



- **Co-registration** of photoacoustic and anatomical images
  - Simultaneous overlay of photoacoustic image on 2D and 3D planes
  - Real-time acquisitions for true *in vivo* monitoring
- **HemoMeaZure** - Hemoglobin content and quantification
  - Anemia assessment
- **OxyZated** - Oxygen saturation calculation and quantification
  - Tumor and tissue hypoxia assessment
- **NanoStepper** - Precise adjustment of output laser wavelength
  - Tunable laser to study different tissue types and contrast agents
- **Contrast agent detection** of near IR-absorbing compounds
  - Molecular and cellular quantification
  - Physiological assessment

## Performance

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Dynamic Range	: 70 dB
SNR	: 20 dB +/- 10 dB
Data acquisition time	: 2D : 0.2 seconds*
	3D : 74 seconds (10 mm)*
Photoacoustic	: 1-2 cm
Penetration Depth	
Contrast Sensitivity	: 521 nM of Methylene Blue

\*full field of view (14-23 mm wide)

## Tunable Laser

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Type	: Flashlamp pumped Q-switched
Nd	: YAG laser with optical parametric oscillator (OPO) and second harmonic generator
Frequency	: 20 Hz
Wavelength	: 680-970 nm
Step size	: 1 nm
Pulse duration	: 4-6 ns
Peak Energy*	: 45 mJ +/- 5 mJ (at 20 Hz)
Spot size	: 24 mm <sup>2</sup> (1 mm x 24 mm)

## Analytic Software

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- 2D and 3D capture and analysis
- Cineloop display and review
- Measurements, calculations, annotations
- HemoMeaZure tool
  - Hemoglobin content and quantification
- OxyZated tool
  - Oxygen saturation calculation and quantification

## LZ Series Photoacoustic Transducers

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256 Element Linear Array Detectors

Vevo LAZR LZ550 transducer

- Axial resolution : 44  $\mu$ m
- Broadband frequency : 32 MHz-55 MHz

Vevo LAZR LZ250 transducer

- Axial resolution : 75  $\mu$ m
- Broadband frequency : 13 MHz-24 MHz

## LAZRTight™ Box

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Light containment enclosure with viewing window

- Vevo imaging station
- Animal handling platform
- Physiological monitoring capabilities
- LED lights with dimmer switch
- Ventilation system
- Integrated anesthesia system
- Detachable front
- Interior electrical outlet

## Data management and export

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Data formats	: CSV, TXT
Image formats	: TIFF, BITMAP, DICOM
Video formats	: AVI, GIFF, DICOM

## Outputs

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USB 2.0, S-Video, DVSI, 100 Mb Ethernet, Firewire, 3D Motor, Physio Data; TX Trig, Trig in, Trig Out

## Network

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100 Mb Ethernet connection  
Storage : 250 GB Hard drive  
CD/DVD reader/writer

## Electrical Specifications

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Supported AC line voltages, rated at 50/60 Hz  
frequency: 100V / 120V / 230V