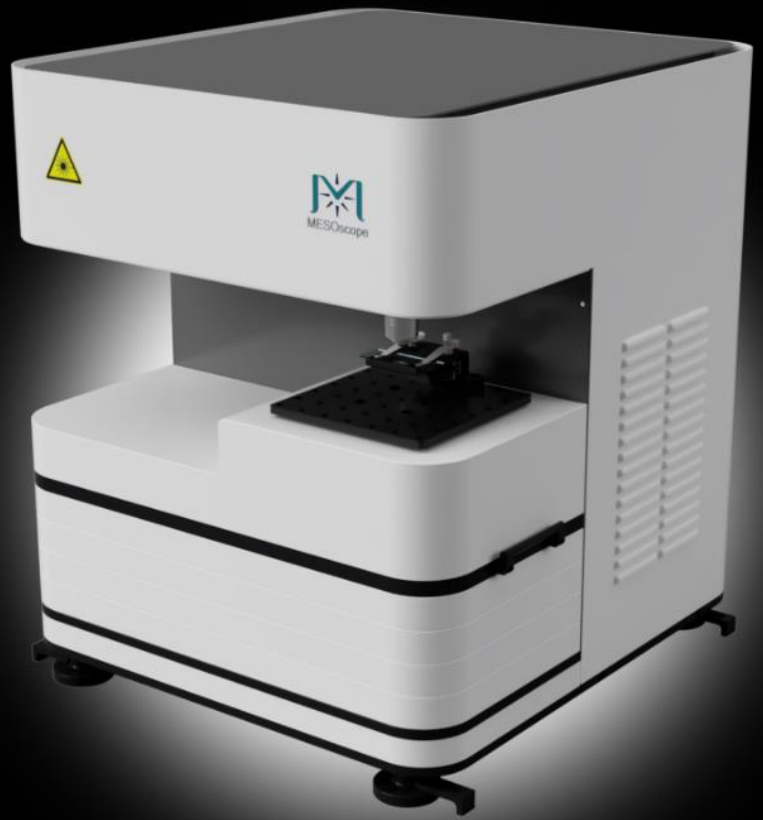
mesoView



MESOscope

Streamline your research with MESOscope

A Nonlinear Optical Microscope providing millimeter-scale Field-of-View with submicron digital resolution

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MESOscope

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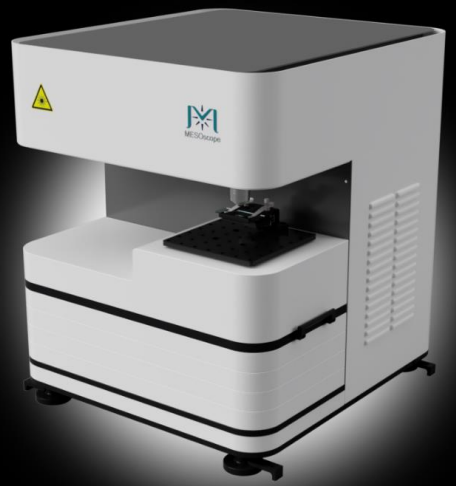
MESOscope is an industry-leading nonlinear optical microscope with up-to 4 parallel channels enabling up-to submicron digital resolution with fulfilled Nyquist-Shannon criterion across a millimeter-scale Field-of-View (patented). A dual 3D-stage mechanism with a detachable external unit makes MESOscope suitable for both ex vivo and in vivo studies. Our GPU-accelerated mosaic-stitching algorithms enable post-processing-free sub-minute gigapixel centimeter-scale laser-scanning with a sustained throughput of >500 Mbps. Additionally, our proprietary high-speed imaging mode enables multichannel kilohertz frame-rate imaging dedicated to functional imaging studies. Compact design and multiple operating modes make MESOscope adaptable to a wide range of experimental requirements.

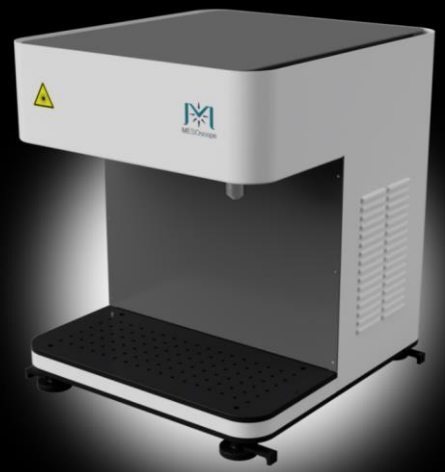
Advantages

- Millimeter-scale field-of-view (FOV)
- Submicron digital resolution
- Nyquist-fulfilled ultrafast sampling
- Gigapixel centimeter-scale imaging
- Kilohertz frame-rate imaging
- Compact and adaptable design
- Dual 3D-stage mechanism

Ex vivo



In vivo



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Large-**FOV** high-**Resolution**

