NANOLIVE

Looking inside life

3D CELL EXPLORER-*fluo*

COMBINE THE BEST OF TWO WORLDS

COMPLETE 3D SOLUTION

Combine high quality tomographic data with fluorescent markers

MULTIPLEXING

Explore multiple cell compartments

EXTENDED LIVE CELL IMAGING

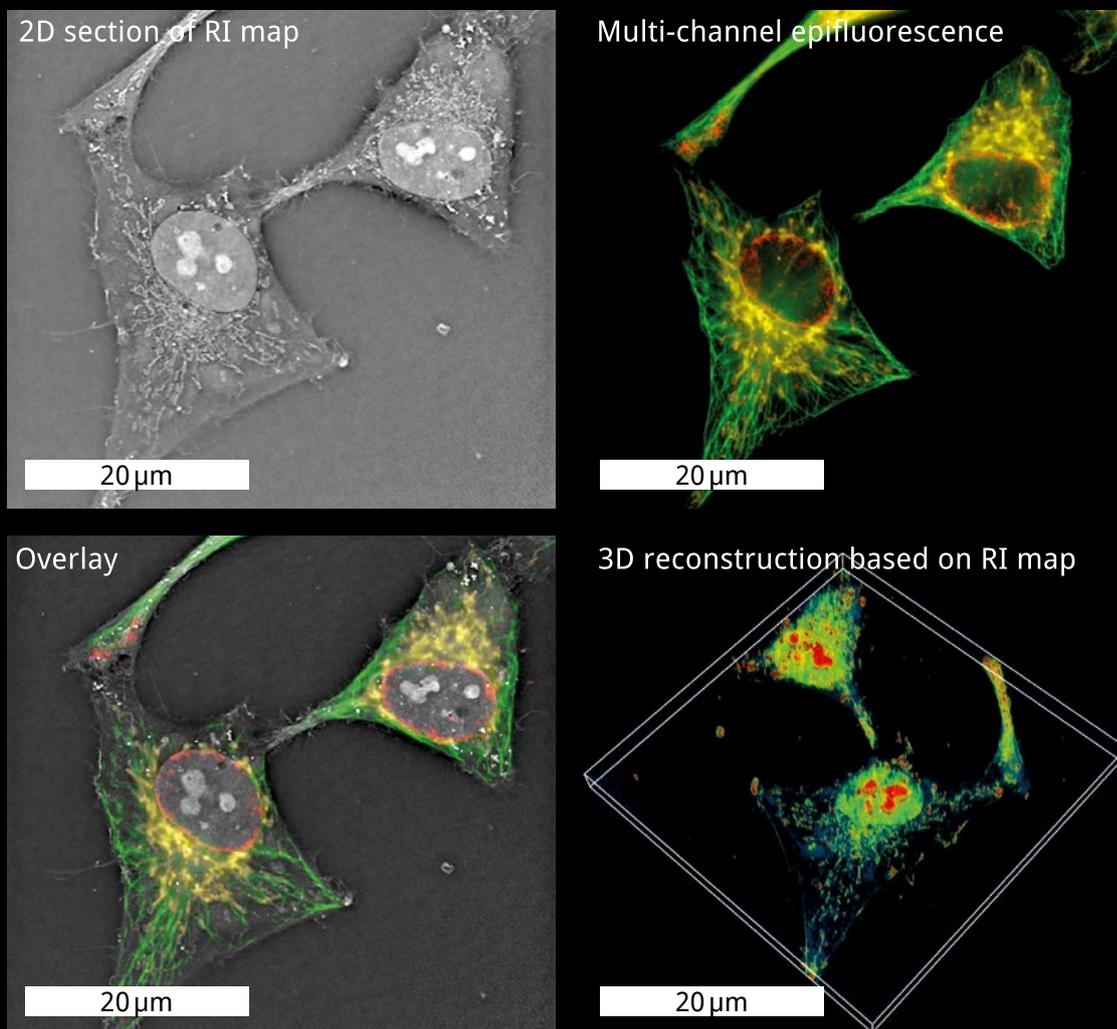Limit cell damages caused by fluorescent markers, bleaching and phototoxicity

THE HOLOTOMOGRAPHIC FLUORESCENCE MICROSCOPE

REVOLUTIONARY
TECHNOLOGY

MULTIMODAL COMPLETE SOLUTION FOR 3D LIVE CELL EXPLORATION

The 3D Cell Explorer measures the quantitative Refractive Index (RI) of cell organelles in seconds and 3D. This allows for biological features to be segmented based on their physical characteristics.
The 3D Cell Explorer-fluo combines 3D Refractive Index analysis with a fully integrated 3 channel epifluorescence module to image your live cells as they are and as long as you want. Put chemical information into structural context for new biological insights.


