OLYMPUS®

Your Vision, Our Future

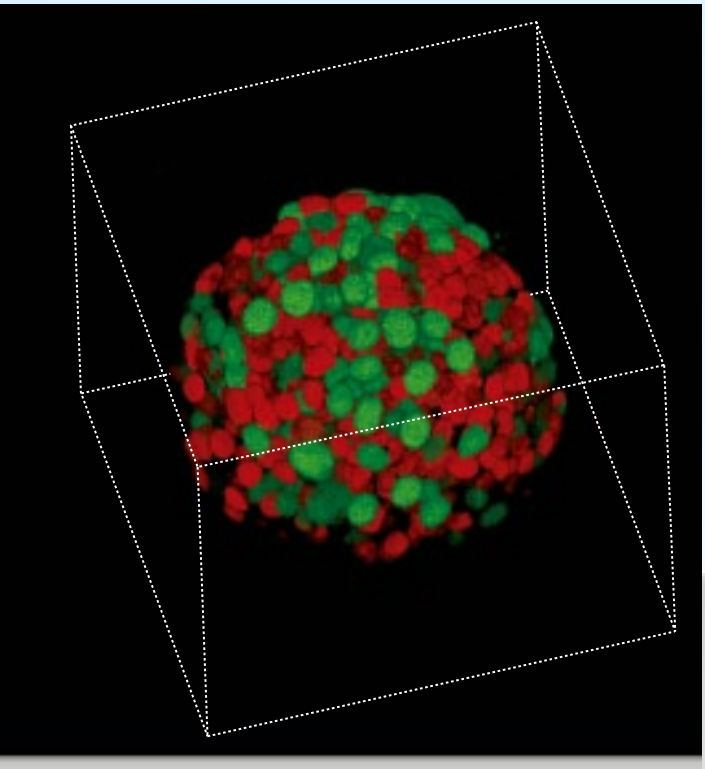
Confocal Laser Scanning Biological Microscope

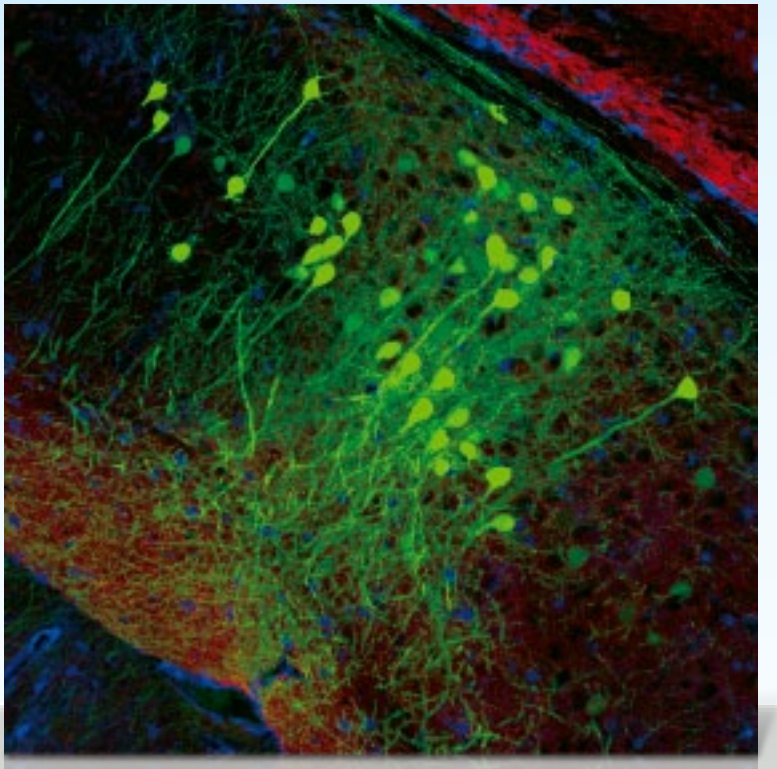
FV10i

FLUOVIEW

Self-contained Laser Scanning Microscope
for efficient, easy, high resolution imaging.

UIS2
World-leading optics





Designed to be the optimum equipment for achieving your experimental goals.

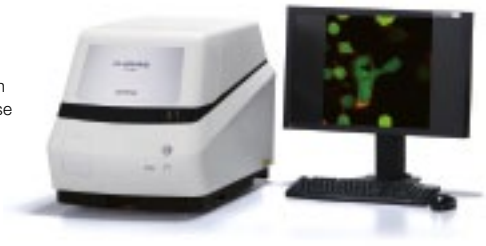
Line up

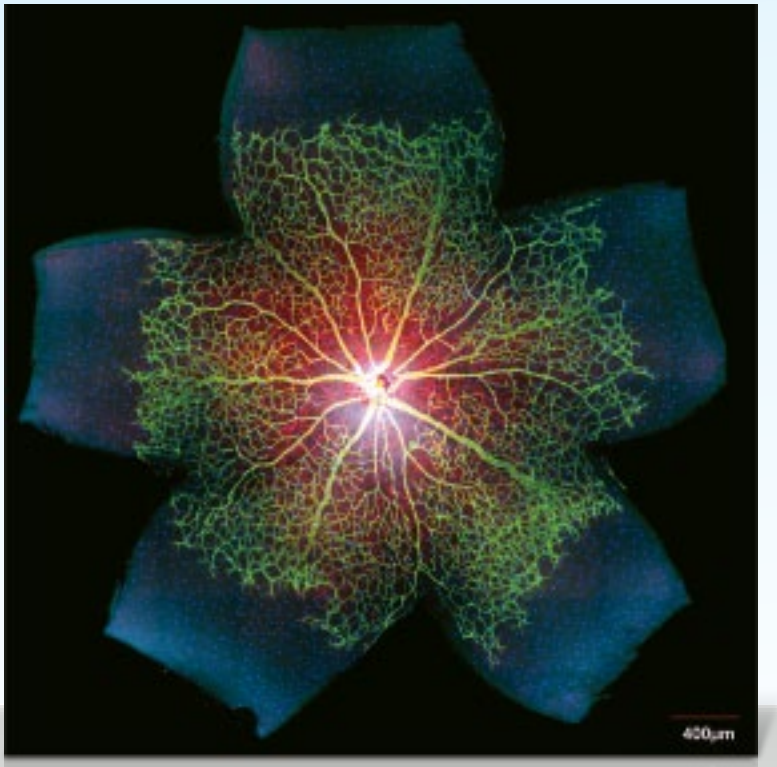
The FV10i offers two types of products with high performance and function in a self-contained design.

FV10i-LIV

For live cell imaging

The system is equipped with water-immersion objective which are optimally suited for time-lapse imaging of live cells with a simplified built-in incubator.
A culture pod is also available, allowing recirculation of the culture media.





Confocal microscopy is often one of several techniques a biologist may need to employ in a study.

Therefore, a confocal microscope should be a user friendly and effective laboratory tool.

In many cases, biologists may want to focus on the experimental question, and not focus on the extensive technical considerations found with previous generations of confocal laser scanning microscopes.

Fluoview FV10i—the World's first self-contained confocal laser scanning microscope will be prepared to meet future research needs.

FV10i-DOC

For documentation

The system, equipped with an Olympus 60x oil immersion objective with a numerical aperature of 1.35, enables high-quality imaging.

FV10i CONCEPT

The FV10i features a self-contained enclosure that eliminates the need for a dedicated dark room. It can be installed in the vicinity of other laboratory equipment, which allows researchers to conduct confocal experiments while working on other laboratory tasks, such as writing articles or discussing experimental results with their colleagues.

The ease of use of the FV10i enables researchers to acquire optimal confocal images with little training and no experience required. By using it to study comparative conditions and time-lapse images, the research workload can be distributed to greatly enhance work efficiency.

FV10i offers clear images with simple installation, small system size, and ease of use.

As the confocal microscope is becoming more widespread, it is being used in the same manner as an ordinary microscope.

