® (Kugelmeiers AG) represents a technological solution to these issues. It consists of 12 functionalized wells with 750 round-bottomed microwells per well along with high-end ultra-low attachment nanocoating, which leads to perfect cell aggregation. This brings reproducibility and reliability to the results.

SPHERICALPLATE 5D®

3D cell culture rEvolution®



KEY ADVANTAGES

(compared to other standard methods)

- **Space savings 80-400X**
- **Fast and automatizable medium change**
- **Time savings 60X**
- **Superior quality**
- **Perfect clustering and no adhesion**
- **Money saving 150X**
- **Plastic waste reduction**

CELLviewer

CELLviewer (CellDynamics) is a benchtop Lab-on-Chip platform, enabling 3D cell culture and multicolour live imaging in suspension condition, inside a proprietary disposable cartridge with high automation degree. Featuring optics, software and microfluidics to isolate and focus single spheroids (i.e. Fluidic adaptive focusing), the system also includes fine environmental control of temperature, gas and nutrients to sustain cells viability for long term observations. Automatic liquid handling enables drugs scalar dosing, growth factors feeding and triggering with external stimuli.



KEY ADVANTAGES

- **Suspension microgravity-like culture condition at single spheroid-resolution**
- **Automated liquid handling and protocols**
- **Controlled, sterile and dynamic environment**
- **Innovative multicolour, 3D and 360° degree live imaging**
- **Intuitive UI for image and data analysis**

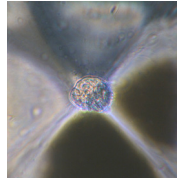
WORKFLOW & APPLICATIONS

Sphericalplate 5D® is an integrated solution in CELLviewer workflow, delivering homogeneous spheroid populations, that tightly fit with downstream CELLviewer analysis. These 2 technologies, combined together, represent streamlined and automated 3D cell culture method with enhanced test reproducibility and reliability.



1. Cells seeding

Cells are plated in Sphericalplate 5D® to let them aggregate to spheroids.



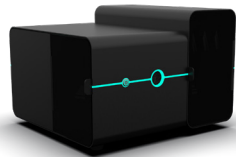
2. Spheroid culture

Uniform-sized spheroids are transferred in a 50 mL Falcon tube closed with a CELLviewer DOCK cap.



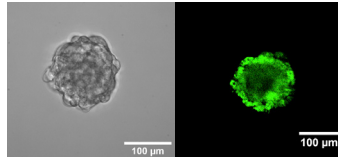
3. Sample loading

Spheroids are withdrawn from the Falcon tube. A single spheroid is collected in the analysis chamber of the cartridge.



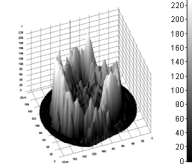
4. Drug dispensing

Through automated liquid handling, drug solutions are dispensed in the chamber.



5. Analysis

Time-lapse imaging in Bright-field and in multicolour epifluorescence followed by image analysis.



6. Data handling

Data can be real-time analyzed, saved on internal or external storage devices, exported and shared.

Experimental results: fluorescent probe uptake within 3D multicellular spheroid

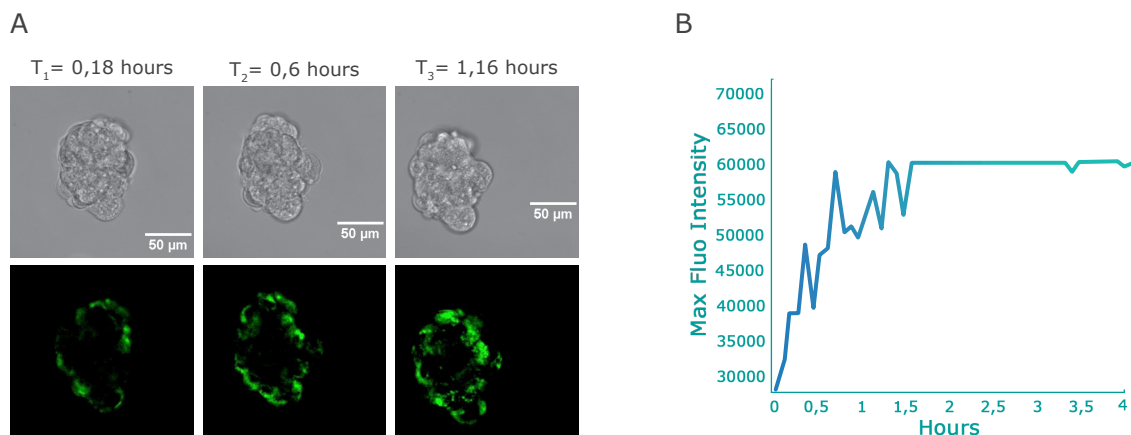
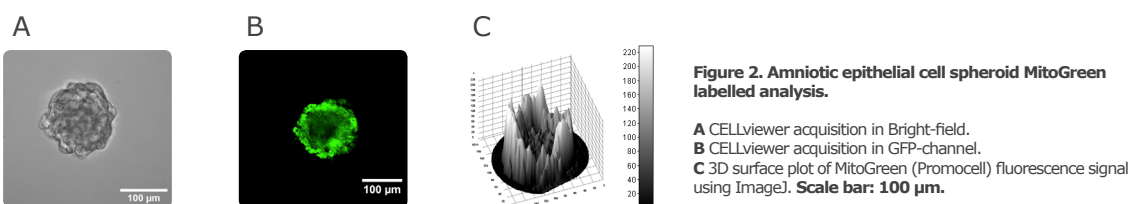


Figure 1. Analysis of an MCF-7 spheroid MitoGreen labeled. **A** CELLviewer acquisitions in Bright- field channel (top) and in GFP-channel (down) at 3 different timepoints. **B** Scatter Plot of Mitogreen Max fluorescence intensity (Grey values) over experiment time. **Scale bar: 50 µm.**





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