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A64.1095

Auto Motorized Laser Confocal Microscope



Principle Of Laser Confocal Imaging



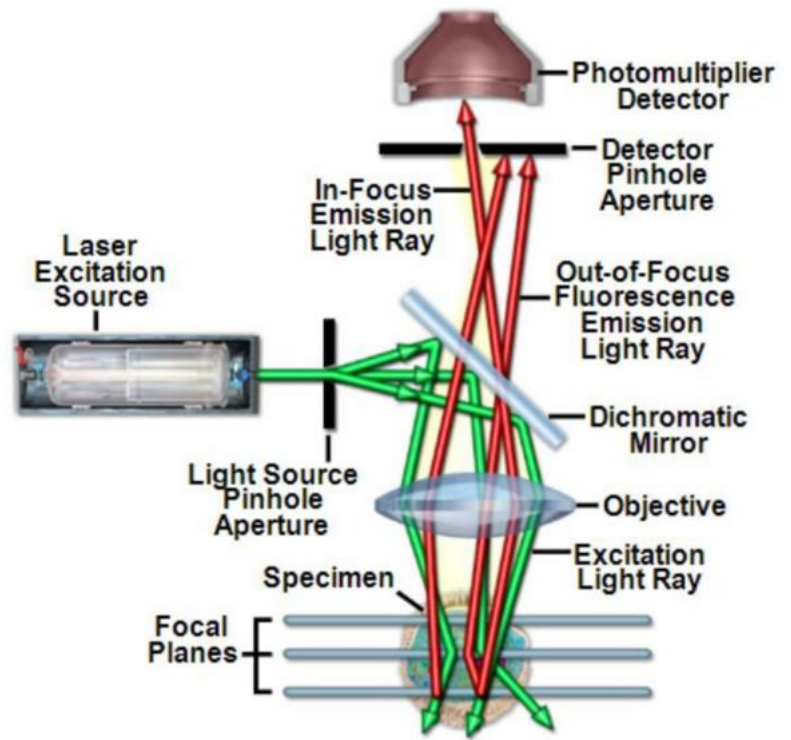
Light Source :
Laser



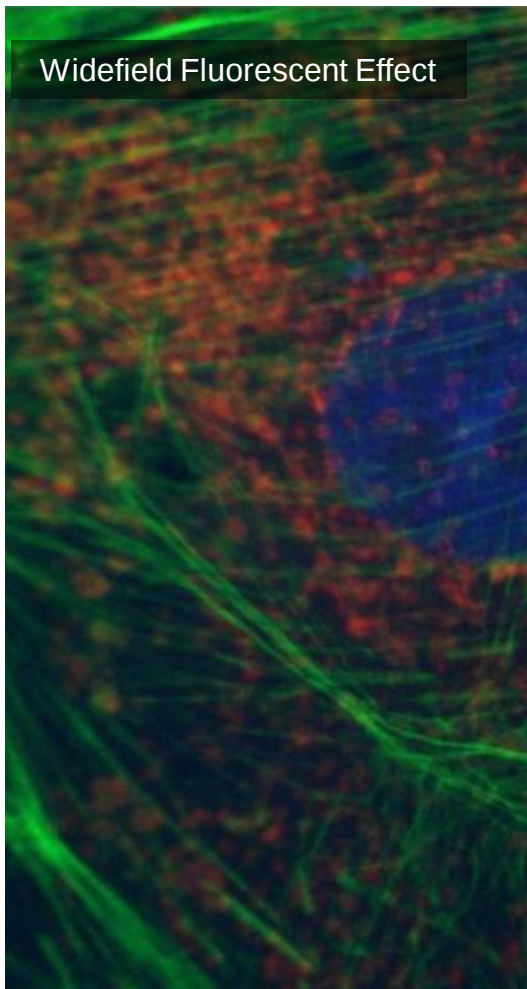
Imaging Unit:
Pinhole,
Scanning Galvanometer,
Photomultiplier Tube



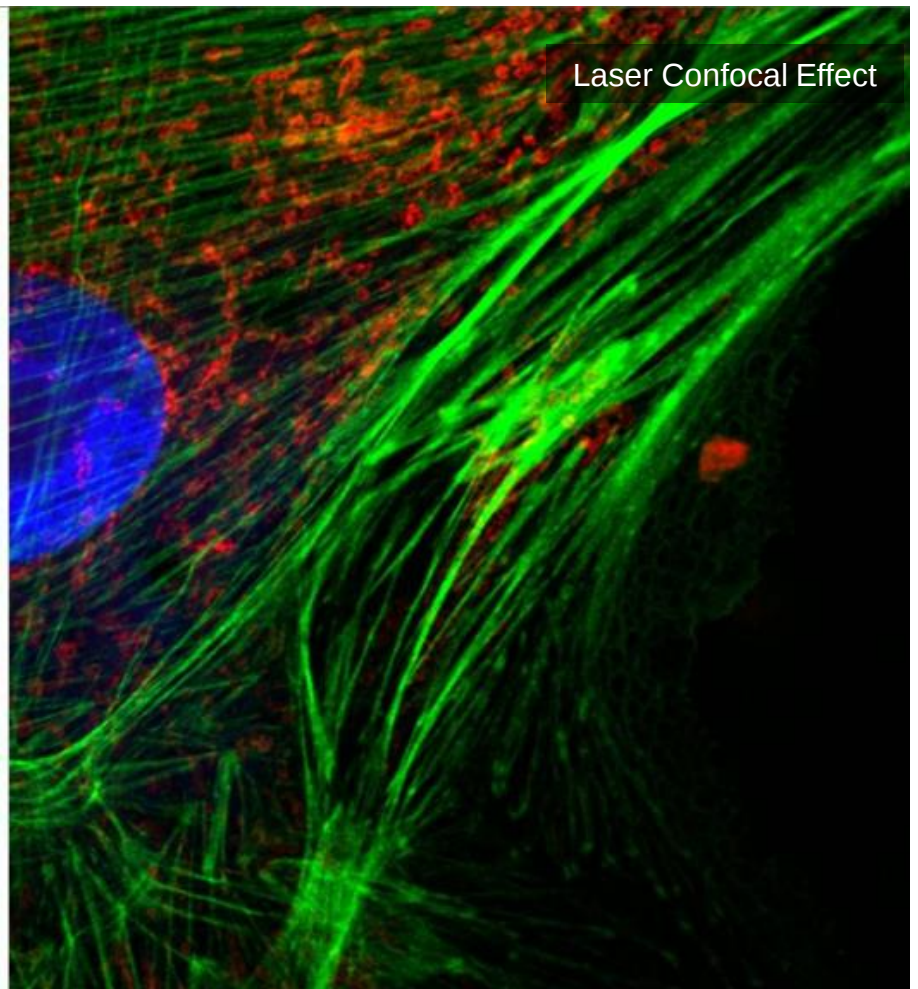
Imaging Method:
Point Scan -> Line -> Area



The conjugation of the illumination/excitation point and the imaging point is realized through the pinhole, the non-focus signal is filtered to obtain the point image, and then the scanning unit realizes the conversion from the point image to the surface image, so as to obtain the confocal image with high signal-to-noise ratio.