No dark room required

- No special room is required. FV10i can easily be installed at any place in the laboratory, and experimental results can be viewed with colleagues.
- You can use FV10i with ease in a common experimental equipment room without installing a dedicated dark room.

All-in-one

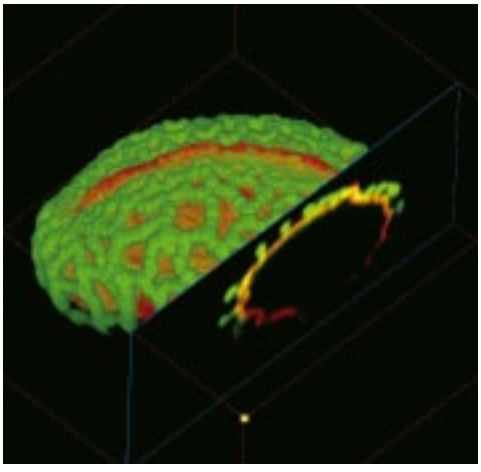
- All the essential features, such as a diode laser unit and incubator, are incorporated in a streamlined body.
- It can readily be adopted to layout changes in the laboratory room.

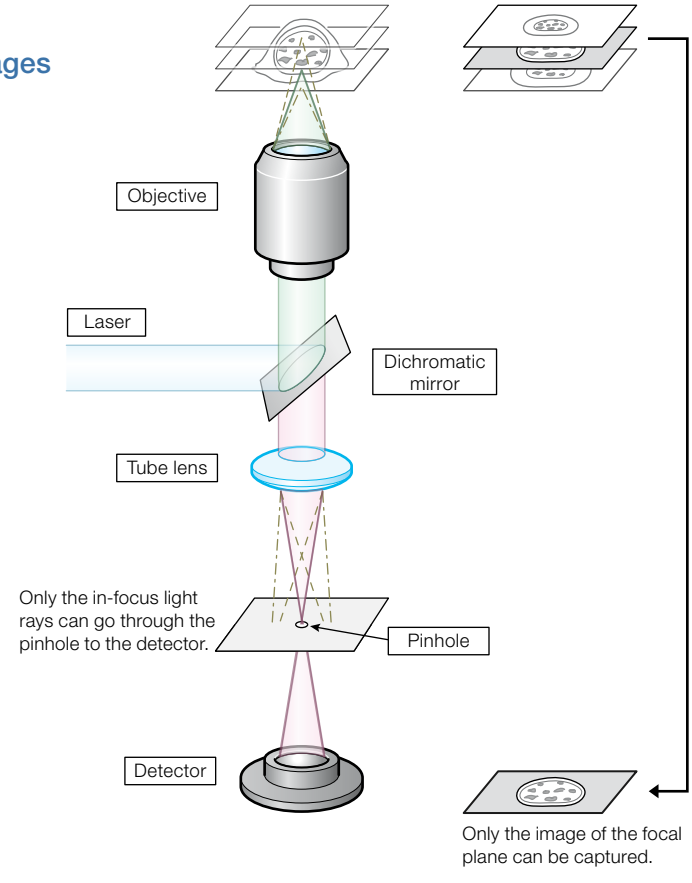
Effortless operation

- The operator simply follows the on-screen instructions to obtain clear images.
- The navigation feature allows anyone—even a novice—to acquire images easily.

Confocal microscope to acquire high-resolution images

The confocal laser scanning microscope utilizes a pinhole at the focus position to eliminate blurring before and beyond the focus and acquiring only information on the focal plane, thereby attaining higher resolution than in an ordinary fluorescent microscope. It can obtain images with superior contrast, high resolution, and can also construct 3D images.





HARDWARE

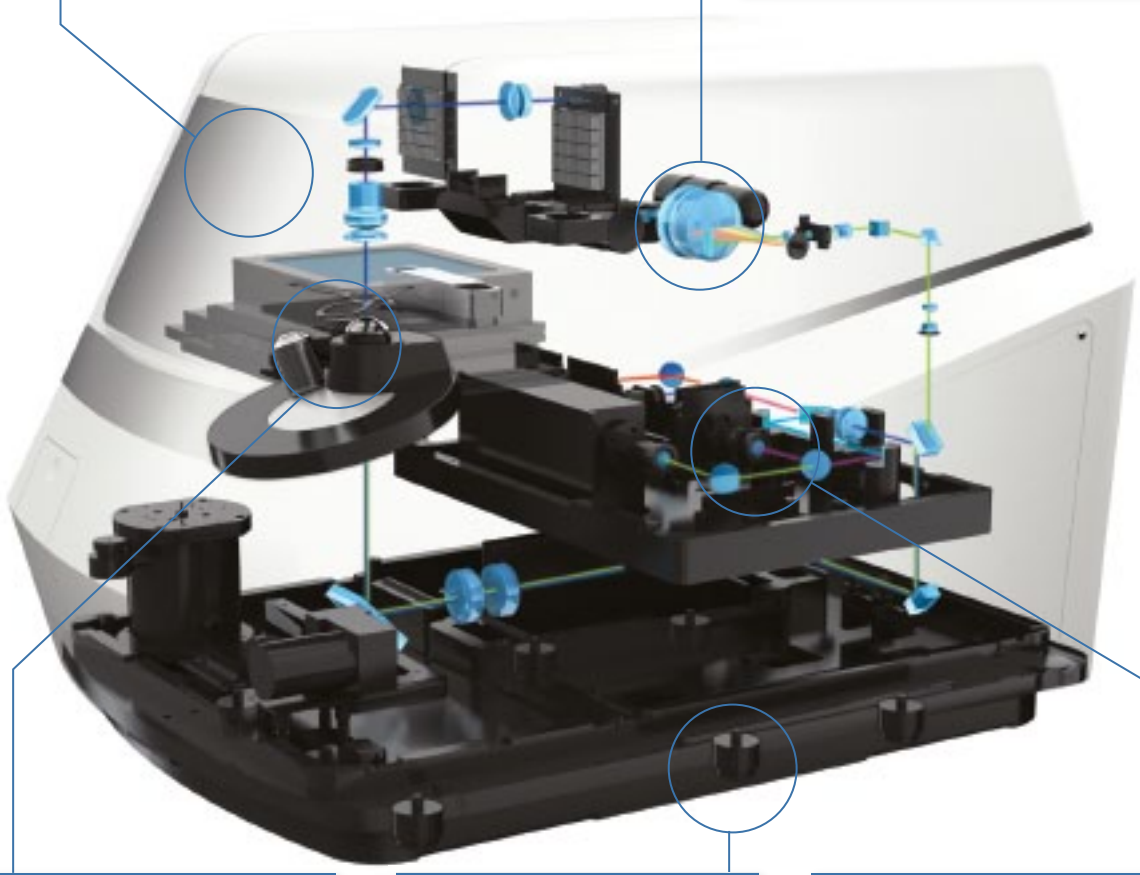
World's first self-contained confocal laser scanning microscope... conceptualized by biologists for biologists.

Dark room free

The Microscope body and light tight cover are integrally combined. You can use the FV10i with ease in a laboratory, unlike conventional confocal laser scanning microscopes which require a dark room.

Scanning unit

The system automatically sets hardware conditions for the fluorescent dyes selected in the software. Two spectral fluorescent detectors and one transmitted detector come equipped on the system.



Microscope function

The FV10i's excellent optical and mechanical modules are totally integrated. The FV10i can capture images from 10× to 600× magnification with 10×, 60× objectives and optical zoom.

Vibration isolator function

Equipped with built-in vibration insulators. A vibration isolation table is not required. You can install it directly on your experimental table.

Laser combiner

Equipped with four diode laser units (405/473/559/635 nm), each unit utilizing a compact diode laser for longer life and power-saving compared to traditional confocal systems.

FV10i-LIV For live cell time-lapse imaging

Built-in incubator

The system has a built-in incubator, allowing easy time-lapse imaging of live cells without losing valuable time in setting up equipment. The environment in the culture chamber is maintained at temperature 37 degrees Celsius, humidity of 90%, and CO_2 concentration of 5%*.

