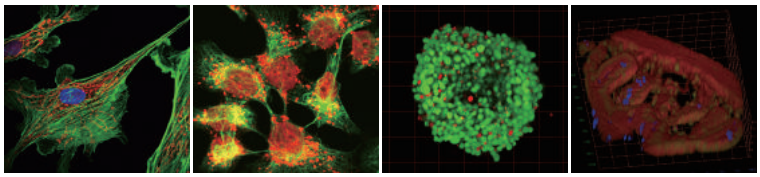
K1-Fluo

Confocal Laser Scanning Microscope

From Cell To Tissue



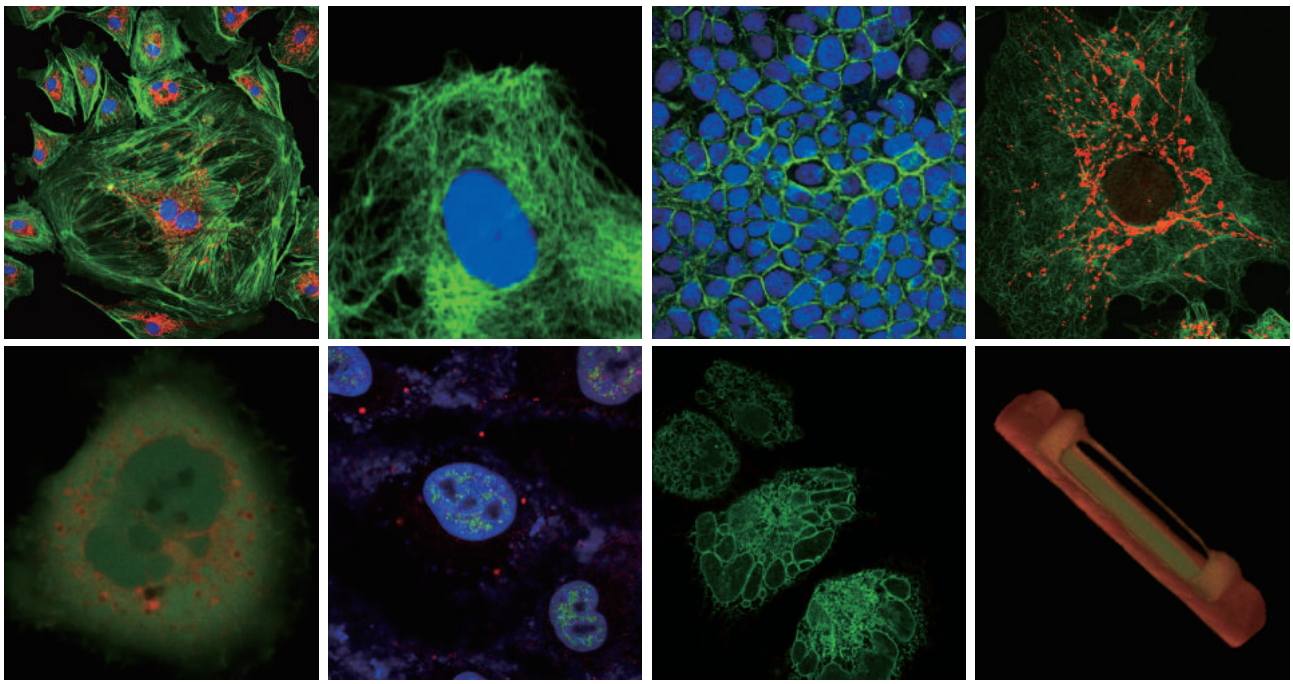
NANOSCOPE SYSTEMS

K1-Fluo

K1-Fluo is confocal fluorescence laser scanning microscopy from Nanoscope Systems – developed for versatile biological, chemical, and medical purpose. Optimized system components ensure great performance, with attractive price level, and excellent price/performance ratio.
K1-Fluo is adaptable for every type of commercial microscope and also provides every customizable optical solution.

Research-Proven Confocal Microscope

A lot of microscopic images and data from K1-Fluo have been cited in dozens of famous research journals.
K1-Fluo is already a fully-verified confocal microscope in the field of biological research.



Superior Image Quality

K1-Fluo features selected and optimized optical components, high sensitivity detector and verified electronic components, and stable multi-wavelength diode laser. The optimized components for confocal microscope ensure great system performance.

Compact Module Size

K1-Fluo adapts compact components; dedicated optics, detectors, and electronics to fulfill compact confocal module. The compact diode lasers are also integrated inside control box.

Easy Operation Software

The dedicated software controls confocal microscope with easy and intuitive user interface.

Price / Performance Ratio

The attractive price by own technologies and long-term experience make excellent price/performance ratio.

Fully Customizable Module

Optics team, electronics team, and mechanics team are readily available to provide every customizable optical solution. We would be pleased to support every customer's first-stage research and prototyping.

Compatible to Every Microscope Body

Specially designed optical and mechanical components enable system to combine with every type of commercial microscope; including Nikon, Olympus, Zeiss, Leica, upright and inverted microscopes.

K1-Imagine operating software

K1-Fluo's dedicated software controls the confocal microscope with easy and intuitive user interface. The software provides many useful functions, and flexibilities for first-stage research or prototyping.

