

New Research Shows SpecID Metabolomic Fingerprint Technology by Specific Technologies Discriminates Bacterial Strain

Results Presented at the 2014 American Society for Microbiology Suggest New Paradigm for Detection and Tracing of Resistant Bacteria Strains

Mountain View, Calif., May 20, 2014 -- Specific Technologies, developer of the SpecID™ technology to rapidly detect and identify bacterial species and strain via a metabolomic fingerprint, today announced results demonstrating strain discrimination of four distinct strains of Methicillin-resistant *Staphylococcus aureus* (MRSA) comparable to the discrimination obtained via pulsed-field gel electrophoresis.

In the study, titled “*Differentiation of Methicillin-resistant Staphylococcus aureus (MRSA) in blood cultures using Colorimetric Sensor Arrays*” presented today at the 2014 American Society for Microbiology General Meeting, investigators used the SpecID sensor technology developed by Specific Technologies to “fingerprint” nine distinct clinical isolates of MRSA, comprising four distinct strains. In parallel, investigators characterized the same isolates by pulsed-field gel electrophoresis, the standard method for strain characterization in sophisticated microbiology labs around the developed world. Strain classification trees were built for both methods, with a gel-fragment dendrogram produced for the pulsed-field gel data and a plot in pattern space for the fingerprints of the nine samples produced on the low-cost disposable printed SpecID array.

Results show that strain classification using the SpecID sensor fingerprint technology corresponded to strain characterization produced with electrophoretic gel, but at far lower cost in materials and labor.

“These results showcase an advance in the strain level characterization of blood stream infection,” said Dr. Paul Rhodes, Chief Executive Officer of Specific Technologies. “the low cost and simplicity of SpecID technology enables its integration into all blood culture bottles, as well as TB or plate culture. This in turn will enable hospitals and government and health agencies to detect and track the spread of hospital-acquired or resistant strains of infection.”

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

About the SpecID Technology

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.

Using a chemical fingerprint that combines detection and identification into a simple, automated single step with a low-cost disposable printed sensory array, the SpecID system delivers both detection and species and strain identification results in one simultaneous step, both less expensively and faster than conventional culture methods can register a positive.

In a proof-of-principle paper published online in January 2014 in the *Journal of Clinical Microbiology* researchers demonstrated that the SpecID fingerprint discriminates between highly similar strains of *Staphylococcus aureus*, indicating that the metabolomic fingerprint is not just

species-specific but strain-specific as well. The SpecID system is elegantly simple and reduces cost, time, and labor in the microbiology lab while speeding and automating information flow.

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'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.specificttechnologies.net.

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