EVIDENT

Simply Powerful Imaging: Faster, Smarter, Clearer

FLUOVIEW™ FV5000

Confocal and Multiphoton Laser Scanning Microscope

Built from Legacy. Driven by Innovation.

Born from Olympus' century of innovation, Evident carries forward a legacy of precision, performance, and trust in scientific imaging.

The **FLUOVIEW™ FV5000** isn't just the next confocal—it's a platform built for every dimension of discovery. From crisp, photon-level quantitation at the surface to deep, multiphoton imaging in thick, living samples, the FV5000 captures biology at every scale. SilVIR™ detectors deliver exceptional sensitivity, 2K resonant and 8K galvo scanning freeze motion in real time, and smart automation enables consistent, reproducible results.

With extraordinary clarity, speed, and reliability, the FV5000 turns complex imaging into confident discovery.

Try the FV5000 yourself—it will be the last laser scanning microscope you demonstrate.

Mouse brain slice expressing 7-color Tetbow cleared with SeeDB2 (in utero electroporation).

Sample courtesy of: Drs. Satoshi Fujimoto and Takeshi Imai, Graduate School of Medical Sciences, Kyushu University

Absolute Quantitation—Every Pixel, Every Run

The new benchmark in advanced microscopy, our **SilVIR™ detectors** deliver photon-level quantitation with exceptional sensitivity and ultra-high signal-to-noise across the industry's widest dynamic range. Trust the industry's first built-in laser power monitor to ensure consistent, reproducible illumination from samples captured today and in the future.

Finally, combine beautiful images with beautifully quantifiable results.

"The dynamic range of the detectors has allowed us to image a number of different labels that we were not able to previously accomplish without making compromises over what gets over- or under-exposed."

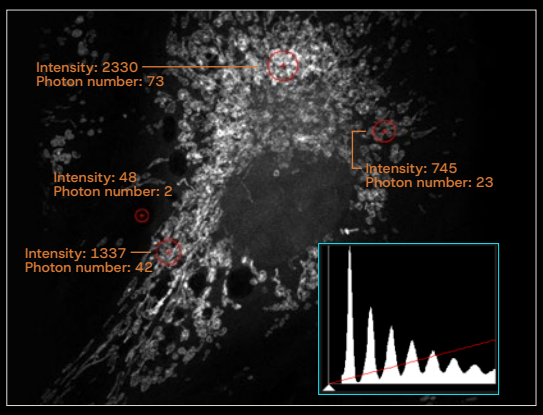
Jonathan Epp, PhD
Department of Cell Biology and Anatomy,
University of Calgary

SilVIR™ Next-Generation Detector Technology

Built on Evident's patented silicon photomultiplier design, SilVIR technology captures every photon with exceptional sensitivity and the industry's widest dynamic range. Low-noise electronics and a built-in laser power monitor maintain illumination stability and ensure reproducible, quantitative results from faint signals to deep-tissue imaging.

Expect Exceptional Imaging from Every Level of Signal

Clear high and ultra-low signals from the same sample with no compromise in quality.



Histograms show discrete photon counts with quantifiable intensity and minimum background.

Leave Saturated Images in the Past

With its expansive dynamic range, the SilVIR detector prevents signal clipping and minimizes time spent adjusting settings. Each capture delivers valid, unsaturated data ready for deconvolution, stitching, or spectral unmixing.

From single-photon events to intense fluorescence, SilVIR records the full signal spectrum in one acquisition. High dynamic range preserves faint details while preventing saturation of bright regions, reducing the need for reacquisition and ensuring consistent, quantitative image analysis.

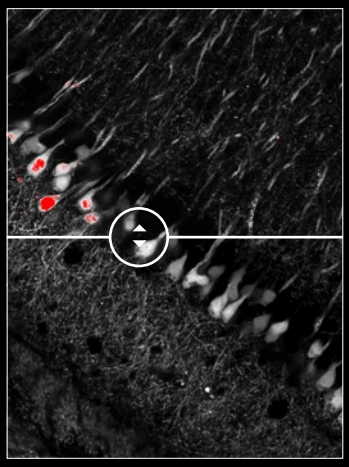


Image saturation seen with a GaAsP-PMT detector (in red)

vs.

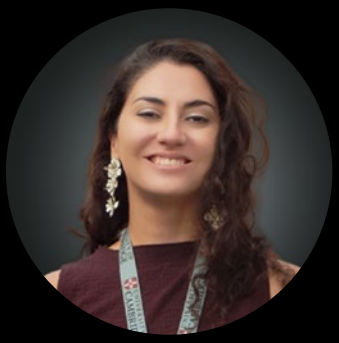
captured with the SilVIR detector (no saturation).

Whole mouse embryo cleared with Ethyl cinnamate, labeled with Alexa Fluor 405, 488, and 568.

Captured in confocal mode (170 tiles in XY, 700 microns depth) with a 25X oil immersion lens (1 mm WD).

Sample courtesy of: Dr. Emma Siragher, Hanna Group, Department of Physiology, Development and Neuroscience, University of Cambridge

Speed and Resolution, No Compromises



Two Scanners, One Workflow: High-Density Sampling and High-Speed Imaging

Whether you need high-speed series or pixel-dense maps, the FV5000 adapts. Our resonant scanner captures fast cellular dynamics at full clarity across a 20 mm FOV with little to no averaging, giving you high-quality, high-SNR raw images, in up to 438 FPS.

Switch to 8K × 8K galvo scanning to image large areas at high spatial resolution with ultra-fast pixel dwell times as short as 0.2 µs. Achieve up to 120 nm XY resolution across six spectral channels with high-NA objectives and FV-OSR software—no additional hardware required.

"The quality of imaging, I've never seen something similar before."

