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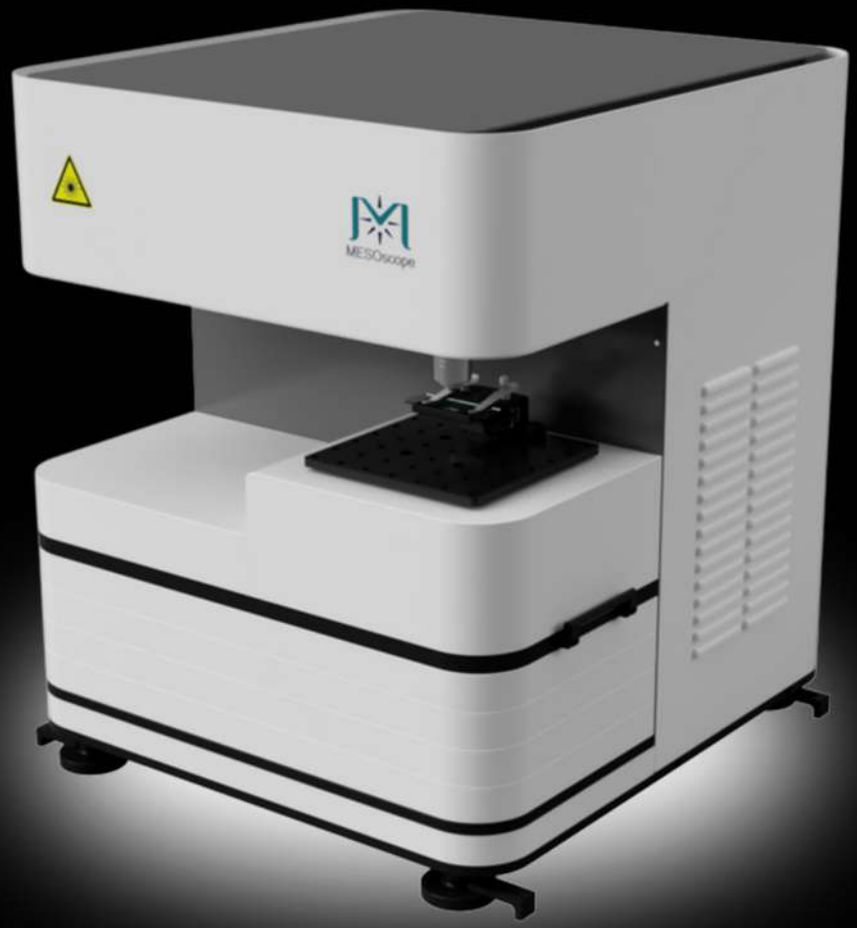


MESOscope

Streamline your research with MESOscope

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

MESOscope

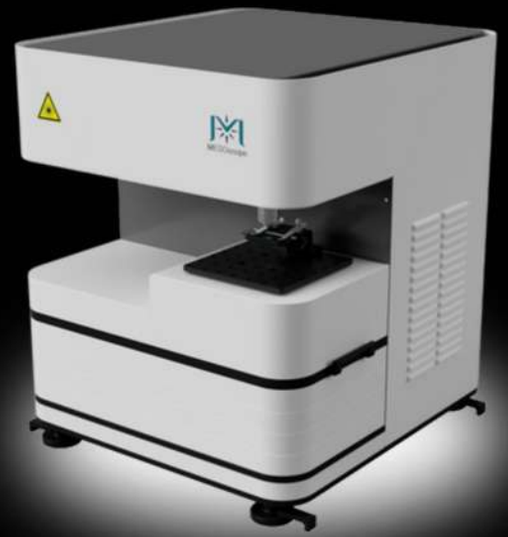
mesoView®

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.

