IMAGE DIFFERENT





Technology

HT is optically analogous to X-ray CT

RI is an intrinsic optical parameter that describes the speed of light passing through a specific material. Light passing through a cell is slower than light passing through the surrounding medium. Analogous to X-ray CT (computed tomography), HT uses a laser beam to measure 3D RI distribution of cells. The system measures multiple 2D holograms of a sample in various illumination angles, from which a 3D RI tomogram is reconstructed via an inverse scattering algorithm. Tomocube presents unprecedentedly precise laser beam control, powered by Texas InstrumentsTM digital micromirror device (DMD) technology.



* Tomocube's patented technology utilizes a DMD, which allows to obtain multiple 2D images by every angle to reconstruct 3D RI Tomogram without any mechanical movement in the microscope.

Key features



Benefits





HT-2: HT combined with 3D fluorescence imaging.

Holotomography powered with 3D fluorescence imaging

HT-2 series opens a new era of 3D correlative imaging, combining the holotomography and fluorescence methods. HT-2 allows the conventional epifluorescence imaging for labeling any specific target (organelle or proteins) in 3D holotomography, minimizing the photodamage of the live cells.



Holotomography

- Fluorescence (G)
- Fluorescence (B)



Correlative analysis in 2D, 3D and 4D with HT and fluorescence images



3-channel LED source (385 nm, 470 nm, 570 nm) Wavelengths of the LED source can be customized



Z-stack images with a motorized Z-drive (step resolution: 150 nm)

Deconvolution with Autoquant[™] -



- Embedded in TomoStudio™ 2
- Fully automated (Single click)
- Blind deconvolution
- GPU-accelerated processing

Correlative HT and 3D FL -





Applications

3D HT images of mammalian cells



3D HT images of microorganisms



Capabilities -

- Observe the cellular changes without any labeling or staining
- Multidimensional acquistion : 2D time (150 fps) / 3D time (2.5 fps)
- Visualize the cellular organelles with 3D RI distribution
- Identify the changes of the quantitative properties of cells
- Detect the cellular organelles tagged by nanoparticles
- Observe the vesicle movement in time-lapse
- 2D/3D/4D correlative images with fluorescence



Systems



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