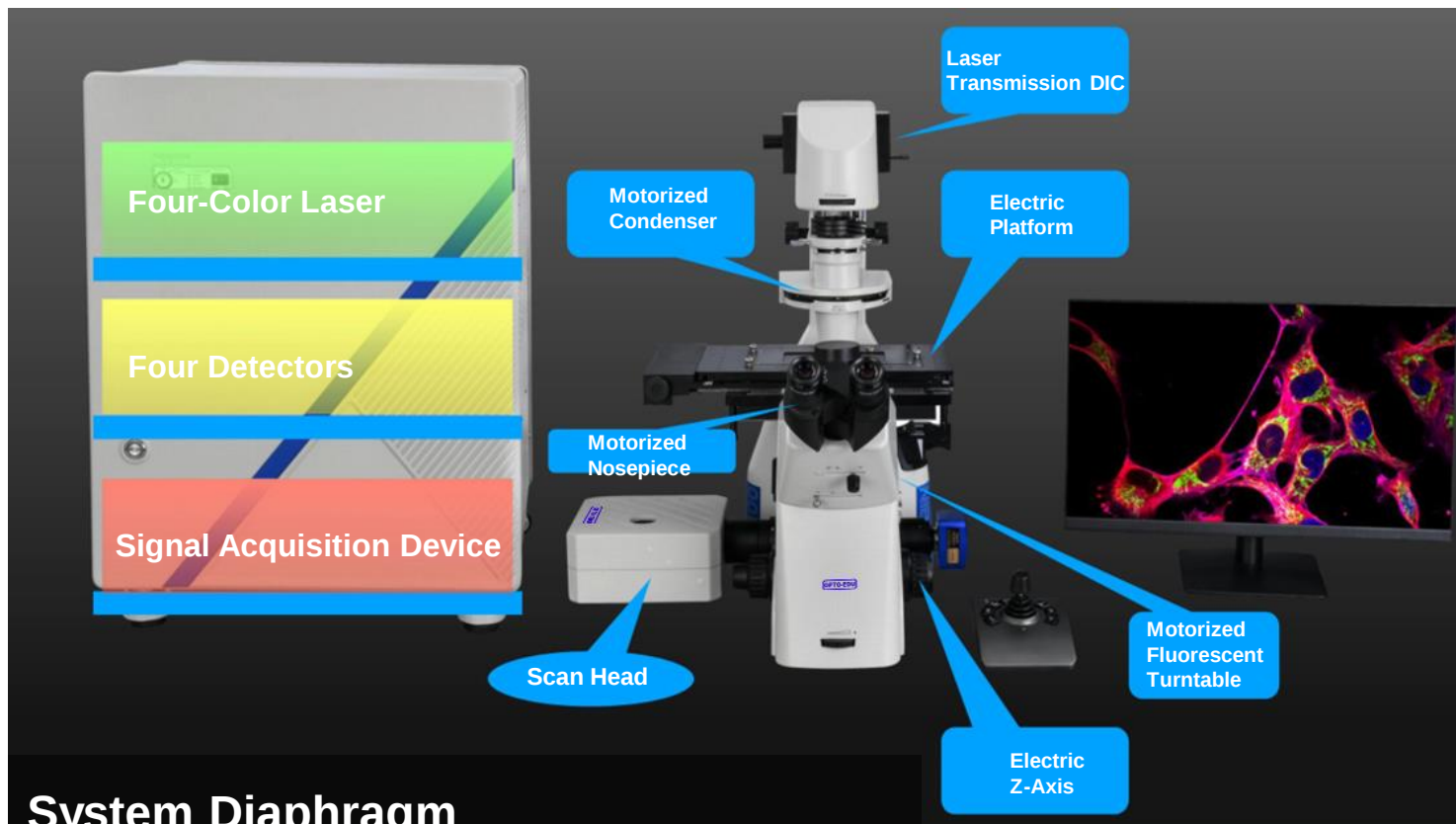
Widefield Fluorescent Effect



Laser Confocal Effect

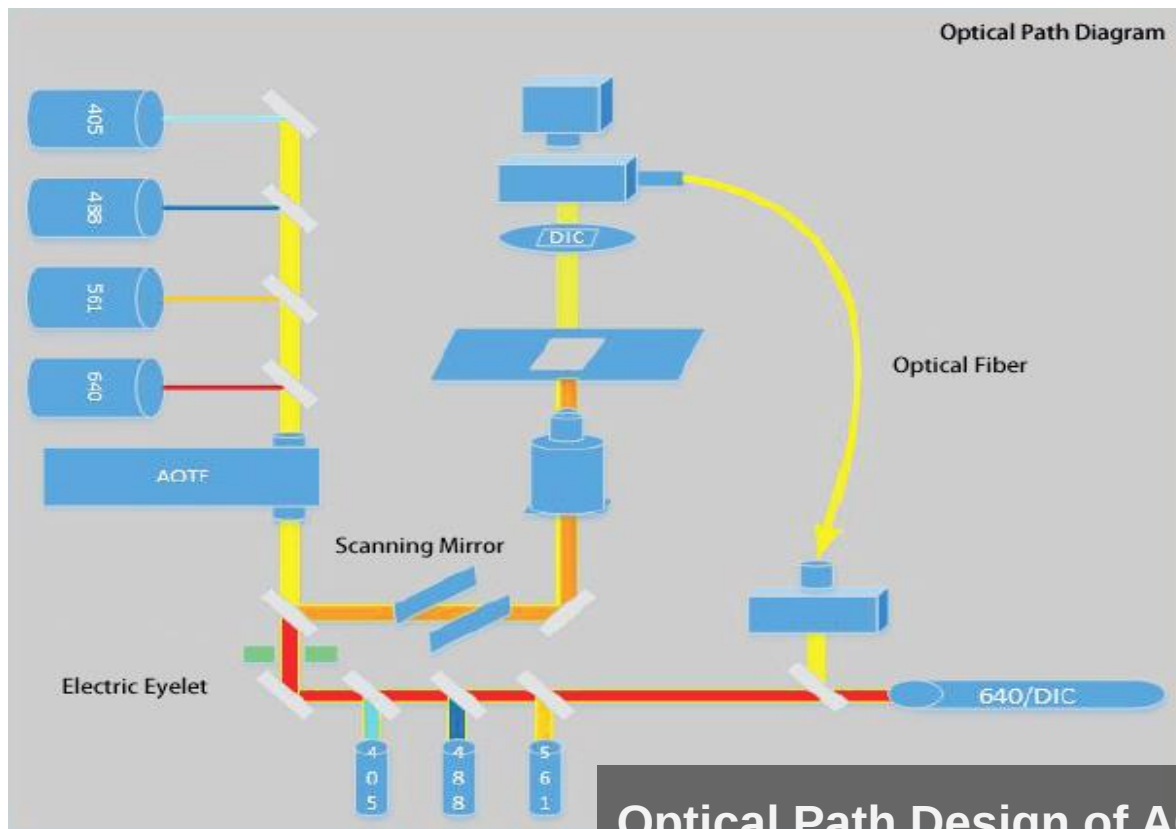
Comparison Between Fluorscent & Laser Confocal Imaging

Product Details



System Diagram

A64.1095 is consist of 4 main parts: Laser Source, Scan Head, Motorized Inverted Microscope, PC & Software

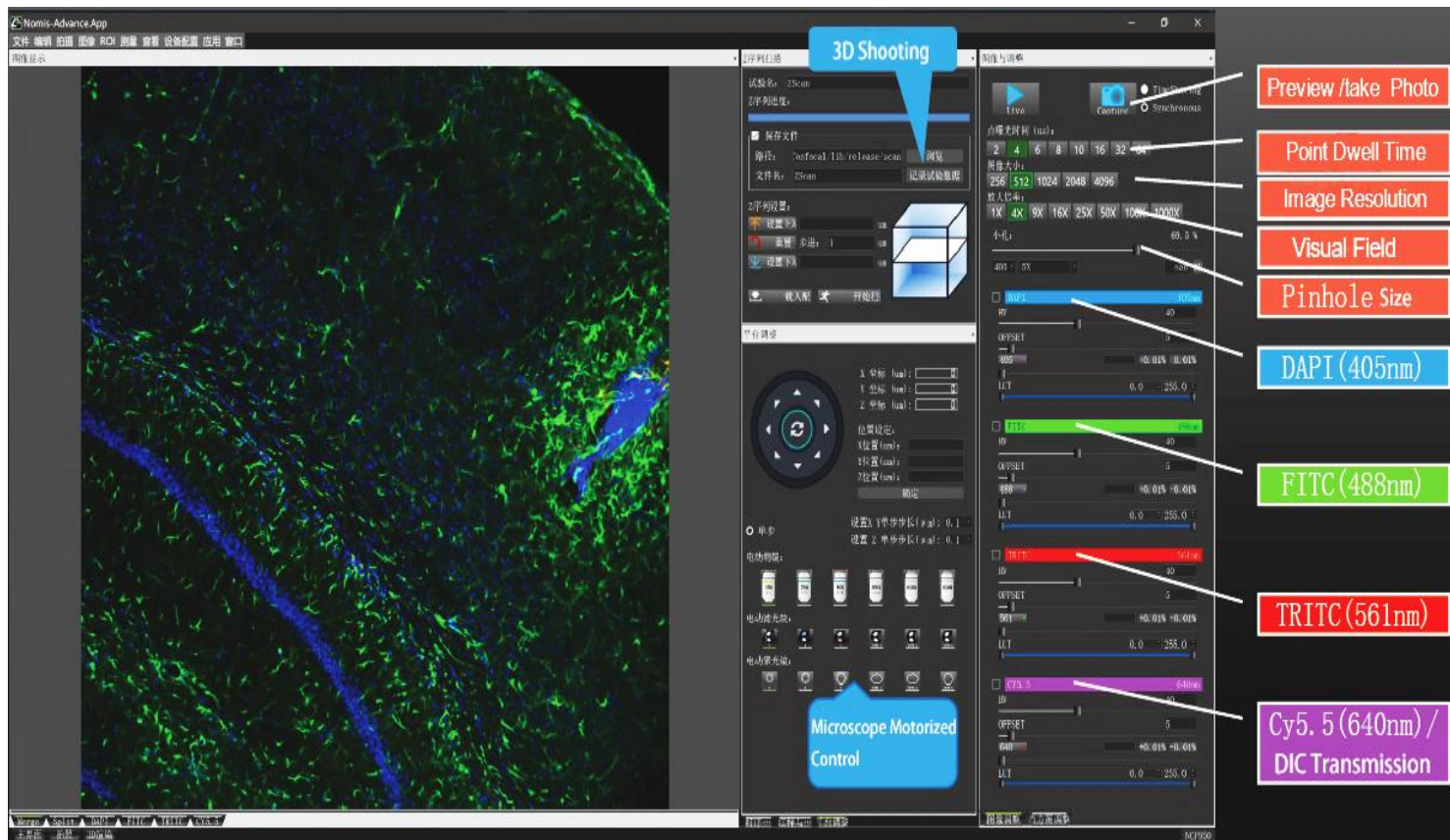


Optical Path Design of A64.1095

The laser output of all lasers is controlled by the acousto-optic controller (AOTF). After integration, it enters the scanning head system and can be turned on with one key to avoid the risk of cross-color caused by multiple channels and ensure the stability and accuracy of the optical path output.

Professional Software

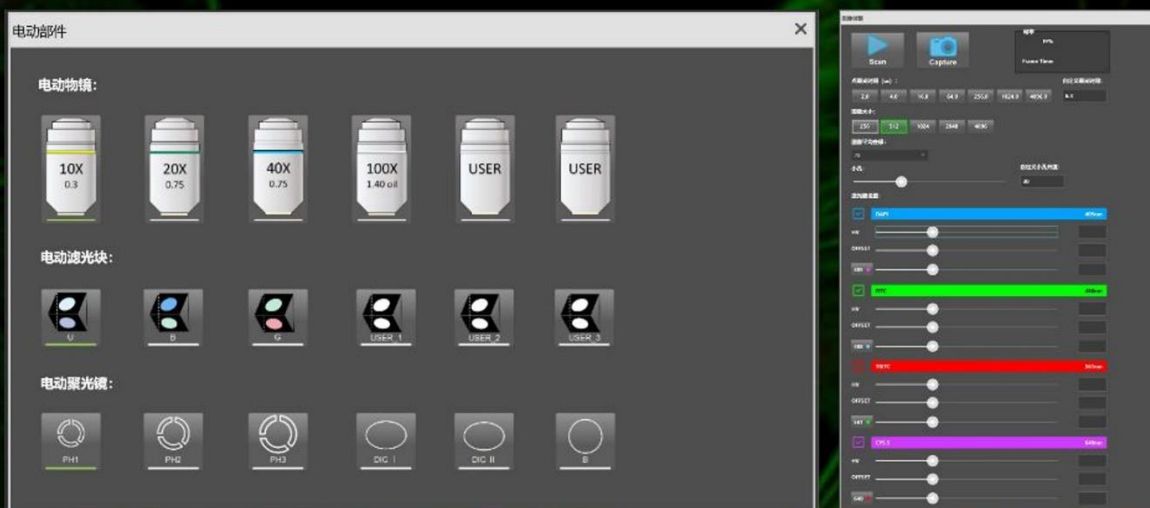
All Confocal And Microscope Operations Can Be Performed Through The Software.



Interactive Operation

Convenient interactive mode and multiple control methods could meet different needs of users from beginners to professional users.

Combined with the powerful features for software and hardware interactive automation of this product, it has greatly simplified the whole Set experimental process, which could easily realize generation of three-dimensional structure and analysis functions such as time-lapse Analysis of multiple regions etc. By using matched NOMIS Advanced C.