K1-Fluo's software interface

❶ Image display area

Merged or multi-channel images are displayed.
Various display options (zoom, split channels)

❷ Open/Save images

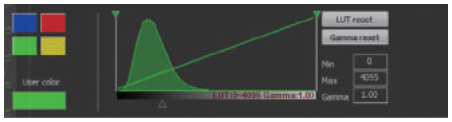
Open saved *.k1 files Save images with various options (Image, avi, capture, quick save)

❸ Scale bar option

❹ Zoom option

❺ Display options

On/off the image display / Colormap selection
Image processing tool
(Brightness, Contrast, Gamma, LUT)



❻ Send images to Fiji (ImageJ)

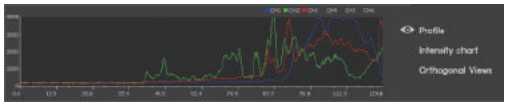
❼ Cut, rotate image

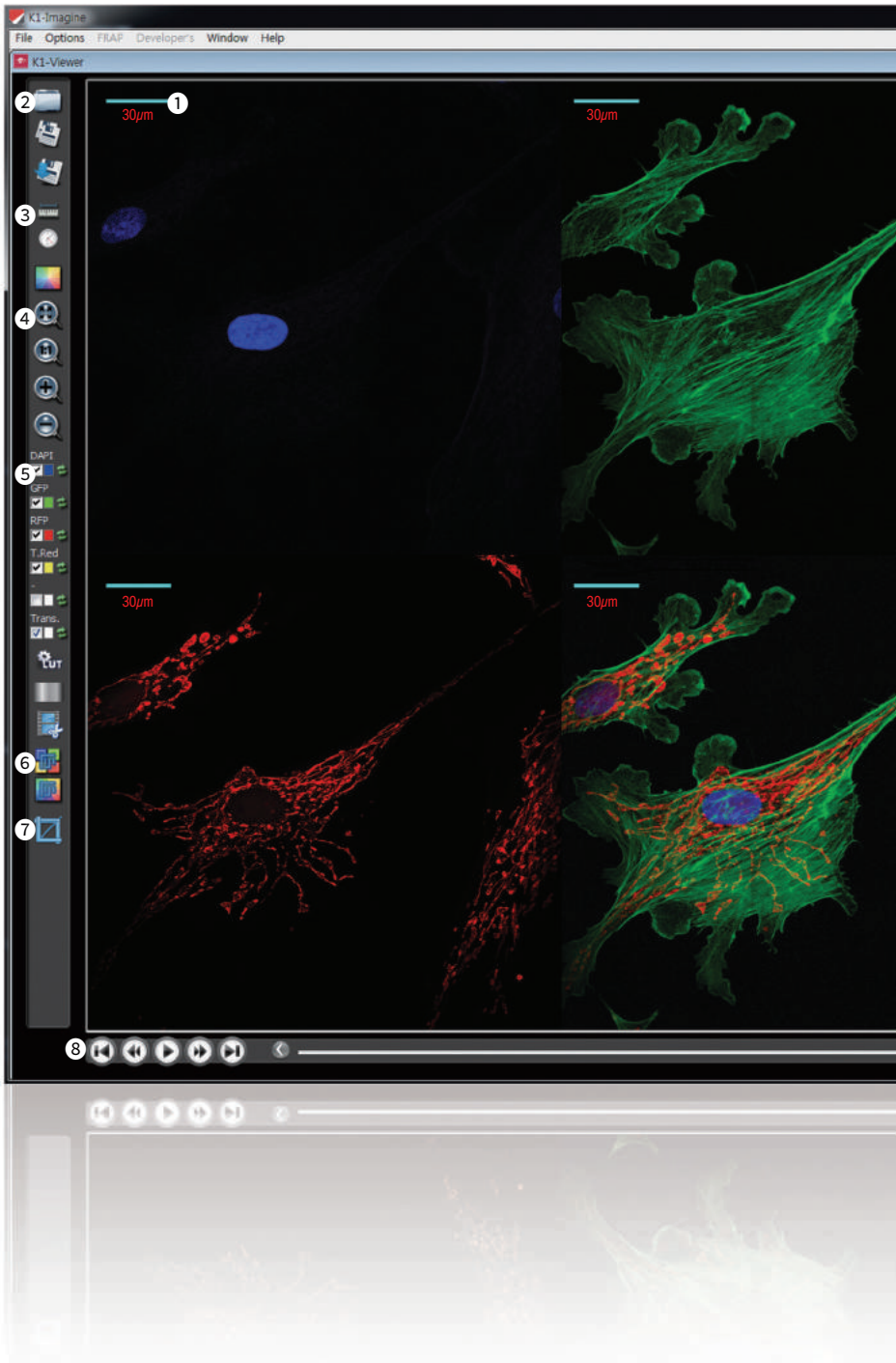
❽ Play buttons

Play recorded images (.k1 file)

