



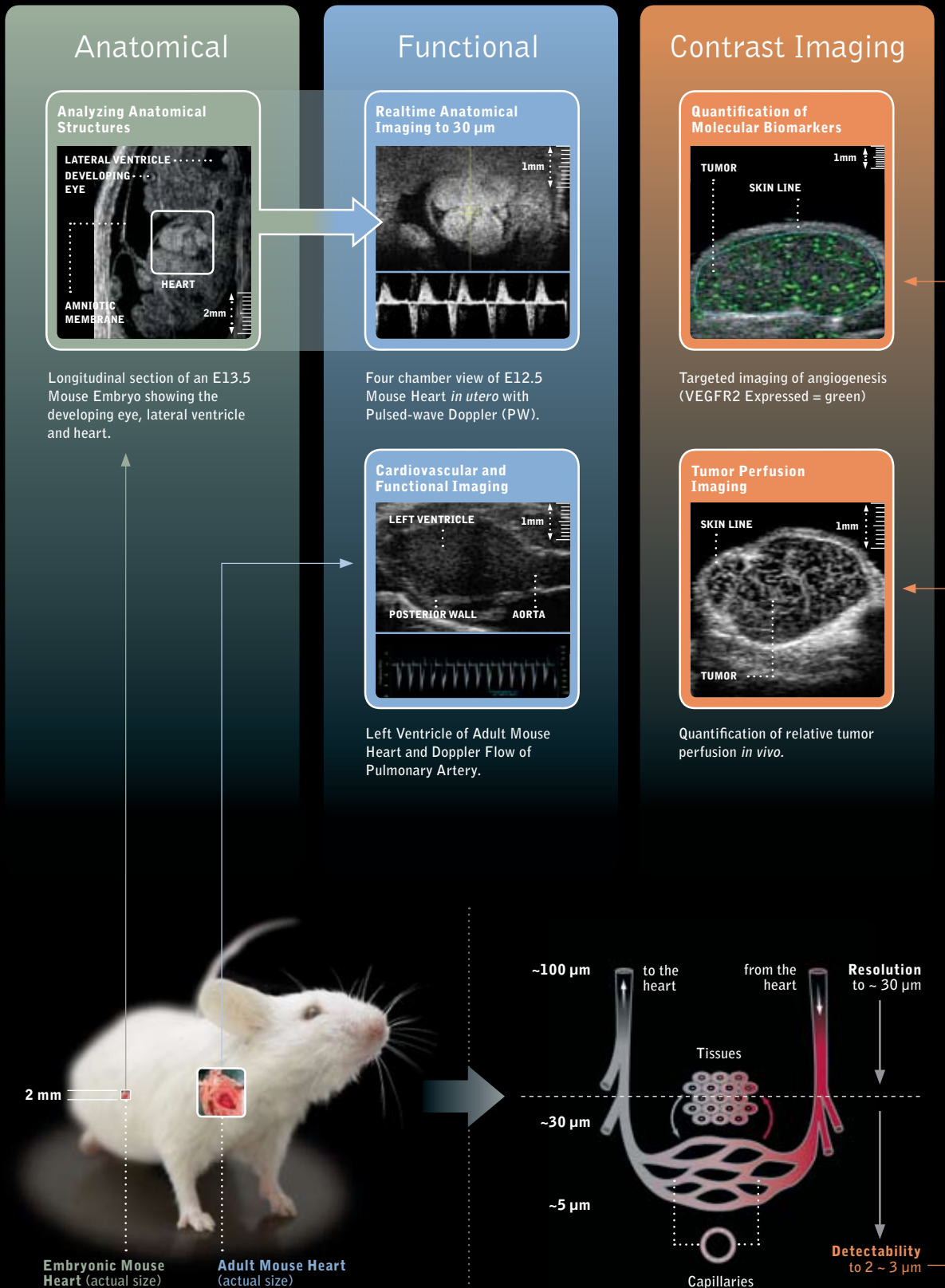
VISUALSONICS

Insight Through *In Vivo* Imaging™



Resolution Revolution in Realtime

The Vevo 770 provides anatomical, functional and molecular data in realtime, on an affordable, easy to use and translational platform. Realtime resolution is achieved to 30 μm and detectability with MicroMarker contrast agents is to the capillary level.



“ One platform.
Comprehensive data.”

VisualSonics

VisualSonics was founded to develop advanced imaging platforms for small animal research. High anatomical resolution, physiological and microcirculation quantification, and molecular data have enabled scientists worldwide to visualize and measure what was previously unattainable.

In vivo imaging has set a new standard in research and drug development. It provides better, faster and more dynamic data and insights into phenotypes and expression profiling not available with conventional *ex vivo* techniques.



