

NANOLIVE, THE FUTURE OF LIVING CELL MICROSCOPY

Lausanne – November 4th, 2014 – Nanolive SA, a start-up company founded last year at the EPFL Innovation Park in Lausanne, Switzerland, has developed a revolutionary microscope which, for the very first time, allows the exploration of a living cell in 3D without damaging it.

While scientists may still obtain a finer resolution using an electron microscope, this approach cannot be used to examine cells which are alive. For a long time, it was believed to be impossible to look inside a living cell using light microscopes due to their physical limitations. This year's Nobel Prize for chemistry was awarded to S. Hell, E. Betzing and W. Moerner, who did not believe these presumed limitations and made revolutionary discoveries in the field of fluorescent microscopy.

While their research was focused on the chemistry of single molecules and their pathways inside living cells, Nanolive focuses on the physical structure of the living cell itself.

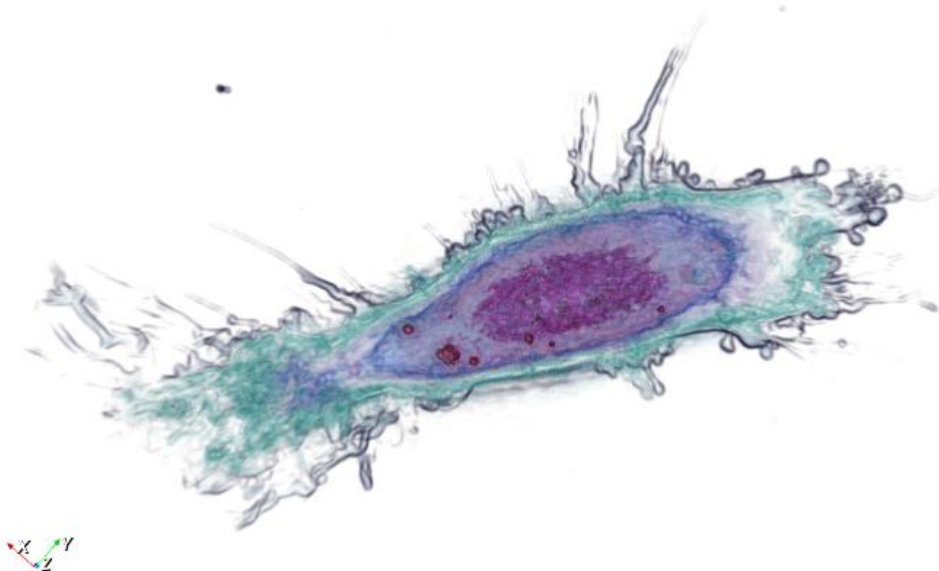
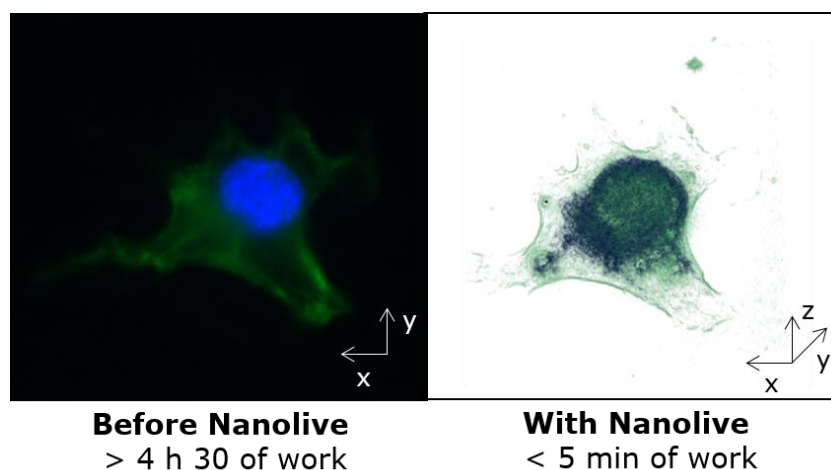


Fig. Mouse reticular fibroblast imaged with the 3D Cell Explorer.

As a result, Nanolive's technology can offer unperturbed and hitherto unperceived insights into the living cell: no longer a need for any special procedures or intensive and time-consuming preparation. As no chemistry or marker is used at all, observations are completely non-invasive to the cell and allow resolving the cell's parts down to sizes of 70nm. This discovery has been published in [Nature Photonics](#) in January 2013.

Below, left, is shown the example of a fixed fibroblast chemically stained to identify membrane (green) and nucleus (blue). To the right is the same cell imaged with Nanolive's 3D Cell Explorer, stained only digitally. In the first case, the preparation procedure killed the cell and took more than four hours. Using Nanolive's technology, the same result took just five minutes and would have been possible on unstained, living cells.



"You really need to be able to look at living cells because life is animate — it's what defines life," Eric Betzig stated in a recent [interview](#).

The 3D Cell Explorer caters to this desire by displaying the cell in a completely new way with a comprehensive representation of its morphology. Since the cell is the basis of all life on earth, this is a major milestone in the history of microscopy, which may change all the rules in the fields of education, biology, pharmaceuticals and cosmetics in labs and industry.

Hell said that a close look can shed light on disease: "Any disease, in the end, can be boiled down to a malfunctioning of the cell," he said. "And in order to

understand what a disease actually means, you have to understand the cell and you have to understand the malfunction.”

The 3D Cell Explorer is based on an enabling technology that overcomes the limitations of light. Similar to a MRI/CT scan in hospitals for the human body, our product takes a complete tomographic image of the refractive index within the living cell. For the first time ever you can actually look inside the cell and discover its interior such as its nucleus and its organelles. Thanks to the 3D Cell Explorer, never again researchers will have to guess what happens inside a living cell. They will actually see and precisely measure the impact of stimuli and drugs on cells, thus enabling completely new fields of research and smarter products.

Nanolive just launched its brand new website: www.nanolive.ch including a direct web store and a cell gallery where to find more astonishing cell images and time-lapse movies <http://nanolive.ch/cell-gallery/>.

[Pre-orders](#) are now open worldwide with an exceptional and one-time-only special offer for early-bird supporters.

For more information, please, contact lisa@nanolive.ch.