❾ Graph button

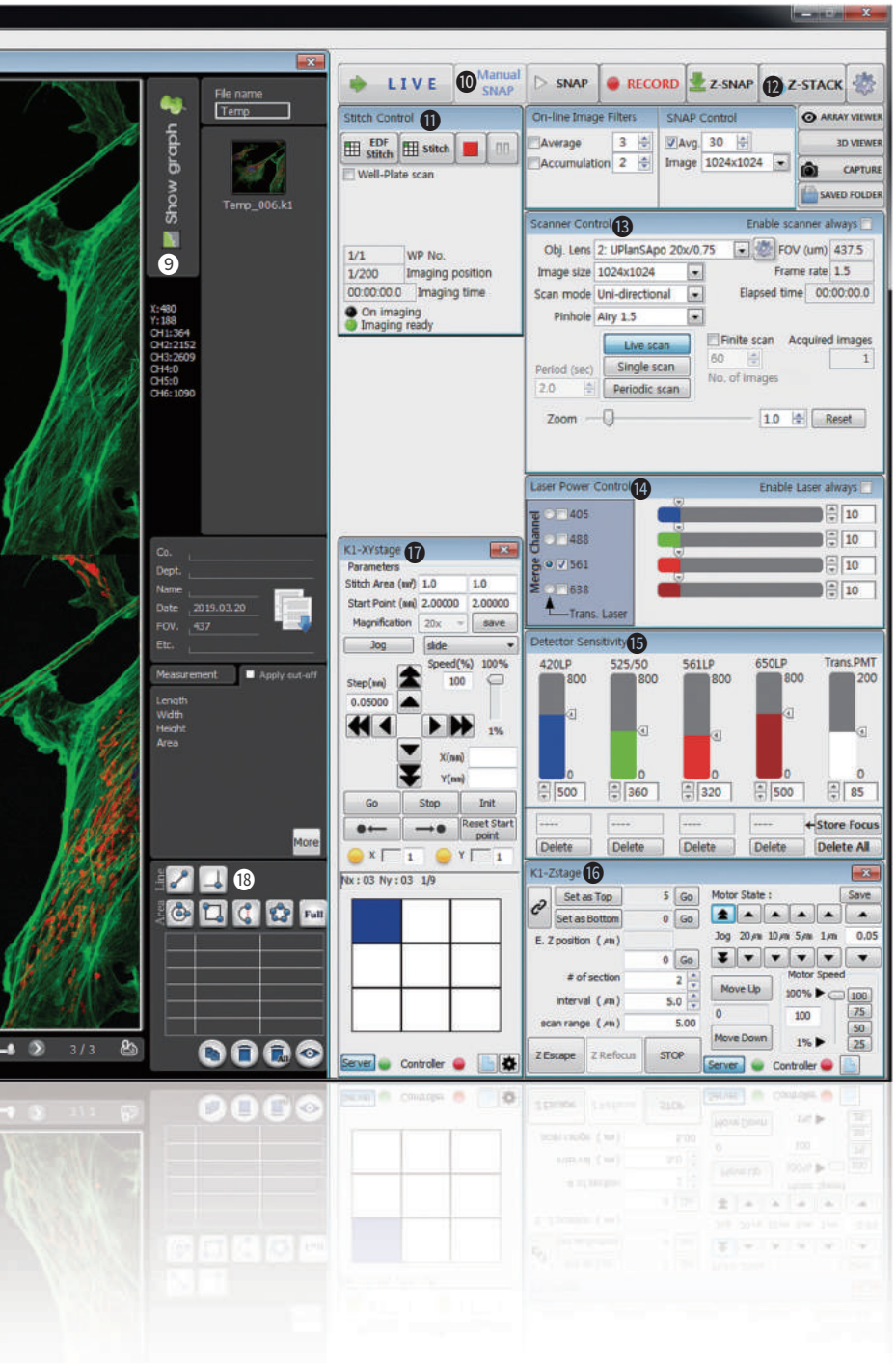
Plot of profile or intensity values





⑩ Image acquisition

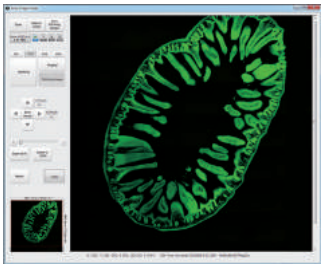
Live, Snap, Record functions



⑪ Stitching button

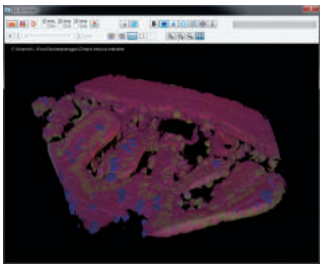
2D or EDF stitching

Array viewer : stitching software



⑫ Zstack(3D) button

K1-3Dviewer : z-stack software



⑬ Scan parameters

Objective lens selection / Image size
Optical zoom

⑭ Laser control

Laser power control
Imaging channel selection
Transmission laser selection

⑮ Detector sensitivity control

⑯ Focus stage control

Control motorized focusing stage
Zstack (3D) range setting
Escape nosepiece (turret)

