

When Women Graduate and Become Leaders in Science

GREENSBORO, NC, UNITED STATES, October 25, 2018 /EINPresswire.com/ -- Following the unfortunate rise and fall of Theranos, the stories of countless other young women who in fact completed their degrees and then assumed leadership roles in science need to be told. They provide inspiration and a contrast for those who follow in their footsteps – and reassure investors and journalists that Theranos was an exception, and not the rule.

As a member of the [Kepley BioSystems](#) team today, one such example is Kristen Dellinger, with a PhD in biomedical engineering from McGill University, which followed chemical engineering baccalaureate and master's degrees from Queen's University in Kingston, Ontario. Dr. Dellinger has worked with industry and academic partners in analytical chemistry as an NSF-SENIC Research Associate in the Nanoscience Department at the University of North Carolina at Greensboro. She conducts vital research with an array of state-of-the-art instruments, from X-ray photoelectron spectroscopy to high-pressure liquid chromatography (HPLC) and confocal Raman microscopy at the Joint School of Nanoscience and Nanoengineering.



Kristen Bowey Dellinger, Ph.D.

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Dellinger has most recently been awarded a Phase I National Science Foundation (NSF) grant issued under the Small Business Innovation Research (SBIR) program. The NSF positions itself as the National Seed Fund and sponsors high-impact, high-risk projects promising significant social and environmental benefits. (The NSF reviewers' scientific and commercial expertise helps ensure the potential for success with every project, which might have changed the trajectory for many Theranos investors had such rigors been applied!)

Dr. Dellinger's grant is entitled, A Novel Horseshoe Crab Device and Approach for a Sustainable Endotoxin Testing Resource. As Principal Investigator, she will lead the work to develop a device to aid in collection of horseshoe crab (HSC) blood, a necessity for biomedical industry sterility

testing. In fact, a vital component of HSC blood is used to ensure the safety of injectable medicine and implantable devices for millions of patients worldwide, every year. Her project could also help protect fragile, wild populations of HSCs by “ranching” them so as to eliminate the need to capture wild crabs for this precious resource.□

Building on the importance of HSC blood harvest and sustainability, Dr. Dellinger and her colleagues are also working to develop a simple, rapid diagnostic kit to detect gram negative bacteria using that same HSC blood component for patient testing as applied in the biomedical industry. Such a kit, with a goal of allowing for medical intervention before an infection evolves into life-threatening sepsis, would only be possible with an economical, sustainable supply of HSC blood. Diagnostic and treatment limitations often challenge septicemia detection and management, resulting in annual medical costs of up to \$24 billion in the US and \$80 billion globally ([Torio, 2013](#)).

In fact, bacterial infection is the third leading (preventable) and most frequent cause of death in hospitalized patients, which was emphasized in a World Health Organization (WHO) report stating that quality care and rapid, reliable diagnostic methods are essential to the future well-being of mankind ([O’Neill, 2016](#)). Notably, 10 of the 14 most virulent superbugs the WHO cited are gram negative bacteria. A screening test for high-risk, asymptomatic patients could also allow for early, effective intervention in the event of such infections. This would help address a growing consensus surrounding the need to ensure the appropriate prescription of antibiotic drugs to minimize the associated risks of antibiotic microbial resistance (O’Neill, 2016).

In developing these technologies bridging science and entrepreneurship, Dr. Dellinger is a role model for young women working toward undergraduate and ultimately, advanced degrees in science and engineering. “It is truly energizing to be able to apply hard science to the things that matter most,” Dellinger said. “I am thankful to the NSF for their trust in our research efforts, because they could bring such important benefits to humanity and the environment with every milestone we achieve.”

References:

Torio, C. M., & Andrews, R. M. (2013). National inpatient hospital costs: the most expensive conditions by payer, 2011. Healthcare Cost and Utilization Project Statistical Brief# 160. (https://www.ncbi.nlm.nih.gov/books/NBK169005/pdf/Bookshelf_NBK169005.pdf)

O’Neill, J. (2016). Tackling drug-resistant infections globally: Final report and recommendations. 2016. HM Government and Wellcome Trust: UK. (https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf)

About Kepley BioSystems

Kepley BioSystems (KBI) is a North Carolina-based life sciences start-up operating out of Gateway University Research Park (GURP) in collaboration with the Joint School of Nanoscience and Nanoengineering (JSNN), comprised of a partnership between the North Carolina Agriculture and Technical State University (NCA&T) and the University of North Carolina at Greensboro (UNCG). KBI was founded in 2013 with a mission to emerge disruptive innovations to achieve global solutions. For more information, visit: <http://www.kepleybiosystems.com/>

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