Vevo for ONCOLOGY
Micro-Ultrasound and Photoacoustic Imaging for Translational Cancer Research in Preclinical Animal Models

Characterize Tumor Tissue Non-invasively: Detect Lesions Early, Monitor Tumor Development and Assess Response to Therapy

Why Vevo for imaging cancer?
• Anatomical, functional and molecular data
• Longitudinal
• High resolution
• Real-time
• Non-invasive
• High-throughput

188+ CANCER publications and growing. Visit visualsonics.com

We asked cancer researchers
“Would you recommend Vevo imaging system for imaging cancer?”

“Yes, high resolution, fast acquisitions, nice respiratory and ECG gating (easily implemented), accurate tumor volume measurements (orthotopic models), high throughput. A lot of parameters can be monitored in a given animal with time…”
- RAES Florian, CIPA CNRS French National Center for Scientific Research

“Yes, advantages: high-resolution, user-friendly and robust software”
- Hadi T. Nia, MGH, Harvard Medical School

“Yes! Worth learning how to do ultrasound imaging for rodents. The Vevo system works for micro- and molecular imaging of tumor phenotypes.”
- Victoria Herrera, MD, Boston University School of Medicine

“Yes, I would say that the high throughput and image quality is ideal for monitoring tumor growth.”
- Doug. H, Dana-Farber Cancer Institute

“Yes, I use 3D mode a lot to gain an overall volume of abdominal tumors. I have also used Power Doppler to gain an understanding of the vascularity of the tumor.”
- Saadia Karim, Cancer Research UK Beatson Institute

Orthotopic Tumor Model Induction

Image-guided Injection
Visualize anatomy and the needle in high resolution for minimally invasive, accurate and reproducible orthotopic tumor induction

Needle delivering tumor cells into the pancreas

Early Tumor Detection
Detect pre-palpable, sub-millimeter lesions quickly with imaging resolution down to 30 μm

Sub-millimeter cancerous lesions in the liver

High-throughput Screening

Disease Monitoring

Volumetrics

Tumor sizing
Measure tumor volumes in deep orthotopic models quickly and accurately

3D wireframe of colorectal cancer in mouse model

Treatment Monitoring

Hemodynamics

Parametric map of oxygen saturation in bladder tumor

Color Doppler showing tumor blood flow

Relative blood volume in orthotopic pancreatitis tumor

Hypoxia
Quantify dynamic changes of oxygen saturation and total hemoglobin in 2D or 3D

Vascularity
Visualize blood flow in tumor tissue and measure percent vascularity

Perfusion
Assess tumor capillary function and hemodynamic changes with contrast agents

Molecular
Assess molecular markers of disease, metastasis and drug delivery with high resolution

Pharmacokinetics and Molecular Data

Multispectral photoacoustic image of blood and targeted molecular agents in a tumor

Seeing More Matters | visualsonics.com

Longitudinal Study Workflow
Featured Publications Using Vevo Technology Across Various Cancer Types

Co-option of Liver Vessels and Not Sprouting Angiogenesis Drives Acquired Sorafenib Resistance in Hepatocellular Carcinoma
Contrast-enhanced ultrasound was used to longitudinally monitor acquired drug resistance and identify vessel co-option as a possible mechanism.

Functional Flow Patterns and Static Blood Pooling in Tumors Revealed by Combined Contrast-Enhanced Ultrasound and Photoacoustic Imaging
Tumor vascular morphology, functional perfusion and oxygen saturation were assessed with contrast-enhanced ultrasound and phototacoustic imaging to sensitively and non-invasively monitor anti-vascular treatment over time.

Phototheranostic Porphyrin Nanoparticles Enable Visualization and Targeted Treatment of Head and Neck Cancer in Clinically Relevant Models
Demonstrates delineation of primary and metastatic tumors in a clinically-relevant model using a photoacoustic contrast agent as well as using this agent for complete ablation of tumors using photothermal therapy.

Assessment of Murine Colorectal Cancer by Micro-ultrasound Using Three Dimensional Reconstruction and Non-linear Contrast Imaging
Longitudinal evaluation of orthotopic CRC progression using micro-ultrasound for sizing and perfusion as a more accurate and economical method for preclinical studies.
*Watch related webinar online

Development of an Orthotopic Human Pancreatic Cancer Xenograft Model Using Ultrasound Guided Injection of Cells
Orthotopic pancreatic xenograft model generation using ultrasound image-guided injection and subsequent 3D monitoring of tumor progression. Demonstrates that this method is “feasible, reproducible, facile, minimally invasive and improved” compared to surgical models.

Learn from other researchers.
Check out our educational webinars!
* visualsonics.com/resource/webinars

Featured Videos
Available Online

Image Guided Injection into a Mouse Tumor

Contrast Injection into Mouse Subcutaneous Tumor

Parametric Map of Oxygen Saturation in an Orthotopic Breast Tumor Model
Watch videos at visualsonics.com/application/preclinical/oncology

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Vevo 3100 and Vevo LAZR-X
Talk to us to find out how the Vevo 3100 or the Vevo LAZR-X can advance your cancer research.

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