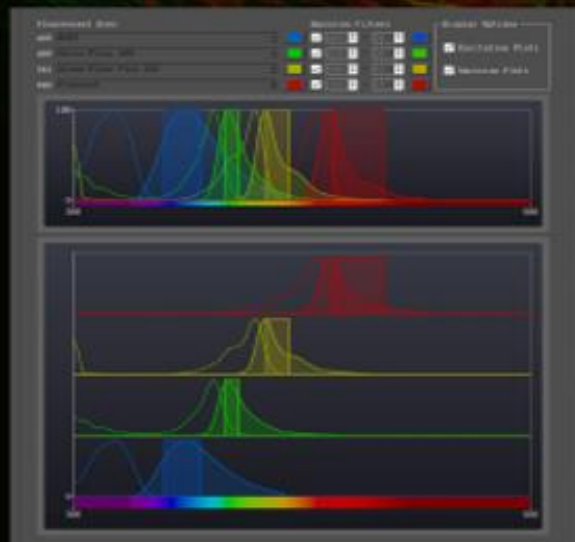
■ XY Axis (stage) Control



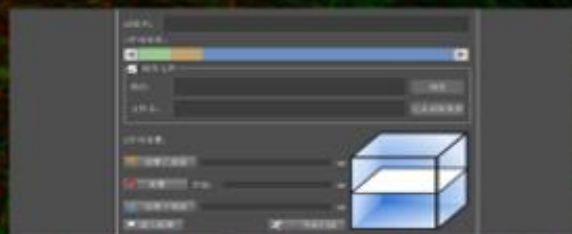
■ Objective , Filter cubes , Condenser Control



■ Fluorescent Dye Library



■ Z Sequential Scanning



■ Time Series Analysis



■ XY Axis (stage) Control



■ Objective , Filter cubes , Condenser control



■ Note and Measure



■ Z Sequential Scanning



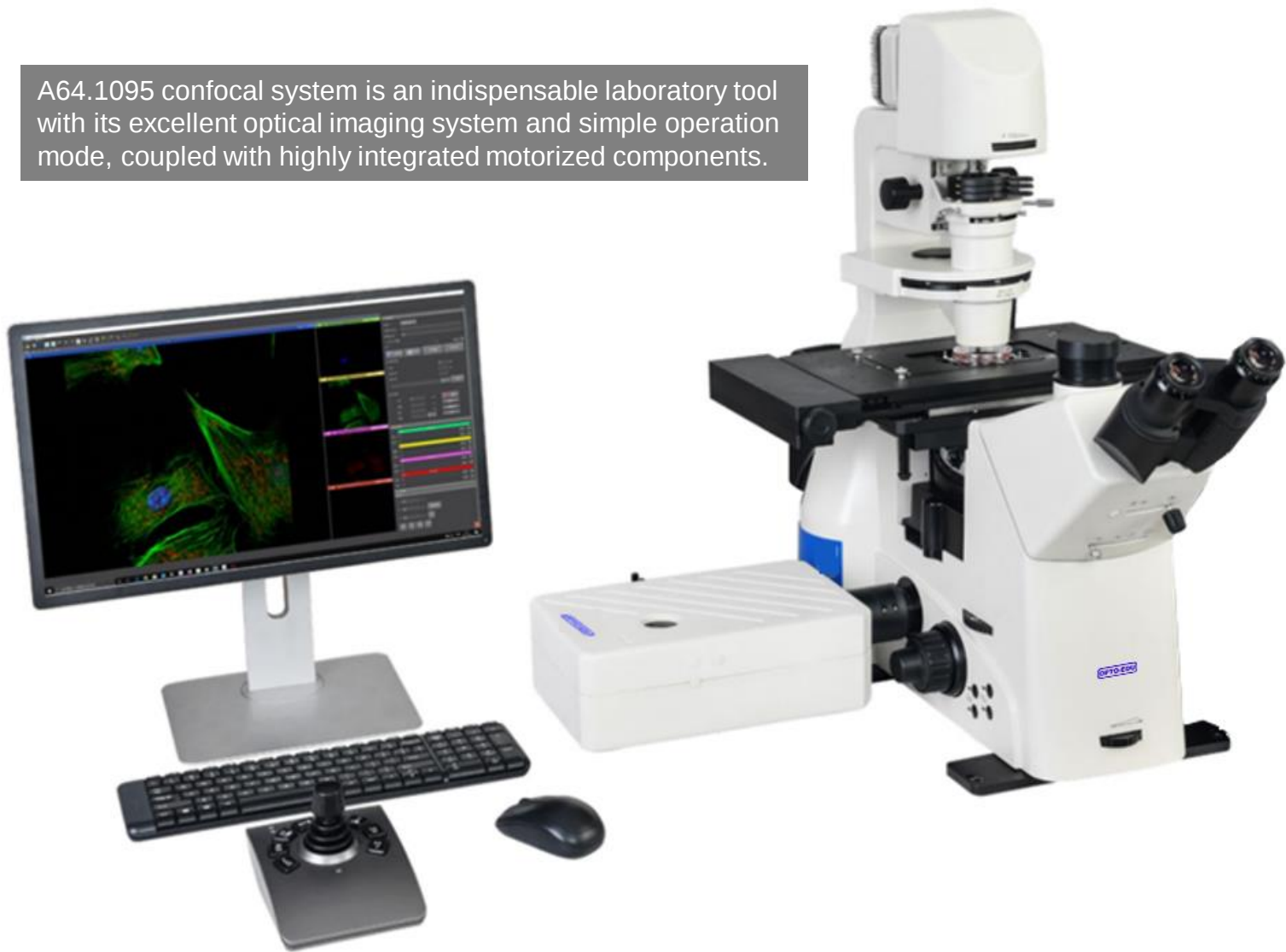
■ Time Series Scanning



■ Time Series Analysis



A64.1095 confocal system is an indispensable laboratory tool with its excellent optical imaging system and simple operation mode, coupled with highly integrated motorized components.

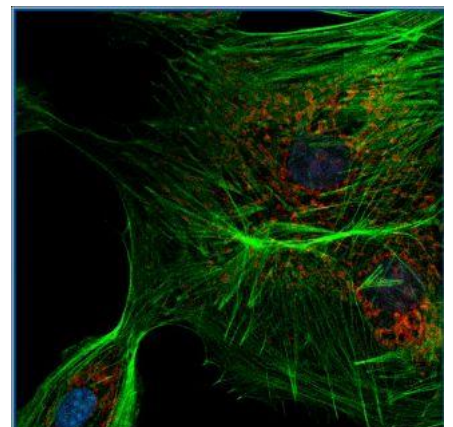
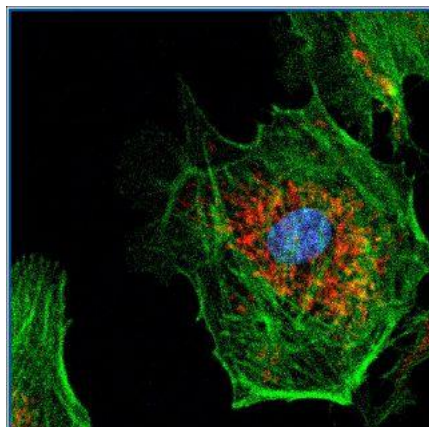
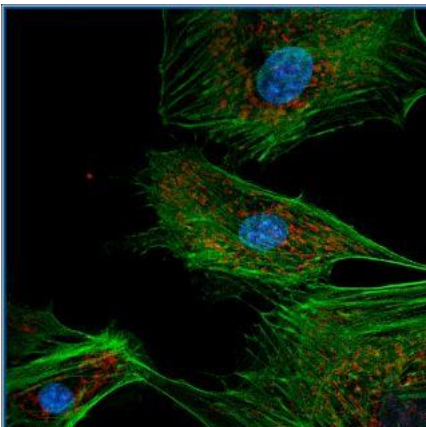


High signal-noise ratio High resolution image

Obtaining high signal-noise ratio images based on high-sensitivity photo multiplier light(PMT) and stable laser light source

At the same time , the system adopts high-speed scanning galvanometer to realize real-time scanning up to 4096x4096

Resolution, the use of large numerical aperture objective(100times,N.A=1.45) ensures high-quality imaging resolution.



