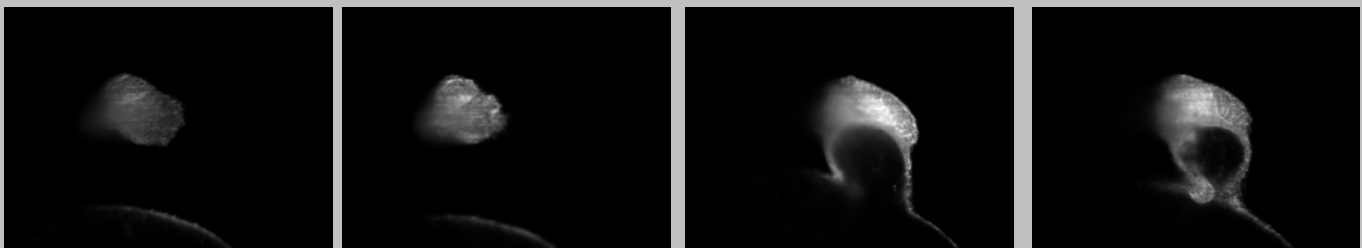




ALPHA³ SPIM AddOn

Light Sheet Microscopy

***In Vivo
In Toto
3D Imaging***



Selective Plane Illumination Microscope AddOn

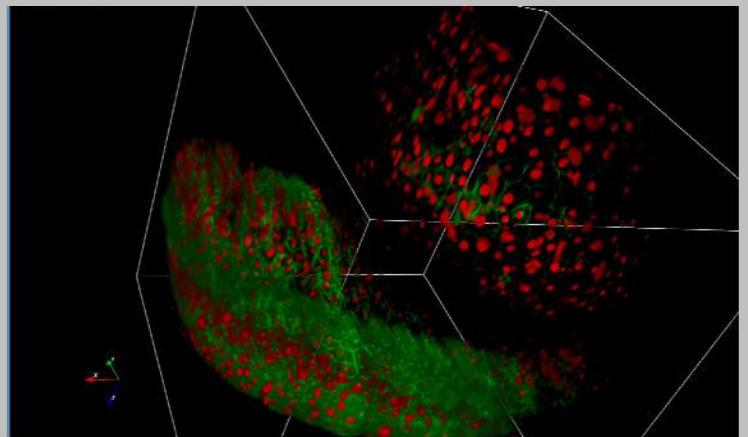
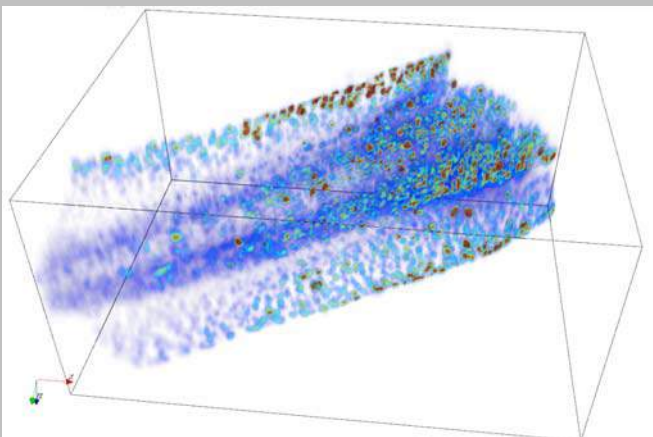


ALPHA³ is designed to add light sheet imaging capabilities to existing microscopes.. Alpha3 offers the unique benefits of selective plane illumination microscopy for biological sample imaging :

- Specimen preserved from photobleaching and phototoxicity
- Quality optical sectioning
- Fast volume acquisition of entire specimen

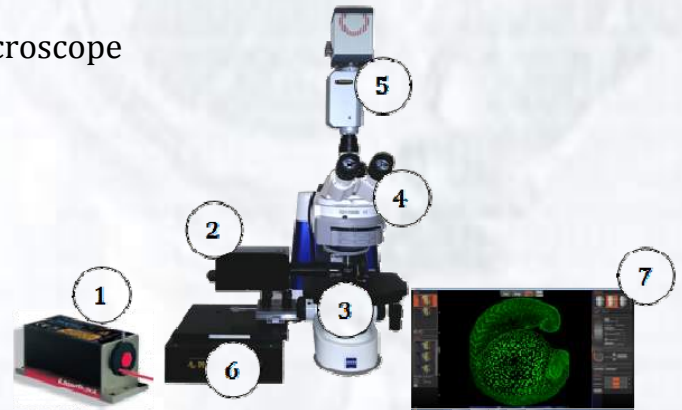
ALPHA³ provides additional key features:

- 3D acquisition without moving the sample thanks to remote focusing capability
*Specimen can be kept in developmental conditions without perturbation.
Acquisition speed is not limited by mechanical constraints*
- 3D volume at fast or ultra fast scanning speed only limited by camera frame rate
Allows 3D recording of fast dynamic processes in sensitive living samples
- Easy biological specimen mounting and positioning
No tedious and time consuming procedure for specimen observation
- Adapted to various experimental conditions thanks to its modular design
The SPIM platform can be easily customized and is flexible to specimen imaging constraints.
- Compatible with any fluorescence microscope stand
Alpha³ turns your microscope in a powerful light sheet imaging platform.



