Student Startup from Rutgers Nets Half-Million Dollar Investment, New Home, and New Market

A student biotechnology startup from Rutgers, Visikol Inc., has enjoyed an amazing year so far.

By Donna Hong and Edward Tate

Foundation Venture Capital Group LLC of New Brunswick invested $500,000 in the young company in February. Less than a month later, Visikol moved into its new home in North Brunswick's Commercialization Center for Innovative Technologies (CCIT). And in mid-March, Visikol launched a new product into the toxicology market, specifically for accelerating developmental and reproductive toxicology studies, which is a new and potentially huge market for the startup.

Visikol sells a versatile clearing agent, which is a chemical formula that renders tissues transparent, allowing researchers to effectively visualize biological samples in 3-D. The technology greatly reduces problems with light scattering, enables high-resolution images to be captured from biological tissues, enables more information to be gathered from tissues, reduces structural damage to samples, and saves time.

The company's primary product, also called Visikol®, was originally invented to replace chloral hydrate, an expensive controlled substance, for rendering plant tissues transparent. The chemical already has been used by more than 240 plant biology researchers around the world. The Visikol team's big breakthrough may turn out to be a new formulation that will allow researchers to make animal tissues transparent. They launched the company's new animal research product, Visikol TOX, in March at the Society of Toxicology's Annual Meeting and ToxExpo in New Orleans, representing a major step into a new market for the company.

Seated, from left, are Prof. James Simon and Michael Johnson. Standing, from left, are Nick Crider and Tom Villani. Photo by Peter Byron.

Developmental and reproductive toxicology is critical for drug development and to bring new chemical products to market, and Visikol TOX can accelerate toxicology study time by up to 30% through a reduction in the bottleneck of skeletal visualization.

Tom Villani, a doctoral student in medicinal chemistry at Rutgers' Ernest Mario School of Pharmacy, started Visikol four years ago with Michael Johnson, a doctoral student in Rutgers' School of Environmental and Biological Sciences, and Nick Crider, a 2010 graduate of Worcester Polytechnic Institute who had worked for a major medical products company. Villani is one of the co-inventors on the patent application for Visikol's underlying technology, along with James Simon, distinguished professor and director of the New Use Agriculture and Natural Plant Products Program at Rutgers University-New Brunswick, and Adolfina Koroch, visiting scientist at Rutgers.

"It's so rare and wonderful to see students develop such a high-value technology and take such a creative approach to commercializing this novel discovery," Dr. Simon said. "From its initial use in botany and quality control to replace chloral hydrate, we started to think about animal research and medical applications. That required the students to really stretch, dive into and study new scientific disciplines, and never lose sight that commercialization had to be based on solid science coupled with a real business orientation. We are incredibly proud to watch them grow as scientists and build this new company with a functional and market-needed product from the start and more recently, to see the new medical applications of Visikol. And for Villani and Johnson to be doing all this while they are doing their Ph.D. studies is simply remarkable."

Though the young entrepreneurs set their sights on animal research early on, none of them had direct experience in the field. To that end, Rutgers' Office of Research Commercialization, which is handling the Visikol patent application, breakthrough for Visikol Inc., connected

Arabidopsis thalania, visualized with the help of technology from Visikol Inc.

the team with a scientific advisor, Dr. Michael Goedken. He's a veterinary pathologist who has worked for two global pharmaceutical companies and is the director of research pathology services in Rutgers Translational Sciences, a unit of the Office of Research and Economic Development. The Visikol team says Goedken has been a great resource.

"It's refreshing to see young scholars who are scientifically curious and earnest," Goedken said. "I feel fortunate to be working to help bridge the gap between academia and private industry by supporting a team of interdisciplinary specialists so that ideas can truly flourish."

The Visikol team has begun production and product development in their new space at the CCIT, a modern business incubator on Rt. 1 designed for early stage companies in the life sciences and biotechnology. CCIT, which is operated by the New Jersey Economic Development Authority, provides all the additional space and equipment they growing company required.

The $500,000 commitment from Foundation Venture Capital Group, an affiliate of New Jersey Health Foundation, was the organization's first investment in a student startup. The cash will be used for a variety of purposes: salaries, equipment, rent, conferences, marketing, production, R&D, and basics operations.

"While many modern techniques now exist to provide 3-D visualization of tissue, we are excited about this development in the biological clearing arena because current techniques obscure important cellular and biochemical information and researchers must still resort to slicing tissue to recover data," said George F. Heinrich, M.D., vice chair and CEO of Foundation Venture Capital Group. "This new platform adds significant value to fields like drug development and cancer diagnostics as it allows for more accurate information to be obtained from tissue."

The Visikol team plans to expand this summer with two new interns, a Rutgers University student and a High School student. Johnson hopes to scale up the production of Visikol, Visikol TOX, and expand marketing efforts to biology and toxicology researchers, contract research organizations, pharmaceutical companies, and others potential customers.

"With the advice we gotten from Prof. Simon and Dr. Goedken, support from the Rutgers research community, and funding from the Foundation Venture Capital Group, we're excited to pursue our dream of creating improved tools for researchers and hopefully one day help improve outcomes for patients," Johnson says. ■

Donna Hong is an intern in Rutgers' Office of Research and Economic Development. Edward Tate is the office's director of communications.