



CANARY CENTER
AT STANFORD

The Microbubble Project:

Enhanced Ultrasound
Using Microbubble Technologies

2014

The **Microbubble Project** is a new molecular imaging technology designed to identify and isolate cancer so that a surgeon can remove it. This new technology marries traditional ultrasound technology with an injectable imaging agent. The agent circulates in the blood stream and attaches to cancer vasculature. The ultrasound machine is then utilized and the bubbles “vibrate” and can be seen. This imaging technology holds great promise for multiple diseases including breast, ovarian, pancreatic and prostate cancer. This method promises to deliver a low-cost, widely available, and safe imaging modality. It is currently in clinical trial for ovarian and breast cancer and we expect to add prostate and pancreatic cancer in the near future.

The Best Minds in Cancer Early Detection—Imaging

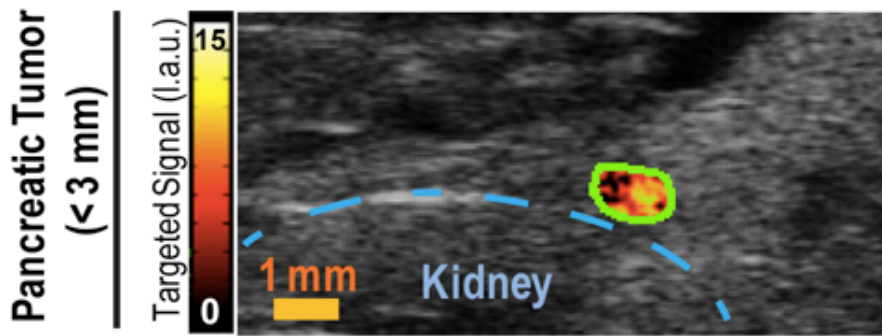


Dr. Sanjiv “Sam” Gambhir, M.D., Ph.D., Chair of Radiology at Stanford and Director of the Canary Center at Stanford

The Microbubble Project arose through interdisciplinary discussions between imaging and cancer specialists and is now being carried out as highly collaborative work. Dr. Sanjiv Sam Gambhir, Chair of Radiology at Stanford and Director of the Canary Center at Stanford, along with Dr. Jürgen Willmann, Associate Professor at the Canary Center at Stanford, together oversee cutting edge molecular imaging laboratories at Stanford University. They are also the lead investigators for clinical trials taking place through an international collaboration between industry partners and the Canary Center at Stanford for Cancer Early Detection. The core research work that continues includes new more specific targeting of cancers as well as multiple agent strategies to recognize cancer.



Dr. Jürgen Willmann, M.D., Associate Professor, Canary Center at Stanford



Dr. Willmann’s lab has succeeded in visualizing a tumor under 1 mm in animal studies in his lab

Clinical Trials—International and at Stanford University

The Microbubble Project has made its way from animal models to studies in humans. Our team has selected a lead target for the first-in-human studies. Studies in woman with ovarian cancer have begun in Italy and are very promising with over 50 women scanned with both traditional ultrasound and the new microbubble solution. Images are being un-blinded and compared against actual patient pathology to determine the efficacy of the system.

A new prostate study is being launched at Stanford University. Men who have been diagnosed with prostate cancer will be imaged using this technology that will then be compared to the actual presence of tumor in prostate tissue following a scheduled prostatectomy.

Enabling Existing Biomarkers—Ovarian and Pancreatic

As the new imaging technologies succeed, they will enable the use of existing blood biomarkers for early detection. Two such markers, CA-125 for ovary cancer and CA-19-9 for pancreatic cancer are currently only used for recurrence of the disease after it has been diagnosed. By combining these blood tests with a complimentary imaging test, they will become usable for cancer early detection in high-risk subjects.