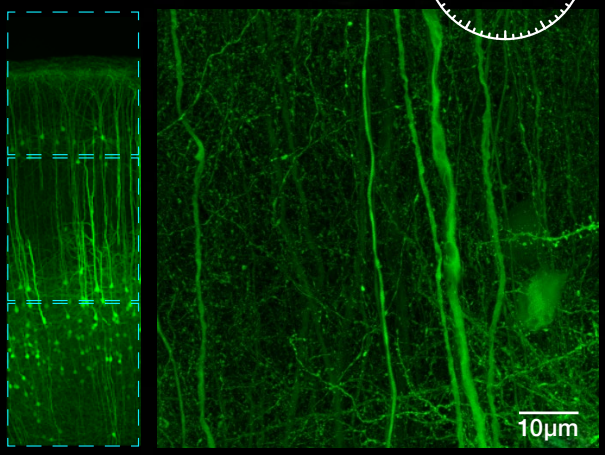
Soraya Villaseca, PhD
Department of Physiology, Development and Neuroscience, University of Cambridge

The result: fewer compromises and faster time to data.

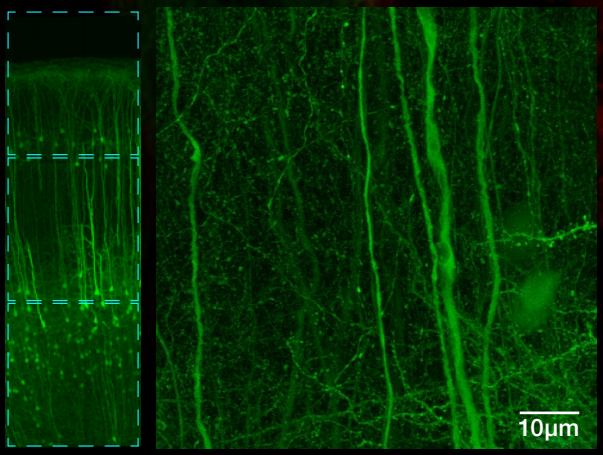
Acquire Up to 9 Times Faster Than Galvo with the Same Stunning Clarity

43.5 MINUTES
2K Galvo Z-Stack

4.6 MINUTES
2K Resonant Z-Stack



Galvo Scan (no accumulation)



Resonant Scan (4x accumulation)

Effortless Super-Resolution Imaging

Powerfully Accessible Subcellular Answers

Achieve super-resolution imaging on the FV5000 with no additional hardware. By pairing high-NA objectives, such as our A Line™ HR series, with FV-OSR software, you can resolve subcellular structures down to 120 nm in XY with ease.

FV-OSR automatically adjusts the confocal aperture to capture and enhance high-frequency signal components, producing crisp, detailed images in real time. Combined with the sensitivity of the SilVIR detector, the FV5000 delivers simultaneous super resolution across up to six spectral channels.

Take your imaging—and your discoveries—further than ever before.

Cultured HeLa cells expressing Lifeact-mScarlet-I and EB3-3xmNeonGreen.

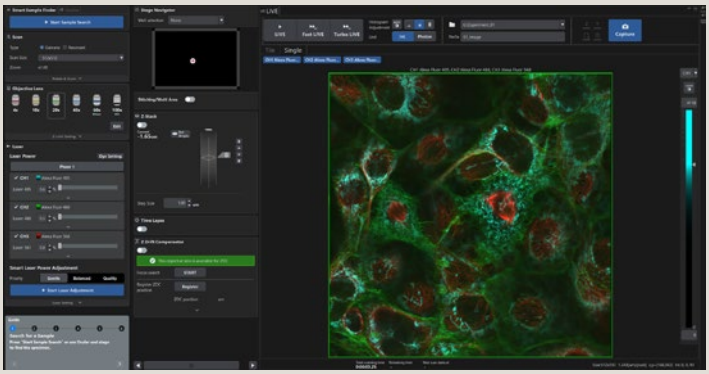
Acquired with super-resolution mode on the FV5000.

Sample courtesy of: Haruka Mii, Prof. Kazuhiro Aoki, Graduate School of Biostudies, Kyoto University

Unmatched End-to-End Simplicity with FLUOVIEW Smart™ Software

Inspired by real researchers tackling the challenges of science, the FV5000 is transforming confocal imaging, making it smarter and faster.

- **Smart Sample Search** quickly locates your sample in XY and Z
- **Smart Laser Power Adjustment** uses AI to optimize signal–to–noise across power setting
- **Intuitive interface** captures complex multidimensional images in just a few clicks
- **Intelligent Shading Correction** automatically creates seamless, high–quality stitched images



FLUOVIEW Smart is available with FV5000 inverted configurations. FLUOVIEW Smart is not compatible with gantry, upright, or MPE configurations.

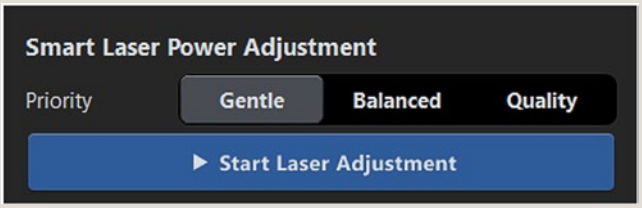
GUIDED CONFOCAL IMAGING

Instant Sample Location

AI–powered Smart Sample Search automatically locates your sample in XY and Z in under a minute, reducing manual setup and minimizing sample exposure.

Smart Laser Power Adjustment

Smart Laser Power Adjustment automatically balances laser intensity for your goal—whether you need gentle illumination, balanced exposure, or maximum image quality.