* To maintain 5% of CO_2 in dish, injection of 6% CO_2 with 150ml/min is recommended.

Simultaneous observation of 3 glass-bottom dishes

Three glass-bottom dishes with a diameter of 35 mm can be installed for observation. Simultaneous time-lapse experiments of up to 400 points under different culture conditions, such as comparative experiments with control samples, can be undertaken.

60X water-immersion objective ideal for time-lapse imaging

The 60XW objective detects the thickness of the cover glass and automatically adjusts the correction collar. Optimum observation conditions can be ensured even during the time-lapse imaging over an extended period of time.

Holders exclusive to the FV10i-LIV

For three glass bottom dishes with 35mm diameter	For a glass slide	For one set of cover glass chamber (8 wells type)	For well slide (8 wells type)	Culture pod (for a glass bottom dish with 35mm diameter)
				

FV10i-DOC For high-quality imaging

Dedicated 60XO objective with high fluorescence performance

The system is equipped with an original UPLSAPO–equivalent Olympus objective, which is intended to provide the best fluorescence observation performance available in the world for a 60x objective. The objective has a high numerical aperture of 1.35 enabling high resolution imaging.

Holders exclusive to FV10i-DOC

For a glass bottom dish with 35mm diameter	For a glass slide	For well slide (8 wells type)
		

Efficient oil replenishment in changeover of objectives

The FV10i motorized stage automatically moves to the oil supply position when switching to the oil-immersion objective, allowing oil to be supplied efficiently without removing the specimen.

STRESS-FREE OPERATION

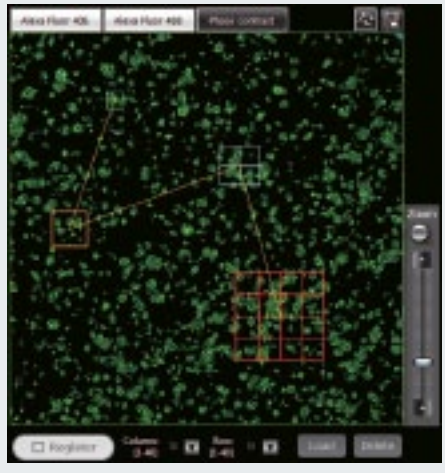
Efficiently capturing images right from the start with a new, automated, simple interface.

Set

- Place the specimen

Select

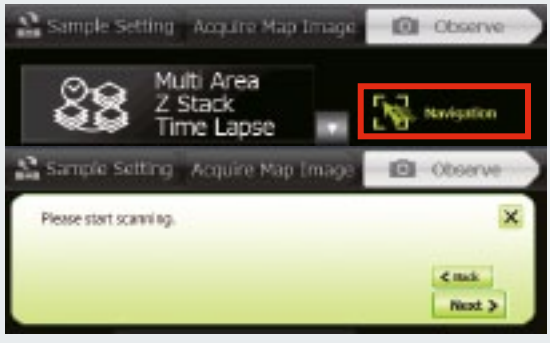
- Select the imaging area on the map image.



The biggest advantage of FV10i is its unique self-contained design. It has been completely overhauled with the elimination of extensive hardware and complicated settings and integrated with all the necessary functions, including incubator and laser combiner.
In addition to its compact design, it was created with ease of use in mind, including a vibration isolation function and a light tight enclosure that eliminates the need for a dark room. Installing the FV10i is simple and no longer requires a dedicated room. With the same functionality of a high-end confocal laser scanning microscope that users are accustomed to, the FV10i will completely change the relationship between biologists and their research.

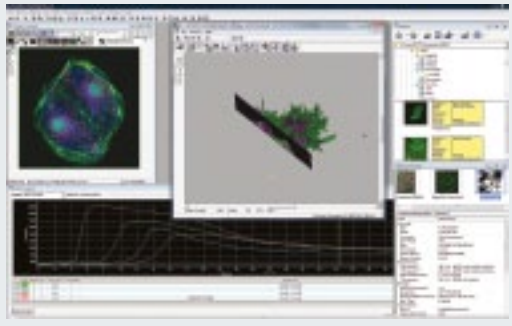
Capture

- Parameters can readily be set with the navigation function—even for first-time users.



Analyze

- Analyze images in various ways, such as, intensity line profile.



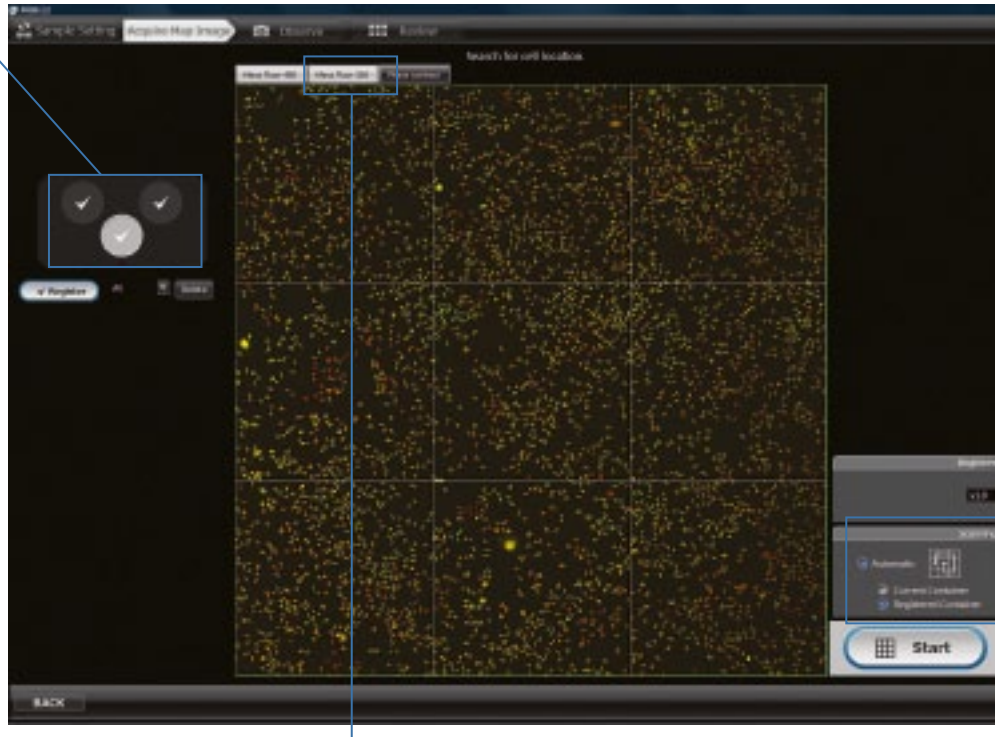
ACQUIRE MAP IMAGE

IMAGE MAPPING TOOL

With the touch of a button, automatically capture the image you want without searching for it.

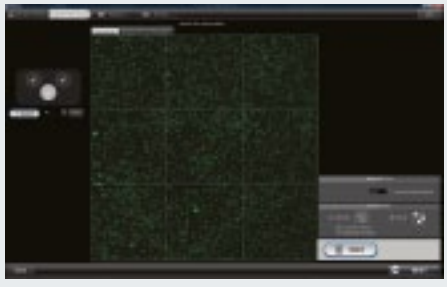
Mapping area selection

The area is displayed according to the type of specimen holder used, such as a 35mm dia. dish or glass slide. Clicking the area you want to scan will display the area on the “Map Image” screen. You can also change of the area with just a single click operation. For the glass slide, the entire map image can be created simply with a click.



Fluorescence dye change

The display of the map image can be switched for each fluorescence dye. The images can also be overlaid with each other.

