3102 Lord Baltimore Dr. Suite 214
Baltimore, MD 21244
Phone: (410) 944 5000

Sept. 29, 2020 – New Scanogen Study in Nature Communications Outlines Breakthrough Molecular Detection Technology

Baltimore, Maryland – **The amplification-free and purification-free approach is being used by the Company to develop a novel diagnostic platform**. Scanogen, a pioneer molecular diagnostic company delivering revolutionary diagnostic solutions for sepsis and other infectious diseases, announced the findings from a new study published in Nature Communications that demonstrate the ability of the new technology to detect pathogens in whole blood with superior performance than amplification-based molecular technologies. The novel approach is at the basis of the system that the Company is developing to dramatically reduce the time it takes to identify sepsis associated pathogens from days to one hour.

"The standard diagnosis of sepsis involves blood culture which takes days to provide results. Therefore, patients are treated with broad spectrum antibiotics to cover most organisms. Unfortunately, with the increase of drug resistance, this approach is not effective and over 20% of patients are treated with drugs that are not appropriate against the causative pathogen and this has terrible outcomes for the patients" said Al Celedon, Ph.D. founder and chief executive officer of Scanogen.

Sepsis is associated with more than 200,000 deaths in the U.S. and 11 million deaths worldwide each year.

Mr. Celedon explains, "The results of the Sepsis-ID test will be available in one hour, at the time when antibiotic treatment is started, enabling the selection of appropriate drugs during the first critical hours of treatment. Moreover, the rapid test will help also to identify patients that are currently missed, or their treatment delayed."

In the new publication, the Scanogen team and a Johns Hopkins University professor describe for the first time the molecular detection approach developed at Scanogen called Single MOLecule Tethering or SMOLT. The signal of SMOLT is generated by the displacement of micron-size beads tethered by double stranded DNA probes that are several microns long. The molecular extension of thousands of DNA probes is determined with sub-micron precision using a robust and rapid optical approach.

"SMOLT achieves unprecedented sensitivity for non-amplified molecular detection in body fluids. There are two key aspects of the technique that enable this high sensitivity. First, single molecules generate a detectable signal, which is a tethered bead, and second, the background noise, which are nonspecifically attached beads, is discriminated based on bead displacement."

"Achieving high sensitivity without the need of amplification is extremely important in the context of detecting bloodstream pathogens because blood components inhibit polymerases and make amplification-based protocols complex and ineffective. Despite extensive research to advance molecular diagnostics methods for sepsis using amplification, no satisfactory solution has been developed."

Scanogen is developing a simple-to-use and sample-to-answer system based on SMOLT. The system consists of an automated instrument and disposable cartridges. The Sepsis-ID test is the first assay of the platform and it identifies a panel of the microbial species and genera that cause sepsis directly from a whole blood sample. Scanogen has received $9.5 million in grants from the National Institutes of Health to develop its technologies. The Company will start a financing round in the next months to complete the development and conduct clinical studies.

Citation

Cheng, W., Horn, T., Zayats, M. et al. Ultra-sensitive and rapid detection of nucleic acids and microorganisms in body fluids using single-molecule tethering. Nat Commun 11, 4774 (2020). https://doi.org/10.1038/s41467-020-18574-7

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Media Contact

Maria Oven

moven@scanogen.com