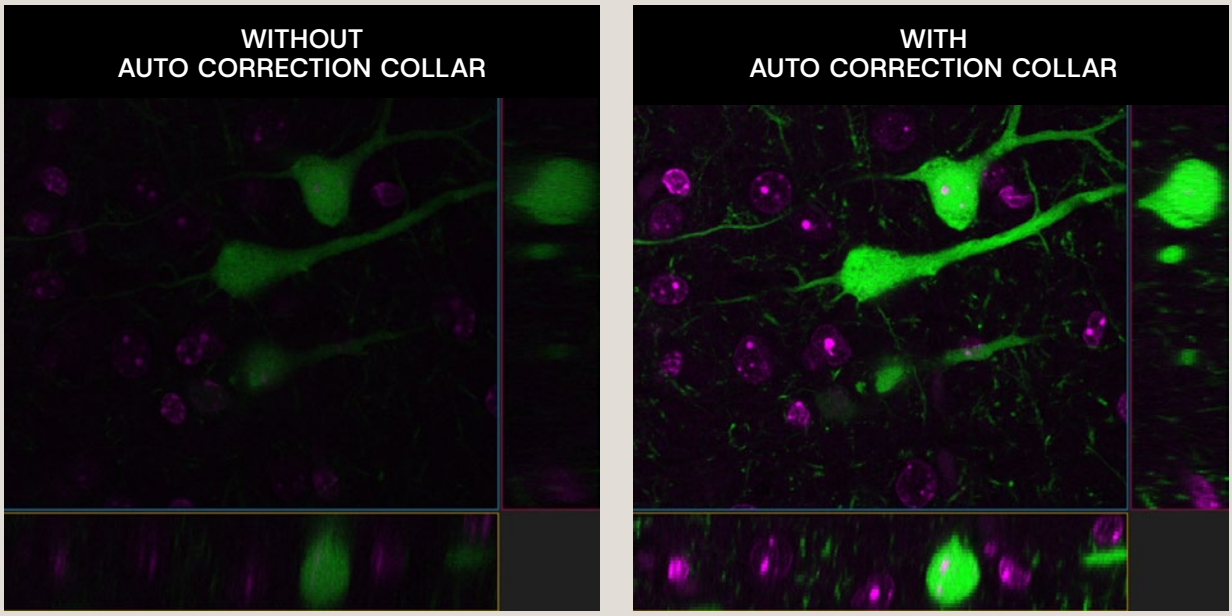


Smart Simplicity in Action

Automated Correction Collar Adjustment

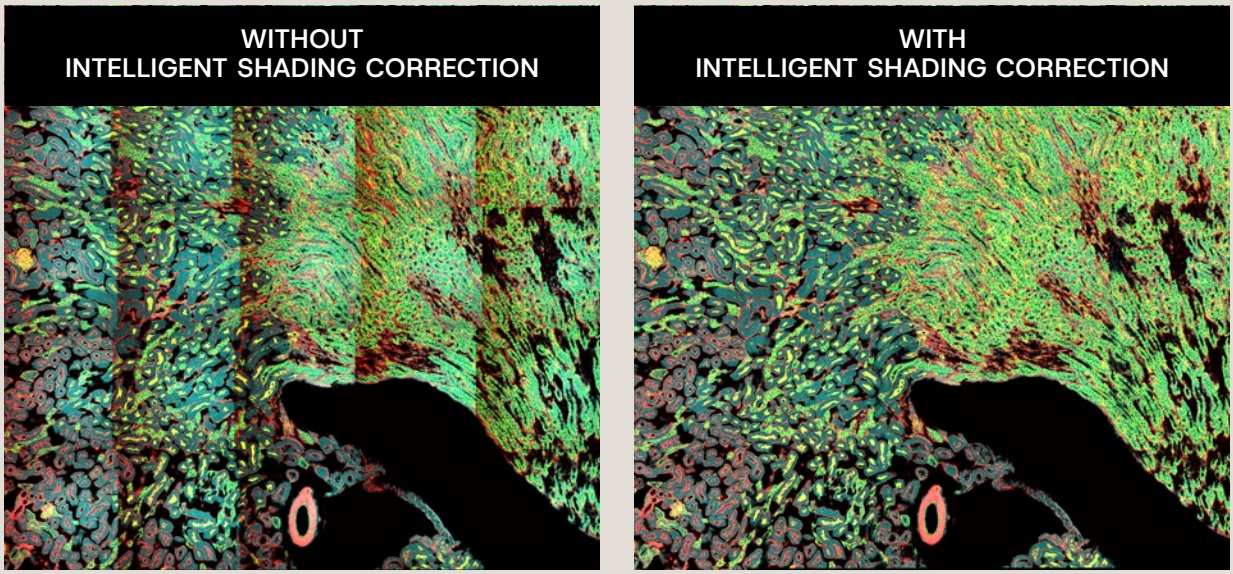
The FV5000's integrated **TruResolution**™ technology simplifies one of microscopy's most tedious alignment tasks, objective collar adjustment. In a single click, the system automatically locates the optimal collar position for your sample, eliminating manual trial and error.

For thick specimens, TruResolution dynamically fine-tunes the collar during XYZ scans to maintain consistent image sharpness throughout the entire volume. Compatible with many standard objectives, it delivers uniform clarity across diverse samples and imaging conditions.



Edge-to-Edge Clarity and Precision with Intelligent Shading Correction

Automatically create seamless, high-quality stitched images with Intelligent Shading Correction.



Mouse kidney section with Alexa Fluor 488 wheat germ agglutinin, Alexa Fluor 568 phalloidin and DAPI.

Reliability and Flexibility, Built to Last

The FV5000 is engineered for long-term precision and adaptability, delivering the reliability researchers depend on and the flexibility their science demands. Configure the system for today's needs and expand effortlessly as your research evolves.

Add detectors, cameras, or lasers as workflows advance, or upgrade to multiphoton imaging with the MPE module, enabling single- and multiphoton acquisition as well as second and third harmonic generation. Smart hardware and software continuously monitor and optimize imaging performance, ensuring consistent, reproducible results. And with Evident's global service and support network, every system is built to deliver lasting confidence and uptime.

Designed for Every Application

The FV5000 platform supports a full range of configurations to match your research, from IX85 inverted systems for high-speed live-cell imaging and upright frames for general imaging or electrophysiology, to gantry setups for large or irregular specimens. For deeper imaging, the MPE configuration enables small-animal and thick-tissue studies, including large-frame and 3D organoid-optimized designs. Confocal and multiphoton modes can also be combined in a single system, giving researchers unmatched versatility within one platform.

CONFOCAL

Upright Microscope System

For glass slide sample imaging.

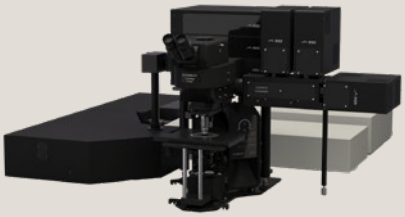
Gantry Microscope System

For in vivo observation that requires maximum space.