2D section of RI map

20 µm

Multi-channel epifluorescence

20 µm

Overlay

20 µm

3D reconstruction based on RI map

20 µm

" IN A VERY SHORT PERIOD OF TIME, THE 3D CELL EXPLORER HAS BECOME VERY INTENSIVELY USED AND WE HAVE FOUND APPLICATIONS IN SEVERAL DIFFERENT DISEASE AREAS — WE WOULD NOT WANT TO BE WITHOUT THIS INSTRUMENT.

Oliver Nayler, PhD
Senior Director, Head Cardiovascular & Fibrosis Biology
Idorsia Pharmaceuticals Ltd, Allschwil, Switzerland

MULTIPLEXING

Transform 2D fluorescence into 3D cell tomography: Identify cell organelles through fluorescence and monitor non-invasively their structures & dynamics in 3D & marker-free.
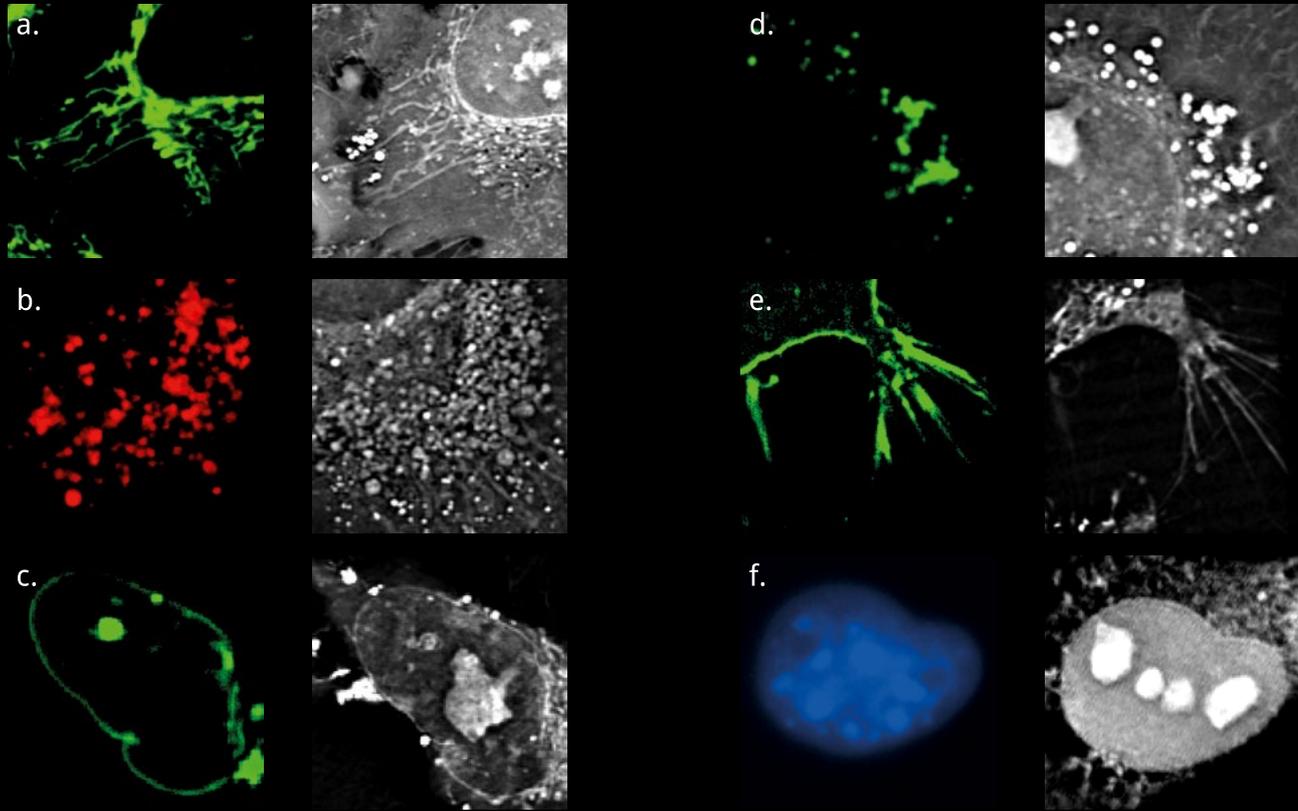
Examples of correlation for a. mitochondira, b. lysosomes, c. nuclear membrane, d. lipid droplets, e. plasma membrane, f. nucleus & nucleoli.
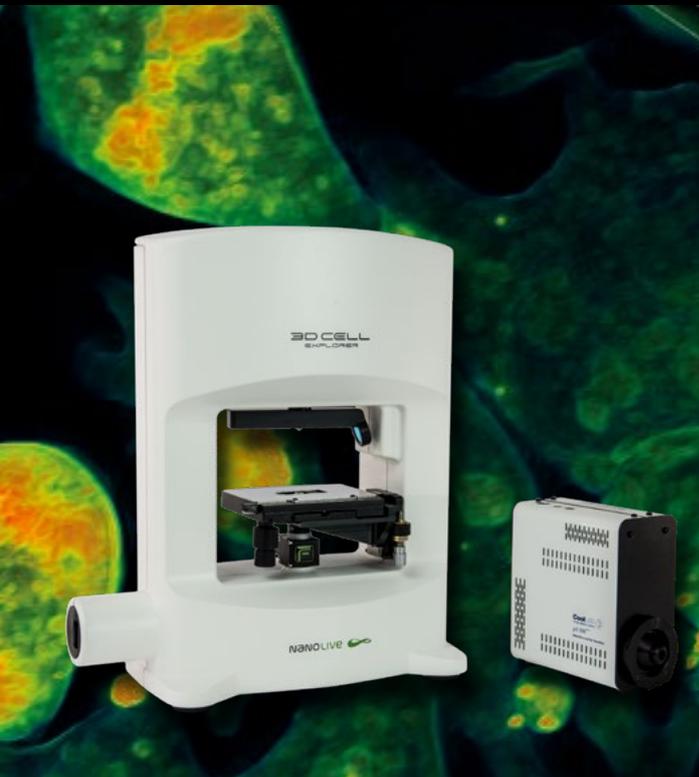
EXTENDED LIVE CELL IMAGING