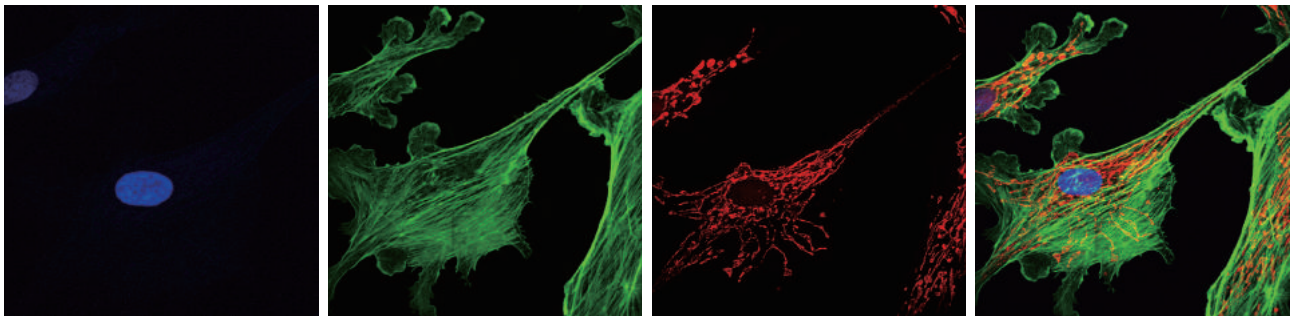
⑰ Sample (XY) stage control

Control motorized xy stage
Stitching parameter setting

⑱ ROI tool

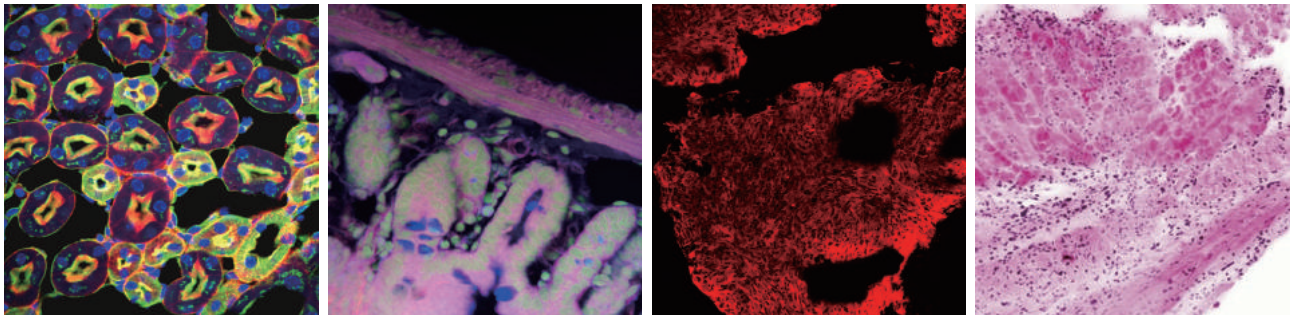
Various line, area selection tools

Cell imaging



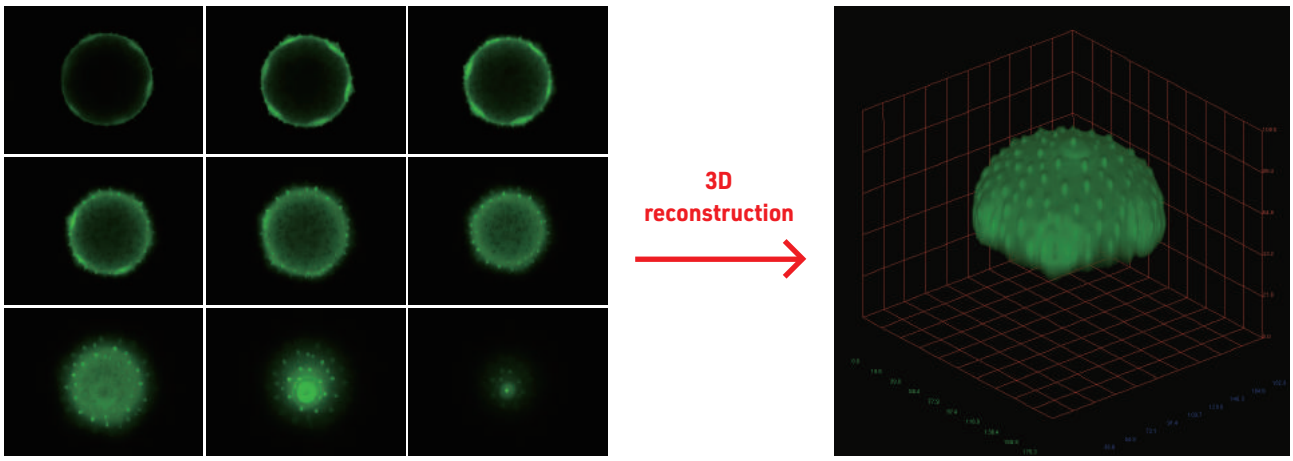
BPAE (bovine pulmonary artery endothelial) cells stained with DAPI (nuclei), Alexa Fluor® 488 (F-actin), and MitoTracker® Red CMXRos (Mitochondria)

Tissue imaging



Mouse kidney | Mouse intestine | Human tissue | Mouse tissue with H&E effect

Z-stack (3D)