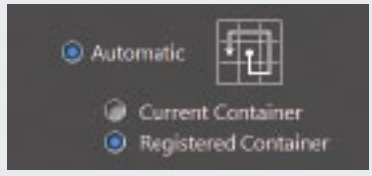


Scanning order setting

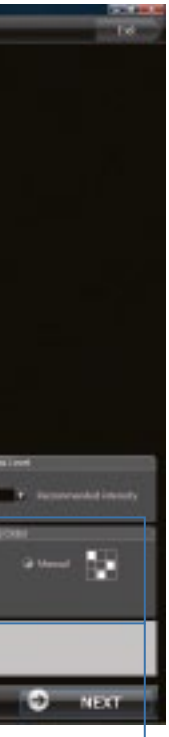
You can select one of the following two scanning orders,

Automatic

The map image is automatically created from the center in the spiral pattern.



When loading of the specimen is completed, just click the <Start> button in the “Acquire Map Image” window. The creation of the map image of the specimen will begin automatically. With this bird’s eye view of the cell, the user can quickly and easily capture the desired imaging area.



depending on the experimental requirements.

Manual

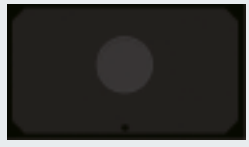
You can select the area that you want to view from the map at random. Selection is possible for a maximum 9 × 9 areas. Manual selection is more efficient, because the ROI (Region of Interest) can be narrowed down in advance.

A map image of the specimen can be automatically created

A map image can be created by automatically detecting which type of specimen holder is used.

High speed with low resolution or low speed with high resolution image mapping options available.

For a glass bottom dish with 35 mm diameter

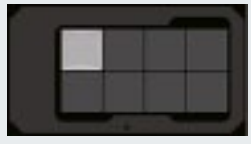


For three glass bottom dishes with 35 mm diameter

Culture pod (a glass bottom dish with 35 mm diameter)

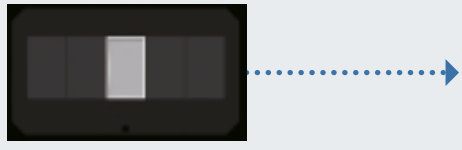
Cover glass chamber

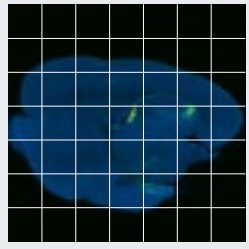
Well slide (8 wells type)



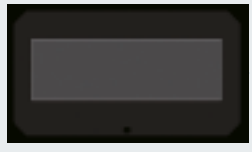
Example map images

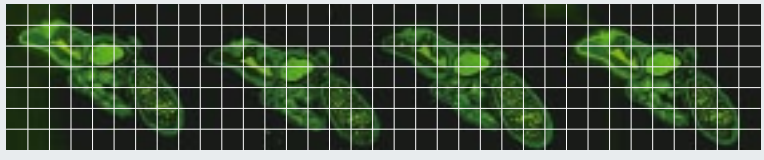
Glass slide (five fractions)





Glass slide (whole map mode)





A map image of the entire observable area of a glass slide can be created.

OBSERVE

IMAGE CAPTURING

Even a first-time user can perfect sophisticated confocal imaging and operate the FV10i with it's user friendly navigation function.

Observation mode selection

Five types of observation modes can be selected including time-lapse, Z-stack, and multi-area.

Time-lapse

In time-lapse mode, images are continuously acquired at predetermined intervals.

Z-stack

In Z-stack mode, images are repeatedly acquired in different focus positions.
Three-dimensional images can be constructed.

Z-stack - time-lapse

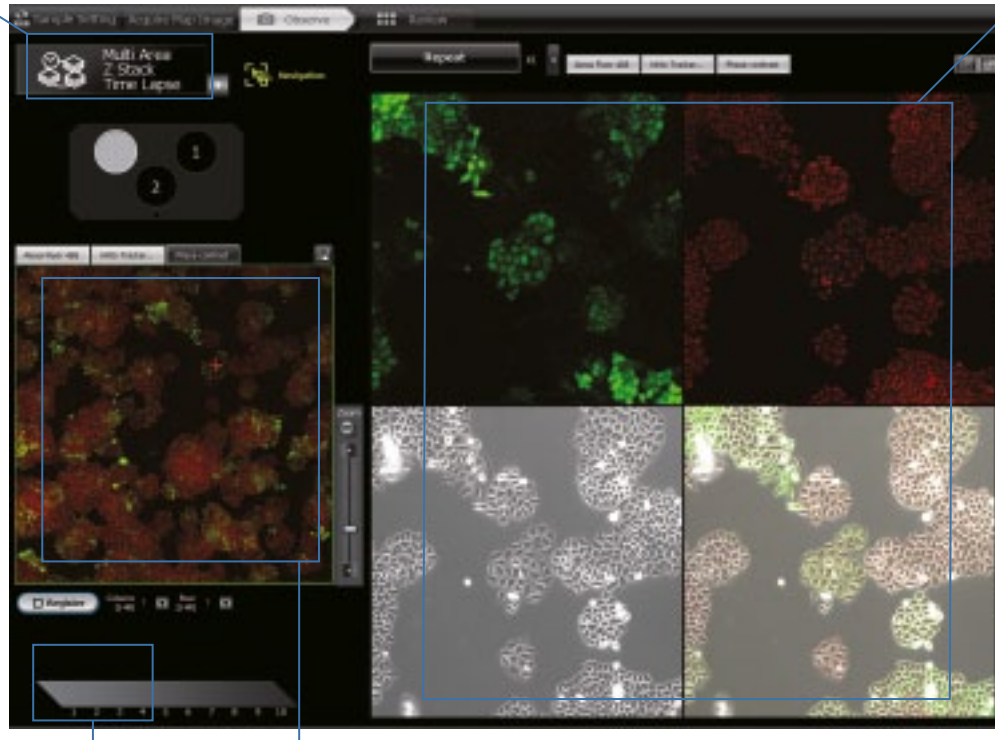
The imaging which integrates Z-stack and time-lapse is possible.

Multi-area-time-lapse

Time-lapse imaging is performed automatically at pre-selected points.

Multi-area – Z-stack - time-lapse

The imaging where all three functions are performed.



Multi-area setting

Register the areas for imaging in multi-area mode and set the appropriate imaging conditions for each area.

Map image

The image acquired in [Acquire Map Image] is displayed. You can choose a region for closer examination.

You can quickly choose the region you want to using the map image and live image screens. Setting the imaging area is performed easily and quickly with the intuitive operating system, utilizing zooming and point shifting. Furthermore, the system is equipped with user friendly navigation functions allowing even a first-time user to capture images with ease.

Live image

Displays the selected point on the left lower map image screen and determines the imaging area by using the framing and zooming functions. You can switch between the displays for each type of fluorescence dye.

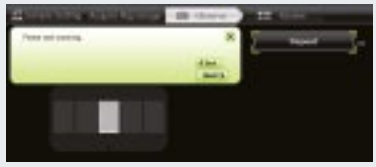
Control screen

Imaging conditions can be set in detail with operation of various controllers.
Main settings include:

- **Zoom**
- **Focus**
- **Laser output**
- **Photomultiplier sensitivity**
- **Time-lapse conditions**

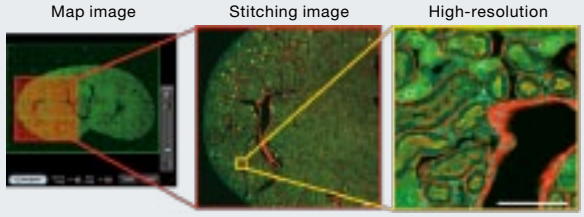
Navigation function

The system is equipped with a user friendly navigation function.
Clicking the <Navigation> button shows the operational procedure and highlights the operational button Just follow the navigational guidance to easily complete your imaging.



Stitching function

Wide-angle high-resolution imaging can be obtained by acquiring the adjacent regions. A map image of the entire glass slide can also be created.



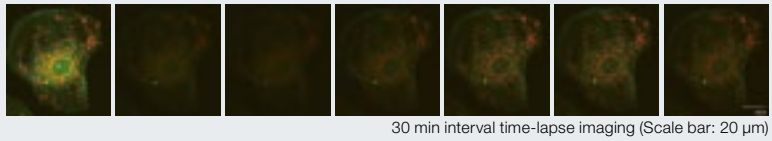
Mouse kidney Stitching image (scale bar: 100 µm)

Software ZDC function (FV10i-LIV only)

Z-drift compensation function (software ZDC) reduce Z-drift by temperature-shift in time-lapse imaging.

