IVIM TECHNOLOGY

IVIM Technology
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IVIM TECHNOLOGY

IVM-FS (Free Space)

Intravital Microscopy for Medium-sized Animals

Confocal and Two-photon Imaging for

- Rats,
- Ferrets,
- Rabbits,
- Guinea pigs, etc.

Flexible, Bench-top Size, High-Performance

The IVM-FS is a state-of-the-art *in vivo* imaging system designed for medium-sized animals. It offers exceptional stability, high-speed imaging, and 4D motion compensation for precise, cellular-level visualization. With integrated real-time confocal and two-photon imaging, it is ideal for long-term studies, significantly enhancing accuracy, efficiency, and research outcomes in live animal imaging.

Key Features

- Adjustable Stage for Medium-sized Animals
- Fully Integrated *In Vivo* Maintenance Unit (e.g., Monitoring & Homeostatic Regulation of Animal Vitality)
- High-speed Imaging (max. 50 fps – 512 x 512 pixels)
- 4D Animal Motion Compensation (XYZ & Time)

IVM-FS (Free Space)

Specifications (C / M / CM / MS / CMS - FS)

SPECIFICATIONS			C	M	CM	MS	CMS
Laser	Confocal Laser Unit	• 405 nm (20mW), 488 nm (20mW), 561 nm (20mW), 640 nm (20mW)	✓		✓		✓
	Tunable Two-photon Laser Unit	• Ti: Sapphire laser • Wavelength: 690-1,050 nm, Pulse width < 75 fs, Rep. rate: 80 MHz • Avg. power > 2.5 W, Dispersion compensation: 0 to -43,000 fs²		✓	✓		
	Compact Two-photon Laser Unit	• Air cooled fs-fiber laser system with built-in power control • Wavelength: 920 nm, Pulse width < 100 fs, Rep. rate: 80 +/-2 MHz • Avg. power > 1.5 W, Dispersion compensation: 0 to -60,000 fs²				✓	✓
Fluorescence Detector	Confocal Detector	• Wavelength: 400 - 750 nm (DAPI, CFP, GFP, YFP, RFP, Cy5, Cy5.5, etc.) • 4 Ultra-broadband high SNR PMTs (UV to Near IR, Ultra High Sensitivity, Low Dark Current) • Single master pinhole	✓		✓		✓
	Two-photon Detector	• Wavelength: 400 - 750 nm (DAPI, CFP, GFP, YFP, RFP, Cy5, Cy5.5, etc.) • 4 high quantum efficiency PMTs (UV to Near IR, Ultra High Sensitivity, Low Dark Current) • Emission Filter: Individual filter can be mounted on each of four detectors.		✓	✓	✓	✓
Scan Head	Scanner	• Polygonal mirror (Fast axis scanning, Max. 30 kHz) • Galvano scanner (Slow axis scanning, Max. 200 µs/step)					
Imaging Head	Objectives	• Max. 5 objectives are mountable on IVM Engine Software controlled motorized turret (1X-100X) • Compatible for commercial objectives					
Image	FOV	• 100 x 100 µm² - 10 x 10 mm²					
	Pixel Resolution	• Max. 2,048 x 2,048 pixels					
	Imaging Speed	• Standard: 30 fps @ 512 x 512 pixels • (Optional) High Speed: 50 fps @ 512 x 512 pixels					
Animal / Sample Stage	Movable Stage	• Travel Range: Manual stage_250 x 80 mm (XY); Automated stage_50 x 50 x 75 mm (XYZ) • Micromanipulation (Max. 0.2 µm resolution) • 3-axis independent control with Jog Dial & IVM Engine Software • Stage maximum load: 10 kg • Distance from plate to objective lens (25 X) = Max. 125 mm					
	Specimen Holder	• Flexible-design universal *in vivo* / *ex vivo* / *in vitro* specimen holders can be mounted • (Optional) Homeothermic warming system, Holders for window chamber					
	Stage Height Adjustment Module	• Module designed to raise the plate height for small animals imaging • Mounted between the Manual Z Stage and the Plate Heater					
	Monitoring Camera	• Real-time live animal / sample monitoring					
	LED Light	• Installed inside the machine to assist in the observation of live animals or samples					
Animal Motion Compensation (Tissue stabilization)	4D *In Vivo* Imaging Motion Compensation	• XYZ motion compensation: Averaged image acquisition with motion artifact compensation • Z motion compensation: Image-based sample Z position adjustment for long-term intravital microscopic imaging & sample tracking (Feedback-loop automatic stage control) • T motion compensation: Image-based image XY position adjustment for long-term intravital microscopic imaging & sample tracking (Feedback-loop automatic stage control) • Combination of above three compensation for 4D *in vivo* motion compensation • Controllable by IVM Engine software					
Accessories Add-on	Live Animal Maintenance Unit	• Body Temp. Monitoring & Feedback Heater Control, including tablet PC • 4CH Rectal Probe, Body Plate Heater, Thermometer Sensor & Cover Glass Heater					
	Inhalation Anesthesia System	• Whole rodent animal inhalation anesthesia system • Anesthesia mask and connections for longitudinal imaging					
	Antibodies / Dyes	• Fluorescent labeling agents, vascular dyes and conjugated antibodies					
Engine & Studio Software	Image Display	• Independent 4 single channel display (RGBA channel) • Overlay channel display (Selection among RGBA channel)					
	In Vivo Imaging Modes	• Mosaic imaging (XY), Z-stack imaging (Z), Time-lapse imaging (T) • Time-lapse imaging at Multi-position (T – M) • Time-lapse & Z-stack imaging (TZ) • Time-lapse & Z-stack imaging at Multi-position (TZ – M)					

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Size Information

IVM-FS Size: 605 x 1130 x 685 mm

Optical Table Size: 800 x 1200 mm
(Dark Room / Curtain Needed)