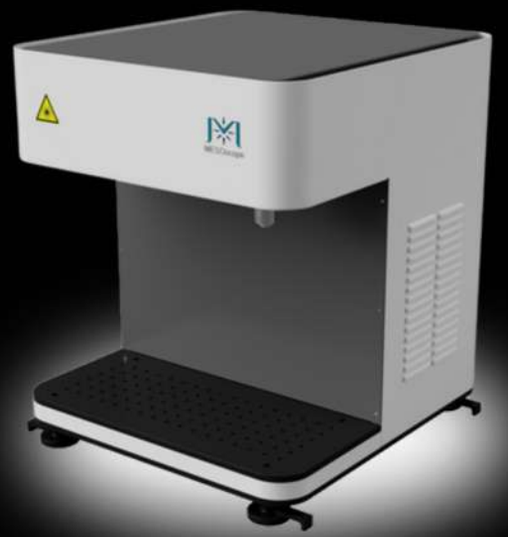
Advantages

- 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

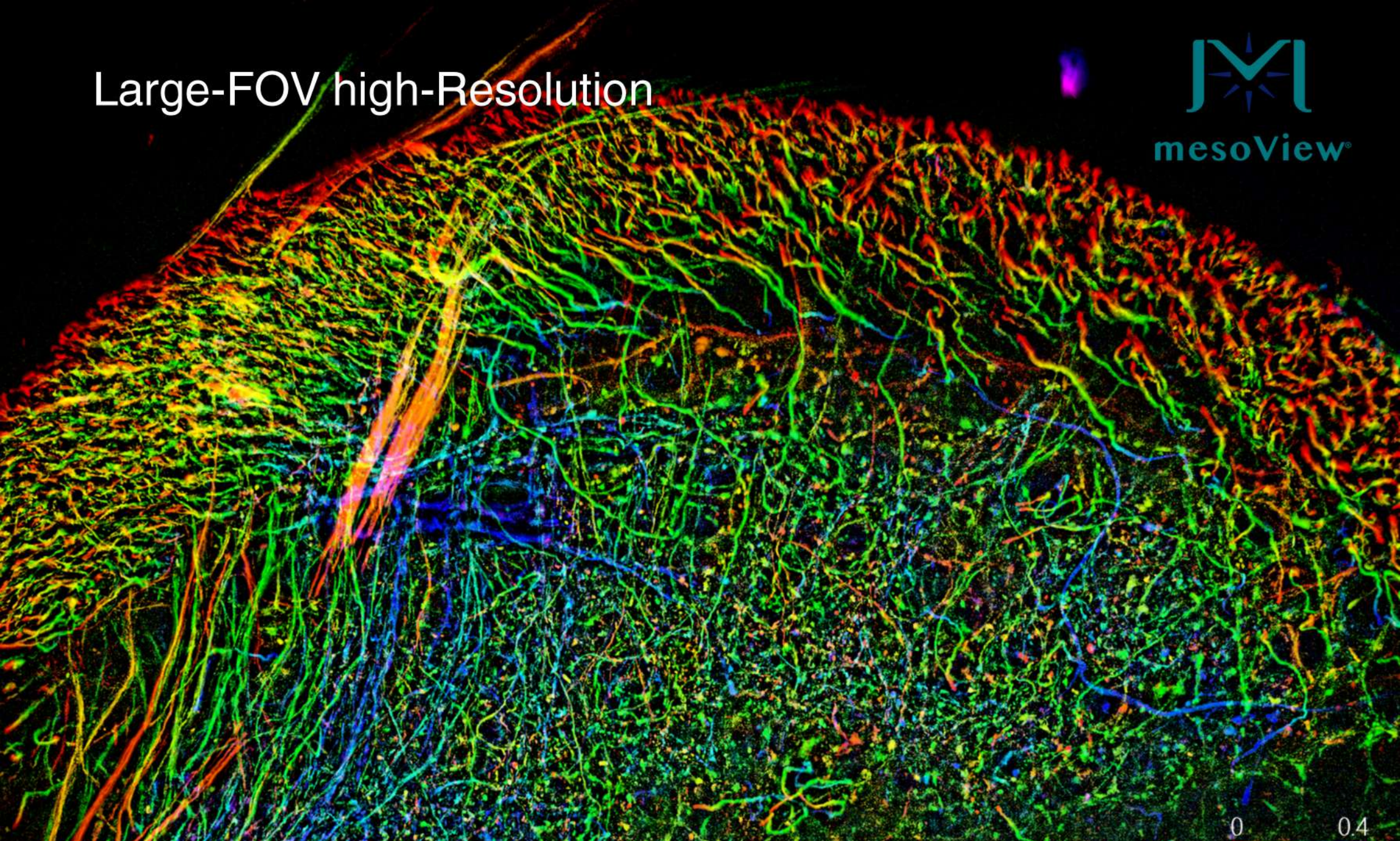
Ex vivo



In vivo

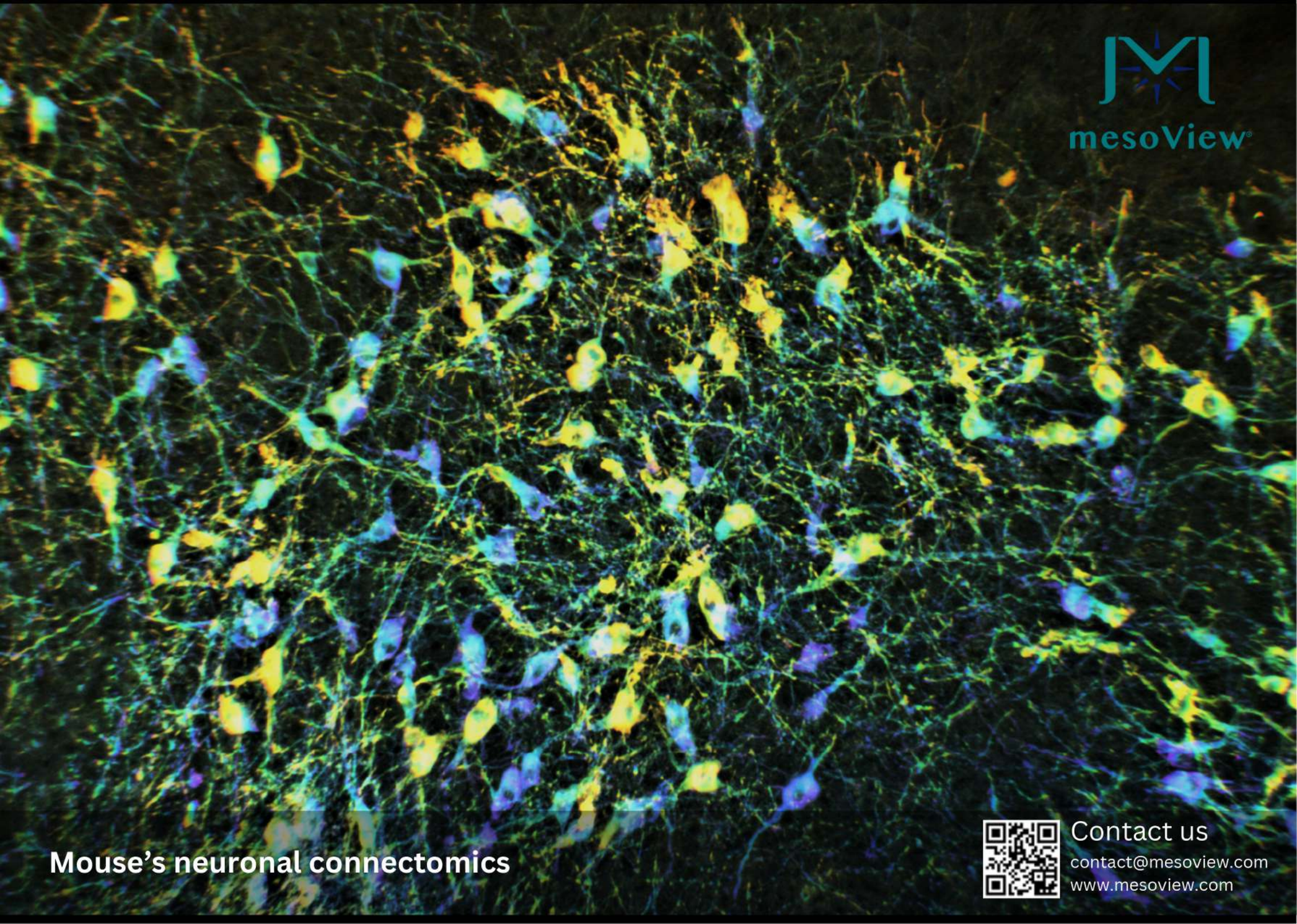


Large-FOV high-Resolution



A coronal section from medulla of a Nav1.8-tdTomato mouse was scanned across 1.6 × 1.6 × 0.4 mm³ volume with a voxel size of 0.182 × 0.182 × 0.3 µm³ fulfilling the Nyquist-Shannon criterion. Figure shows a 2D representation with Z-projection (color coded Z-axis, 0-0.4 mm).

Contact us
contact@mesoview.com
www.mesoview.com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Mouse’s neuronal connectomics
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Specifications

Model	MESOscope Pro
Excitation wavelength	900-1100 nm
Operating channels	4
Fast-axis frequency	4 kHz or 8 kHz or 12 kHz
Field of View (FOV)	1 mm × 1 mm (20×, 4 kHz) 0.4 mm × 0.4 mm (40×, 8 kHz or 12 kHz)
Resolution	Submicron digital resolution *Fulfills the Nyquist–Shannon Sampling Theorem
Max. image area	10 mm × 10 mm (real-time mosaic-stitching)
Max. image size	8192 × 8192 (4 kHz) *Subject to laser repetition rate
Numerical aperture	≥0.8
Bidirectional scan	Yes
