

3D CELL EXPLORER-DISCOVERY

The most affordable tomographic microscope in the world



Non-invasive: no chemical markers

Fast: One 3D image at every second

Nanometric resolution: shorter than the wavelength of light

Quantitative: 3D measurement of cell organelles' refractive index

With the 3D Cell Explorer-Discovery you can

Explore single cells and cell culture stain-free & instantly

Measure volumes and distances and monitor their reaction to stimuli without worrying about bleaching or phototoxicity.

Observe different types of cells

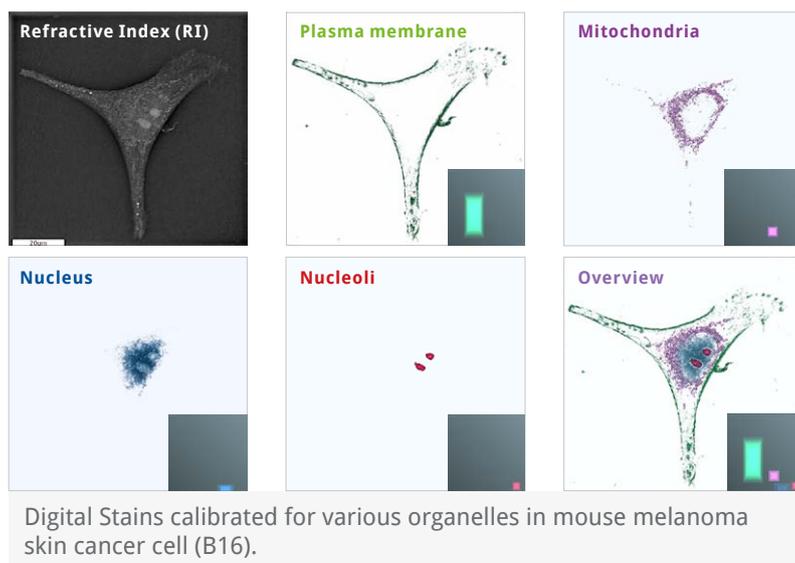
Discover different types of cells with incredible resolution and in 3D. Characterize their internal compartments based on their physical properties (i.e. morphology and refractive index).

Follow the action of life

Observe and analyze cell behaviour and cell-cell interaction without interfering with their natural physiology.

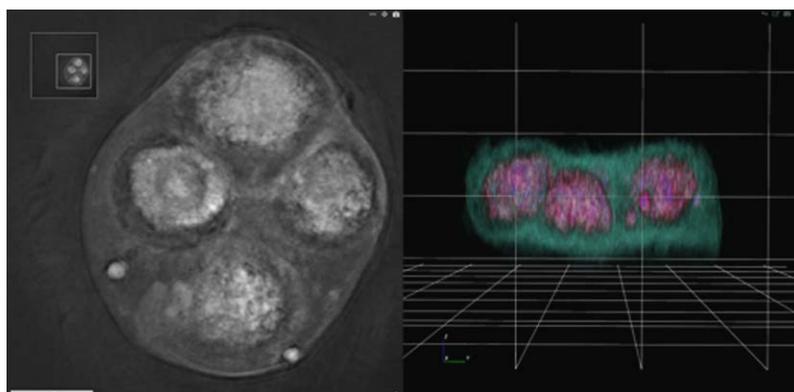
Looking inside life, differently...

ANALYZE YOUR TRUE CELLS: DON'T LABEL THEM



Perform label-free non-invasive accurate and quantitative 3D morphological monitoring of living single cells and cell cultures at every second. Explore 7 markers in parallel.

