



Vortex BioTech Secures Licensing Agreement with University of Tennessee Research Foundation for Point-of-Care Diagnostic Device

The University of Tennessee Research Foundation (UTRF) has licensed an innovative point-of-care diagnostic device to Vortex BioTech, a Knoxville-based start-up company that focuses on in-vitro diagnostic technologies.

Most diagnostic devices on the market today are expensive and can take hours or even several days to provide results. Since 2009, Dr. Jayne Wu, associate professor in the Department of Electrical Engineering and Computer Science in UT's Tickle College of Engineering, and Dr. Shigetoshi Eda, professor in the Department of Forestry, Wildlife, and Fisheries at the UT Institute of Agriculture, have been collaborating to develop a low-cost diagnostic device that

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“Time is critical when it comes to diagnosing and treating illness, especially for acute diseases,” says Dr. Wu. “This device allows healthcare providers to detect diseases early and start treatment almost immediately, potentially saving lives and preventing infectious disease outbreaks.”

The device’s rapid response time is just one of several benefits. It’s small, about the size of a smartphone, and its simple operation means there are fewer steps involved for sample preparation and use, leading to reduced risk of user error. These features make the device accessible to a greater number of healthcare professionals and facilitate its use in hospital settings as well as remote locations without easy access to medical facilities. It is also affordable.



Dr. Wu and Dr. Eda have successfully tested a prototype device to detect bovine tuberculosis and Johne's disease in cattle as well as influenza and tuberculosis in humans, and the professors believe the device can be adapted to diagnose additional diseases and physiological conditions, including AIDS, cancer, and pregnancy.

“Our technology will make it possible to simplify diagnosis and treatment for many diseases and conditions,” says Dr. Eda. “It will also be valuable in the field for rapid detection during disease outbreaks and has great potential for veterinary and food safety applications to identify dangerous infections in animals, like rabies, or pathogens in food crops.”

Working with Dr. Wu and Dr. Eda to further develop and commercialize their diagnostic device was a straightforward decision for Mr. Chad Seaver, CEO and co-founder of Arkis Biosciences. Chad is an entrepreneur with 20 years of experience in medical technology and business development and was previously employed by Siemens Healthcare via its CTI acquisition. Though he is now pursuing a Ph.D. in biomedical engineering at UT, Chad was introduced to Dr. Wu and this diagnostic technology while studying for his master's degree in electrical engineering.



Both professors and Chad point to UTRF as playing a major role in bringing this technology to fruition. In addition to facilitating the licensing agreement process, UTRF awarded Dr. Wu and Dr. Eda two maturation fund grants to support proof-of-concept experiments for influenza detection and were connected with a patent attorney who helped them with their patent applications. Chad also credits UTRF for giving him the support he needed to kick start Vortex BioTech.

“Dr. Wu and Dr. Eda have developed a technology that has the potential to revolutionize disease detection, prevention, and treatment, and Chad’s familiarity with the technology and the medical device space makes him a natural partner in bringing this device to market,” says Maha Krishnamurthy. “We are incredibly proud to support their work and look forward to seeing its impact on society.”

Looking forward, Vortex BioTech plans to offer a beta product within the next 18 months. Thereafter, the company anticipates partnering with a strategic company to scale up production and make the device available around the globe. Vortex BioTech is currently inviting

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