Z-series images of pollen

3D image of pollen

Transmission imaging of thick sample

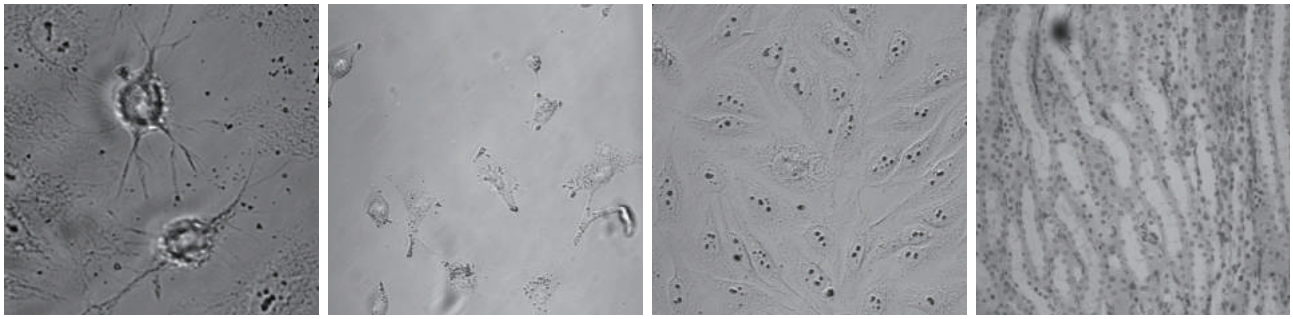
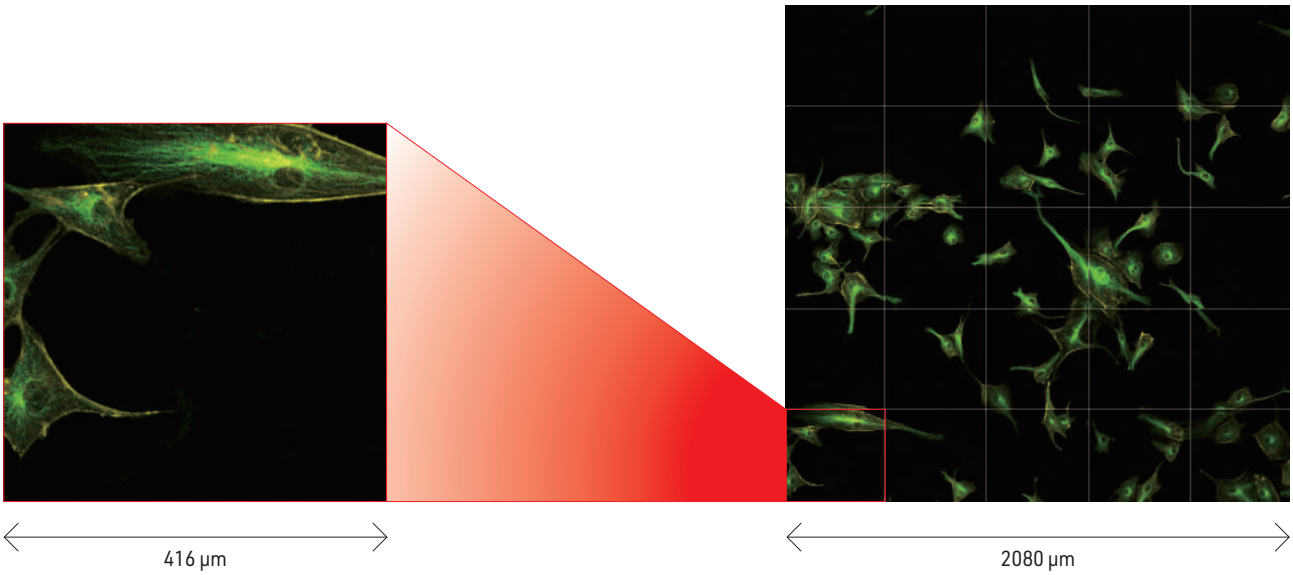
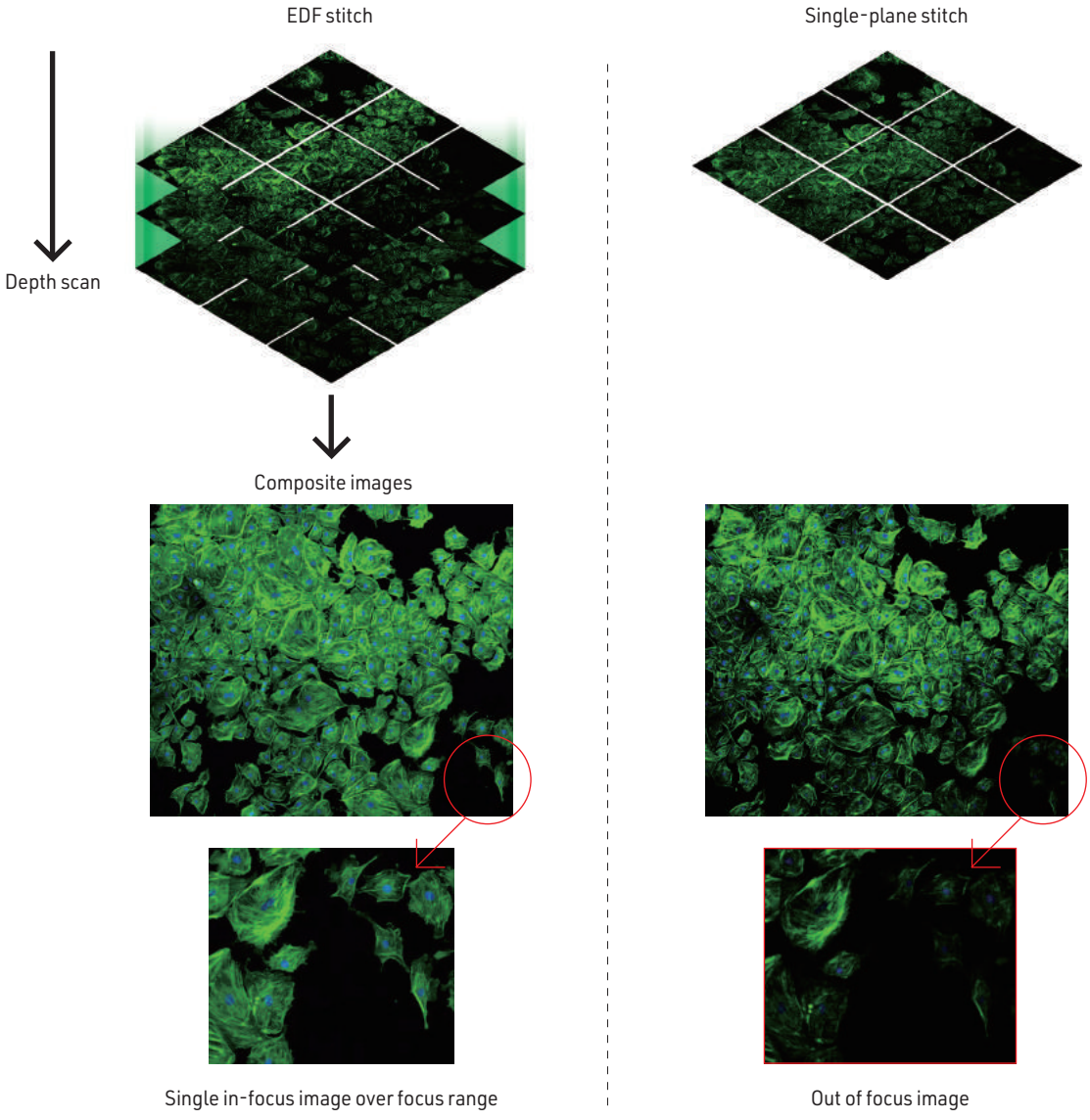


