High-speed 3D CelliMager Cell³iMager and Cell³iMager neo

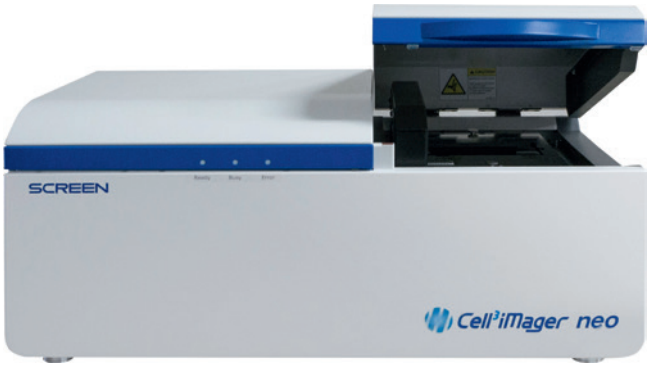
A bright field spheroid counter, ideal for label-free assays of 3D cell culture

Compatible with various 3D culture plates, the Cell³iMager allows the use of 6-well to 384-well plates and a 35 mm dish. It comes with an extensive and convenient software which enables the reading and image composition of soft agar medium, displaying both a full view of a well plate and magnified view of a well center, and the editing of measuring recipes.

A compact spheroid counter with greater scanning operability without compromising the functions

Cell³iMager neo has a compact design enabling the reduction of footprint by 40%. In addition to the existing functions of Cell³iMager, this highly versatile 3D spheroid counter provides excellent performance and scalability with even faster scanning speed for a single well plate and its numerous new software.

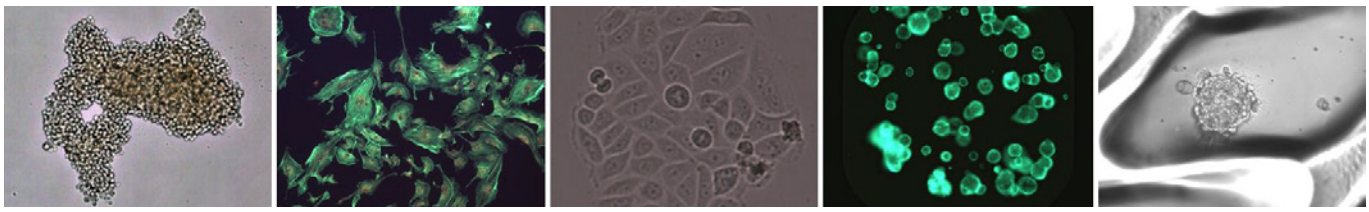
4 Plate type – compatible with various 3D culture plates



Single plate type – for a lab desk with less than 40% footprint

Features of high-speed 3D cell scanners

- ***High-speed well plate scanning and automatic measuring***
  Scanning 3D culture plates In just 54 seconds per plate, it enables high-speed measuring of the area, estimated volume, diameter and number of spheroids.
- ***Reagent-free and label-free easy imaging system***
  The label-free system, eliminating a series of processes including reagent dropping, stirring and fluorescence measuring, enables faster operation with fewer processes.
- ***High correlativity with drug susceptibility evaluation of ATP reagents and excellent spheroid Image capturing performance***
  Installed software precisely captures spheroids by minimizing the effect of shadows created by meniscus on the peripheral area of wells. This excellent image capturing performance achieves high correlativity with drug susceptibility evaluation of ATP reagents.
- ***Follow-up and morphological observation of the same well allows time course observation and effortless image saving***
- ***Simple and user-friendly operability***
  Plates by all manufacturers and a wide selection of sample recipes of each well plate type are available. Adopted graphical user interface (GUI) enables each operation step, based on well plate and scanning images.
- ***Designed to accommodate the automation of continuous scanning, it facilitates high-throughput observation***
  With the automated configuration of a platform, arm, dispensing heads, grip-hand and carrier, a sequence of processes; transferring well plates, dispensing fluid, scanning and storing is automated (under development). It is ideal for both time course observation and high-throughput scanning.



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High-speed 3D CelliMager Cell³iMager Duos

High-speed, non-invasive cellular analysis system

Cell³iMager duos can measure and quantify cells without reagent at high speed and realize high-resolution imaging at the same level as optical microscope. The Cell³iMager duos, using an uniquely developed optical system, takes high-precision and high-resolution images of single cells and colonies grown in 2D culture as well as spheroids and organoids grown in 3D culture. Also, clear and shadowless images can be obtained without the influence of meniscus across the whole well.

Multi-channel fluorescence permits multiplex assays

Cell³iMager Duos key applications

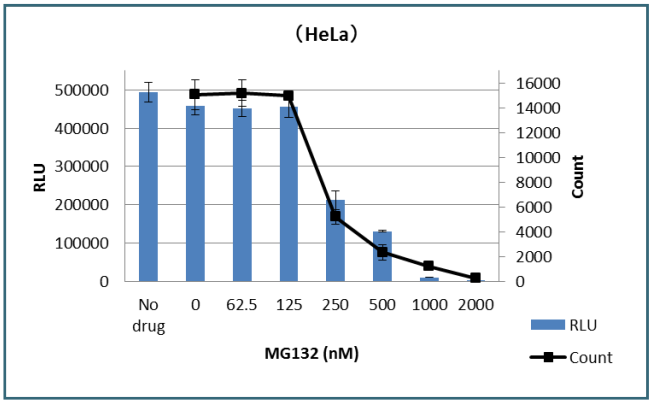
- Cell proliferation and cytotoxicity assays
- Drug-target discovery and validation
- Combinatorial drug testing
- Immuno-oncology studies
- Quality control of adherent and suspension cell culture