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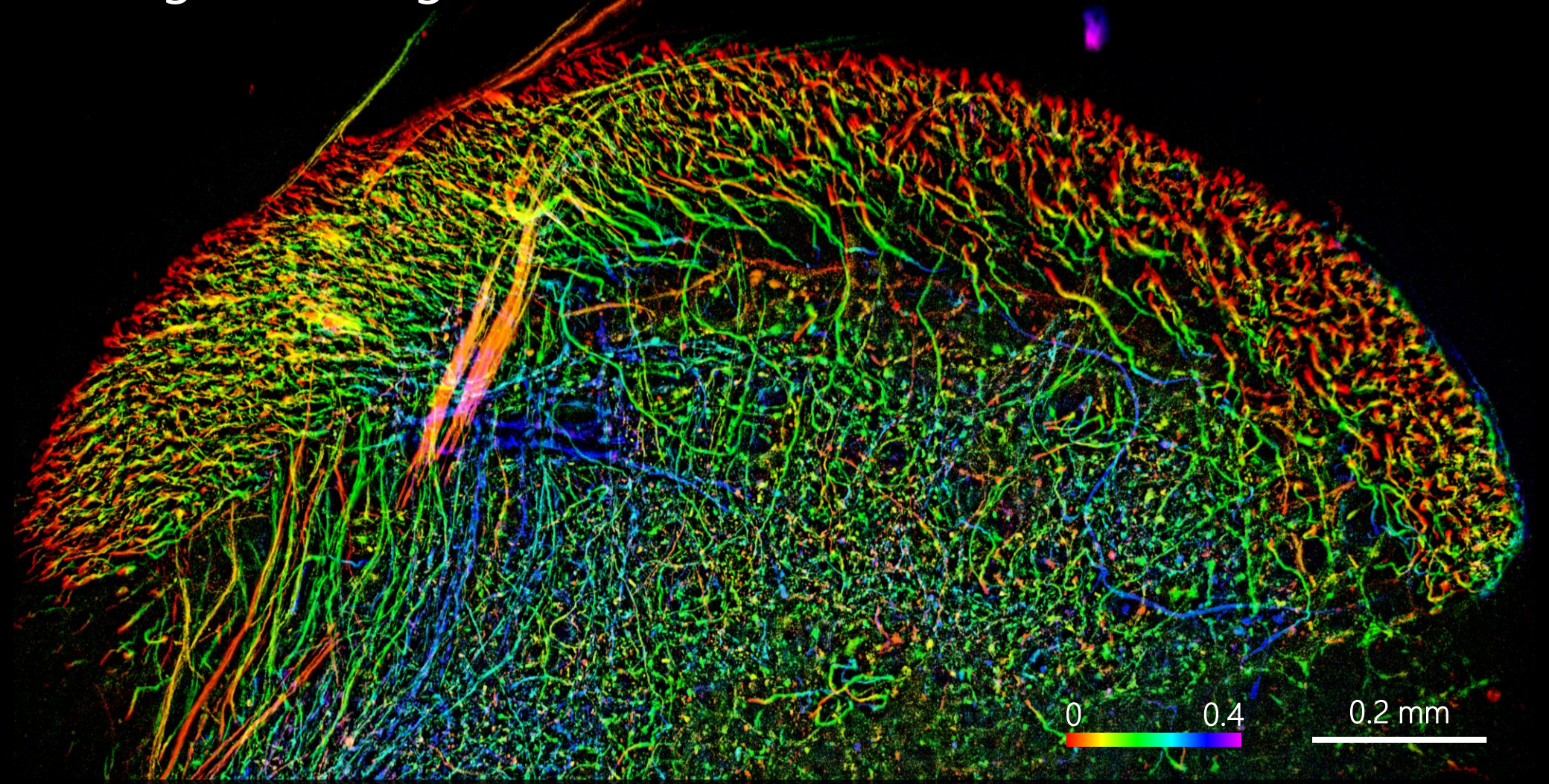

A coronal section from medulla of a Nav1.8-tdTomato mouse was scanned across 1.6 × 1.6 × 0.4 mm^3 volume with a voxel size of 0.182 × 0.182 × 0.3 μm^3 fulfilling the Nyquist-Shannon criterion. Figure shows a 2D representation with Z-projection (color coded Z-axis, 0-0.4 mm).

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Specifications

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Model	MESOscope Pro
Excitation wavelength	900-1100 nm
Operating channels	4
Fast-axis frequency	4 kHz or 8 kHz
Field of View (FOV) & Resolution	1 mm × 1 mm (20×, 4 kHz) 0.4 mm × 0.4 mm (40×, 8 kHz) <1 μm digital resolution Fulfills the Nyquist–Shannon Sampling Theorem
High Speed Imaging	Up to 800 fps
Max. imaging area	10 mm × 10 mm (mosaic-stitching, 4 kHz)
Max. image size	8192 × 8192 (4 kHz)*
Numerical aperture	≥0.8
Bidirectional scan	Yes
Ultrafast sampling	Yes (up-to 125 M/s)*
Bright field imaging	Yes (CMOS)
3D stage	External (25 mm XY, 20 mm Z) Internal (10 mm Z)
Computer	Included 4 TB SSD, 64 GB RAM, 24 GB Graphics
Monitor	Included 4k (3840 × 2160)
External controller	None
Software	Basic imaging (up-to 4 channels) Denoised contract enhancement (DCE) Real-time mosaic-stitching
Operating temperature	20-35 °C
Power input	125/ 250V AC, 50/ 60 Hz

Model	MESOscope
Excitation wavelength	900-1100 nm
Operating channels	2
Fast axis frequency	4 kHz
Field of View (FOV)	0.7 mm × 0.7 mm (20×)
Max. image size	4096 × 4096*
Numerical aperture	≥0.8
Bidirectional scan	Yes
Ultrafast sampling	Yes (up-to 80 M/s)*
3D stage	External (25 mm XY, 20 mm Z)
Computer	Included 2 TB SSD, 32 GB RAM, 16 GB Graphics
Monitor	Included 4k (3840 × 2160)
External controller	None
Software	Basic imaging (up-to 2 channels)
Operating temperature	20-35 °C
Power input	125/ 250V AC, 50/ 60 Hz

*Subject to laser repetition rate

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