Image stitching



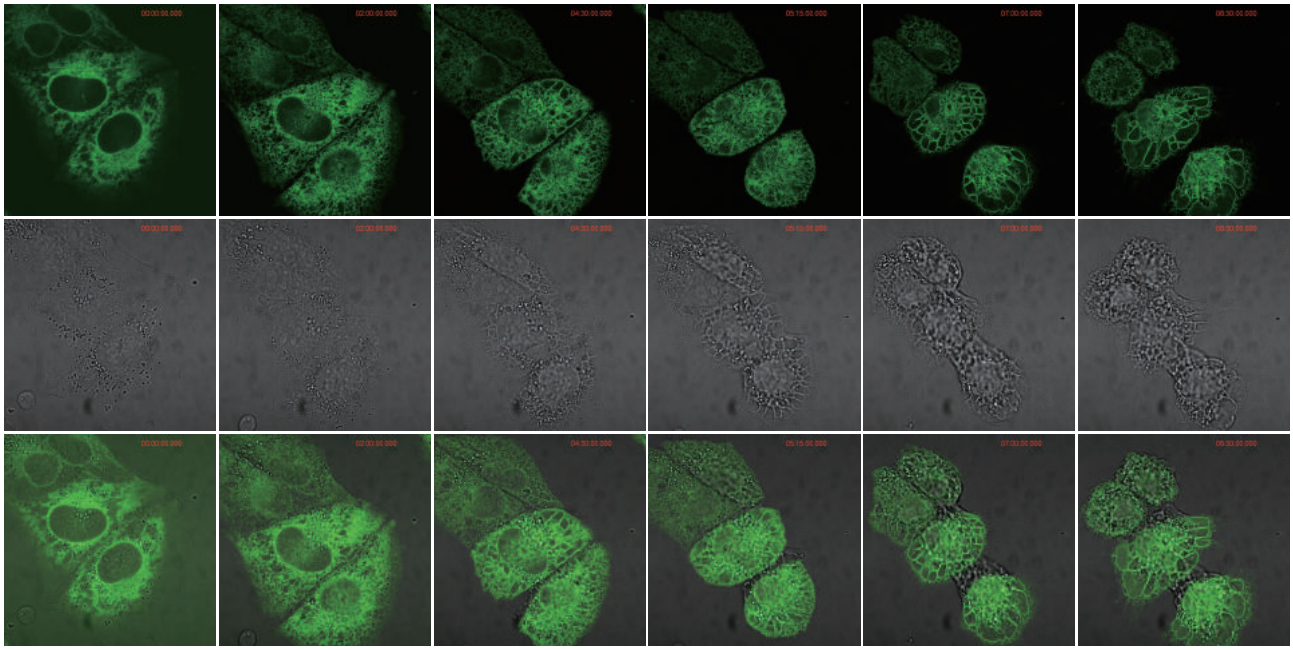
BPAE cells with mouse anti-α-tubulin (imaging by 20x objective lens)

EDF (Extended Depth of Field) stitching



Time lapse

Image acquisition at user-defined time interval enables the analysis of changes over time

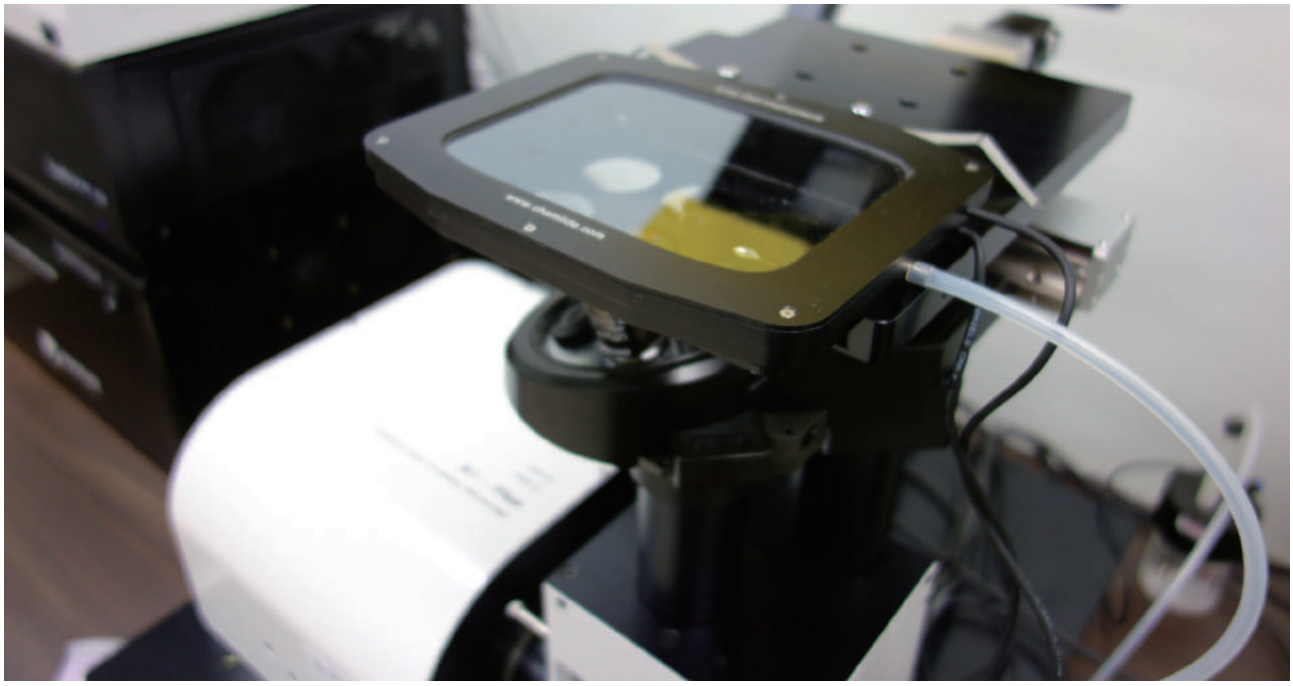


0.00 H | 2.00 H | 4.50 H | 5.25 H | 7.00 H | 8.50 H

Time lapse imaging with incubator for record of vacuolization-associated cell death
(top: fluorescence, middle: transmission, low: overlay)

Live cell imaging with top-stage incubator

High quality images can be obtained through the window of the incubator chamber. Live cell imaging experiment for decades of hours can be conveniently set up with K1-Fluo.



