

## **Specific Technologies Announces New Publication Demonstrating Rapid Detection and Simultaneous Identification of Blood Bacteria Known to Cause Sepsis**

*Pivotal Study in Journal of Clinical Microbiology Establishes Proof-of-Principle for Novel Metabolomic “Fingerprint” Detection Technology*

**MOUNTAIN VIEW, Calif., January 7, 2014** -- Specific Technologies, developer of rapid identification systems for disease causing pathogens, today announced that a study published online in the *Journal of Clinical Microbiology* found that the SpecID™ metabolomic “fingerprint” detection system achieved identification of blood infection four times faster — two days sooner— than conventional blood culture practices.

In the study, Stanford University Medical Center researchers identified 18 bacterial species with 92 percent accuracy, and faster than current methods can simply identify the presence of infection. These key findings demonstrate the novel capabilities of the SpecID system to offer faster, more cost-effective detection and characterization of the bacterial blood infection that causes sepsis, a potentially fatal condition that worsens by the hour if left untreated.

Dr. Niaz Banaei, MD, Director of Clinical Microbiology at Stanford University Hospital remarked: “The study concluded that high-accuracy bacteria identification could be completed for clinically important bacteria at significantly faster speeds than present tests. The ability to identify microorganisms during blood culture will have great impact on the characterization of bloodstream infections in the clinical microbiology lab.”

Sepsis is the 10<sup>th</sup> leading cause of death, killing more than prostate cancer, breast cancer, and HIV/AIDS combined, and is responsible for 11 percent of intensive care unit admissions with a mortality rate estimated at 28 to 50 percent.

In the study, the authors compared the SpecID system to the bioMérieux BacT/ALERT® system, and reported that the SpecID system identified bacterial species in blood culture 22 percent faster on average than the BacT/ALERT system, which simply reported presence of the infection. Further, the metabolomic “fingerprint” obtained by the sensor enabled discrimination of distinct strains comparable to that achieved by pulsed gel electrophoretic methods. The SpecID system thus combines earlier detection with the characterization of species in a single, fully automated step. This contrasts with all other systems in current use in which characterization of the specific bacteria species requires a second step, additional sample preparation, contamination risk, and expense.

“These significant results present a new paradigm for time-sensitive bacteria identification,” said Dr. Paul Rhodes, Chief Executive Officer of Specific Technologies. “Many lives can be saved, healthcare costs reduced, and hospital stays shortened with earlier detection and simultaneous characterization of bacterial infection in blood. With our fully automated system, a traditionally multistep process is simplified, so time sensitive information characterizing blood infection can be obtained faster and distributed to caregivers 24/7.”

The study was supported in part by a \$2.3 million Small Business Innovation Research (SBIR) grant awarded by the National Institute of Allergy and Infectious Diseases (NIAID) toward the development of Specific Technologies’ solution for rapid identification of microorganisms producing blood stream infection.

The manuscript, "Colorimetric Sensor Array Allows Earlier Detection and Simultaneous Identification of Sepsis-Causing Bacteria in Spiked Blood Culture" can be found online at <http://jcm.asm.org/content/early/2013/12/05/JCM.02377-13.abstract?sid=89c688ac-67fe-457e-ad0e-3e31c3b076e1>.

### **About the SpecID System**

During growth in culture, bacteria produce small molecule volatile metabolites unique to their species and strain. Specific Technologies has developed the SpecID system, a new paradigm for identifying microorganisms from the metabolomic signature of organism outgas into culture headspace.

Utilizing a chemical fingerprint that combines detection and identification into a simple, automated single step utilizing a low-cost disposable printed sensory array, the SpecID system delivers both detection and species identification results in one simultaneous step, both less expensively and well before molecular and mass spectrometry (MALDI-TOF) methods.

The SpecID fingerprint discriminates between even highly similar strains of *Staphylococcus aureus*, indicating that the metabolomic fingerprint is not just species specific but strain-specific as well. The SpecID system requires no additional instruments, no additional labor, and no new process steps.

### **About Specific Technologies**

Specific Technologies has developed *in vitro* systems for rapid identification of cells, and is applying this fundamental new platform to the detection and characterization of microorganisms causing blood infection. The company is also exploring applications for antibiotic drug discovery and the identification of tumor cells by type and mutation variant. The company's unique, patented metabolomic signature technology leverages a low-cost printed sensor to identify cell type down to the strain level. Specific Technologies is located in Mountain View, CA.

For additional information, please visit [www.specifictchnologies.net](http://www.specifictchnologies.net).

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