Ultrafast sampling	Yes up to 500 M/s (2 channels) up to 125 M/s (4 channels)
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×)
Resolution	Submicron digital resolution *Fulfills the Nyquist–Shannon Sampling Theorem
Max. image size	4096 × 4096 *Subject to laser repetition rate
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

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mesoController

Precision Control for Enhanced Research Capabilities

A Resonant-Galvo high-speed raster scanning controller

The mesoController is a powerful, high-speed imaging and scanning solution specifically designed for advanced microscopy applications. It features up to 4 parallel acquisition channels for efficient data collection, ultrafast sampling rates up to 125 MSps, and high-speed imaging at up to 800 fps.

The system supports both resonant and galvanometer scanners, along with integrated high-voltage PMT power supplies for up to 4 channels. It also includes jitter-free line triggers, external trigger support, and GPU-accelerated image acquisition and processing software. Combining these features, the mesoController provides an all-in-one, customizable solution, ideal for optical microscopy applications in both research and industrial environments.

Specifications

mesoView®

Model	mesoController
Operating channels	Up-to 4 parallel channels
Resonant scanner	4 kHz or 8 kHz or 12kHz *Supports scanners from: Cambridge technology Electro-Optical Products Corporation (EOPC)
Galvanometer scanner	Supports scanners from: Cambridge technology Thorlabs
Jitter-free line trigger	Supports phase-locked loop trigger system for jitter-suppressed line triggering
Ultrafast sampling	Yes up to 500 M/s (2 channels) up to 125 M/s (4 channels) or up to 160 M/s (2 channels) up to 80 M/s (4 channels)
High-speed imaging	Up to 800 fps
Max. image size	8192 × 8192 (4 kHz) *Subject to laser repetition rate
Bidirectional scan	Yes
PMT controller	Up-to 4 PMTs, each channel providing up-to –1200V
3D stage	Supports linear stages from Zaber Technologies
Laser safety	Supports automatic motorized shutter mechanism
External trigger	Supports external triggering for acquisition control (for synchronizing with experimental setup)
Software	Includes GPU-accelerated software mesoXScan for acquisition and data processing
Dimension	323mm × 282mm × 48mm (approx.)
Operating temperature	20-35 °C
Power input	125/250V AC, 50/ 60 Hz