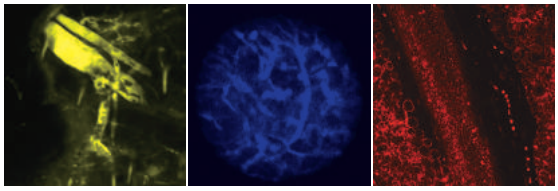
Top-stage incubator system

· CO_2 5% + Air Balance 95% GAS
· The temperature, humidity, concentration of CO_2 in the incubator chamber is controlled in real-time.

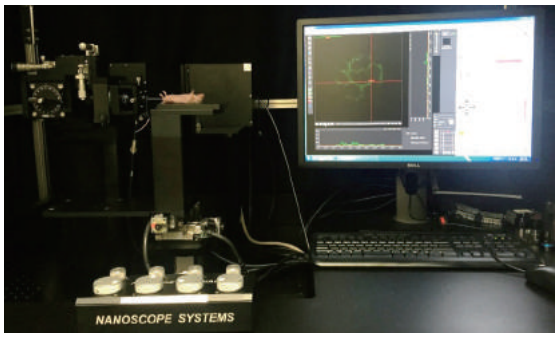
K1-Fluo in-vivo imaging system

Designed for "confocal live imaging" of a mouse experiment.

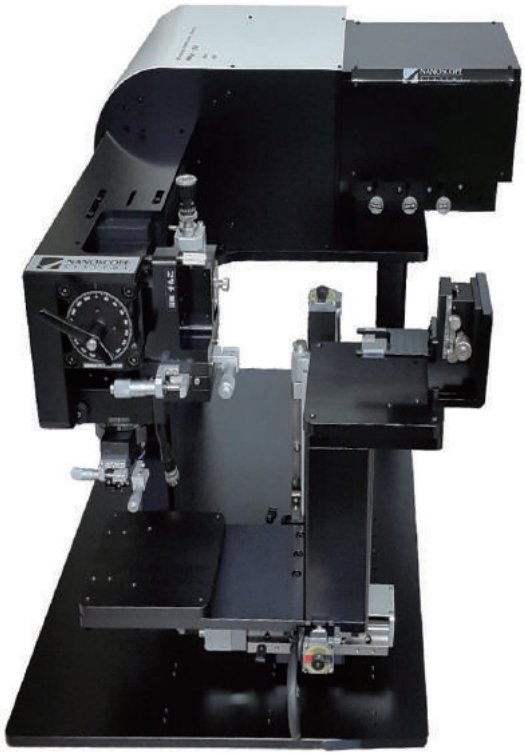
- Fully motorized stage (X, Y, Z, θ)
- Rotational objective arm (Vertical and Lateral view modes)
- Simultaneous multi-channel detection
- Endoscopic rod lens interface provided



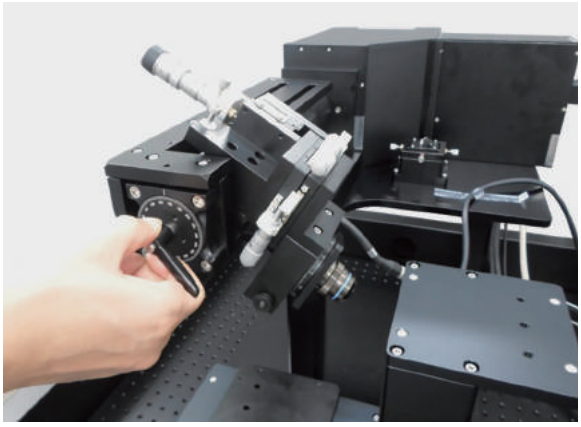
Video rate record of microscopic biofluid of a mouse running in-vivo



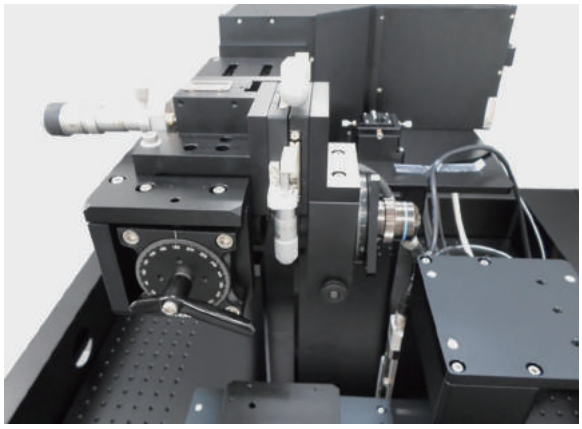
Connected with the GRIN lens probe to see the internal organic surface of a mouse in-vivo