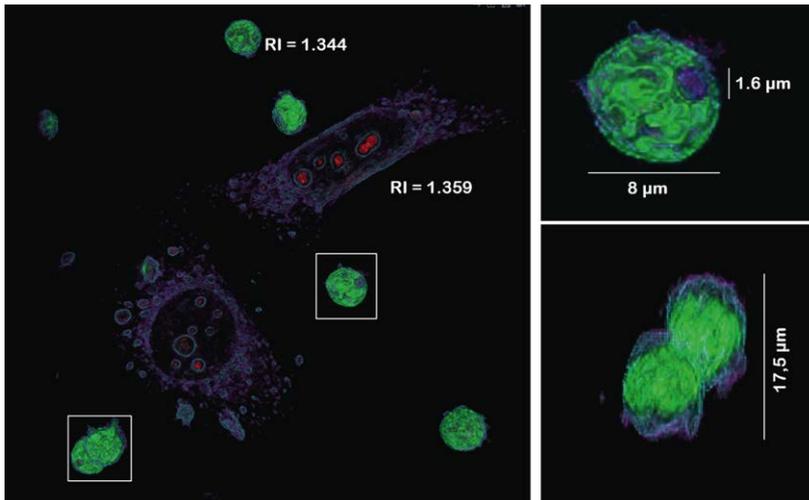
IMAGE 3D CELL CULTURES



HUVEC (Human Umbilical Vein Endothelial Cells) incubated with Gold Nanoparticles

Perform label-free, real-time imaging of 3D cell cultures without stains.

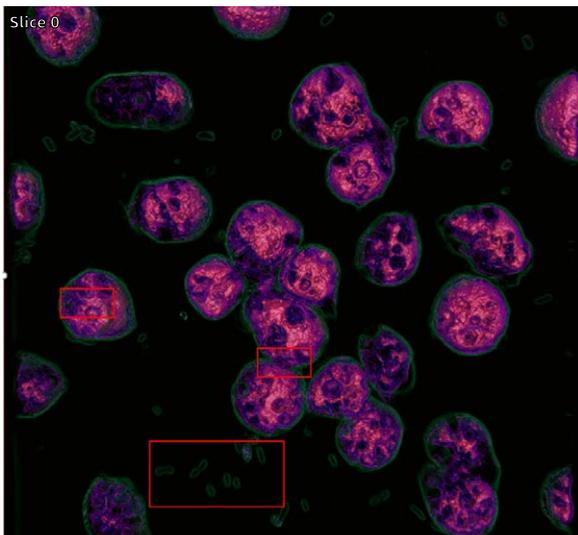
IDENTIFY YOUR CELLS BASED ON THEIR REFRACTIVE INDEX



Mouse melanoma cells (B16) incubated with dictyostelium amoebae cells. The Δ RI 0.015 between the two cell types allows for segmentation of each cell populations. On the right panel three amoeba cells were zoomed to appreciate the resolution of the system (x,y= 180 nm; z= 400nm) and the lateral view.

Nanolive's proprietary digital stain allows the discrimination of different cell types in a co-culture based on their specific refractive index (RI) signature.

UNDERSTAND CELL-CELL INTERACTIONS



Dictyostelium amoeba cells phagocytosis of bacteria (E. coli). Bacteria is detectable in the digestive vacuoles inside the amoeba cells.

Unveil the secrets of host-pathogen interactions, phagocytosis, micro-organism internalization & intracellular 3D localization at every second!

In a very short period of time, the 3D Cell Explorer has become a very intensively used instrument that found application in different disease areas and we would not want to miss this instrument anymore.



Dr. Oliver Nayler
Head, Cardiovascular & Fibrosis Biology, Actelion
Pharmaceuticals Ltd, Switzerland





TECHNICAL SPECIFICATIONS

Resolution	$\Delta x, y = 200 \text{ nm};$ $\Delta z = 400 \text{ nm}$
Field-of-view	$85 \times 85 \times 30 \mu\text{m}$
Tomography frame rate	0.5 fps 3D image rate with full self-adjustment
Objective	air with $60\times$ magnification
Illumination System	Class 1 low power laser ($\lambda = 520 \text{ nm}$, sample exposure 0.2 mW/mm^2)
Accessible sample stage	60 mm of free access to the sample stage for sample manipulation

3D Cell Explorer-Discovery allows for

3D tomographic cell visualization

The 3D Cell Explorer-Discovery delivers a full 3D cell reconstruction at every second. This allows you to record stunning 3D images of entire cells and tissue slices in just seconds and with nanometric resolution.

Quantitative Refractive Index data

The 3D Cell Explorer-Discovery detects changes to light as it propagates through the cell and measures the quantitative refractive index within the cell identifying each organelle.

No preparation, no staining

Our disruptive technology allows, for the first time, to explore instantly a living cell in 3D without any labeling or chemical markers.

No fixation + No labeling = No alteration of cell's normal physiology!

Segment your data through digital stain

Explore your data in 3D using our interactive digital stains based on the cell's physical refractive index.

Novelty

The 3D Cell Explorer is a tool for discovery and we are just at the beginning of exploring all the potential fields of application!