Study small animal models from embryos to adults

High-Resolution Ultrasound Imaging

Anatomical, Functional, Molecular Data

- Highest available resolution in realtime, dynamic screening with unmatched temporal resolution
 - » Greater accuracy and reproducibility
 - » Image anatomy & hemodynamic detail
 - » Allows increased throughput
- Non-invasive
 - » Longitudinal studies with same animal as control
- Reliable, quantifiable data
- Simple to use. Easy to learn.
 - » Instantaneous imaging
- Flexible—multiple applications across research areas
- Precision-targeted image-guided interventional procedures for greater accuracy
- Translational—mouse to man

“...To track disease progression and treatment efficacy longitudinally, *in vivo* imaging is a critical element for our research. The exquisite resolution and utility makes it a key instrument to help us achieve these ends...”

Craig F. Plato, Ph.D, Group Leader
In Vivo Pharmacology, Gilead Colorado, Inc.

Plaque Build-up in the Carotid Arteries in an Adult Mouse from 10 weeks (top) to 80 weeks (bottom)

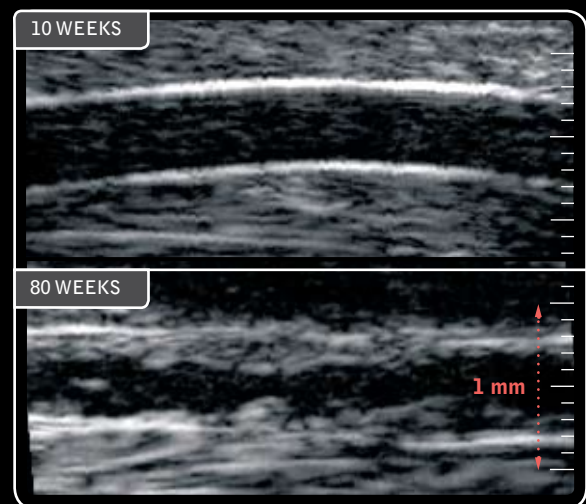


Image sequence courtesy of Gan et al,
University of Gothenburg, Sweden





The Vevo[®] 770 Imaging Platform

The Vevo 770 imaging platform provides anatomical, physiological and molecular data in realtime. The system is easy to use, with resolution down to 30 microns. MicroMarker™ contrast agents provide detectability to the capillary level.

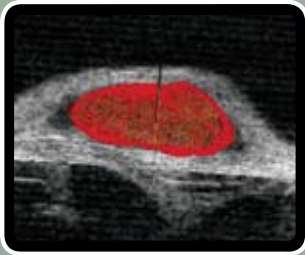
- Easy-to-operate, easy-to-learn, compact micro-imaging mobile platform
 - » Requires no special infrastructure or dedicated technical staff
 - » Small footprint in the lab
- Frame rates up to 240 fps
- RMV transducer technology
- Power Doppler for blood flow quantification and anatomical identification
- Versatile
 - » Multiple research applications: Cardiovascular, Cancer, Developmental Biology, Contrast Imaging, Regenerative Medicine, Drug Development, Urology, Reproductive Medicine
 - » Multiple animal models: mouse, zebra fish, chick embryo and others
- 3D imaging & volume analysis
- Advanced measurements & quantification
- Open architecture data management
- Mobile—true plug & play for any lab




Multiple Tools, Multiple Applications

Extensive software applications are available on the Vevo 770 platform for the small animal researcher. The research-centric software can be easily added, learned and incorporated into workflow. The variety of tools and applications makes Vevo imaging more flexible for an individual lab or as a core imaging resource.

