

Antibiotic Awareness Week: Innovation Update from an NC Startup

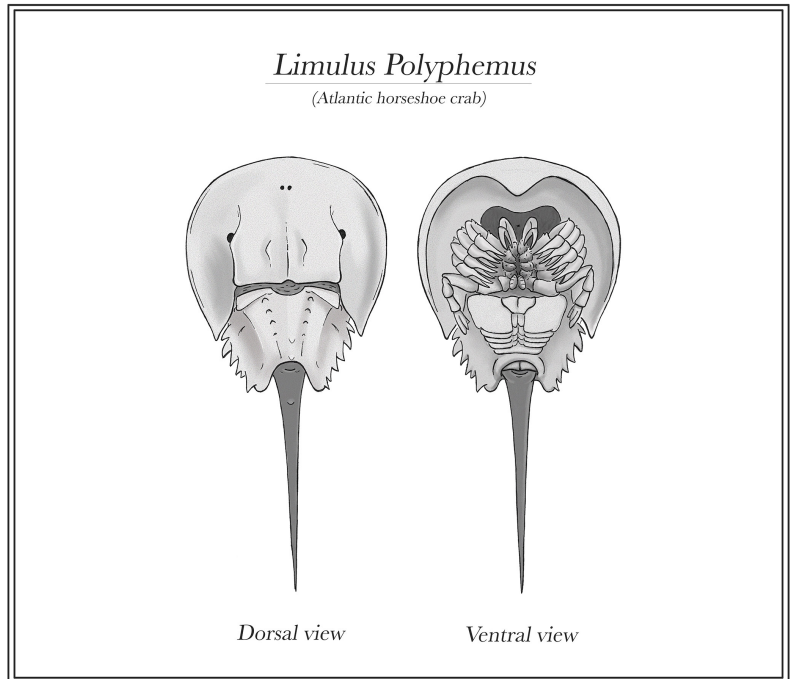
GREENSBORO, NC, US, November 18, 2019 /EINPresswire.com/ -- From November 18-22, the World Health Organization (WHO), in collaboration with the US Centers for Disease Control and Prevention (CDC), will be leading global communications throughout Antibiotic Awareness Week. This annual event encourages worldwide organizations and medical professionals to raise awareness of the importance of proper treatment to combat the threat of antibiotic resistance.

Antibiotic microbial resistance, or AMR, is regarded as one of the direst threats to mankind. AMR-related diseases could take ten million lives annually by 2050 while consuming some \$100 trillion of global GDP. Overall, 300 million people are expected to die prematurely as a result of AMR over the next 35 years. Appropriate, timely antibiotic treatment of bacterial infections is a significant challenge, especially as its future efficacy comes into question due to suboptimal or unnecessary administration. In turn, every instance of delayed detection and management increases the risk of infection (septicemia) advancing to sepsis. Correspondingly, a “call to arms” has established that by 2020, antibiotic treatment must be predicated on data and testing technologies.

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Anthony Dellinger



Atlantic horseshoe crab. Drawing by L. Robertson to illustrate “The Role of Horseshoe Crabs in the Biomedical Industry and Recent Trends Impacting Species Sustainability” (Frontiers in Marine Science, 2018). Available at: kepleybiosystems.com/horseshoe-crab-publication

Nearly 50 years ago, a means to detect the majority of the most threatening microorganisms at parts per trillion was discovered in the cells of the horseshoe crab, an ancient and familiar arthropod. Early attempts to apply this discovery to septicemia testing were abandoned due to apparent interfering substances in human specimens; yet it was ensconced as the gold standard for the most demanding sterility assays for medical devices and injectables due to its unmatched sensitivity.

Given the global threat posed by gram-negative bacteria and the horseshoe crab blood cells’ ability to detect them, Kepley BioSystems set out to answer the “call to arms” by

challenging the status quo. With National Science Foundation grant funding, the North Carolina biotech sought to establish a sustainable supply of this vital resource with specialized aquaculture, nutritional management, surgical catheter implantation and low-impact, routine hemolymph collection methods. All milestones were achieved: the horseshoe crabs have appeared to thrive and have yielded highly reactive cells.

With feasibility funding from NC Sea Grant and in affiliation with the Joint School of Nanoscience and Nanoengineering (JSNN) laboratories, the team then set its sights on elimination of the interferences and test standardization for detection of endotoxins in human specimens. Feasibility was achieved using the sustainably derived cells from the aquaculture cohort in a rapid assay for gram-negative bacteria with the potential to match or exceed traditional laboratory culture sensitivity.

"A simple clinical LAL assay could change the game for detecting bacterial infection quickly and reliably, saving innumerable lives and reduce unnecessary administration of antibiotics," said Anthony Dellinger, president of Kepley BioSystems, "but, as a species, we are running out of time to find solutions. We share the WHO and CDC commitment to bring increased public awareness of this increasingly important issue while continuing our efforts in this arena."

Antibiotic Awareness Week 2019 will focus on advising patients and their families to use antibiotics only when necessary to further reduce antibiotic microbial resistance, the spread of superbugs, and protect patients from side effects from antibiotics. Learn more at <https://www.cdc.gov/antibiotic-use/>

About Kepley BioSystems:

Kepley BioSystems is a North Carolina-based life sciences biotech operating out of Gateway Research Park (GRP) 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). Kepley BioSystems was founded in 2013 with a mission to emerge disruptive innovations to achieve global solutions. For more information, visit: <https://www.kepleybiosystems.com/>

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