For Immediate Release:
March 22, 2017

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New Technologies for Rapid Bacterial Identification and Antibiotic Resistance Profiling

CHICAGO – A review in the April 2017 issue of SLAS Technology summarizes recent progress in the development of new devices that can analyze bacterial pathogens and establish their drug resistance profiles. Devices that use microfluidics and a variety of detection mechanisms are discussed, and their application to this important problem is explained. These devices represent an important alternative to existing methods, which primarily rely on bacterial culture and require 2 to 7 days to reveal the drug susceptible of infectious bacteria.

Being able to rapidly identify bacterial pathogens and determine their susceptibility to antibiotics is a critical capability. The faster a bacterial infection is treated with a suitable drug, the more likely a patient is to recover fully from that infection. As well, the specific identification of bacterial infections – or the absence of bacterial infections – will help antibiotics be used more judiciously so that their efficacy is preserved.

Approaches that use phenotypic information to identify and sub-classify bacteria are the main focus of this review, as this type of approach directly monitors the cellular response to antibacterials and has the greatest potential for producing sensitive and specific results. The widespread deployment of the approaches discussed will enable the more effective management of infectious disease and more systematic use of live-saving antibiotics.

Visit SLAS Technology Online at http://journals.sagepub.com/toc/jlad/22/2 to read “New Technologies for Rapid Bacterial Identification and Antibiotic Resistance Profiling” and to hear a podcast with the author, 2016 SLAS Innovation Award winner Shana Kelley, Ph.D., of the University of Toronto. Visit SLAS Technology is one of two MEDLINE-indexed scientific journals published by SLAS. For more information about SLAS and its journals, visit www.slas.org/publications/scientific-journals.

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**SLAS Discovery:** 2015 Impact Factor 2.218. Editor-in-Chief Robert M. Campbell, Ph.D., Eli Lilly and Company, Indianapolis, IN (USA). SLAS Discovery (Advancing Life Sciences R&D) was previously published (1996-2016) as the Journal of Biomolecular Screening (JBS).

**SLAS Technology:** 2015 Impact Factor 1.297. Editor-in-Chief Edward Kai-Hua Chow, Ph.D., National University of Singapore (Singapore). SLAS Technology (Translating Life Sciences Innovation) was previously published (1996-2016) as the Journal of Laboratory Automation (JALA).