

Researchers license technology to measure glucose in saliva, a potential boon for diabetics

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The 340 million diabetes sufferers in the world have plenty to worry about: eating well, getting exercise and regularly monitoring the amount of sugar in their bloodstream. That last step is a crucial tool in treating the condition and preventing complications over the long run.

But it's also a pain – literally. Most diabetics need to prick their fingers multiple times a day to draw [blood samples](#) in order to test their [blood sugar](#).

Now, research from an ASU professor is being used in the quest for a non-invasive alternative.

Arizona State University engineering professor Jeffrey La Belle's use of biomarkers – measurable indicators of wellness or disease – in body fluids to diagnose and monitor individuals' health is finding a new application through a commercialization agreement with a United Kingdom-based technology development company.

Tekcapital has exclusively licensed a patent for a device that specifically measures glucose levels in saliva, which if successful could eventually replace current tests that require individuals with Type II diabetes to prick a finger multiple times each day to draw blood samples. This non-invasive alternative would be a significant benefit in convenience, comfort and treatment compliance for the more than 340 million people

living with diabetes.

The device collects trace fluid samples from a biological surface for electrochemical analysis to detect glucose, a metabolic product in saliva, using disposable biosensor strips.

La Belle is an assistant professor in the School of Biological and Health Systems Engineering, one of ASU's Ira A. Fulton Schools of Engineering. The device patent was awarded to La Belle and co-inventor Daniel Bishop, who graduated from ASU in 2009 with a degree in biomedical engineering. Bishop is now co-founder and chief innovation officer of Qualaris Healthcare Solutions, a Pittsburgh-based medical-product development company.

Tekcapital seeks out university research that can fill client and market needs. Dr. Clifford M. Gross, Tekcapital's executive chairman, said the company is excited about the potential of La Belle's work.

"The self-monitoring of blood glucose is a significant industry, and we look forward to commercializing this technology with one or more leading medical-device companies that can benefit by making it easier and painless for diabetics to measure glucose," Gross said.

"We appreciated the professionalism, speed and efficiency with which AzTE (Arizona Technology Enterprises) was able to negotiate and execute this deal, and we look forward to working with them on other intellectual properties in the future."

Diabetes is a chronic disease that occurs either when the pancreas does not produce enough insulin, a hormone that regulates blood sugar, or when the body cannot effectively use the insulin it produces. Hyperglycemia, or elevated blood sugar, is a common effect of uncontrolled diabetes and over time leads to serious damage to many of

the body's systems, especially the nerves and blood vessels.

Earlier this year, Advanced Tear Diagnostics, a medical-products company based in Birmingham, Alabama, licensed the same technology to improve and expand the use of tear fluid as a means of detecting various ocular (eye) disorders by measuring certain biomarkers it contains.

That project led to research collaborations and funding support from Mayo Clinic in Arizona.

The measurements would help in the diagnosis and treatment of a variety of ocular surface disorders – particularly in detecting and differentiating between bacterial and viral infections, including one of the most common infections, conjunctivitis, also called pinkeye.

Advanced Tear Diagnostics is providing \$496,000 for the project over a year's time and plans to commercialize the final product.

Both licensing agreements were negotiated by Arizona Technology Enterprises, ASU's exclusive intellectual property management and technology transfer organization. AzTE works with ASU faculty, post-docs and graduate students to help move university inventions from the lab to commercial application.

"I have had many interactions with the very efficient and professional staff at AzTE in developing relationships with prospective industrial partners," Dr. La Belle said. "We have had successes with both early- and late-stage IP. AzTE really is a helpful resource we have here at ASU."

"Dr. La Belle's promising technology has the potential to improve the diagnosis, monitoring and treatment of a wide range of medical

conditions," said Yash Vaishnav, AzTE vice president of business development for life sciences. "Tekcapital is also a great partner. They are focused and nimble in their efforts to bring promising technologies to the market. This deal was executed in record time, which is a testament to the quality of this research and the respective AzTE and Tekcapital models of commercialization."

Provided by Arizona State University

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