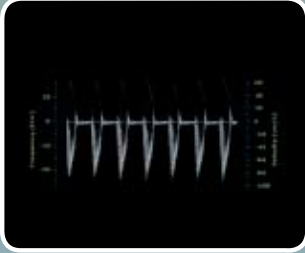
Quantification



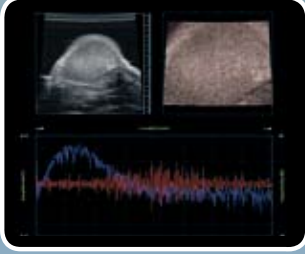
3D volumes



3D Power Doppler

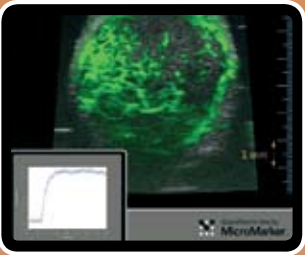


Pulsed-wave Doppler

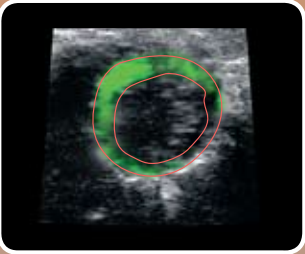


Digital RF


MicroMarker Contrast Imaging & Quantification



Perfusion Studies with MicroMarker Non-Targeted Contrast Agents

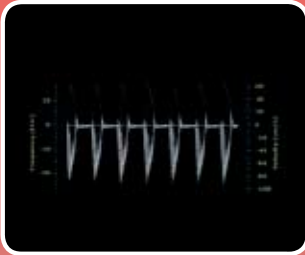


Myocardial Viability with MicroMarker DEPO Contrast Agents

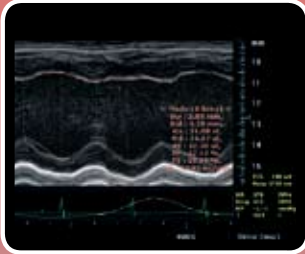


Biomarker Quantification with Target-Ready Contrast Agents


Cardiovascular & Physiology




Pulsed-wave Doppler



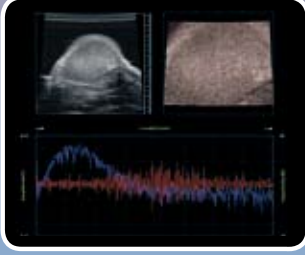
M-Mode



EKV™



Advanced Cardio



Digital RF





Vevo RMV™ Transducers










The RMV—Realtime Micro-Visualization Transducer

- Provides resolution down to 30 microns
- Frame rates up to 240 fps—ideal for cardiovascular imaging of the mouse
- Easy to Use—for ‘freehand’ scanning or longer-term with the transducer mount on the Vevo Imaging Station

Multiple RMV transducers, ranging in frequency from 11 – 83 MHz, are available and optimized for specific research applications.

“...In a multi-disciplinary core imaging facility, the Vevo is a work horse. It provides quantitative, real time and reproducible imaging and insights noninvasively for studies in toxicology, cardiovascular applications, cancer, developmental biology and diabetic research...”

Kathleen Gabrielson, D.V.M., Ph.D.
Department of Comparative Medicine
Johns Hopkins University, Baltimore, MD

Animal	Transducer	Application
	RMV 703 17 – 53 MHz	Large Mouse Abdominal & Embryonic
	RMV 704 20 – 60 MHz	Mouse Vascular, Cardiac, Embryonic, Abdominal
	RMV 706 20 – 60 MHz	Small Mouse Abdominal & Embryonic
	RMV 707B 15 – 45 MHz	Complete Mouse Cardiac
	RMV 708 22 – 83 MHz	Mouse Epidermal, Skin Cancers, Bowel imaging, Peritoneum
	RMV 710B 12 – 38 MHz	Complete Rat Cardiac
	RMV 711 22 – 83 MHz	Image-guided Injection Procedures
	RMV 712 17 – 53 MHz	Image-guided Injections – Deep Embryonic, Cardiac
	RMV 716 11 – 24 MHz	Large Rat (> 350 grams) General, Cardiac & Abdominal



MicroMarker™ Contrast Agents

Optimized for Quantitative, Reproducible Results

MicroMarker contrast imaging is a major breakthrough for perfusion and targeted molecular imaging. Providing enhanced perfusion studies of anatomy and microvasculature, researchers now have the ability to target and quantify molecular biomarkers of disease *in vivo* longitudinally.

MicroMarker Contrast Agent Kits are optimized for small animal imaging. The complete kits provide a turn-key solution with contrast agents, reagents and detailed protocols to support research and drug development efforts.

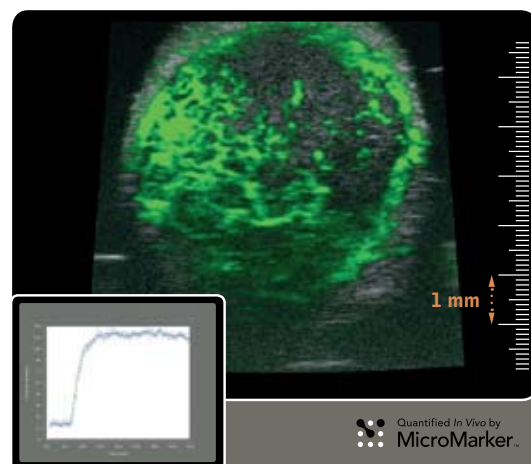
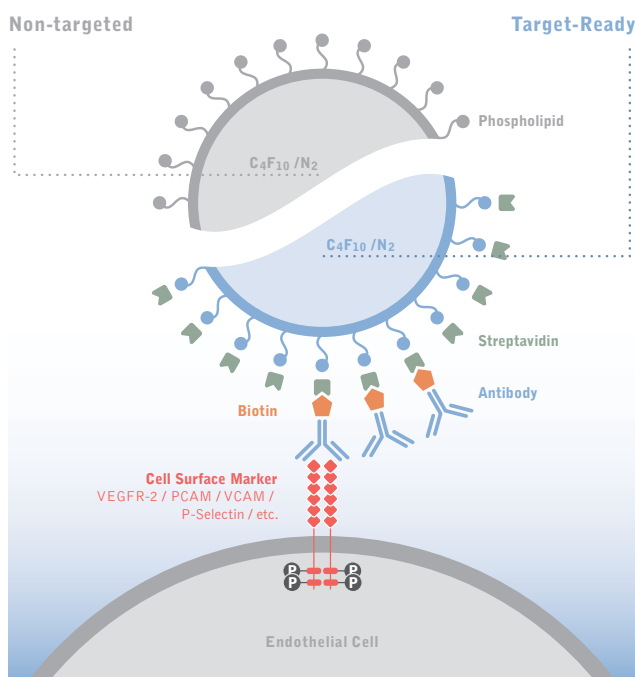
Relative Perfusion