The main parts of the Alpha³ light sheet microscope include:

1. Laser source
2. Illumination unit
3. Sample chamber & holder
4. Microscope stand
5. Imaging detection unit
6. Scan control unit
7. Software for volume acquisition

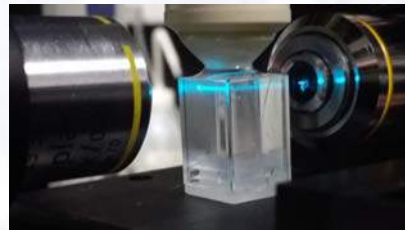


Illumination Unit



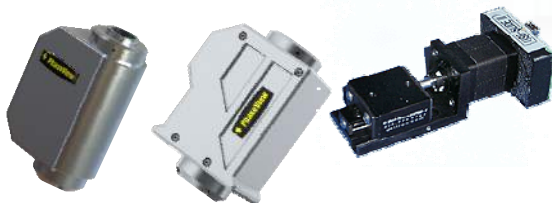
Compatible with fiber laser source(s)
Illumination arm(s) with cylindrical kens
and galvo scan
Finite-Infinite detection objective: 5X, 10X
or 20X,

Chamber & Sample Holder



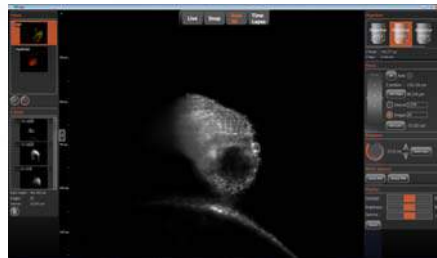
Chamber with optical lateral windows and
equipped for temperature control
Compatible with water dipping lenses
Removable sample holder for mounting
specimen in hydrogel cylinders

Detection Unit



3 options for detection & volume scan:
Motorized sample scanning
Remote focusing (no sample move) with:
NeoScan for fast scanning or
ThunderScan for ultra high speed acquisition
Compatible with sCMOS large format cameras

Software



Automatic acquisition & display
2D and 3D Acquisition mode
Z-stacking parameters: interval, number of
sections
Time lapse acquisition
Export to 3rd party software

Applications

Morphogenesis and embryogenesis:
C. elegans, Drosophila or Zebrafish

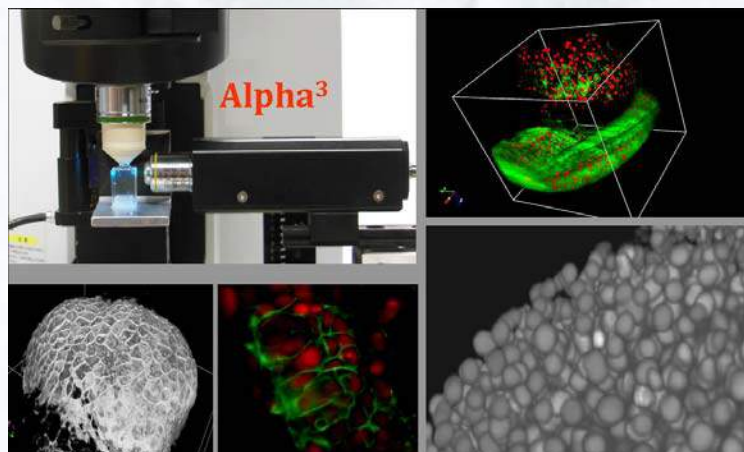
Fast imaging of cellular dynamics

Neuronal activity

Fluorescence imaging of marine
organisms

Live imaging of 3D cell cultures

High-speed volumetric imaging of weak
fluorescent specimens



Specifications

Light source	Fiber lasers CW / Laser diode or DPSS Wavelength selection from 375 nm to 785nm, output power from 25 to 500mW according to wavelength.
Illumination unit	Single or dual illumination arms Objective 10X 0.25NA air (standard), 5X and 20X optional
Detection lenses	Finite - Infinite type Air or water dipping lenses
Volume scanning	3 options: Motorized sample scanning: scanning speed 8 images/second Fast remote focusing with NeoScan ¹ (25 images/second) Ultra high speed remote focusing with ThunderScan ¹ (100 images /second)
Image Sensor	Compatible with life sciences cameras including large format scientific sCMOS cameras ²

¹See NeoScan and ThunderScan datasheets

²See camera compatibility list



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