Plan-Apochromatic Objectives For Confocal Imaging

APO 10x N.A.0.45, W.D. 4.0mm

APO 20x N.A.0.75, W.D. 1.1mm

Semi-APO 40X N.A.0.95, W.D. 0.3mm

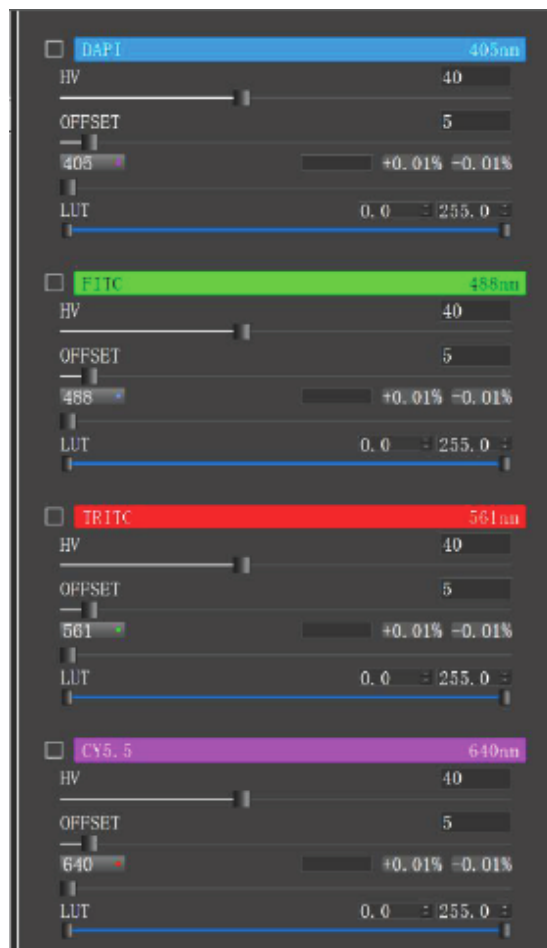
APO 60x N.A.1.42, W.D. 0.14mm, Oil

APO100x N.A.1.45, W.D. 0.13mm, Oil



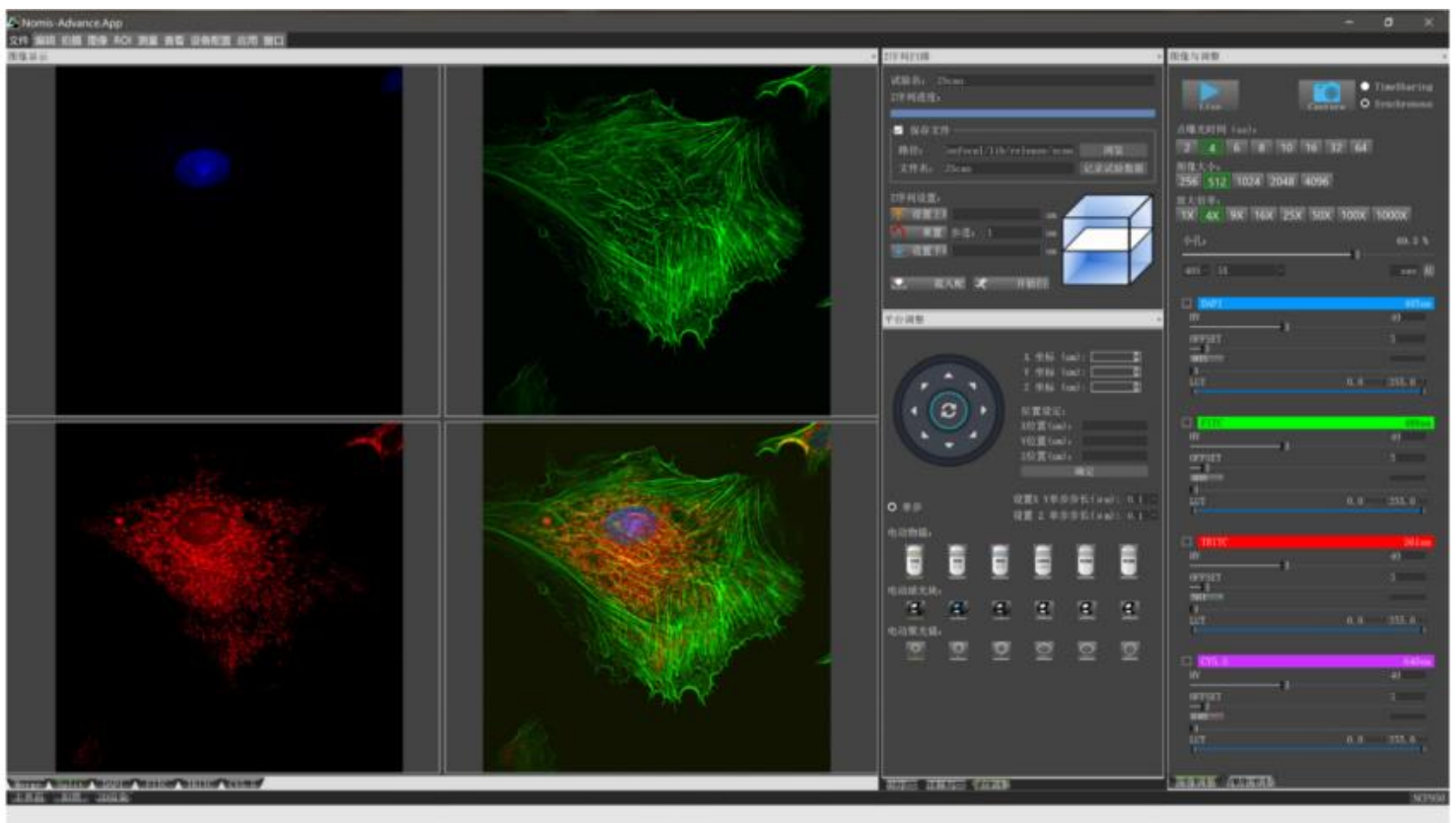
Acousto-Optic Modulator (AOTF)

Equipped With High-Sensitivity 4-Channel Laser (AOTF) To Achieve High-Speed Independent Adjustment Of Each Channel Of Laser, The Laser Intensity Adjustment Accuracy Is 0.01%.



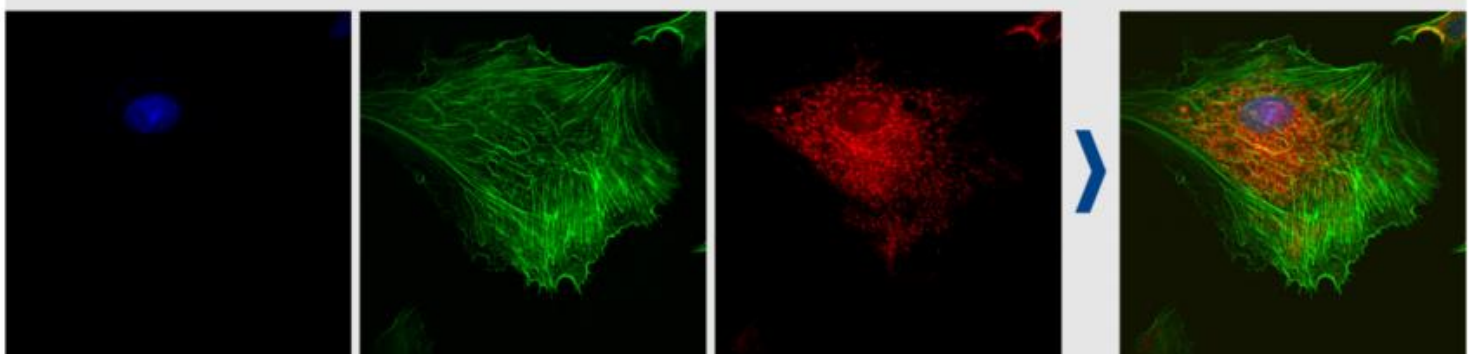
Simultaneous Imaging 4 Fluorescence Channels

High-resolution images can be generated with one click. The software will automatically calculate the size of the aperture according to the numerical aperture of the objective lens, exposure value and scanning range, from And get the best signal-to-noise ratio image .At the same time, the background noise can be removed in real time through the noise reduction algorithm to improve the image quality. Simultaneous acquisition and synthesis of multi-channel images, which is convenient for customers to realize the realization of multiple staining time observation. By setting the top position, bottom position and motion interval, the NCF950 motorized Z-axis can achieve automatic Z-Stack acquisition and generate a 3D model. Provide a wealth of microscope motorized control interfaces: motorized objective lens turntable, motorized fluorescence filter block, motorized condenser lens turn table .The electric platform control and electric focusing mechanism can quickly locate the area of interest through the software, and record the position, so that the user can quickly return to the recorded position.

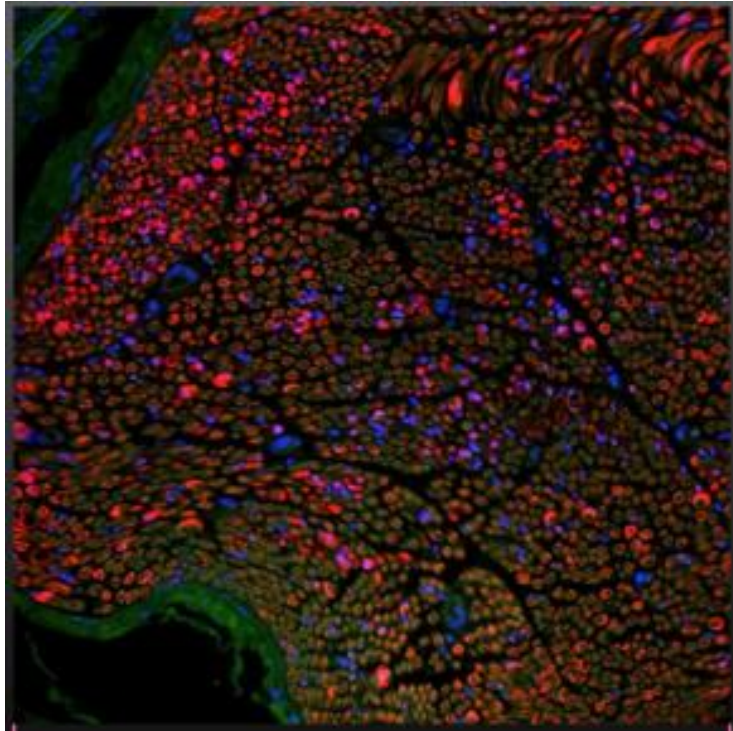


Simultaneous Imaging 4 Fluorescence Channels

By Acquiring Or Importing Images Of Different Fluorescence Channels, Users Can Obtain Images After Fluorescence Synthesis. For The Image Of Each Channel, The Displacement In The X And Y Directions Can Be Adjusted To Achieve The Effect Of Fine-Tuning.



Product Details



Scan Resolution Up To 4K

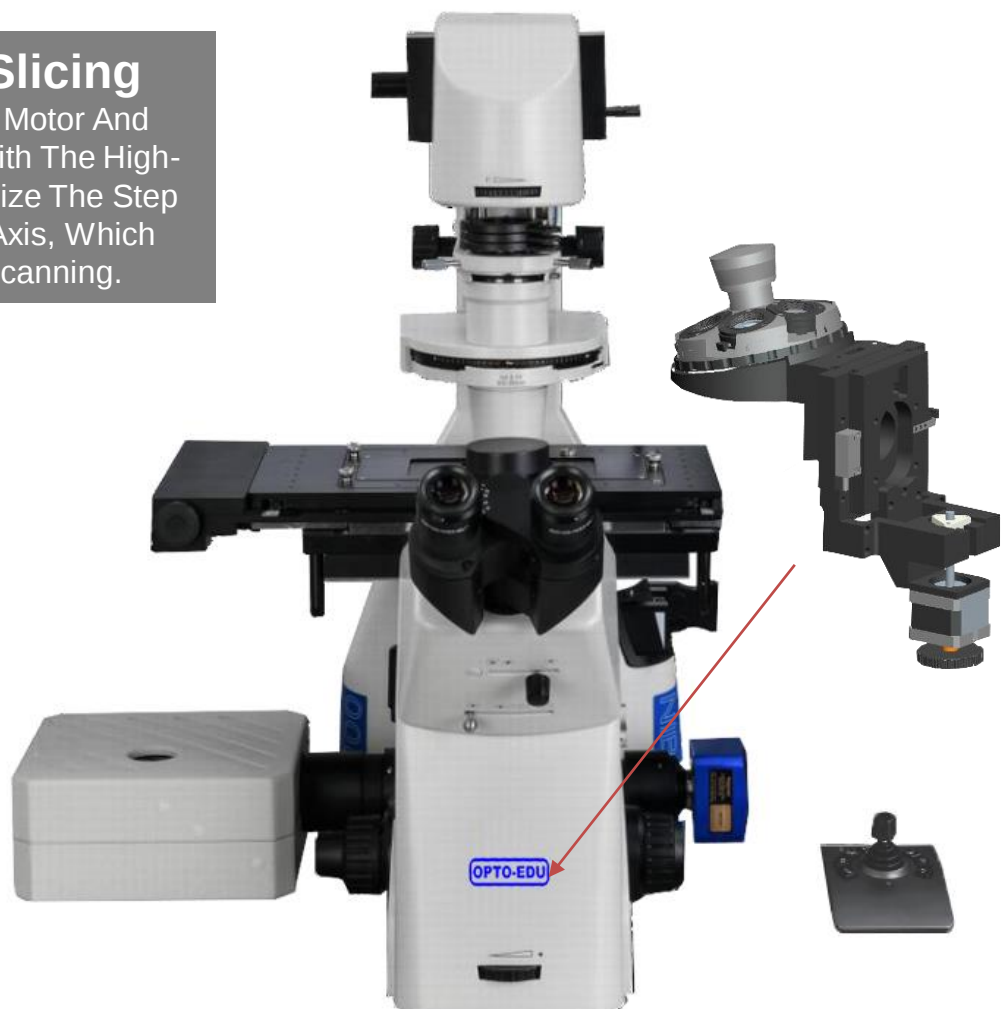
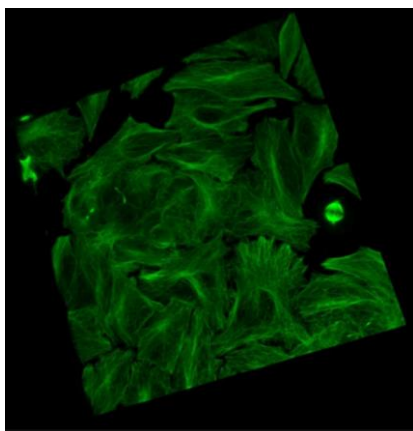
Real-Time Scanning Resolution Up To 4096X4096 Is Achieved.