Software ZDC : ON

Software ZDC : OFF



30 min interval time-lapse imaging (Scale bar: 20 µm)

ANALYZE

IMAGE REVIEW

Exclusive FLUOVIEW software provides easy and diversified editing and analysis.

2D analysis tool

The software offers an analysis tool to easily analyze 2D images.

Background Correction
Subtracts background.

Region Measurement
Measures the size and intensity of regions designated as ROI (Region of Interest).

Intensity Profile
Displays an intensity profile of regions designated with ROI or Line.

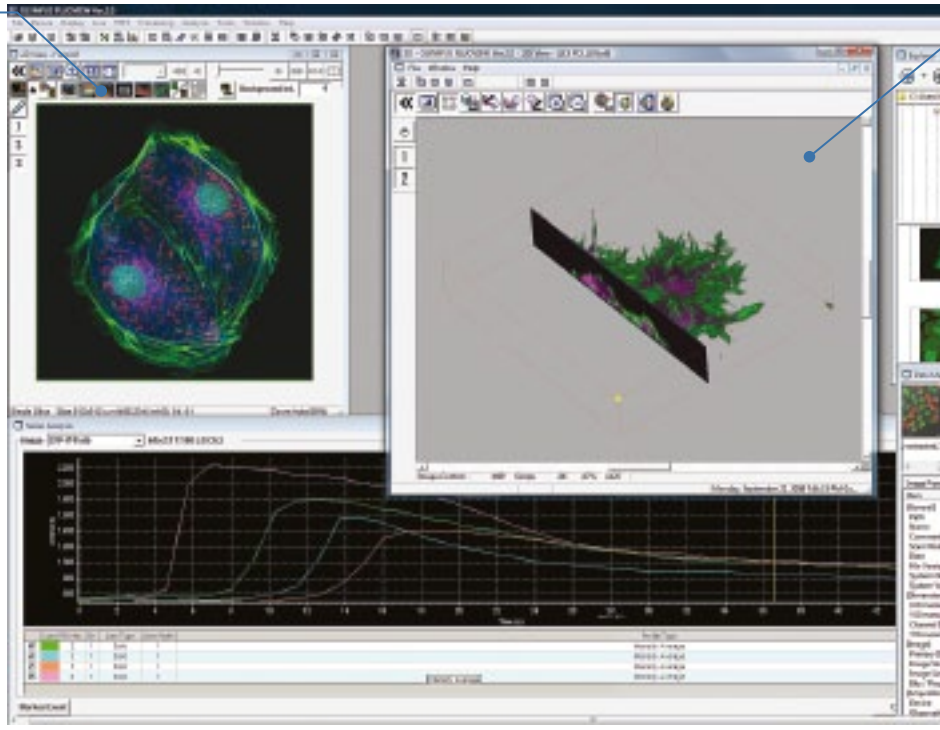
Histogram
Displays histogram of intensity values of region designated as ROI or Line

Series Analysis
Analyzes variation in intensity along the Z-axis / time- axis in regions designated with ROI or Line.

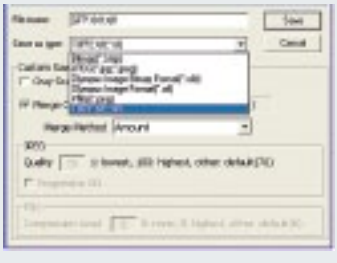
Line Series Analysis
Analyzes variation in intensity along the Z-axis / time- axis on a designated Line.

Co-localization
Analyzes in the degree of overlap of pixels at or higher than a level of certain intensity between two channels.

Ratio
Creates an image using the intensity ratio between two channels.

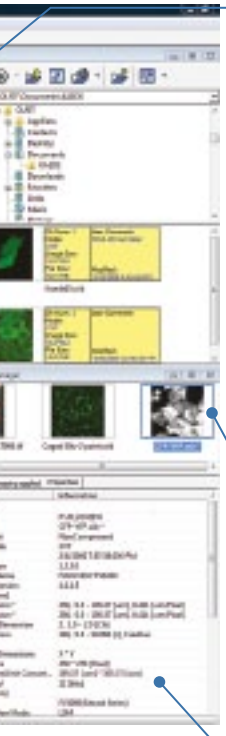


File input/output



OIF (Olympus Image format) is employed to store various parameter settings and images together. This software supports a wide range of well-used formats with high interchangeability including TIFF, BMP and JPEG.

Olympus image review software is provided as part of the system for editing and analysis.
Edit and analyze images taken by FV10i in various ways.



3D display function

The FV10i supports the Alpha Blend method and Maximum Intensity Projection method for 3D display function. Also, the system is equipped with various display functions which allow you to freely change the angle of 3D images and section the image at any spot.

Easy image searching

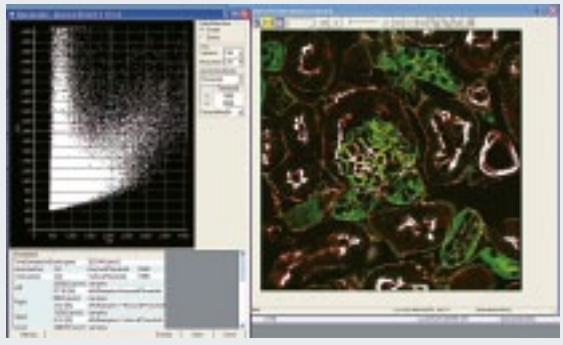
Thumbnail list is possible with the main screen. You can easily search for previous image data.

Data manager

The data manager displays thumbnails and various file information with clarity.

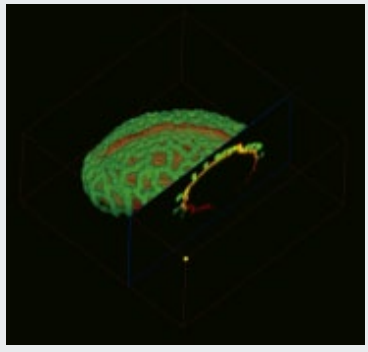
2D analysis

Basic 2D analyses such as brightness analysis and co-localization can be conducted.



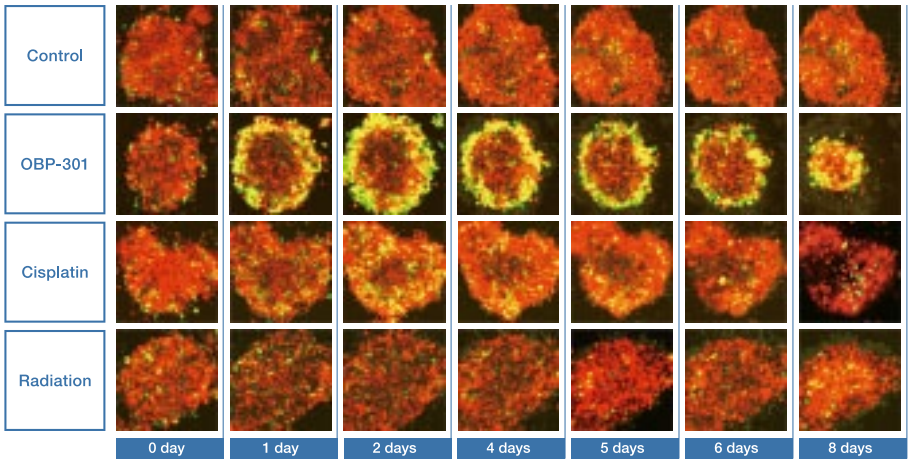
3D display/animations

Z Stack images are displayed in 3D, and animation can be created.