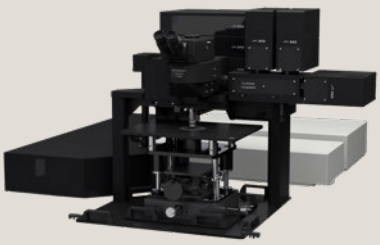
Inverted Microscope System

For observing tissue cultures, 3D cultures, and cell cultures (spheroids).

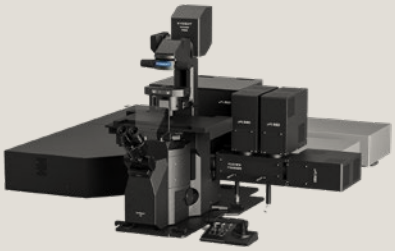
MULTIPHOTON



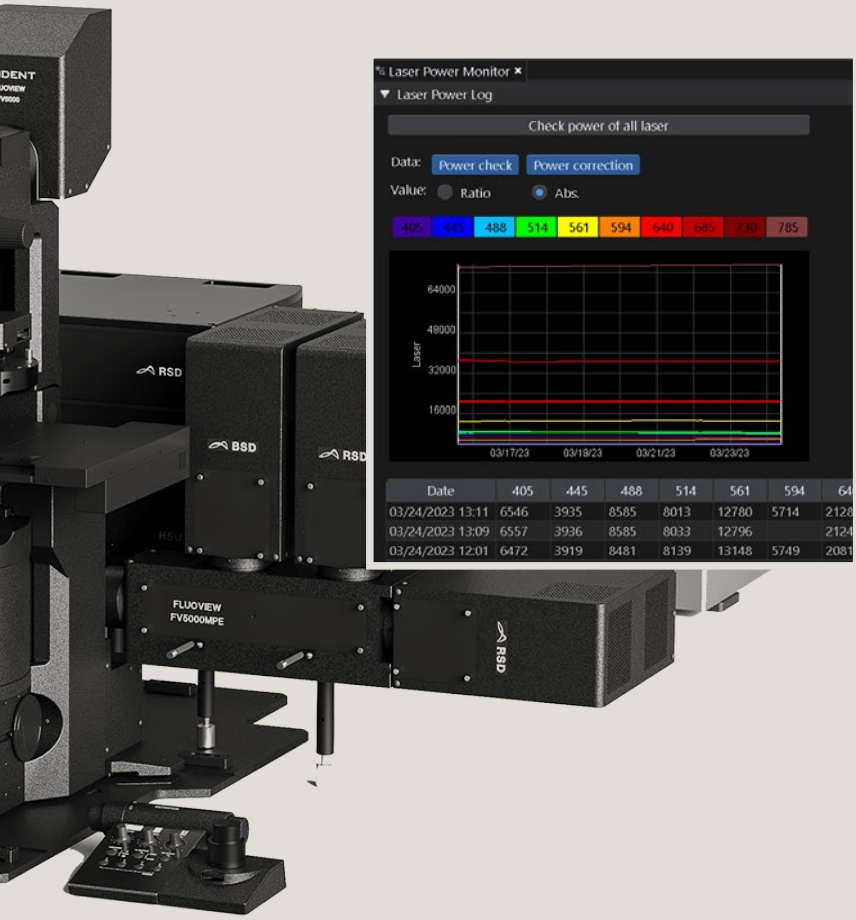
A large focus stroke accommodates a range of specimens, from tissue slices to live mice and other small animals.



The frame maintains a large working space below the objective, making it easier to position experiment equipment.



The frame supports observation of 3D cultures and multicellular clusters that are difficult to image using an upright frame.



Built for Reproducibility

The FV5000 maintains measurement precision through active system monitoring. The **Laser Power Monitor (LPM)** ensures consistent laser output across sessions, allowing different users to acquire images under identical conditions, even days or weeks apart. This stability supports the reproducibility required for quantitative and longitudinal studies.

To further safeguard performance, the **Microscope Performance Monitor (MPM)** automatically evaluates system sensitivity and imaging consistency. It detects deviations early, helping researchers maintain confidence in their results and ensuring every dataset reflects true experimental conditions.

World-Class Imaging Objectives

Long WD, High NA

LUPLAPO25XO / NA 1.00

Working Distance: 1.0 mm
Immersion: Oil

In addition to our award-winning X Line™ objectives, Evident offers an expansive range of A Line™ objectives that can meet any research need, pushing your confocal system even further.

"The gel objective is my favorite thing ever. Image quality and acquisition speed, and also sensitivity, were all very impressive."

Emma Steijvers, MSc, MPhil
AROS Lab, Department of Physiology, Development and Neuroscience, University of Cambridge