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Dimensional details

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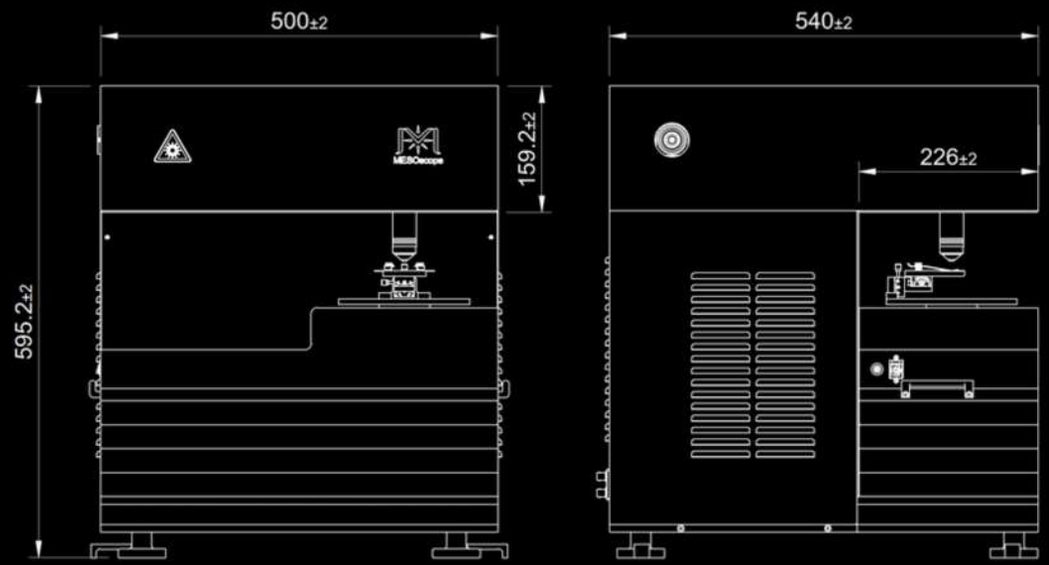

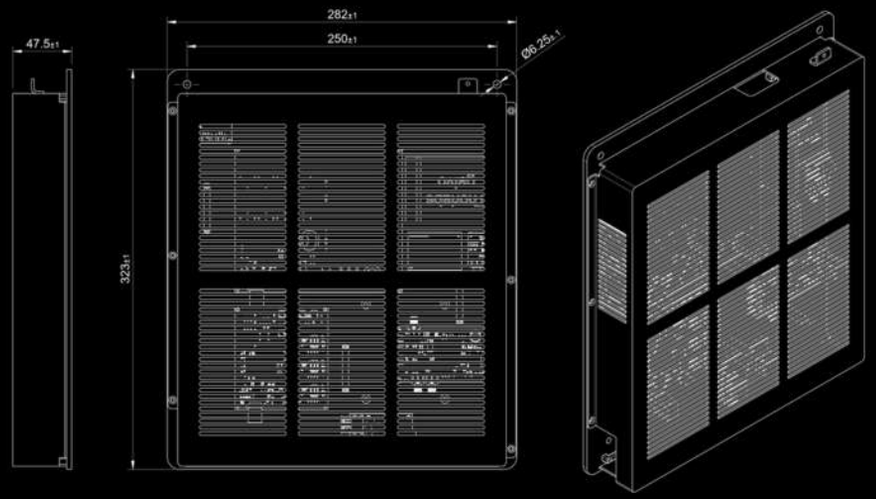

Dimensions are depicted in millimeter.

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