



# News Release

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## **Army partners with tech startup to develop portable biological reader** *Early detection of illnesses could protect Soldiers, first responders, school children*

*By Gay Pinder  
RDECOM ECBC Public Affairs*



The inventors of RDECOM ECBC's VOckit observe the signing of agreements that will leverage that technology into a commercial biological reader. Pictured from left to right, back row: Peter Emanuel, Ph.D., Patricia Buckley, Ph.D., Gregory Thompson, Jacob Shaffer, Aleksandr Miklos, Ph.D., and Colin Graham. Sitting: Robert Baumgardner, Ph.D. and Eric L. Moore, Ph.D., Not pictured: Calvin Chue, Ph.D. (Photo Credit: RDECOM ECBC photo by Jack Bunja)

**Aberdeen Proving Ground, MD** -- The United States Army Research, Development and Engineering Command Edgewood Chemical Biological Center (RDECOM ECBC) signed agreements on Jan. 23 with tech startup TrekReader to develop existing ECBC technology into a pocket-sized instrument that will provide Soldiers, first responders and



even school nurses with the ability to detect dangerous biological and chemical substances.

Signed were a non-exclusive patent licensing agreement (PLA) that grants TrekReader the rights to use the VOckit as the starting point for their product, and an associated collaborative research and development agreement (CRADA) that allows the parties to work together in the development of a new handheld universal reader.

From flu viruses to anthrax, TrekReader CEO Robert Baumgardner believes the VOckit, a tool in the Army's patent portfolio, has the potential to perform as a universal reader, allowing one mechanism to identify multiple biological threats cheaply, in minutes and at any location.

"People get sick. The sooner a person's infection can be identified the sooner parent notification, health care logistical support and/or isolation can be accomplished," Baumgardner said. "Doing so can save additional infections and severity of exposure and reduce time a person is off from work and or a child is out of school."

TrekReader is projected to read up to 48 different illnesses. Additionally, Baumgardner conveyed that the costs associated with extended illness can be contained or minimized to organizations.

"TrekReader is envisioned to provide anyone a portable, simple and economical way to test for human pathogens," Baumgardner said. "An Army flight medic who evaluated the prototype said it could help him determine the level of mission risk. The response to flu would be different from the response required if a Soldier has contracted Ebola."

A former technology manager with the United States Department of Defense, Baumgardner was already familiar with ECBC's current VOckit, a small electronic device that identifies biological and chemical substances. Invented and patented by Calvin Chue, Ph.D., Peter Emanuel, Ph.D., Aleksandr Miklos, Ph.D., Gregory Thompson, Colin Graham, and Jacob Shaffer with RDECOM ECBC's BioChemistry Branch, the VOckit's approach involves hardware and software to quantitatively monitor assays that rely upon the appearance, disappearance, or change of chromophores or fluorophores in the visible or near-infrared regions. This approach can be used for detecting both chemical and biological threats. The VOckit can then transmit results via smartphone.

"Our first project with Dr. Baumgardner saw the successful development of an immunoassay reader that interfaces with a cellphone, and detects viral, bacterial and fungal pathogens, so we already have a great working relationship," said Patricia Buckley, Ph.D., principal investigator on the VOckit team.

Baumgardner agrees. "We chose to work with ECBC because, simply put, their engineering and scientific staff have no equal, and credibility is a critical success factor when looking for further development funds."



Research and development opportunities between ECBC labs and private sector business is exactly what ECBC director Eric L. Moore, Ph.D., wants more of.

“This partnership perfectly illustrates the intent of our technology transfer program – to leverage our patent portfolio and research and development capabilities to motivate private sector investment,” Moore said.

“ECBC continues to develop the concept of a mobile assay reader,” Buckley explained. “We currently have a chemical assay reader, with mature hardware and flexible software. We are excited to leverage this experience of again working with Dr. Baumgardner in order to develop the TrekReader under this CRADA.”

While some of Baumgardner’s plans to create the universal reader remain proprietary, he does plan to streamline the now somewhat chunky device into something that can fit in a pocket while at the same time expanding its ability to read numerous existing chemical and biological samples.

Designed to perform as a stand-alone unit, TrekReader will also function as part of a system. Once developed, Baumgardner plans to patent the device where it will interface with the civilian market of smartphone and physiological monitoring devices like fitness trackers. TrekReader will also compliment the Army Nett Warrior End User Device, and Baumgardner plans to offer it to the United States Army Special Operations Command.

“I’m excited that ECBC is partnering in a project with the potential to help secure the safety of Soldiers, civilians and school children,” Moore said.

###30###

For more information about RDECOM ECBC, visit <https://www.ecbc.army.mil/>.

*The Research, Development and Engineering Command Edgewood Chemical Biological Center is the Army’s principal research and development center for chemical and biological defense technology, engineering and field operations. The Center has achieved major technological advances for the warfighter and for our national defense, with a long and distinguished history of providing the armed forces with quality systems and outstanding customer service. RDECOM ECBC is located at the Edgewood Area of Aberdeen Proving Ground, Maryland.*