APPLICATION

Cancer and Immunology

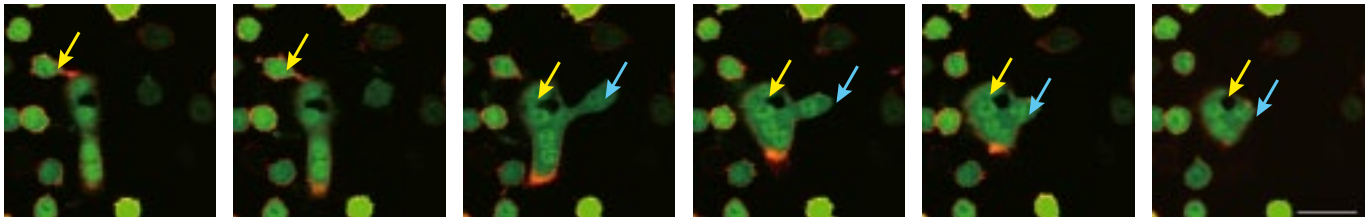


Activation and cell destruction of stem cells from sleeping cancer by Telomelysin (OBP-301)

The CD133-positive, stem-like human gastric cancer cells with the cell cycle marker Fucci which had been cultured as spheroids were treated with either telomelysin (OBP-301), cisplatin or radiation. The clumps of cancer cells treated with cisplatin or radiation remained the same size and the majority of the cells did not proceed the cell cycle beyond the G1 phase (seen in red). On the other hand, the clump of cancer cells treated with telomelysin showed a change in color from red to yellow and green, and a gradual decrease in size.
This indicates that telomelysin inhibits the expression of p53 and p21, both of which are responsible for arresting the cell cycle of stem-like cells. Telomelysin also increases the expression of E2F-1, which leads to the activation of the cell cycle by contraries.

*The images were taken serially for 8 days with the confocal laser scanning microscope FV10i.

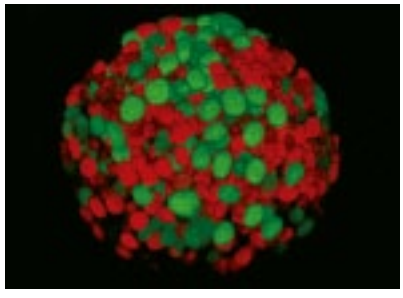
- Reference: Yano S, Tazawa H, Hashimoto Y, Shirakawa Y, Kuroda S, Nishizaki M, Kishimoto H, Uno F, Nagasaka T, Urata Y, Kagawa S, Hoffman RM, Fujiwara T. A genetically engineered oncolytic adenovirus decoys and lethally traps quiescent cancer stem-like cells into S/G2/M-phases. Clin Cancer Res. December 1, 2013 19:6495-6505.
- Image data courtesy of: Shuya Yano M.D., Ph.D., Toshiyoshi Fujiwara, M.D., Ph.D.
  Department of Gastroenterological Surgery Transplant and Surgical oncology, Okayama University Graduate School of Medicine, Dentistry and Pharmaceutical Sciences.



Analysis of localized inositol-containing phospholipid in the fusion process of osteoclasts

RAW264.7 cells manifesting inositol-containing phospholipid domain are established by adding doxycycline, cultivated under the presence of 1-μg/ml doxyclcline and 10-ng/ml RANKL for 48 hours, and observed with the time lapse method. Localized PtdIns (4,5) P2 and localized PtdIns (3,4,5) P2 are shown in red and green, respectively. Scale bar: 25 μm.

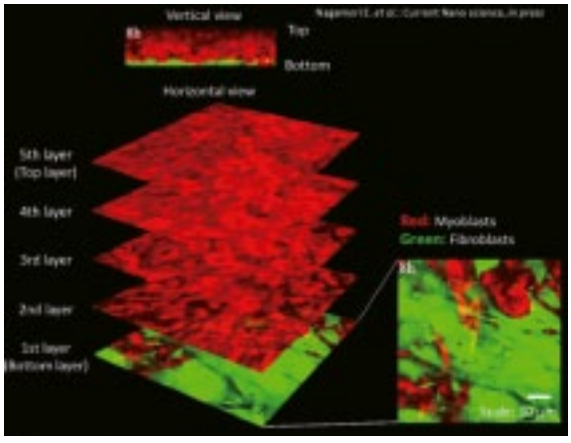
- Reference: Oikawa T, et al. Tks5-dependent formation of circumferential podosomes/invadopodia mediates cell-cell fusion. J Cell Biol. 197(4):553-568(2012).
- Image data courtesy of: Tsukasa Oikawa, Ph.D., Optical Bio Imaging Division, Collaboration Research Center, Department of Molecular Biology, Hokkaido University Graduate School of Medicine



Fucci induced Spheroid of HT29 cell line

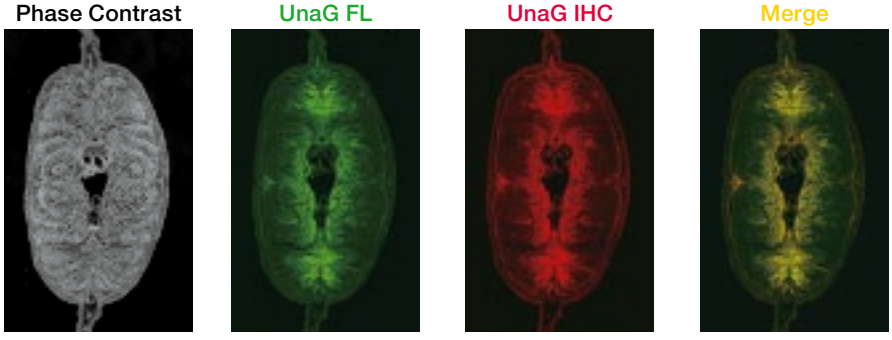
- Image data courtesy of: Yuji Mishima, Ph.D., Kiyohiko Hatake M.D., Ph.D.
  Clinical Chemotherapy, Cancer Chemotherapy Center, Japanese Foundation for Cancer Research

Regenerative medicine/Embryology



Behaviors of migration and cell-cell connection of Fibroblasts in a multi-layered Myoblast sheet

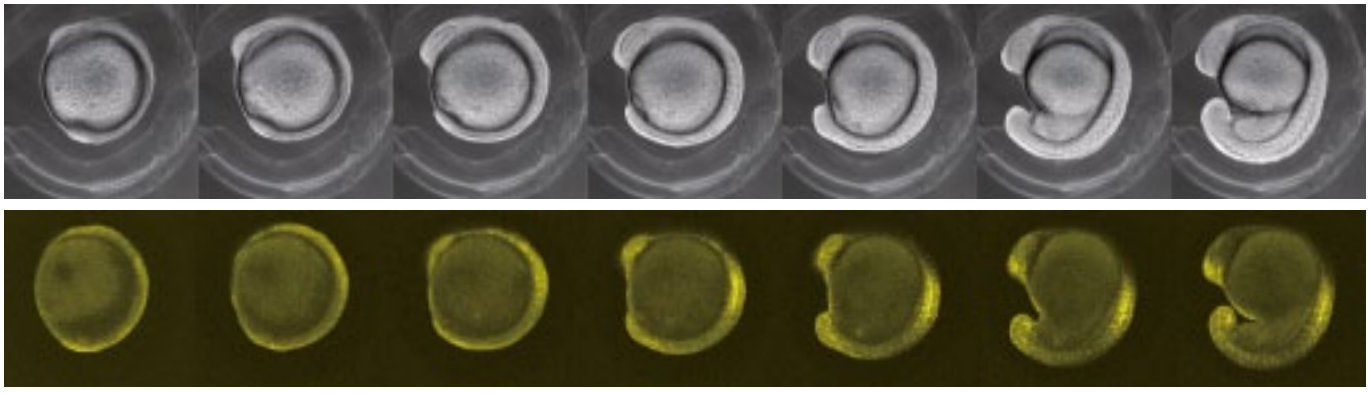
- Reference: Eiji Nagamori, et al., Spatial Habitation of Heterogeneous Cell Population in a Multi-Layered Myoblast Sheet Due to the Differences in their Behaviors of Migration and Cell-Cell Connection. Current Nanoscience
- Image data courtesy of: Eiji Nagamori, Ph.D., Masahiro Kino-oka, Ph.D.
  Department of Biotechnology, Graduate School of Engineering,
  Osaka University



UnaG Expression in Juvenile Japanese Eel

The morphology (phase contrast), natural green fluorescence (UnaG FL), and immunohistochemical fluorescence (UnaG IHC) were imaged.
The two fluorescence images are merged (Merge).