Silicone Gel Objective

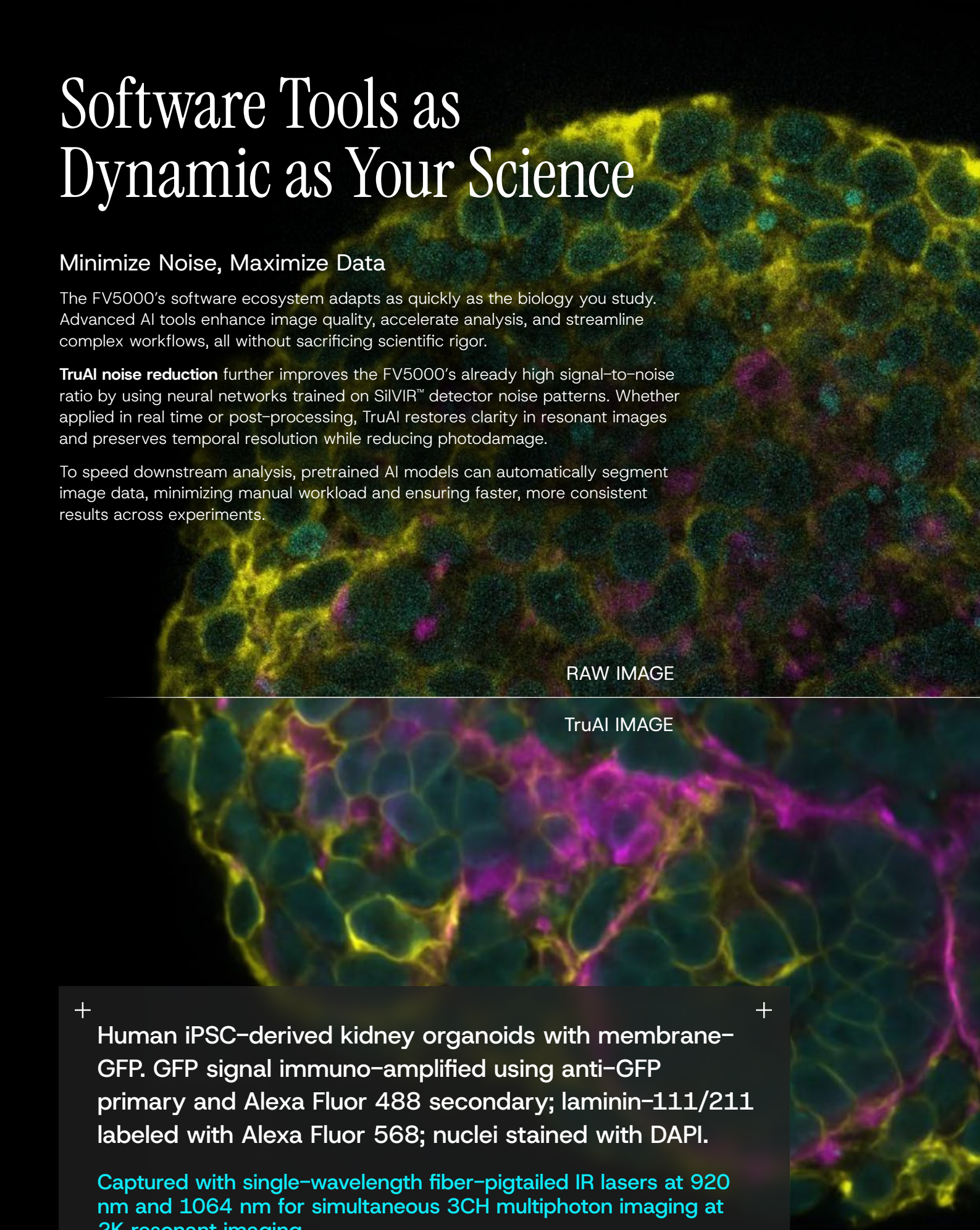
Software Tools as Dynamic as Your Science

Minimize Noise, Maximize Data

The FV5000's software ecosystem adapts as quickly as the biology you study. Advanced AI tools enhance image quality, accelerate analysis, and streamline complex workflows, all without sacrificing scientific rigor.

TruAI noise reduction further improves the FV5000's already high signal-to-noise ratio by using neural networks trained on SilVIR™ detector noise patterns. Whether applied in real time or post-processing, TruAI restores clarity in resonant images and preserves temporal resolution while reducing photodamage.

To speed downstream analysis, pretrained AI models can automatically segment image data, minimizing manual workload and ensuring faster, more consistent results across experiments.



Human iPSC-derived kidney organoids with membrane-GFP. GFP signal immuno-amplified using anti-GFP primary and Alexa Fluor 488 secondary; laminin-111/211 labeled with Alexa Fluor 568; nuclei stained with DAPI.

Captured with single-wavelength fiber-pigtailed IR lasers at 920 nm and 1064 nm for simultaneous 3CH multiphoton imaging at 2K resonant imaging.

Sample courtesy of: Dr. Robert Turnbull and Prof. Katja Röper, Department of Physiology, Development and Neuroscience, University of Cambridge

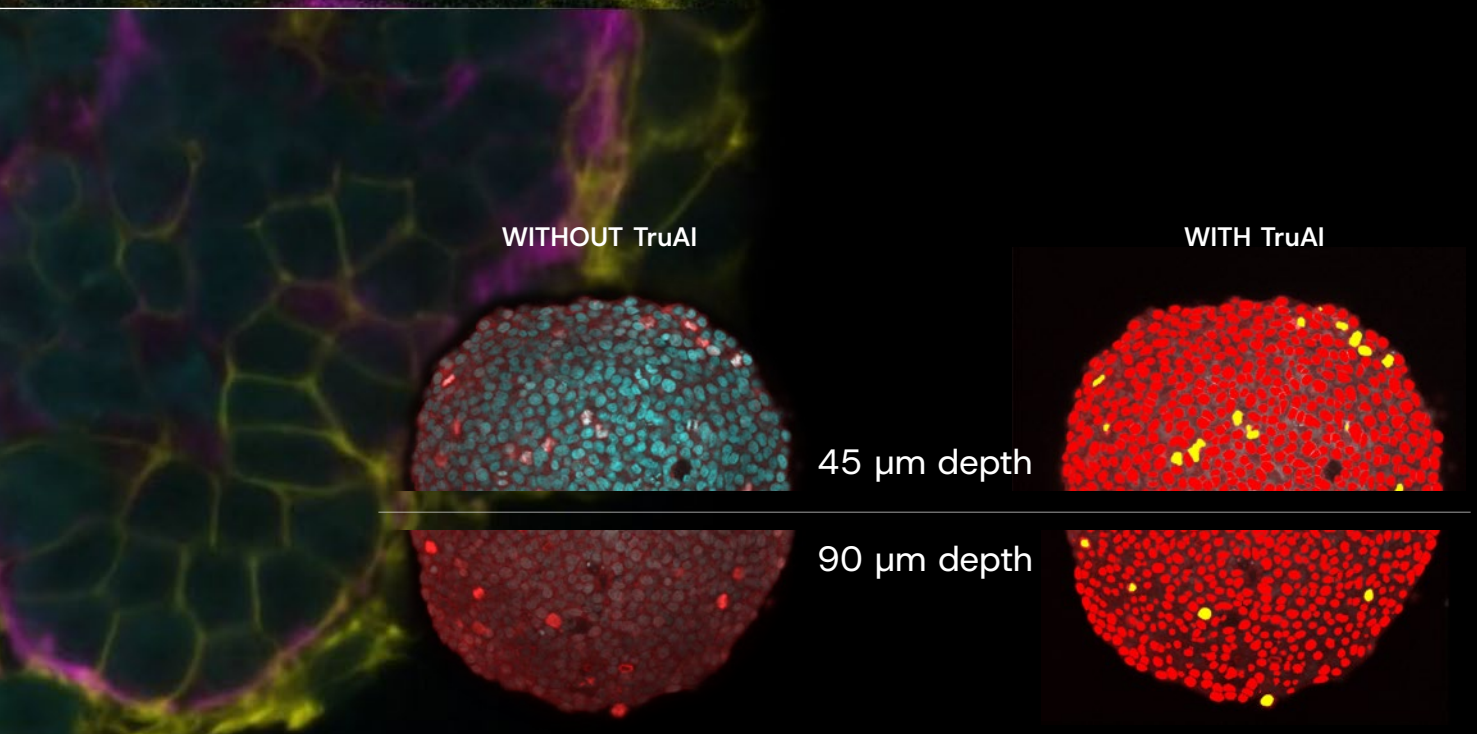
Image Segmentation Powered by Deep Learning

