

Dublin City University Licensing Opportunity

LIFE SCIENCES

SEPTEC - Sepsis Detection Platform

INTRODUCTION

SepTec™ is a powerful, novel centrifugal microfluidic disc platform technology for the rapid detection of pathogens in whole blood. Based on electrochemical detection, definitive identification of pathogens in a 2mL volume of whole blood is achieved with a rapid, sample to answer time of 15 minutes.

BACKGROUND

Sepsis is fatal in 30-40% of Intensive Care Unit (ICU) patients and represents almost 30% of all hospital based deaths. Every hour delay in sepsis diagnosis increases mortality by 8%. Although time is critical, diagnosis is often delayed as (1) clinical symptoms are non-specific (e.g., high temperature) and (2) clinical diagnosis relies on time-intensive procedures; pathogen blood culture and PCR amplification. Clinical diagnosis (pathogen culture and PCR) of sepsis can take up to several days. To reduce risk, consultants must start antibiotic treatment (within 1 hour) without clinical diagnostic test results leading to antibiotic overuse, a rise in antimicrobial resistance and consequential extended hospital stays.

The economic costs of sepsis are substantial: €7.6bn (EU) annually, €909 daily cost per general ward patient, €2,225 daily cost per ICU patient and €1.5bn (EU) antibiotic resistance costs per year. Subsequently, a clear, unmet clinical need exists for a near patient, rapid diagnostic test to diagnose sepsis and the optimal antibiotic to administer, within what experts call “the golden hour”.

TECHNOLOGY DESCRIPTION

SepTec is a centrifugal microfluidic disk platform. Antibody based electrochemical sensor technology, in conjunction with microfluidic engineering allows sensitive and rapid detection of pathogens in a 2mL whole blood sample. Significantly, the SepTec platform presents the ability to simultaneously identify if Gram positive, Gram negative or Fungal pathogens are present in 2mL whole blood within 15 minutes. The key benefits SepTec™ will offer is high sensitivity and significantly rapid sample to answer time. Customers that adopt SepTec™ will be able to detect sepsis earlier which in turn translates to quicker administration of the relevant antibiotic, decreased financial outlay and shorter hospital stays. It has been reported that if sepsis can be detected within 1 hour, for a 300-bed hospital, it is estimated that the average savings, as measured in the length of stay, will be in excess of \$2 million.

SepTec™ offers:

- Rapid pathogen detection in 2 mL whole blood without any requirements for enrichment or other preparatory processing
- The ability to **detect pathogens in whole blood at very low concentrations: <10 CFU in <15 minutes**
- The ability to **definitively identify if pathogens are Gram positive, Gram negative or Fungal in <15 minutes**

RESEARCH AND IP STATUS

A priority patent application (GB1705328.1) was filed in April 2017

TYPE OF BUSINESS SOUGHT

Available for licensing. We are also interested to talk to companies interested in collaborations and strategic partnerships.

CONTACTS

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