- Reference: Kumagai A. et al. A Bilirubin-Inducible Fluorescent Protein from Eel Muscle. Cell, Volume 153, Issue 7, 1602-1611 (13 June 2013).
- Image data courtesy of: Ryoko Ando, Ph.D., Akiko Kumagai, Ph.D., Atsushi Miyawaki, M.D., Ph.D.
  Laboratory for Cell Function Dynamics, Brain Science Institute, RIKEN

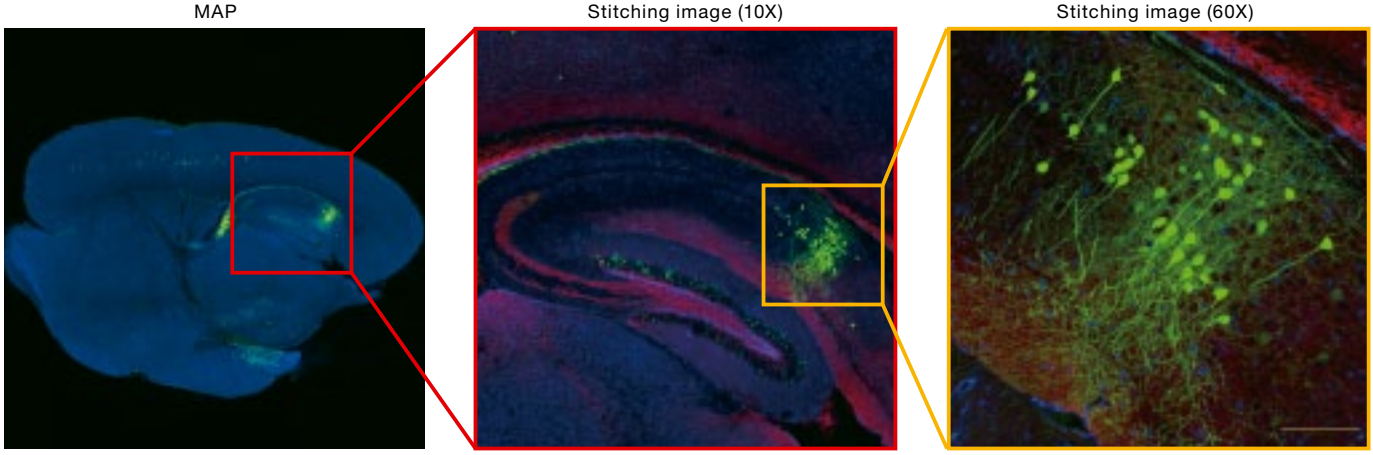


Visualizing retinoic acid signaling in a zebrafish embryo using YFP as a reporter

- Reference: Shimozono S. et al. Visualization of an endogenous retinoic acid gradient across embryonic development. Nature 496, 363-366 (18 April 2013)
- Image data courtesy of: Satoshi Shimozono, Ph.D., Atsushi Miyawaki, M.D., Ph.D.
  Laboratory for Cell Function Dynamics, Brain Science Institute, RIKEN

APPLICATION

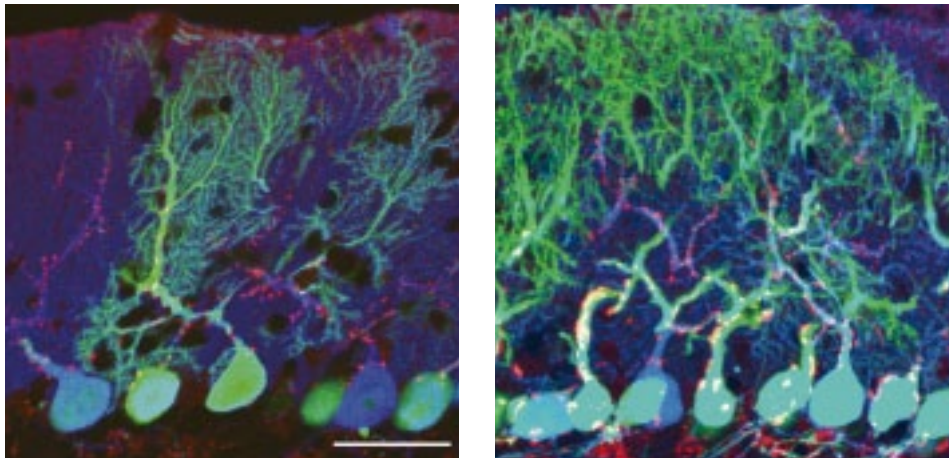
Brain and Neural Circuit



Immunohistochemistry of adult mouse brain (focused on hippocampus).

Stitching images of an adult *thy1-GFP* transgenic mouse brain (a sagittal cryosection, 35 μm thickness)
Both young neurons and radial glial cells in hippocampus were stained with antibodies against PSA-NCAM (red) and BLBP (blue), respectively. Scale bar: 100 μm.

- Image data courtesy of: Hiroshi Hama, Ph.D., Atsushi Miyawaki, M.D., Ph.D.,
  Laboratory for Cell Function Dynamics, Brain Science Institute, RIKEN



Synaptic coupling of the cerebellum of a mouse aged 20 days

Climbing fiber synapses (red: VGluT2) coupled with Purkinje cells (blue: Calbindin) are shown.
Among cerebellar Purkinje cells, the transfected cells are shown in green (EGFP). In the left figure, the cells are transfected with the scrambled knocked-down sequence and in the right figure, with the knocked-down sequence. (Scale bar: 50 μm)

- Reference: Mikuni T, et al. Arc/Arg3.1 is a postsynaptic mediator of activity-dependent synapse elimination in the developing cerebellum. Neuron 78,1024–1035(2013).
- Image data courtesy of: Naofumi Uesaka, Ph.D. and Masanobu Kano, M.D., Ph.D., Department of Neurophysiology, Graduate School of Medicine, the University of Tokyo
  and Takayasu Mikuni, M.D., Ph.D., Max Planck Florida Institute for Neuroscience

