

Flash Scanner FS4-RTM

Rapid, label-free histological analysis

The Flash Scanner FS4-R is a state-of-the-art microscope that harnesses higher harmonic generation (HHG) to deliver rapid, label-free imaging of excised tissue, revealing structural, cellular and subcellular details.

Whether assessing biopsy adequacy for cancer diagnostics, studying the effects of drugs on cellular behavior, or gaining insights into tissue development without invasive labeling, the Flash Scanner FS4-R reveals both tissue topology and cellular details with unmatched speed and precision, marking a significant advancement in tissue analysis.



Subcellular resolution

Reveal key cellular and histological hallmarks using four distinct imaging modalities.



Label-free imaging

Visualize tissue morphology without the use of labels or dyes, preserving samples for further analysis.



3D tissue visualization

Generate 3D images using automatic optical sectioning - no sample slicing required.



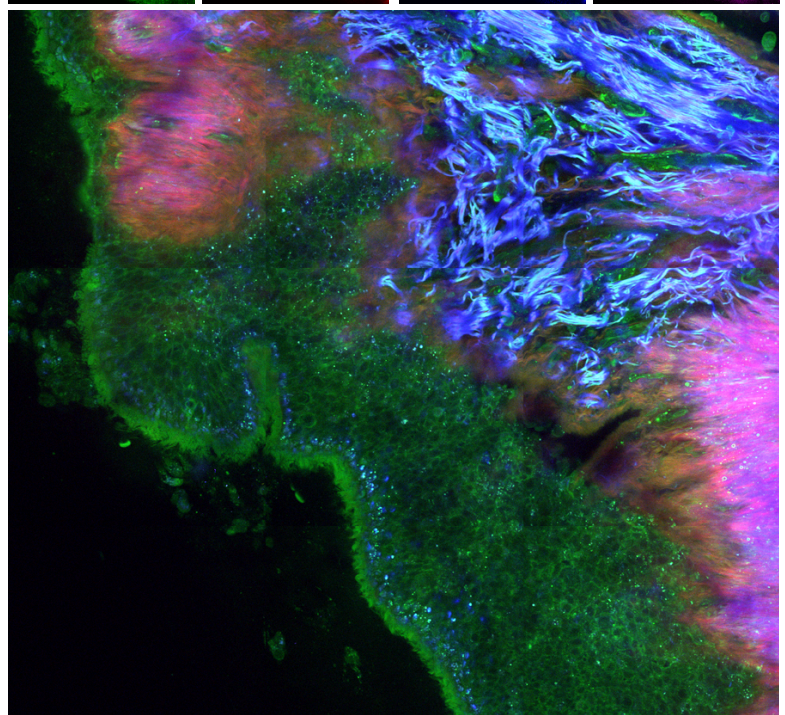
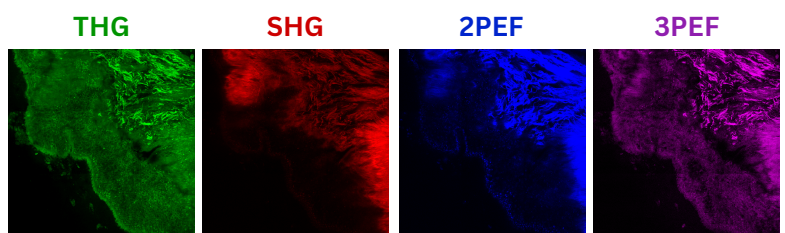
Quick turnaround

Minimize specimen preparation time and evaluate your samples in just minutes.

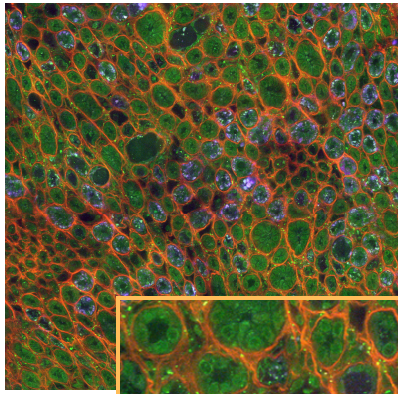
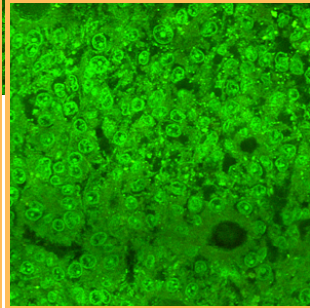
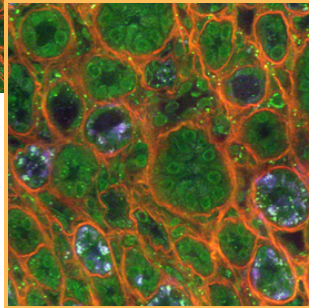
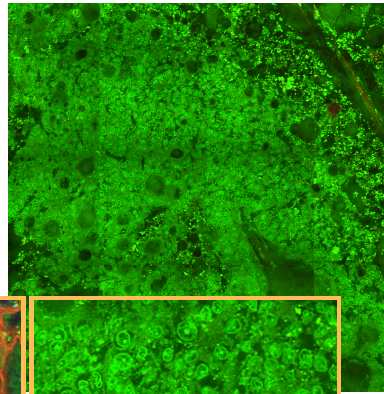


Publication-ready images

Capture vibrant, high-quality images that effectively convey the story behind your data.



Higher harmonic generation (HHG) microscopy. The Flash Scanner FS4-R simultaneously acquires third harmonic generation (THG), second harmonic generation (SHG), two-photon (2PEF) and three-photon (3PEF) excited autofluorescence signals to provide complementary information about biological specimens. This image shows a bronchoscopy biopsy with cilia covered epithelium and stroma including elastin and collagen fibers.

Healthy kidney**Kidney cancer**

The Flash Scanner FS4-R imaging kidney tissue. The Flash Scanner FS4-R (on the right) is a compact, portable microscope that utilizes THG to capture all tissue interfaces, visualizing cellular structures (green), while SHG signals are generated by non-centrosymmetric molecules, mainly showing collagen fibers (red). Endogenous fluorophores, present in cell cytoplasm and elastin, emit signals detected by the 2PEF and 3PEF channels (blue and magenta). The magnified images reveal (left) normal kidney tissue with distal and proximal tubules and (right) renal cell carcinoma with cells with enlarged cell nuclei and prominent nucleoli.

Technical specifications	The Flash Scanner FS4-R
Optical resolution	0.4 μm (lateral), < 3 μm (axial)
Imaging modalities	Third harmonic generation (THG), second harmonic generation (SHG), 2-photon (2PEF) and 3-photon (3PEF) excited autofluorescence.
Field of view (single image)	700 μm \times 700 μm
Max. image area	$\varnothing = 20$ mm (limited by the size of the sample dish)
Scanning speed	Single image: 0.5 second 2D scanning: up to 0.5 mm^2 per second
Imaging modes	Inspection mode (1 pixel/ μm) and high-quality mode (5 pixels/ μm)
Data acquisition	2 Mpixels/sec with parallel acquisition of the 4 imaging modalities
Imaging wavelength	1070 nm
Operating temperature and electrical requirements	18°C to 30°C; 110 - 230 VAC, 50 - 60 Hz

For research use only.

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Learn more at flashpathology.com