Go Beyond Conventional Thresholds

Traditional intensity-based thresholding can be slow, inconsistent, and highly sensitive to sample conditions.

TruAI image segmentation uses deep learning to recognize subtle patterns and faint signals that conventional methods miss, enabling accurate, reproducible segmentation of weakly labeled structures and complex tissues.

Clearly distinguish cells—and quickly find answers.



Spheroid Imaging and Analysis with TruAI

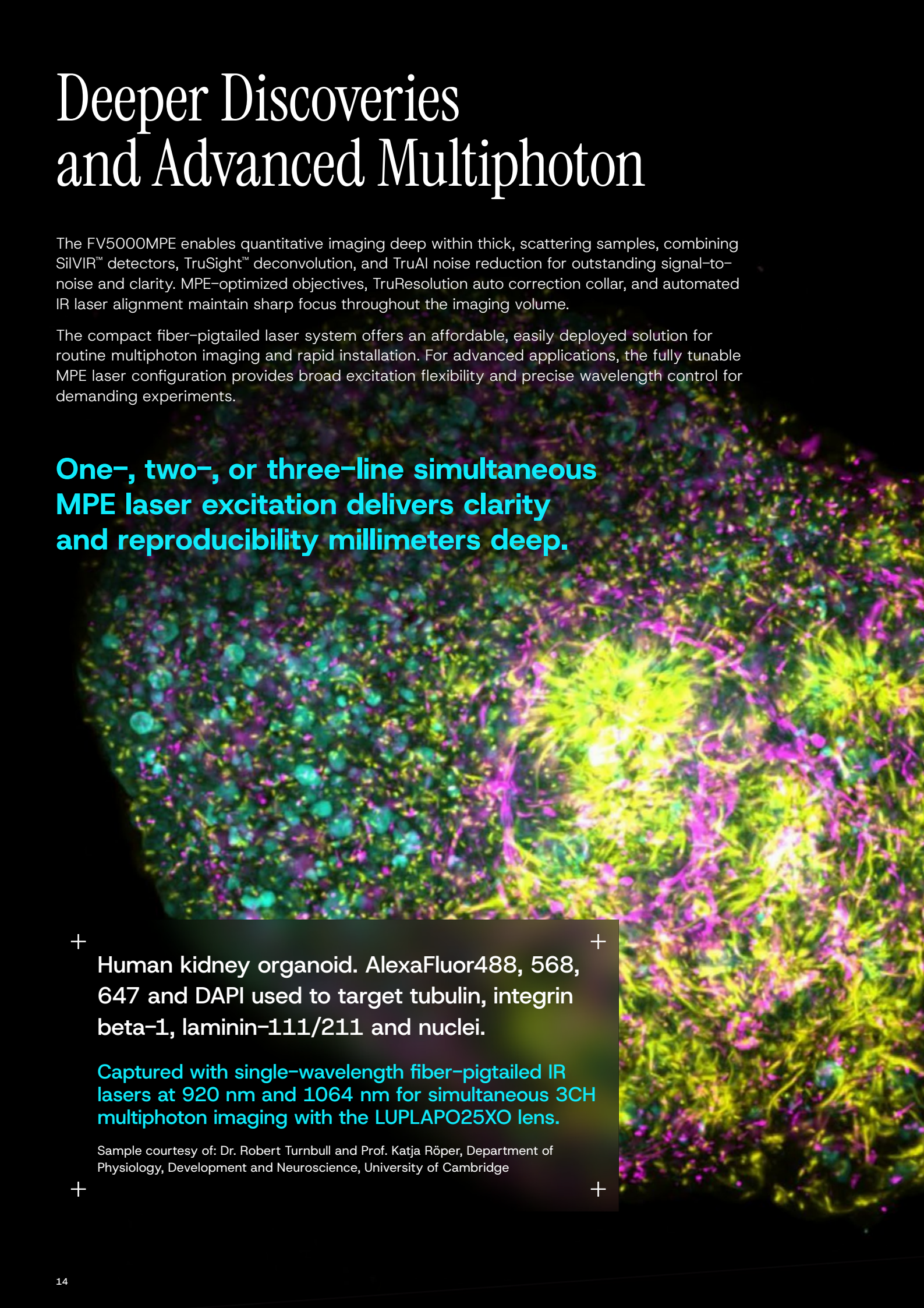
TruAI segments and classifies cells (images on the right), even at high-penetration depths when the nuclei DAPI signal becomes weaker due to scattering.

Deeper Discoveries and Advanced Multiphoton

The FV5000MPE enables quantitative imaging deep within thick, scattering samples, combining SilVIR™ detectors, TruSight™ deconvolution, and TruAI noise reduction for outstanding signal-to-noise and clarity. MPE-optimized objectives, TruResolution auto correction collar, and automated IR laser alignment maintain sharp focus throughout the imaging volume.

