

URVentures

May 2017, Issue 16

ULTRASOUND . . . IN COLOR!

Ever since the 1940s, when medical imaging was first employed to view the inner workings of the human body, the monochromatic nature of those images has limited medical professionals in their ability to consistently and correctly interpret fine details in the image. Large solid structures are clearly visible, but smaller features – particularly in soft tissue – are difficult to differentiate. Until recently . . .

Ultrasound images are generated by introducing low frequency sound waves into the body and analyzing how those waves bounce back. The quality of bounce – the “scatter” -- is translated and displayed as shades of black, gray, and white.

Kevin Parker, the William F. May Professor of Engineering in the Department of Electrical and Computer Engineering at the University of Rochester, recently

came across a set of 19th Century mathematical functions that struck him as remarkably similar to ultrasound pulses. By applying these functions described by Charles Hermite, to the scatter of ultrasound images, Parker has been able to produce ultrasound images in color. This allows a differentiation between normal and abnormal tissues, blood vessels, fat, scar tissue, and other biological structures.

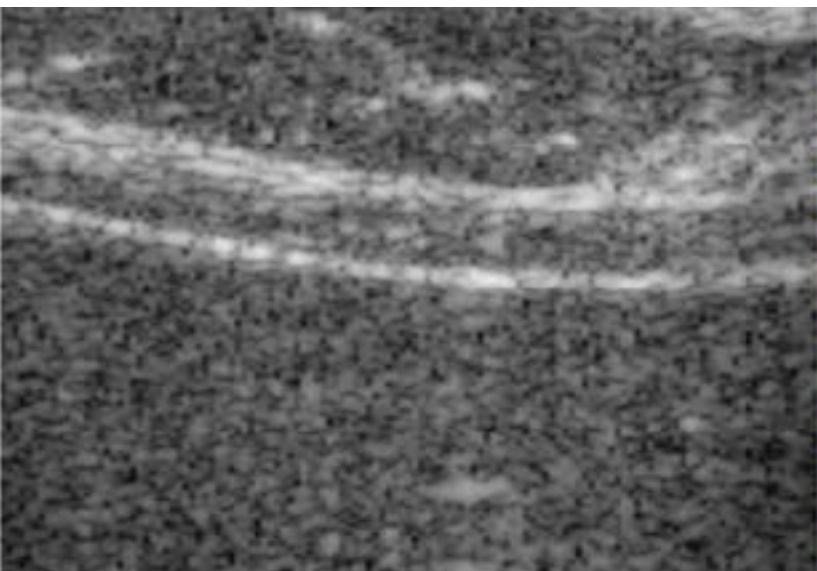
Parker’s findings have been detailed in [Physics in Medicine & Biology](#). The University has produced a brief video ([Re-thinking Ultrasound: Adding Clarity through Color](#)) explaining this innovation.

The University of Rochester has filed for patent protection on this discovery, and UR Ventures is seeking a commercial partner to help get this breakthrough into doctors’ offices.

WELCOME TO THE UR VENTURES TECHNOLOGY REVIEW

YOUR GUIDE TO WHAT’S HAPPENING AT UR VENTURES AND AT THE UNIVERSITY OF ROCHESTER

The UR Ventures Technology Review is your monthly look at innovation and technology commercialization at the University of Rochester. In this issue, you will learn about another impressive nomination for Health Care Originals, a successful funding round for Adarza BioSystems, and recent developments with our vaccine against the canine flu. *Meliora!*



Efferent Labs Partners with Evotec to Advance Biosensor

University of Rochester startup, [Efferent Labs](#) has entered into an agreement for [Evotec](#) to help develop Efferent's implantable biosensor technology through commercialization.

Efferent Labs has licensed technologies out of **Spencer Rosaro's** laboratory that include a subdermal biosensor to monitor living cells to assess and report on intracellular

processes in real time. Branded as the "CytoComm Living Biosensor System," Efferent plans to make the biosensors available for the preclinical R&D, clinical R&D, and clinical markets.

Evotec, located in Hamburg, Germany and with offices in the U.S. and the U.K., refers to themselves as a "drug discovery alliance and development partnership company." They use their expertise to assist promising

pharmaceutical and biotechnology companies get their products and services to market. In this case, Evotec will assist Efferent with getting CytoComm ready to assess chemotherapy dosage in cancer patients. Clinical trials are planned for 2019.

Read more about this deal at [Fierce Biotech](#).



Two Rochester Companies Featured in Latest Report from The Science Coalition

Recently, [The Science Coalition](#) released the third volume of "American Made Innovation: Sparking Economic Growth," their occasional report highlighting companies created around federally-funded research. The report showcases how federal investment in basic scientific research benefits the public through increased economic activity.

In this volume, two University of Rochester startups are featured: [Adarza Biosystems, Inc.](#) and [Clerio Vision, Inc.](#)

From the Science Coalition's company database:

Adarza Biosystems, Inc.: Adarza Biosystems is a leading developer and manufacturer of label-free biosensor assays and instruments servicing life science research, drug development and in vitro diagnostics customers. Adarza's products and services utilize its proprietary Arrayed Imaging Reflectometry ("AIR™") detection platform

that is capable of rapidly identifying and quantifying a series of biological target analyte species in a fluid sample, without chemical labels or complex processing. The AIR™ technology offers key performance benefits in sensitivity, speed, multiplex arrays, sample size, dynamic range, ease of use and industry leading low cost of use. Adarza products address broad quantitative analyte detection applications, including cancer biomarkers, drug and vaccine development, allergy, immunology and infectious diseases research.

Clerio Vision, Inc.: Sometimes the key to moving forward is seeing things in a new way. That's what happened when Wayne Knox, a professor of optics and physics and the director of the Institute of Optics at the University of Rochester, was presenting his work on using ultrafast lasers to change optical materials like intra-ocular lenses to a group of scientists discussing lasers, optics, and human vision. Krystel Huxlin, an as-



sociate professor of ophthalmology at the Flaum Eye Institute, part of the University of Rochester Medical Center, chimed in with a question: "Have you ever tried this in living materials?" With that, a collaboration was born, and the two embarked on the basic research and technological validation that ultimately led to the formation of Clerio Vision, Inc. to pursue commercialization of their technology. Funding from the National Institutes of Health helped support their research.

The full report can be accessed and downloaded at [Sparkling Economic Growth](#). Earlier volumes of this report featured Rochester startups iCardiac Technologies, Koning Corporation, Praxis Biologics, Science Take Out, and Vaccinex.

UR Ventures is seeking an experienced partner to help develop a [promising anti-scarring technology](#). If you are an entrepreneur, or an expert in the biopharma space, please [contact UR Ventures](#).

The spring 2017 round of the [University's Technology Development Fund](#) awards is now open. Awards are up to \$100,000 for winning projects. The deadline for preproposals is Tuesday, May 23rd. Submissions should be sent to omar.bakht@rochester.edu. Eligible projects propose the development of a technology to a commercial endpoint. A requirement for the award is that an invention disclosure be filed with [UR Ventures](#). Non-inventor developers can propose to develop technology that they did not invent. [Click here](#) for more details.