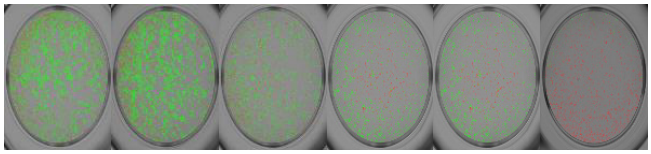
The instrument is dedicated to

- Academic research groups
- Pharma company's
- Biotech Company's

Key features

- 2D and 3D cellular imaging
- Rapid clear image acquisition at high-resolution (0.8 µm) and image processing by GPU
- Uniform analysis of whole well without any edge effects
- The proprietary optical system facilitates probing every cell in every well and capturing images rapidly at high-resolutions (0.8 µm and 4 µm) with no plate movements ensuring sample stability inside the system
- Compatible with both adherent and suspension cultures
- Bright-field option allows label-free imaging
- Multi-channel fluorescence mode permits multiplexed assays
- Automatic and manual focus modes ensures high image quality for wide range of plate types and cell types
- Powerful intuitive image analysis software
- "Intelligent" automatic classification options





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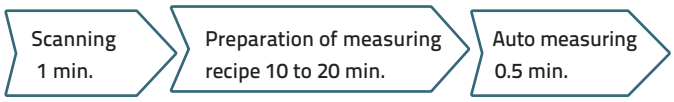
High-speed 3D CelliMager

High-speed well plate scanning and automatic measuring

Scanning 3D culture plates in approximately 1 minute per plate, it then prepares a recipe for measuring based on the scanned images. In addition to our standard recipe samples, researchers can easily prepare a recipe that they want by fine adjustments of such sample recipe. Once the recipe is ready, measurement can begin, which takes approximately 20 seconds. As the follow-up stage involves scanning and auto-measuring only, an entire operation can be completed in approximately one and half minute.

First run starting from initial setting



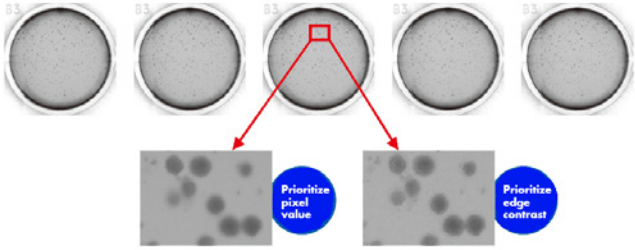
Follow-up run for specimen with preset recipe

Following completion of auto-measuring, it proceeds to scanned image observation and measured numerical data analysis by converting to graph form. Spheroids can be observed in a raw image high quality TIFF format. Fast and easy image viewing is possible by selecting a whole well plate or individual well in a single image. The results obtained by auto-measuring are converted to graphs showing the proliferation trend and spheroid distribution, thereby aiding trend analysis of drug susceptibility. All imaging photographs and test results can be backed up and restored by interconnecting. Various computed numerical data is output in the CSV format, enabling import into a spreadsheet or other user familiar software format.

Supporting the reading and image composition of soft agar medium

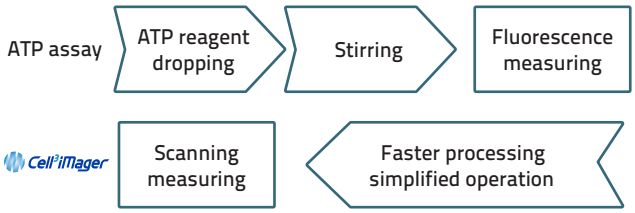
- ***Bracketing:***
  Multiple images can be obtained by changing the Z-direction.
- ***A single composite image from obtained multiple images (two composite methods):***
  - Prioritize pixel value
  - Prioritize edge contrast

Cells cultured in the soft agar medium are found in its overlapping layers. A new function allows the composing of one image by imaging multiple layers in the Z-direction. Two modes; prioritize pixel value and prioritize edge contrast can be selected for computing the area and number of cell masses in the soft agar medium more precisely.



Reagent-free and label-free easy imaging system Faster processing / Fewer processes

The optical label-free system enables easy operation by simply placing culture plates on the scanning table for scanning and measuring. Reagent dropping, stirring and subsequent fluorescence measuring are no longer necessary, allowing drastic time reduction and simplified operation.



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High-speed 3D CelliMager

Instrument overview

	Cell³iMager neo (cc-3000)	Cell³iMager (cc-5000)	Cell³iMager duos (cc-8000)
Well plates	6-,12-,24-,48-,96- und 384-wells, flat, u-shape bottom types 35 mm dish, T-5 flask		
Number of plates	1	4	1
Scan speed (96-well plate)	50 seconds/plate	54 seconds/plate	90 seconds/plate
Scan resolution	2,6, 5,0 & 10,0 µm/pixel		0,8 µm & 4,0 µm/pixel
Light mode	Bright-field only		Bright-field & fluorescent
Measurement	Count, area, pseudo volume, circularity, optical density and diameter of spheroids		Single cell area, live-dead, cell number, total count, spheroid area, pseudo volume, circularity and diameter of spheroids, neurite length etc.
Focal plane	Auto-focus, manual, multi-plane		
			Tumor cells and cell lines Primary cells and co-cultures
Image quality	++	++	+++

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