

URVentures

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TECHNOLOGY REVIEW

Your Guide to What's Happening at
UR Ventures and the University of Rochester

This is the inaugural issue of the UR Ventures Technology Review - your monthly look at innovation and technology commercialization at the University of Rochester. In this issue, you will find a Rochester start up striving to overcome a societal injustice and a promising technology that concentrates cancer-targeting T-cells at the site of a tumor while reducing undesirable side effects. You will also learn about Rochester's commitment to Data Science. *Meliora!*

Community Forensic Interventions, LLC Breaks the Cycle for Mentally Ill in the Criminal Justice System

It is common knowledge that the justice system in the United States has a disproportionately high percentage of mentally ill individuals – people in need of treatment, rather than punishment. Incarceration does not provide a solution – it merely delays appropriate therapeutic intervention.

In 1995, two Rochester professors, J. Steven Lamberti, MD and Robert L. Weisman, DO, tackled this problem by launching Project Link, an early system that partnered mental health and criminal justice professionals to assist high-risk individuals in order to break the cycle of recidivism. Recognizing the potential of their methods, Drs. Lamberti and Weisman soon became national leaders in the model that they called “forensic assertive community treatment,” or FACT. They further refined their process, based upon their observations of similar programs sprouting up around the country as well as upon their experiences in Rochester, and called their new model “Rochester-FACT” (R-FACT).

In 2013, Lamberti and Weisman formed [Community Forensic Inter-](#)

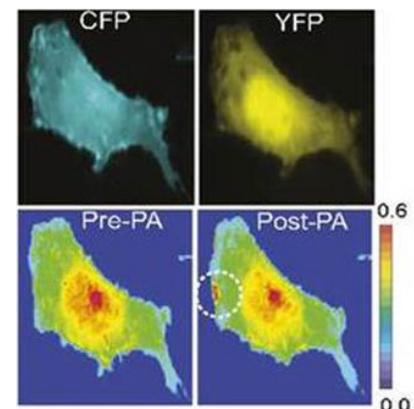
[ventions, LLC \(CFI\)](#) in order to spread the word about R-FACT. CFI offers training in the R-FACT method, as well as consultation services to assist county, state, and federal agencies in the adaptation, implementation, operation, and assessment of the R-FACT model. To date, this model has been successfully applied in Rochester, St. Louis, and most recently, Philadelphia. It is being rolled out in various counties and states across the nation.

Follow this [link](#) for a brief (3-minute) video introduction to R-FACT, or this [link](#) for a compelling case study of R-FACT's impact (27 minutes).



Light-Controlled Immunotherapy May Have Broad Applications in Fighting Cancer

Most current cancer treatments are delivered systemically, and are usually associated with undesirable side effects including nausea, hair loss, and weakness. A better approach would be to get the body's naturally occurring cancer-fighting T-cells to attack the tumor directly. To do that, precise regulation of chemokine signals is critical for directional migration of cancer-fighting T-cells to the tumor site. However, it has remained difficult to manipulate these signals and to target them



against specific cancer cells.

Dr. Minsoo Kim at the University of Rochester has engineered ex vivo-generated immune-promoting T-cells either to enhance immunity or to promote adoptive cell transfer therapies in patients. Using light, Dr. Kim can attract and concentrate these cancer-fighting cells where they are needed, rather than releasing them throughout the patient's entire body. By applying this methodology to tumor-targeting cytotoxic T-cells, Dr. Kim has been able to achieve a significant reduction in tumor growth in mouse models. Clinically, this photoactivatable chemokine receptor approach may have broad applications for adoptive cell transfer therapy.

UR Ventures is currently seeking investment or philanthropic funding to allow Dr. Kim to conduct additional tests on different cancer models to prove the overall efficacy of this approach.

Contact [Matan Rapoport](#), PhD, MBA for more information.

University of Rochester Embraces the Future with Data Science Initiatives

The University of Rochester isn't necessarily the first name that comes to mind when you think of Big Data . . . but it should be.

Why?
How about a \$100 million collabora-



tion with IBM for starters? [The Health Sciences Center for Computational Innovation \(HSCCI\)](#) is applying high performance computing solutions to the nation's health challenges. The HSCCI is home to IBM's next generation super-computer – the Blue Gene/Q – making it one of the 5 most powerful university-based supercomputing sites in the nation.

If that's not enough, how about the [Center for Integrated Research Computing \(CIRC\)](#)? CIRC was established to provide researchers across the University with the technology, software, training, and support necessary to utilize high-performance computing and data science technology in research activities in all areas of academic scholarship. CIRC maintains systems with an aggregated computational performance of about 420 TFLOPS (that's 420 trillion floating point operations per second), 2.4 Peta Bytes of disk storage (that's 2.4 quadrillion bytes, or the equivalent of more than 500,000 DVDs (at 4.7 GB each)), and a variety of scientific soft-

ware applications and tools.

Still not convinced? How about a 1,000-square-foot visualization lab called the [VISTA Collaboratory](#)? Completed in 2014, the VISTA Collaboratory is an interactive tiled-display wall capable of rendering massive data sets in real time. Clear, concise, 50 megapixel real time.

Stay tuned to the [Goergen Institute for Data Science](#) for much more as research and industry collaboration continue to grow. The future of data science is in Rochester.

In FY 2014, UR Ventures received 155 invention disclosures naming 250 inventors from 51 University departments and divisions, and 51 external collaborators from 28 institutions, agencies, and corporations.

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