4096

The design of the standardized scanning head ensures the stability and scalability of the system. The scanning head integrates a high-precision scanning galvanometer system and a continuously variable hexagonal motor. The small aperture can be moved to ensure low-noise, high-contrast and high-quality confocal images under each objective magnification. The newly developed galvanometer control technology allows the system's The maximum scanning resolution is 4096×4096 .

High Stability 3D Slicing

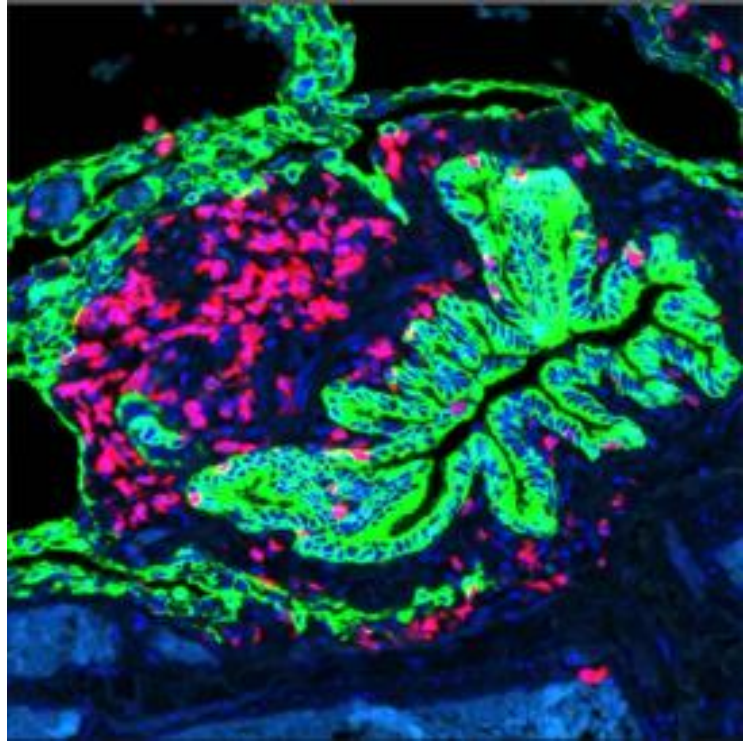
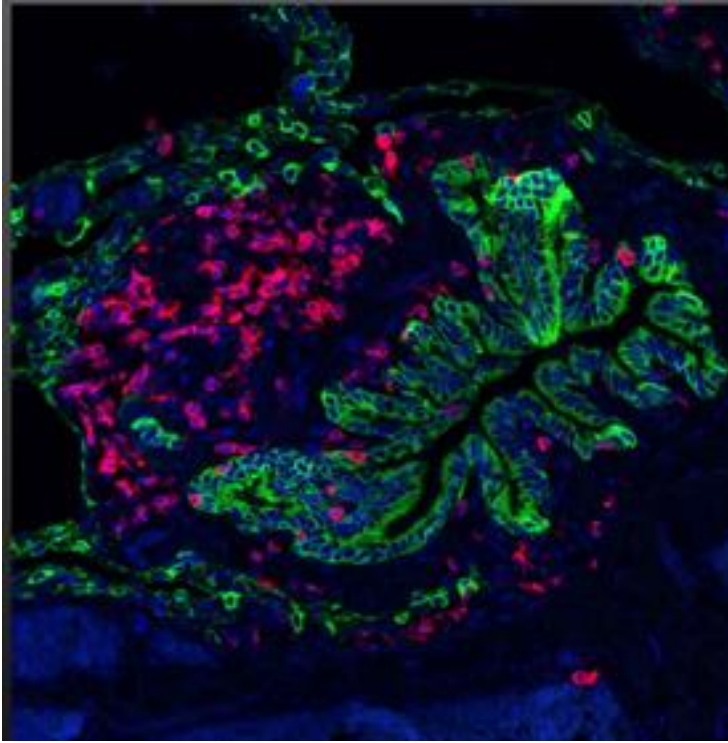
The High-Precision Stepping Motor And Screw Structure, Together With The High-Precision Grating Ruler, Realize The Step Accuracy Of 20nm In The Z Axis, Which Provides A Stable Step For Scanning.



Product Feature

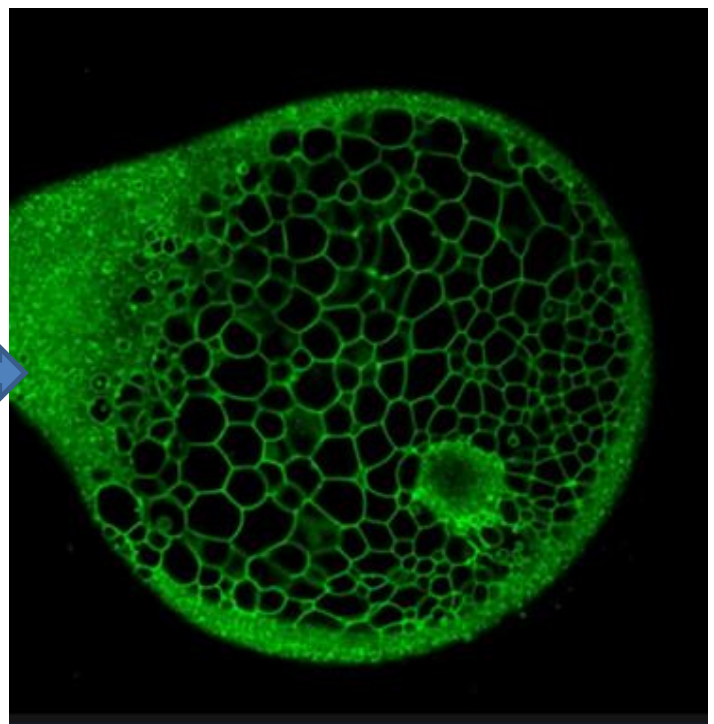
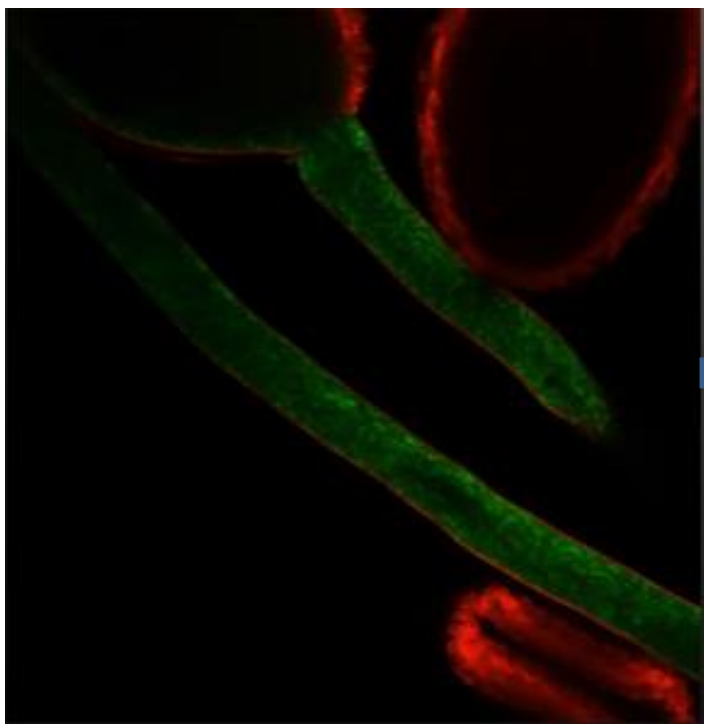
Infinitely Variable Electric Small Hole

Suitable For All Objective Lens Magnifications. The Continuously Variable Motorized Aperture With High Light Transmittance Realizes The Automatic Adaptation Of The Objective Lens From 10X To 100X, And Improves The Noise Suppression Ability.



Fast Timing Scan

High Frame Rate Sequential Scanning Ensures Long-Term Observation Of Living Cells.



Laser Confocal Microscope A64.1095

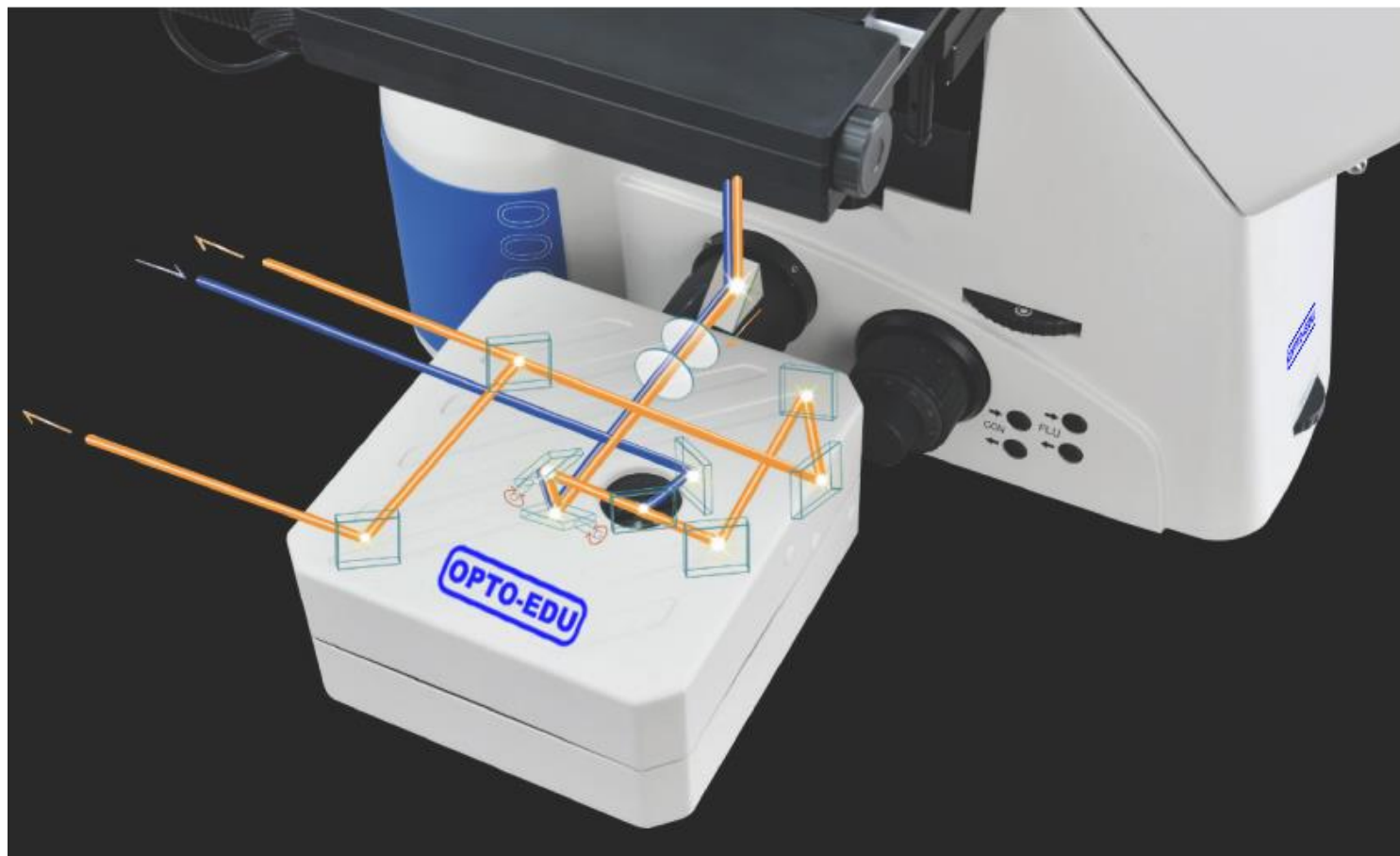
It Is Used For Accurate Imaging Of Biological Slices, Living Cells Or Internal Structures Of Living Tissues; Three-dimensional Image Reconstruction Analysis; Multi-channel Fluorescence Channel Analysis, Fine Analysis Of Spectral Signals; The Qualitative, Quantitative And Localization Distribution Of Biological Substances Such As Molecules, Organelles Or Ions Are Detected.



