

Specific Technologies Reports a New Paradigm Enabling the Strain-Level ID of Microorganisms During Primary Culture

A new means of tracking resistant strains

MOUNTAIN VIEW, California, June 4, 2015 -- Specific Technologies, which has developed and is now commercializing a new diagnostic paradigm combining detection with ID of microorganisms during culture, has reported a new means to detect and track resistant strains. In a study conducted with the British Ministry of Defense at DSTL in Porton Down, UK, between 6 and 10 distinct strains of each of 8 select agent (biowarfare) pathogens such as *B. anthracis* (anthrax) and *Y. pestis* (plague) were grown in solid media. An inexpensive printed colorimetric chemical sensor array (CSA) positioned in the dish headspace obtained a “metabolomic fingerprint” produced by the volatile metabolites emitted during growth. This sensor pattern enabled fully validated classification of species level ID amongst the 8 species and control with 97.8% accuracy, with strain level ID accuracy of 92.3%. This means of identifying a microorganism growing in culture at the strain level rivals genomic methods but with unique simplicity (the method is entirely hands-free) and low cost. The results were first reported at the 2015 American Society for Microbiology meeting in New Orleans, and are being prepared for publication.

The present results show that the accuracy of this strain typing is such that it comprises an alternative phenotypic metabolomic strain signature, which can be used in conjunction with or as an alternative to genomic profiles of strain. The very low cost of the printed disposable sensor combined with the inherent simplicity of its use (no trained labor required, with a simple camera image matched with a library of strain fingerprints to adjudicate ID) makes this paradigm uniquely suited for very widespread low cost use. The fact that the strain fingerprint is obtained during primary screening in culture offers a novel paradigm to detect hospital acquired infections in an automated and real-time fashion, as well as a new means to track resistant strains in the developing world where low cost primary screening is vital.

“The Company is developing a novel suite of information services enabled by this low cost means of strain-level ID,” said Dr. Paul Rhodes, Chief Executive Officer of Specific Technologies. “The first data service product will be an automated HAI warning system for hospitals, a 24/7 dashboard of recurring strains providing risk management and antibiotic stewardship teams real-time warning of recurring blood infection strain, along with a map in time and space of the relevant patient histories. Unlike NGS or other genomic profiles of strain, the metabolomic fingerprint is so inexpensive that it is obtained for *all* blood culture samples in a given facility, which we believe will transform the capability to detect recurring strains in hospital blood infection populations.”

About the SpecID System

During growth in culture, bacteria produce small molecule volatile metabolites unique to their species and strain. Utilizing a chemical fingerprint that combines detection and identification into a simple, automated single step utilizing a low-cost disposable printed sensory array, the novel SpecID system identifies microorganism species and strain from the metabolomic signature of volatiles produced during growth.

About Specific Technologies

Specific Technologies has developed *in vitro* diagnostic systems for rapid identification of cells, and is applying this fundamental new platform to the detection and characterization of microorganisms

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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.specifictechnologies.net.

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