- Vevo MicroMarker Non-Targeted Contrast Agents —tissue enhancement, perfusion and microcirculation applications
- Vevo MicroMarker DEPO® Contrast Agents assess myocardial viability and quantify infarctions

Target-Ready Molecular Imaging

- Vevo MicroMarker Target-Ready Contrast Agents —quantify biomarker expression

The Vevo 770 shows resolution to 30 microns. MicroMarker contrast agents extend the detectability to 2 – 3 microns.



Relative Tumor Perfusion Quantified in a Subcutaneous Melanoma Tumor



“ Visualize.
Analyze. ”



Comprehensive
Imaging Station

Vevo Imaging Station

The Vevo Imaging Station simplifies animal handling and positioning. Combining integrated physiological monitoring with animal body temperature maintenance and controlled anesthesia delivery, optimal conditions are maintained throughout the imaging session. This total imaging station standardizes image acquisition and quantification to ensure repeatable, reproducible results and high-throughput workflow for multiple animal studies.

- Warmed platform for maintaining optimal physiological conditions for mice and rats
- Integrated physiological monitoring— ECG, heart rate, core temperature, respiration, blood pressure
- Transducer mounting system— for precision, accuracy and hands-free scanning
- 3D positioning system
- Reduces time administering anesthesia
- Capture reproducible results in a controlled environment

Dedicated micro-injection system

The image-guided precision micro-injection system provides a simple and efficient method for injections or extractions procedures.

Integrated anesthesia system

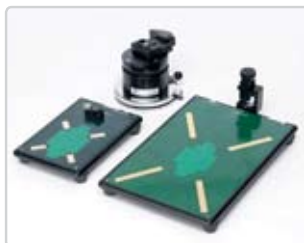
Table-top or mobile compact isoflurane-based anesthesia options are available. Optimized for small animal anesthesia, the system includes rodent induction chambers, nose cone application and is integrated into the Vevo Imaging Station.

Easy to use

- Fine-tune acquisition with precise control
- Reproducible for large cohort studies
- Reduce intra-operator variability



Anesthesia System



Mouse & Rat Table



Image Acquisition

Vevo SoniGene™ System Low-Frequency Sonoporation Device

Enhance Gene Delivery—the SoniGene system delivers a low frequency/high-powered ultrasound pulse that allows the gene or drug to transfect.



Vevo Scientific Support

The advanced technology of the Vevo 770 high-resolution imaging system is supported by an equally sophisticated approach to service and support. The VisualSonics team provides expert training and applications support and is committed to maintaining system performance. VisualSonics offers a broad range of service solutions that meet your needs.

Applications Support and Training Customized to Your Needs

- Customer training
- Vevo Imaging Courses
 - » Contrast imaging
 - » Abdominal and 3D techniques
 - » Cardiovascular imaging
 - » Doppler and vascular techniques
- Symposia—associated with major conferences

Online Learning Center and Customer Website <http://www.visualsonics.com>

- Find publications, protocol guides, imaging guides and training videos
- Private, secure
- VisualSonics moderated forums allow users to ask questions and share their experience with the Vevo systems

Technical Support

VisualSonics provides on-going Service and Technical Support with our team of experienced and certified professionals.

support@visualsonics.com



Performance and Reliability You Expect







VISUALSONICS

Advancing preclinical research

CORPORATE HEADQUARTERS >

3080 Yonge Street, Suite 6100
Box 66 Toronto Canada M4N 3N1

U.S. >

100 Park Avenue, Suite 1600
New York, NY 10017

EUROPE >

VisualSonics BV
Science Park 406
1098 SM AMSTERDAM
The Netherlands

WEBSITE >

www.visualsonics.com

TELEPHONE >

+ 1.416.484.5000

TOLL FREE >

North America

+ 1.866.416.4636

Europe

+ 800.0751.2020

Cardiovascular

Cancer

Developmental Biology

Diabetes

Neurobiology

Reproductive Biology

Regenerative Medicine

Ophthalmology

Molecular Imaging

Orthopedic

Gene Delivery