Image your live cells as long as you need. Limit cell damages caused by fluorescent markers, bleaching and phototoxicity.
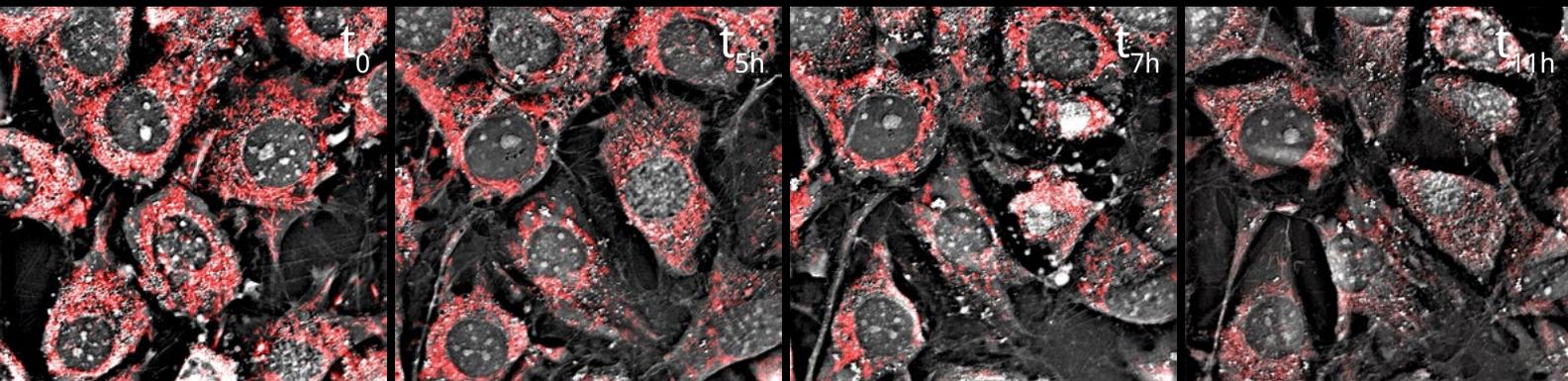
Long-term imaging (11hrs) of mouse pre-adipocytes. Mitochondria were labeled with mitoTracker. A holotomographic image was taken every 15 seconds and a fluorescence image every 5 minutes.

DISCOVER
MORE

EXPLORE A NEW VISION
Long observation time
New space for discoveries

IMPROVE KNOWLEDGE
Combine fluo and RI tomography

PROCESS NEW DATA SETS
Unique organelle segmentation
Quantitative data analysis

SAVE EXPERIMENTAL TIME
No preparation
Short setup time
Fast & easy acquisition

TECHNICAL SPECIFICATIONS

Illumination Source	Holotomography (HT): Class 1 low power laser (λ=520 nm, sample exposure 0.2mW/mm^2 Epifluorescence: High speed switchable <100 μs, Lifetime > 20'000 hours each channel
Resolution	HT: x,y: 200 nm; z: 400 nm (3D image) Epifluorescence: x,y: ~ 400 nm (2D image)
Field-of-view	HT: 90 x 90 x 30 μm Epifluorescence: 90 x 90 μm
Microscope Objective	Dry objective / 60× magnification / NA 0.8
Channels	HT: RI reconstruction of the whole cell Epifluorescence: DAPI + FitC + TritC | FitC + TritC + Cy5 | DAPI + FitC + TritC / Cy5
Imaging	HT: 3D Epifluorescence: 2D 4D time lapse: (RI + fluo)
Time resolution	HT: 0.5 fps 3D RI frame Epifluorescence: 3 fps each channel
Camera	USB 3.0 CMOS Sony IMX174 sensor
Dimensions (width × depth × height in mm)	3D Cell Explorer-*fluo*: 380 x 170 x 445 Epifluorescence module: 77 x 186 x 162
Weight	12 kg