Switching from vertical view mode to lateral view mode



Rotation of objective arm



Lateral view position

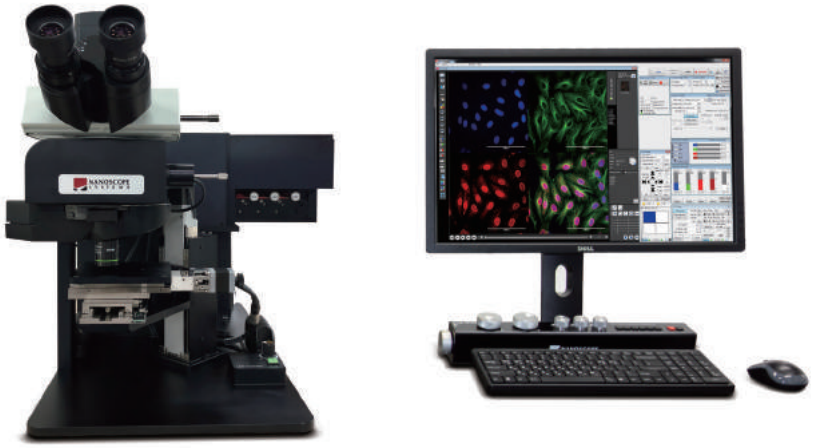
Other microscope body configuration of K1-Fluo

Classical type inverted automatic biological microscope

· Observation through microscope eyepiece
· Optical fluorescence imaging
· DIC(differential interference contrast)imaging
· Fully motorized functions

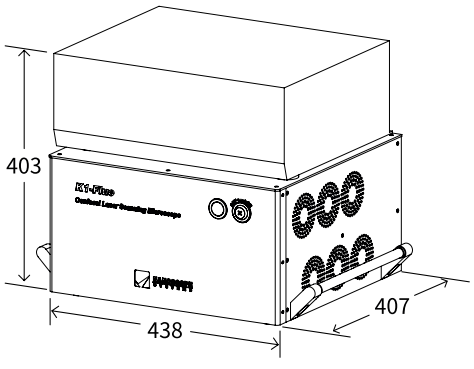
Upright type microscope body with fully motorized functions

· Observation through microscope eyepiece
· Designed for enough space under the objective lens
· Fully motorized functions

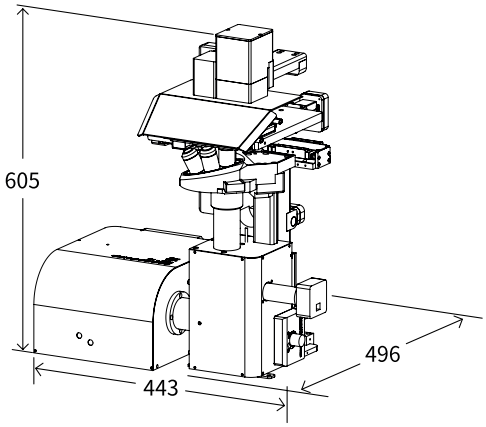


Dimensions

(Unit : mm)



Controller with PC and laser(combined inside)



K1-Fluo confocal microscope (DMB configuration)

Specifications

Laser module		
Laser lines	Basic lines	- 405, 488, 561nm (7mW each)
	Optional lines	- 445, 473, 514, 532, 637, 640, 660, 685, 705, 730, 785nm (10mW or more) selectable up to four lines
Scanner module		
	K1-Fluo HD	**K1-Fluo RT**
Scanners	Two independent galvanometer mirrors	Resonant scanner and galvanometer mirror
Scan resolution	128x128 ~ 4095x4095 selectable	128x128 ~ 2048x2048 selectable
Scan speed	1 ~ 1000hz variable line frequency	30fps at 512 x 512 pixels (Bi-scan)
	1.2fps at 512 x 512 pixels max.	15fps at 512 x 512 pixels (Uni-scan)
Scan zoom	0.7x to 7x continuously variable	0.7x~3x continuously variable
Scan field	Square 12.5mm divided by objective lens magnification (Field number 18)	
Scan mode	xy, xyz, xt, xyt, xyzt	
Pinhole	Motorized switching pinhole (0.5~10 Airy size)	
Weight	7 kg	
Detector module		
Detection range	400-750nm or NIR detection is customizable	
PMT	Standard : Highly sensitive PMT	
	Low light model : Ultra-highly sensitive GaAsP PMT	
Number of detector	Basic model : Single PMT with filter wheel (Six channel) Sequential switching detection	
	Multi-ch model : Up to four PMTs with each emission filter Simultaneous detection	
Emission filter	Motorized switching filter wheel or single exchangeable emission filters	
Data depth	12 bit	
Weight	1.5 kg	
Microscope module		
Upright or Inverted	Dedicated digital microscope body (DMB), automatic biological microscope (ABM) or Commercial microscope body; Nikon, Olympus, Zeiss, Leica microscope with side-port	
XY stage	Motorized or manual stage, Stroke 115 mm x75 mm ; various travel range customizable Various specimen holders; glass slides, well plates, Petri-dishes	
Z-drive	Motorized stage - 15mm travel range / 250nm step size min. PZT stage (single objective lens) - 400μm travel range / 1nm step size	
Objective lens	Olympus objective lens (Highest grade model), or any commercial standard objective lens	
Nosepiece	Motorized nosepiece and controller (Jog dial)	
Accessories	Stage jog dial Digital Cameras – sCMOS, high sensitivity CMOS, cooled-CCD, etc.	
Weight	12 kg	
Electronics module		
Controller	Dedicated electronics; control of laser, scan module, detector module Power consumption: 100~240V, 450VA, 50/60Hz Weight: 19 kg	
PC	Dedicated computer and monitor with signal processing boards Windows 10, 64bit Power consumption: 100~240V, 700VA, 50/60Hz	

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Confocal Laser Scanning Microscope

NANOSCOPE SYSTEMS

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