MAIN SPECIFICATIONS

		FV10i-LIV	FV10i-DOC
Laser light source	**LD lasers**	405nm (17.1mW), 473nm (11.9mW), 559nm (15mW), 635nm (9.5mW)	
	Modulation	Continuously Variable by the LD direct modulation (0.1%-100%, 0.1% inclement) Line return period - laser OFF	
Scanning	**Scanning method**	2 galvanometer scanning mirrors	
	Scanning mode	Pixel size: 256 x 256, 512 x 512, 1024 x 1024 Scanning speed: 1.1 s / frame (for pixel size 512 × 512, High Speed scanning mode) Focusing scanning: High frame rate scan by Y- direction interlace scanning (×1, ×2, ×4) Dimension: XYT, XYZ, XYZT Rotation scanning: 0-359.9° in 0.1° increments	
Detection	**Detector module**	Fluorescence 2 channels + Phase contrast 1 channel Variable barrier filter mechanism for fluorescence channel by diffraction grating and slit	
	Detection method	Analog integration detection by Photomultiplier	
	Pinhole	Single motorized Pinhole Pinhole diameter: ϕ50-800µm automatic setting (adjustable to ×1.0, ×1.5, ×2.0, ×2.5, ×3.0, ×4.0, and ×5.0)	
	Field number	18	
	Optical zoom	10× objectives: 1× – 6× in 0.1× increments 60× objectives: 1× – 10× in 0.1× increments	
	Automatic exposure (AE)	Automatic setting of the laser intensity and photomultiplier sensitivity to fluorescence intensity.	
Focus	**Z-drive**	Motorized focus Minimum increment: 0.01µm	
	Objectives	Exclusively designed 10× phase contrast objective / NA 0.4(equivalent to UPLSAPO 10x) Exclusively designed 60× phase contrast water-immersion objective / NA 1.2 (equivalent to UPLSAPO 60× W) / with motorized correction collar Remote switching from software by electric revolver	Exclusively designed 10× phase contrast objective / NA 0.4(equivalent to UPLSAPO 10x) Exclusively designed 60× phase contrast oil-immersion objective / NA 1.35 (equivalent to UPLSAPO 60× O) Remote switching from software by electric revolver
	Automatic focus (AF)	Automatic detection of specimen Automatic detection of cover glass thickness and automatic setting of motorized correction collar	Automatic detection of specimen
	Water supply	Automatic water supply and air cleaning mechanism for 60× Water-immersion objective	
	Oil supply		Manual As supporting mechanism, automatic moving of XY stage to oil supply position when switching to 60x
XY stage	**XY driving method**	Motorized XY stage module by stepping motor Minimum increment: 0.3µm	
	Sample holder	Only the dedicated specimen holder can be mounted For three glass bottom dishes with 35mm diameter For a glass slide, For one set of cover glass chamber (8 wells type) For Well slide (8 wells type), Culture pod (for a glass bottom dish with 35mm diameter)	Only the dedicated specimen holder can be mounted For a glass bottom dish with 35mm diameter For a glass slide, For Well slide (8 wells type)
Incubator	**Room environment**	Temperature: 37+0.1°C,-0.5°C (can be switched off) Humidity: more than 90% CO_2 concentration: 5% (recommended), 1 – joint fitting (ϕ2mm) for exterior CO_2 adjustor	
	Heating method	Non-contact heating by resistive heater mounted on frame section	
Control device	**Controller**	Dedicated controller for PC/AT compatible model OS: Windows 7 Professional, 64 bit, English version CPU: Intel Xeon 3.6GHz RAM: 8GB HDD: 1TB x 2 Special PCI-Express I/F board built-in Optical drive: DVD-Multi drive built-in	
	LCD monitor	LCD monitor × 1, (WUXGA 1920×1200)	
Major software feature	**Image acquisition mode**	Map image, one shot, time-lapse (XYT), Z-stack (XYZ), Z-stack time-lapse (XYZT), multi area time-lapse (Multi Area XYT), multi area Z-stack time-lapse (Multi Area XYZT)	
	Sample setting	Automatic setting for fluorescence channel and laser according to Dye selected from Dye list	
	Map image acquisition	Automatic selection of map image of 3 x 3 to 35 x 7 fields according to 10× objective lens (The maximum area varies in accordance to the specimen holder used), and manual selection of map acquisition area	
	Multi-area time-lapse	Automatic multi area time-lapse by motorized XY stage Setting for each registered point: Image size, scanning speed, cross talk reduction, pinhole diameter, rotation angle, galvano zoom, acquisition channel, laser power, PMT sensitivity, Z condition Maximum resister number: 400 points Maximum interval time: one hour Maximum acquisition number of times: 30,000 times per one point Automatic focus function during time lapse operations (only for 60× objectives of FV10-LIV)	
	Image acquisition area	Area appointment: All area, clipping square area (minimum area: 96 × 96 pixels)	
	Image display	Display by channel, overlapping display, image in progress review	
	Cross-talk reduction	Line sequential action (2 channel), or frame sequential action (3 channel and 4 channel)	
	Acquisition image file type	File format: OLYMPUS Image Format (OIF); Storage method: Hard disk recording	
	Image file type available for viewing	OLYMPUS Image Format (OIF, OIB), Multi-TIFF format (8/16 bit gray scale, index color, 24/32/48-bit color), TIFF, BMP, JPEG	
	Image editing	LUT: Pseudo-color setting, contrast adjustment; Comment: inputting graphic, text, scale, etc.; image extraction, combination	
	3D image construction	3D display: Alpha Blend method, Maximum Intensity Projection method; 3D animation display; free orientation of cross section display	
	Image processing	Various types of image filter: Median, Enhanced Edge, etc. Calculations: inter-image, arithmetic and logical operation	
	Image analysis	Area and perimeter measurement, time-lapse measurement, colocalization analysis	
Room environment	**Temperature**	18-28°C (fluctuation ±2°C)	
	Humidity	30-80% (non condensing)	

SUGGESTED LAYOUT

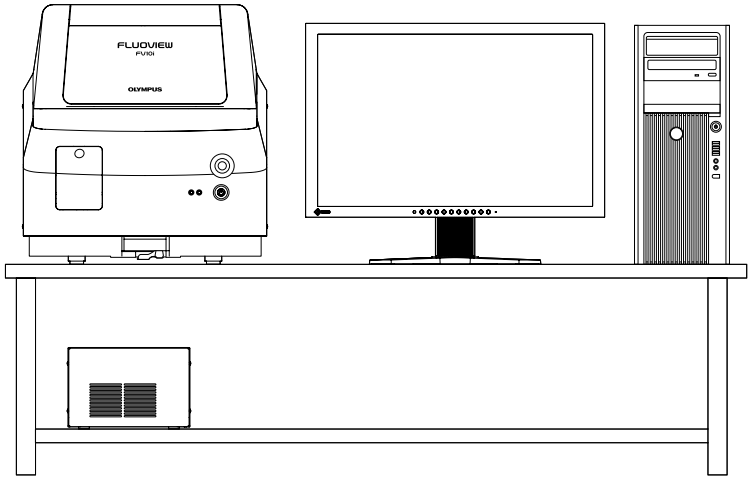


*Table is not available from Olympus. Avoid placing the controller on the floor.

DIMENSIONS / WEIGHT / POWER CONSUMPTION

Component name	Model	Dimensions [mm]	Weight [kg]	Power consumption	Notes
FV10i-LIV main unit	FV10C-W3	470 (W) X 680 (D) X 505 (H)	Approx. 73	(Powered via FV10C-PSU)	Minimum installation clearance: top – 200 mm, back – 120 mm
FV10i-DOC main unit	FV10C-O3	470 (W) X 680 (D) X 495 (H)	Approx. 60	(Powered via FV10C-PSU)	Minimum installation clearance: top – 200 mm, back – 120 mm
Power supply unit	FV10C-PSU	230 (W) X 330 (D) X 150 (H)	Approx. 7.5	AC100-120/200-240V 50/60Hz 5.0A/2.5A	Minimum installation clearance: back – 150 mm
Controller	FV10C-CU2	178 (W) X 445 (D) X 448 (H)	Approx. 14	AC 100-240V 50/60Hz 8.0A	Minimum installation clearance: back – 150 mm
Display	FV10C-DISP	552.5 (W) X 233 (D) X 368~499 (H)	Approx. 6.4	AC 100-120/200-240V 50/60Hz 1.0A/0.6A	

Image data courtesy of:
(left, page 1) Fucci induced Spheroid of HT29 cell line
Yuji Mishima, Ph.D., Kiyohiko Hatake M.D., Ph.D., Clinical Chemotherapy, Cancer Chemotherapy Center, Japanese Foundation for Cancer Research
(right, page 1) Immunohistochemistry of adult mouse brain (focused on hippocampus).
Hiroshi Hama, Ph.D., Atsushi Miyawaki, M.D., Ph.D., Laboratory for Cell Function Dynamics, Brain Science Institute, RIKEN
(left, page 2) Immunohistochemistry of whole-mount the retina of mice (Bule: Macrophage (Iba-1), Green: Vascular structures (CD31), Red: glial cell (GFAP))
Yoshiaki Kubota, M.D., Ph.D., The Laboratory of Vascular Biology Center for Integrated Medical Research, School of Medicine, Keio University.
(right, page 2) UnaG Expression in Juvenile Japanese Eel
Ryoko Ando, Ph.D., Akiko Kumagai, Ph.D., Atsushi Miyawaki, M.D., Ph.D., Laboratory for Cell Function Dynamics, Brain Science Institute, RIKEN

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