The compact fiber-pigtailed laser system offers an affordable, easily deployed solution for routine multiphoton imaging and rapid installation. For advanced applications, the fully tunable MPE laser configuration provides broad excitation flexibility and precise wavelength control for demanding experiments.

One-, two-, or three-line simultaneous MPE laser excitation delivers clarity and reproducibility millimeters deep.



Human kidney organoid. AlexaFluor488, 568, 647 and DAPI used to target tubulin, integrin beta-1, laminin-111/211 and nuclei.

Captured with single-wavelength fiber-pigtailed IR lasers at 920 nm and 1064 nm for simultaneous 3CH multiphoton imaging with the LUPLAPO25XO lens.

Sample courtesy of: Dr. Robert Turnbull and Prof. Katja Röper, Department of Physiology, Development and Neuroscience, University of Cambridge

From Compact to Advanced MPE Setups

Convenient Multiphoton Imaging

The FV5000MPE addresses some of the primary challenges associated with multiphoton excitation (MPE)—costly traditional pulsed tunable IR lasers and strict environmental conditions—with a new generation of compact single-wavelength fiber-pigtailed IR lasers that are cost-effective, easy to handle, and designed to bring MPE within reach of a broader range of users.

Axon FP lasers at 920 nm and 1064 nm installed in a 19-inch rack.

Single-wavelength fiber-pigtailed laser (Axon FP).

Tunable Infrared Laser Solutions for Deep Multiphoton Studies

For more advanced applications, the FV5000MPE supports the latest tunable infrared pulsed lasers for deep multiphoton imaging across 680–1300 nm. Systems such as the InSight X3+ Dual and Chameleon Discovery NX provide two laser lines—one tunable and one fixed at 1040/1045 nm—for efficient excitation of far-red fluorophores.

Manufacturer	Model	Wavelength Covered
Spectra-Physics	Mai Tai eHPDS-OL	690–1040 nm
	InSight X3-OL InSight X3+ -OL	680–1300 nm
	InSight X3 DA-OL	680–1300 nm
	InSight X3+ DA-OL	1045 nm (fixed)

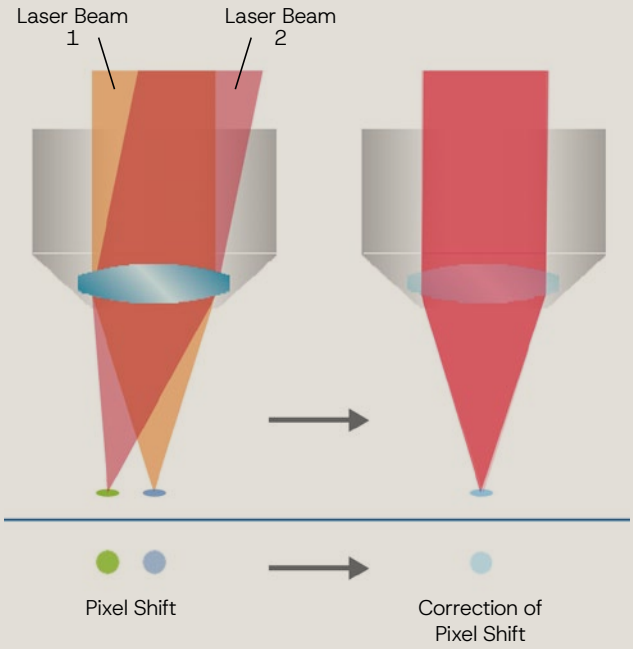
Manufacturer	Model	Wavelength Covered
Coherent	Chameleon Vision-S Evident	690–1050 nm
	Chameleon Discovery NX Dual TPC	660–1320 nm
		1040 nm (fixed)

Optimized Performance and Results

Auto Laser Alignment

The FV5000MPE's four-axis auto laser alignment system simplifies maintenance by keeping the excitation beam precisely aligned within the scanner unit, even when wavelength tuning, temperature changes, or other factors cause drift. The system adjusts beam position and angle to maintain optimal laser power and consistent pixel registration.

In dual-laser configurations, auto alignment also preserves beam co-alignment, minimizing channel co-registration errors for accurate multi-line imaging. When needed, users can perform manual fine-tuning directly through the software interface.



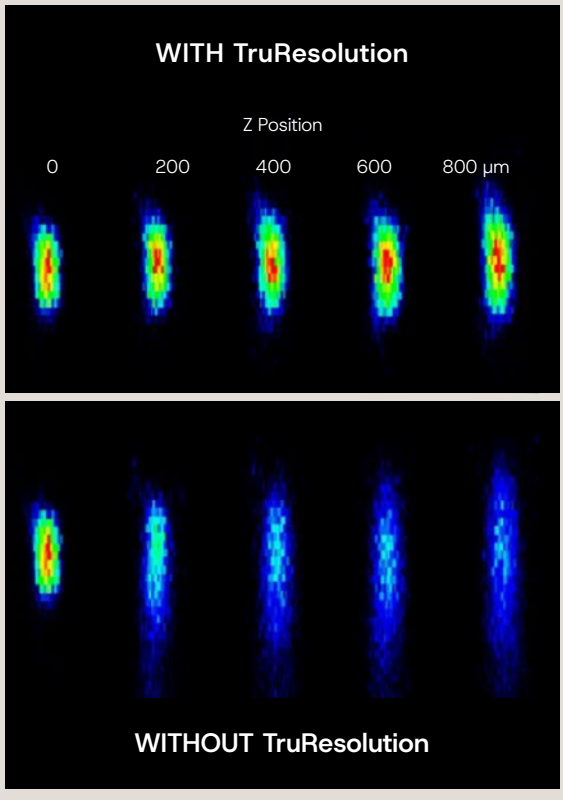
TruResolution™ MPE Objectives

FV30-AC10SV

10X multi-immersion
NA 0.60, WD 8.0 mm

FV30-AC25W

25X water-immersion
NA 1.05, WD 2.0 mm



XZ images of 0.2 µm fluorescent micro spheres in scattering gel (RI=1.36) at various depths acquired by using the FV30-AC25W objective.

