

CASE STUDY

The 3D Cell Explorer

Problem - Challenge

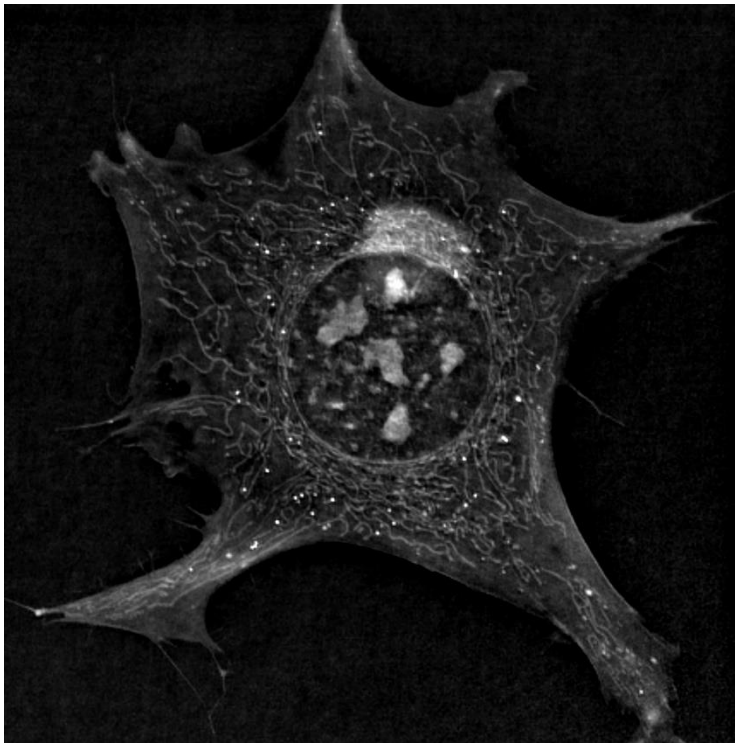
Cells are transparent and it was until now impossible to look inside living cells in 3D without damaging them by adding chemical markers.

Solution

The Microvision and Micro-Diagnostics (MVD) group at the Advanced Photonics Laboratory of the Institute of Microengineering at EPFL, headed by Professor Em. Christian Depeursinge, has created a technology combining holography and rotational scanning. The Cell Explorer's technology is unique worldwide and is based on a fundamental patent (US 8,937,722 & EU WO 2011/121523). It allows determining how light propagates through the cell. By this means, one can measure the cell's physical properties, i.e. the refractive index (RI).

The result is quantitative cell tomography, in vitro without any invasion or sample preparation with an incredible spatio-temporal resolution

The spin off Nanolive SA has launched the first instrument in 2015. Since then their devices are used for research purposes worldwide, for instance at Stanford, Harvard and in some of the most well-known pharmaceutical companies. A further step has recently been achieved for spreading the use of the 3D Cell Explorer for educational purposes as EPFL acquired this year a device for its students. "This technology was created thanks to EPFL's educational program and it gives me great satisfaction to be able to share it with current students," says Yann Cotte, executive director of Nanolive and co-creator of the microscope.



EPFL

NANOLIVE
Looking inside life