Four-Color Laser Unit

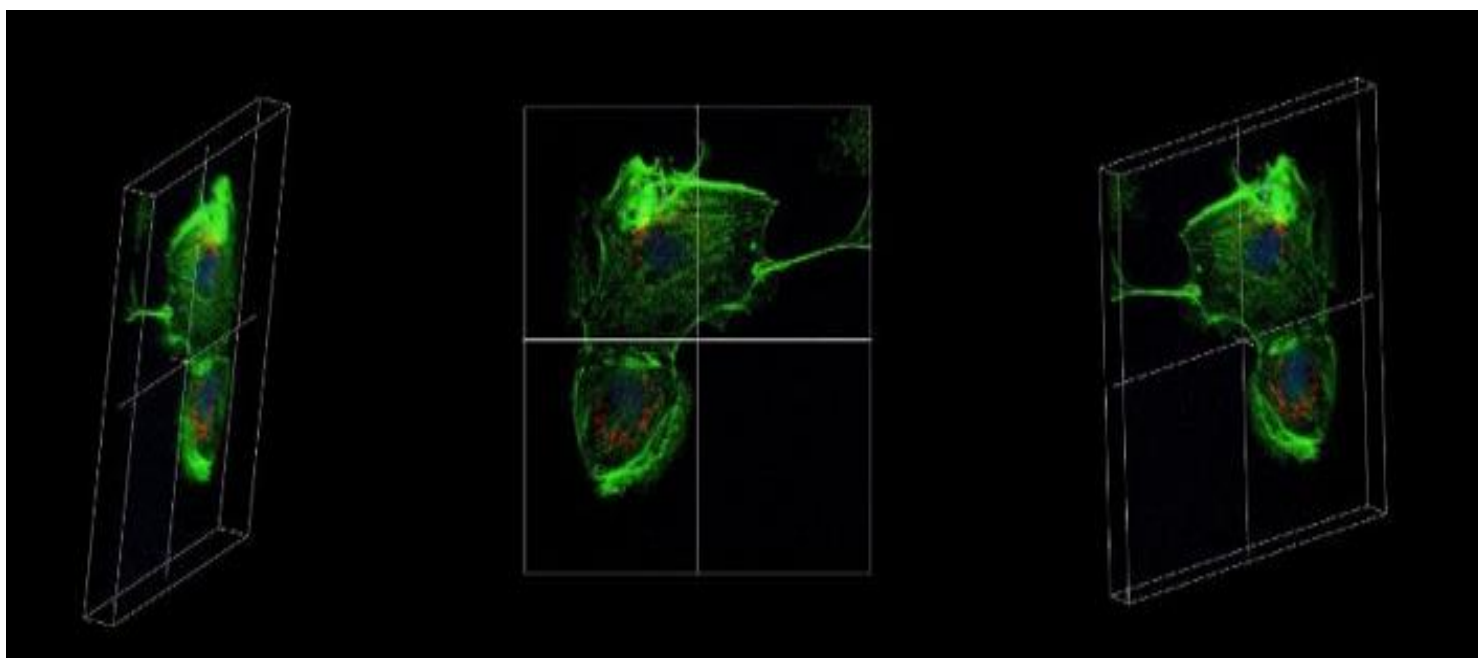
Four Detectors Signal Acquisition Device

The system is equipped with four-color integrated lasers (405nm, 488nm, 561nm, 640nm), single-port fiber output. The compact design saves total Focusing on the space of the system, the integrated AOTF module enables fast and efficient wavelength and power selection. In terms of signal detection, the NCF950 is equipped with four PMT (photomultiplier tube) detectors, which can achieve highly sensitive fluorescence signal detection. Four-way detection signal Automatic image fluorescence staining and synthesis according to the wavelength of excitation light, realizing real-time multi-channel detection and display.



High-efficiency Scanner and Detector

The design of the standardized scanner ensures the stability and scalability of the system. Scanner integrates high-precision scanning galvanometer system and continuously variable speed hexagonal motorized holes to ensure low-noise, high-contrast and high-quality confocal images under each objective magnification. The newly developed scanning galvanometer control technology allows maximum 4096×4096 pixels.



A64.1095 Specification

A64.1095 Laser Confocal Microscope, Full Auto Motorized

Confocal Laser Unit

Laser Unit	4 Laser Units: Laser 405 nm Optical Fiber Export Power 30mW, End Power 16mW Laser 488 nm Optical Fiber Export Power 30mW, End Power 16mW Laser 561 nm Optical Fiber Export Power 30mW, End Power 16mW Laser 640 nm Optical Fiber Export Power 30mW, End Power 16mW
AOTF	The Laser Output of All Lasers Is Controlled By the Acousto-Optic Tunable Filter (AOTF). After Integration, Lasers Enter The Scanning Head System And Can Be Turned On With One Key, Avoiding The Risk of Cross-Color Caused By Multiple Channels And Ensuring The Stability And Accuracy of The Optical Path Output. Laser Intensity Adjustment Range 0.01%-100%, Minimum Adjustment Step Accuracy 0.01%
Detector	Wavelength 400-750nm, High Sensitive 4 PMT, One of PMTs Is Used For 640nm Channel And DIC Channel Switching
DIC Detector	Wavelength 400-750nm, High Sensitive 1 PMT
Scanner	The Confocal Scan Head Is Coupled to The Left Interface of The Microscope Body to Achieve The Highest Quality Optical Path Imaging. Maximum Pixel Size: 4096x4096, 4K Real Time Scanning Speed: 2 FPS(512 x 512) , 8 FPS (256 x 256) , 0.5 FPS (1024x1024) , 0.12 FPS (2048x2048), 0.03 FPS (4096x4096)
Scan Mode	X-T, Y-T, X-Y, X-Y-Z, X-Y-Z-T
Pinhole	Hexagon shape, Continuously Variable Transmission (CVT), Adjust Range 0~0.5mm
Field Number	Confocal Scan Field: Square Inscribed In Dia.18mm Circle (14x14mm)

Motorized Inverted Fluorescent Microscope (A16.1098)