Objectives Designed for Depth

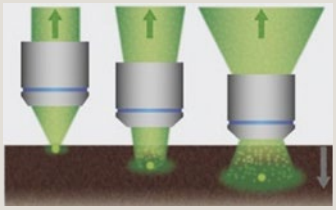
Sharper Imaging, Deeper Insights

Engineered for multiphoton excitation, A Line™ MPE objectives deliver high-precision imaging of biological specimens at depths of up to 8 mm, supporting both *in vivo* and transparent samples.

These objectives are optimized for performance and versatility, offering:

- A diverse selection of models to match varied research needs
- Optical designs combining a high numerical aperture, long working distance, and wide field of view
- Compatibility with multiple immersion media and tissue-clearing agents
- Built-in correction collars to compensate for refractive index mismatch and coverslip variations

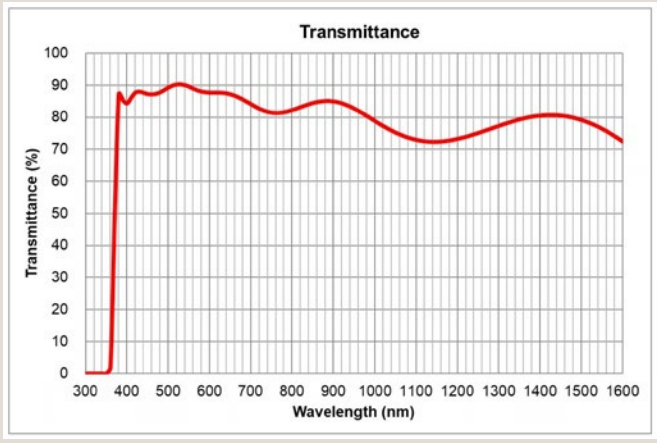
Dedicated Multiphoton Objective	NA	WD (mm)	Immersion Index
XLPLN10XSVMP	0.60	8.0	1.33–1.52
XLPLN25XWMP2	1.05	2.0	1.33
XLPLN25XSVMP2	1.00	4.0	1.33–1.40
XLSLPLN25XSVMP2	0.95	8.0	1.33–1.40
XLSLPLN25XGMP	1.00	8.0	1.41–1.52



Wide fields of view enable these objectives to efficiently collect scattered fluorescence photons and generate brighter images from deep within specimens.

Optics with Outperforming IR Coating

Our innovative IR coating (1600 coating) for multiphoton objectives and scanner optics further refines deep observation quality.



Example of 1600 coating technology with XLPLN25XWMP2.

Reliable Tissue Imaging

For upright microscope systems, our newly developed 16X multi-immersion objective (NA 0.8, WD 3.0 mm) offers an excellent balance between resolution and field of view—an ideal choice for broad tissue imaging applications.

XLPLFLN16XW / NA 0.80
Working Distance: 3.0 mm
Immersion Index: 1.33–1.52

Support and Service You Can Count On

When it comes to protecting your investment and the integrity of your research, your needs come first. We stand behind our products with a commitment to prompt service and technical support to help you achieve your goals.

Available in three convenient tiers—Maintenance, Protection, and Performance Plus—our FV5000 Service Plans include priority support to help minimize downtime, regular scheduled maintenance to keep your equipment in peak condition, predictable repair costs to eliminate unplanned expenses, and direct, efficient solutions when you need them most.

FV5000 Service Plans

	Maintenance	Protection	Performance Plus
Priority remote support	✓	✓	✓
Preventative maintenance	✓	✓	✓
Repair coverage (parts, labor, travel)	10% discount	✓	✓
Fast on-site response			✓

Specifications

FV5000 / FV5000-RS Specifications

		FV5000	FV5000-RS
Scanner	Galvanometer Scanner	64 × 64 – 8192 × 8192 pixels, 0.2 µs/pixel – 1000 µs/pixels	
	Resonant Scanner		512 × 512 pixels 1024 × 1024 pixels 2048 × 2048 pixels
	Field Number	20 (for both scanner types)	
Spectral Confocal Detector	Detector	SilVIR detector (cooled SiPM, broadband type/red-shifted type)	
	Maximum Channels	Six channels	
	Spectral Method	VPH, detectable wavelength range 400 nm–900 nm	
Laser	VIS Laser	405 nm, 445 nm, 488 nm, 514 nm, 561 nm, 594 nm, 640 nm	
	NIR Laser	685 nm, 730 nm, 785 nm	
	Laser Power Monitor	Built in	
Image	High dynamic range photon counting (1G cps, 16-bit)		

FV5000MPE / FV5000MPE-RS Specifications

		FV5000MPE	FV5000MPE-RS
Scanner	Galvanometer Scanner	64 × 64 – 8192 × 8192 pixels, 0.2 µs/pixel – 1000 µs/pixels	
	Resonant Scanner		512 × 512 pixels 1024 × 1024 pixels 2048 × 2048 pixels
	Field Number	20 (for both scanner types)	
Spectral Confocal Detector	Detector	SilVIR detector (cooled SiPM, broadband type/red-shifted type)	
	Maximum Channels	Six channels	
	Spectral Method	VPH, detectable wavelength range 400 nm–900 nm	
Non-Descanned Detector	Detector	SilVIR detector (cooled SiPM, broadband type/red-shifted type)	
	Maximum Channels	Six channels	
CW Laser	VIS Laser	405 nm, 445 nm, 488 nm, 514 nm, 561 nm, 594 nm, 640 nm	
	NIR Laser	685 nm, 730 nm, 785 nm	
IR Pulsed Laser	Tunable Laser	One-laser system, dual-laser-line system, two-laser system Excitation wavelength: 690 nm–1300 nm Four-axis auto alignment, auto beam expander	
	Single Wavelength Fiber Pigtailed Laser	920 nm, 1064 nm	
Image	High dynamic range photon counting (1G cps, 16-bit)		

Mouse brain cleared with SeeDB2.

Page 6: EYFP cortical layer 5 pyramidal neurons in Thy1-YFP-H.

Back page: YPet is expressed in layer 2/3 pyramidal neurons.

Sample courtesy of: Drs. Satoshi Fujimoto and Takeshi Imai, Graduate School of Medical Sciences, Kyushu University