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Michigan Tech spinoff's device screens would-be donors' blood — before donation

By Tom Henderson



Adrienne Minerick

MicroDevice Engineering Inc., a spinoff from Michigan Technological University in Houghton, is aiming to market a battery-operated device to help blood donation centers determine blood type and screen for diseases and anemia in the blood of would-be donors.

Such a device, whose patent is pending, would eliminate waste and speed up the donation process. It would eliminate, for example, the donation of blood that has been contaminated by disease, such as hepatitis. Instead of taking contaminated blood and testing it later, then throwing it away — not to mention the time involved of health care workers — if it doesn't meet specifications, blood banks would tell the would-be donor thanks but no thanks.

It is estimated that up to 20 percent of donated blood is thrown out.

MicroDevice is an example of the "it takes a village" philosophy of growing tech companies in Michigan these days.

The company was co-founded by Adrienne Minerick, the associate dean for research and innovation in Michigan Tech's College of Engineering, a professor of chemical engineering and an adjunct professor of biomedical engineering; and by Mary Raber, the assistant dean of academic programs for the school's Pavlis Honors College and co-director of its **Innovation Center for Entrepreneurship**.

Minerick and Raber formed the company while participating in the **National Science Foundation's I-Corps** program, which coaches academics on how to commercialize their work. The company has received nearly \$1.3 million in NSF grants.

The I-Corps program followed their participation in Inforum's ACTIVATE program, which offers training for women entrepreneurs.

The Inforum participation, in turn, was sponsored jointly by Michigan Tech and the **Michigan Tech Enterprise Corp. SmartZone**.

In all, a variety of school and state programs contributed a total of \$165,000 to MicroDevice, including funding from the Michigan Translational Research and Commercialization (M-TRAC) program and the Michigan Tech Transfer Talent Network (T3N), two programs funded by the Michigan Strategic Fund to commercialize university research and provide new companies with mentors or executives; **Superior Innovations**, a company funded through alumni donations to MTU; **Superior Ideas**, a Michigan Tech crowdfunding site; and the school's Commercialization Milestone Grant program.

At the heart of the MicroDevice technology is a disposable chip called a cuvette that is made in a clean-room fabrication facility on the MTU campus.

The **Indiana Blood Center** and the **Wisconsin Blood Center** will do clinical trials for MicroDevice. If trials are successful, the company could get approval from the **U.S. Food and Drug Administration** to begin sales in 2018, Minerick said.

In its presentation last May to the **Michigan Growth Capital Symposium** in Ypsilanti, the company said it would fund commercialization from grants through next year, with projected revenue of \$885,000 in 2018, growing to \$8.5 million in 2022.

Minerick estimates the cost for end users will be less than \$5 per test.

MicroDevice will begin trials on 3,000 donated blood samples at the Indiana Blood Center early next year. Its chips, known as microfluidic chips, slide into a port of a portable electronic unit, whose printed circuit boards are made by **Calumet Electronics**, another Keweenaw County company.

"We are doing our best to use as much local talent as we can," Minerick said.

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