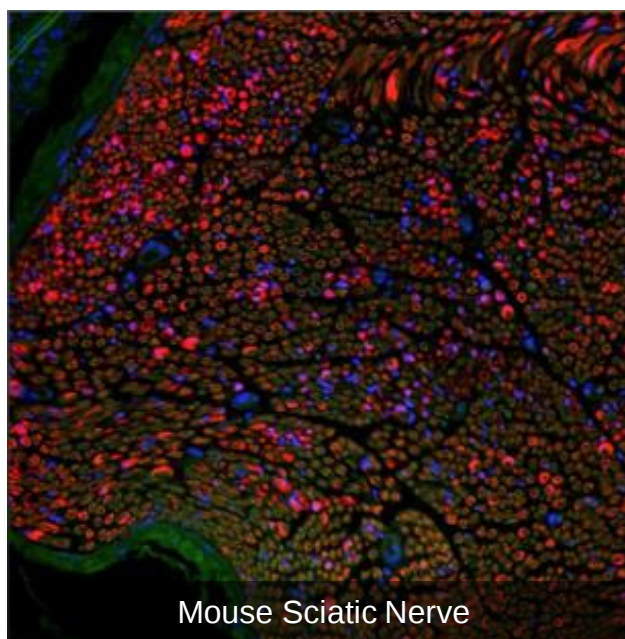
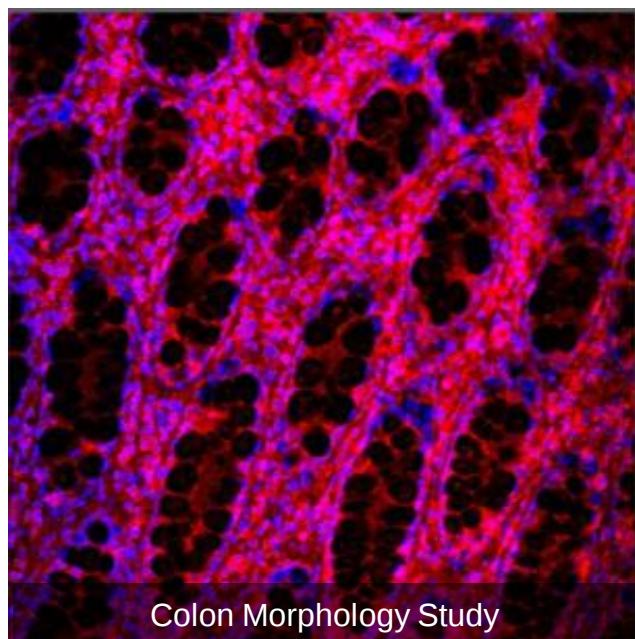
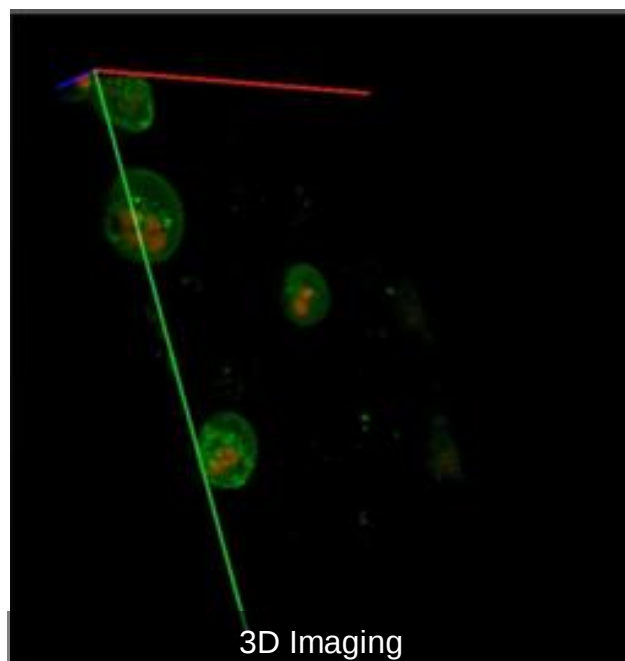
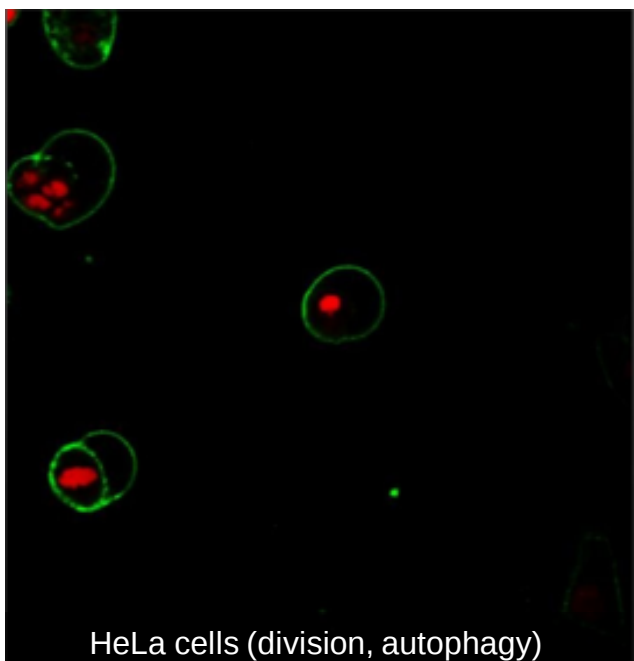
Optical System	NIS60 Infinite Optical System (F200)
Eyepiece	EW10x/25mm, EP17.5mm, Adjustable Diopter -5~+5°, Dia.30mm
Head	Seidentopf Trinocular Head, Inclined at 45°, Interpupillary Distance 47-78mm, Eyepiece Tube Dia.30mm, Fixed Visibility; Light Split Switch E100/P0, E50/P50, E0/P100, Built-in Bertrand Lens Position Adjustable
Output Port	Splitting Ratio: Left : Eyepiece=100:0; Right : Eyepiece=100:0
Nosepiece	Motorized Sextuple Nosepiece, With DIC Slot, M25x0.75
Objective	NIS60 Infinity Plan LWD APO Objective, Cover Glass 0.17 APO 10x N.A.0.45, W.D. 4.0mm APO 20x N.A.0.75, W.D. 1.1mm Semi-APO 40X N.A.0.95, W.D. 0.3mm APO 60x N.A.1.42, W.D. 0.14mm, Oil APO100x N.A.1.45, W.D. 0.13mm, Oil
Condenser	6-Position Motorized Condenser, N.A.0.55, W.D.26, Slot For Phase Contrast Plate 10x/20x, 40x, 60x Optional, Slot For DIC Plate 10x, 20x/40x Optional
Illumination	Transmitted Kohler Illumination 10W LED Epi-Illumination Wide-Field Fiber Illumination, With 6-Position Motorized Fluorescent Disc, Including B,G,U Fluorescent Filters, With Motorized Fluorescent Shutter
Intermediate	Manual 1x, 1.5x, Confocal Switching
Working Stage	X/Y/Z Motorized Working Stage 325x144mm, Moving Range 130x100mm, Maximum Speed 25mm/s, Resolution 0.1μm, Repeat Accuracy 3μm, With Mechanical Adjustable Slide Clamp
Focusing	Manual & Motorized Coaxial Coarse and Fine Focusing Adjustment, Focusing Stroke Up 7mm, Down 2mm, Coarse Stroke 2mm/Rotation, Fine Stroke 0.002mm/Rotation, Minimum Stroke 0.01μm Under Motorized Control
DIC	DIC Plate 10x, 20x, 40x Plate, Can Be Inserted in Nosepiece Slot, Optional
Controller	Joy Stick Controller, Control Box, USB Cable

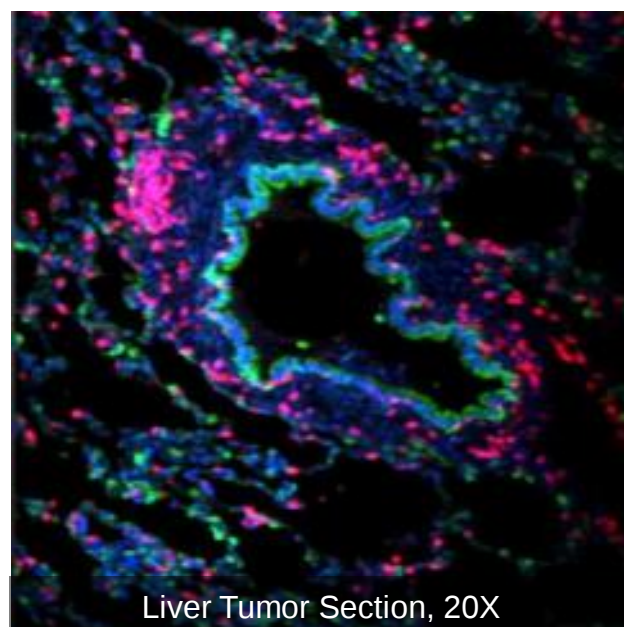
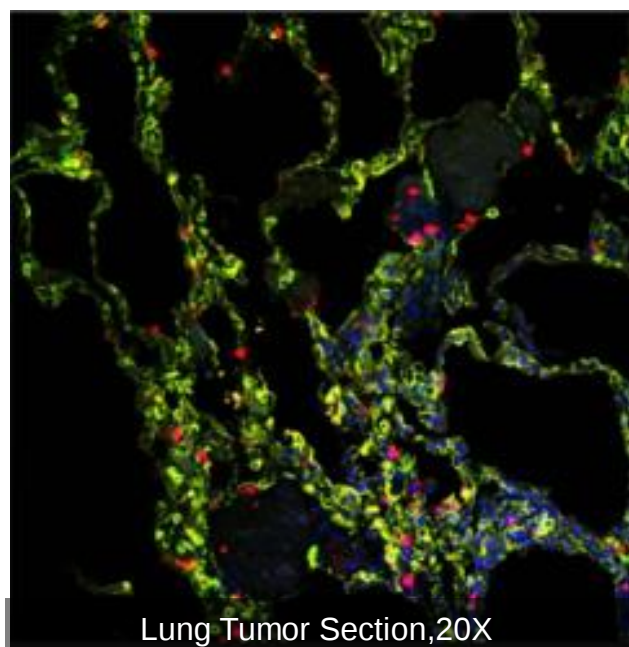
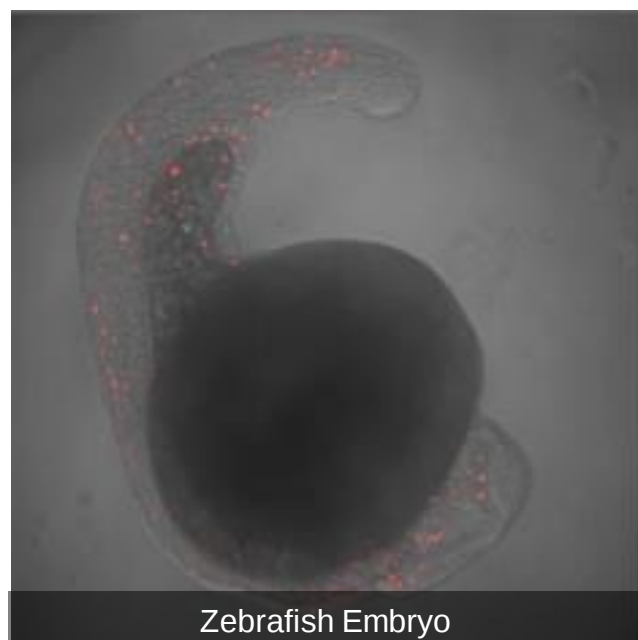
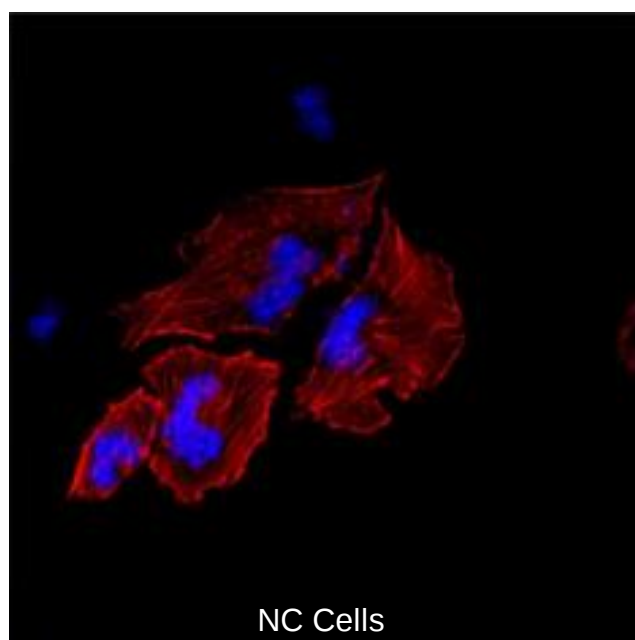
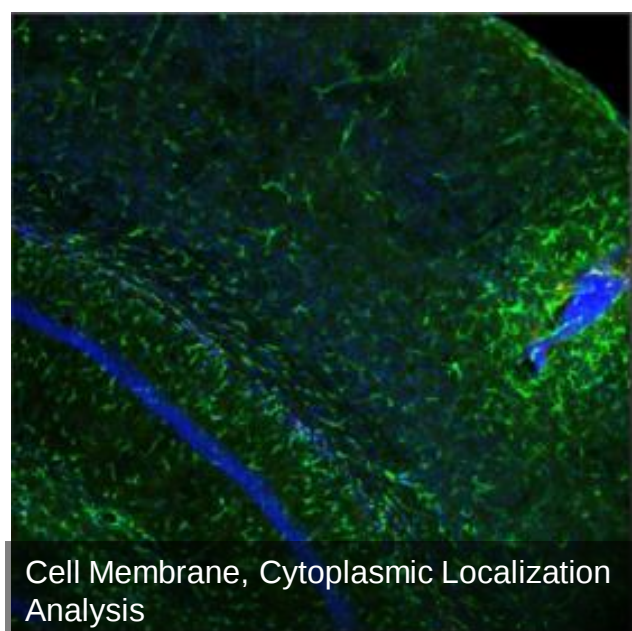
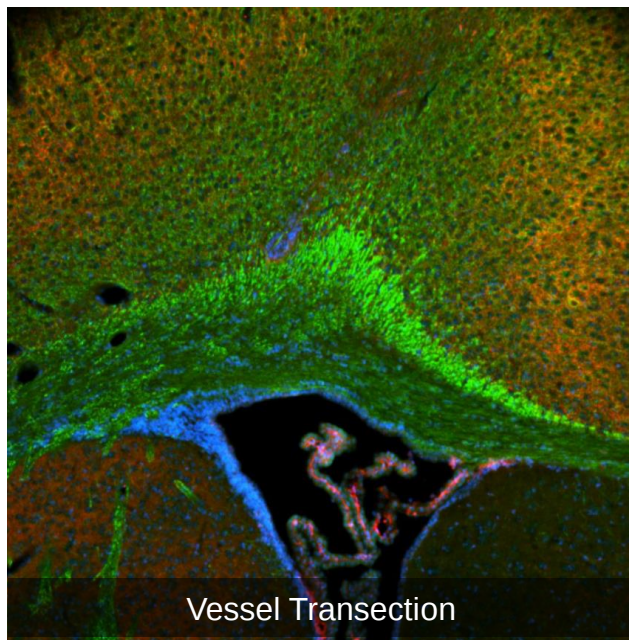
A64.1095 Specification

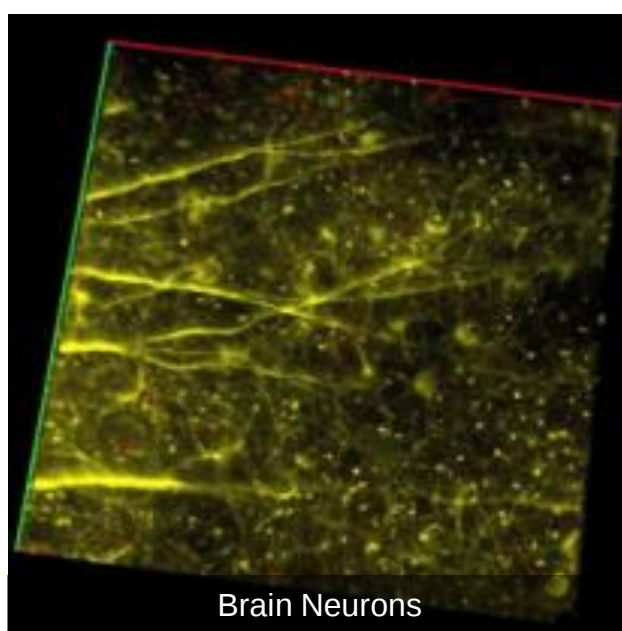
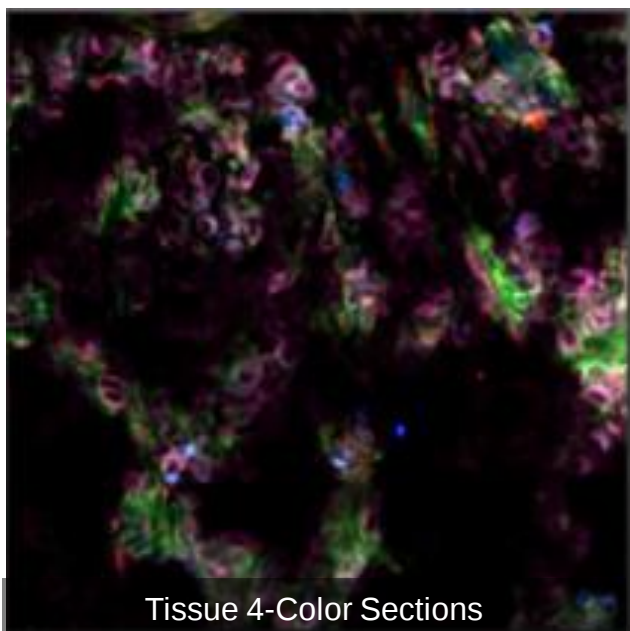
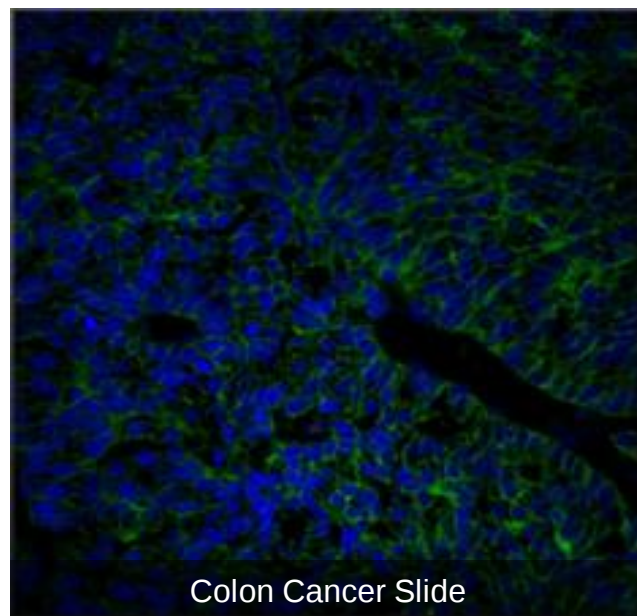
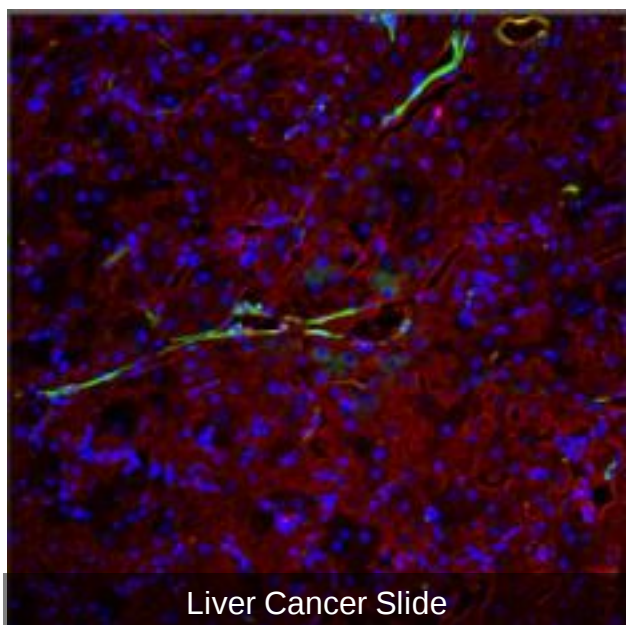
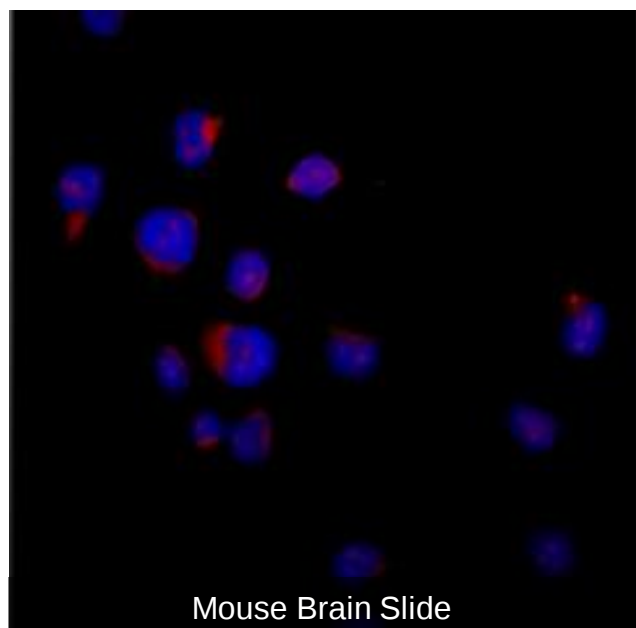
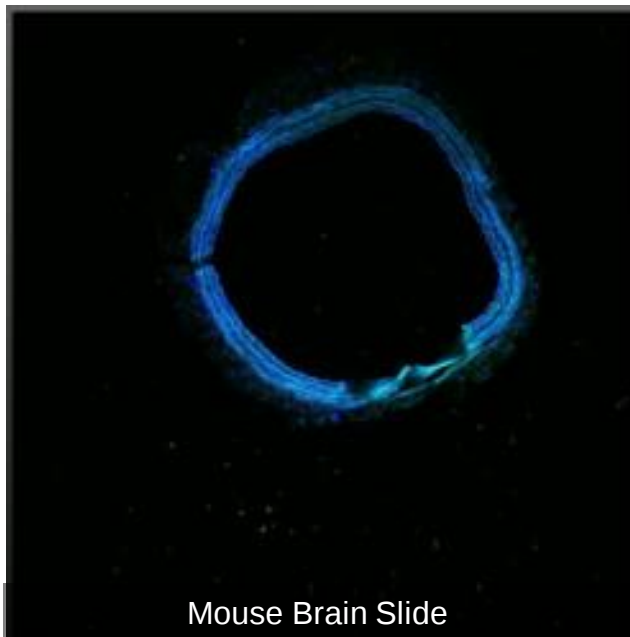
Computer + 4K Monitor + Digital Camera

Computer	1. Windows 10 Pro 64 bit Operating System
	2. CPU: Intel Core i7-8700, 6 Core, 12MB Cache, 3.20GHz, 4.6Ghz Turbo w/ HD Graphics 630
	3. RAM: 16GB (2x8GB) 2666MHz DDR4 UDIMM Non-ECC
	4. Hardware: 3.5" 1TB 7200rpm SATA Hard Disk Drive
	5. Video card: NVIDIA Quadro P620, 2GB, 4 mDP to DP Adapter
	6. USB Interface: 6 Available USB Slots
	7. Display: 24" Monitor Display that Supports 1920X1080 Resolution
Software	NOMIS Advanced Version, Display/Image Processing/Analysis 2D/3D/4D Analysis, Time-lapse Analysis, 3D Volume Render/Orthogonal, Image Stitching, Multi-channel Color Confocal Image
Camera	USB 3.0 Digital Camera For Fluorescent Image

A64.1095 Sample Pictures







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