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Ultra-High-Throughput Sample Preparation System for Lymphocyte Immunophenotyping Point-of-Care Diagnostics

CHICAGO – Point-of-care (POC) microfluidic devices often lack the integration of common sample preparation steps, such as preconcentration, which can limit their utility in the field. A new report in the October 2016 issue of the *Journal of Laboratory Automation* (JALA) describes a system that combines the necessary sample preparation methods to perform sample-to-result analysis of large-volume (20 mL) biopsy model samples with staining of captured cells.

The platform combines centrifugal-paper microfluidic filtration and an analysis system to process large, dilute biological samples. Utilizing commercialization-friendly manufacturing methods and materials, yielding a sample throughput of 20 mL/min, and allowing for on-chip staining and imaging bring together a practical, yet powerful approach to microfluidic diagnostics of large, dilute samples.

The system addresses the need for biological assays to pre-concentrate the analyte of interest for downstream analysis. As a proof of principle, the authors present a model system for the diagnosis of idiopathic eye diseases, such as uveitis and primary intraocular lymphoma, where sampling is typically done by aspiration using a solution known as BSS-plus, which produces a 50 to 100+ mL sample volume.

Visit JALA Online at http://jla.sagepub.com/content/21/5 to read this report and listen to a free podcast by corresponding author Aman Russom of KTH Royal Institute of Technology in Stockholm, Sweden.

JALA is one of two official scientific journals published by SLAS. In 2017, JALA's name will change to ***SLAS Technology*** (Translating Life Sciences Innovation). For more information about SLAS and its journals, visit www.slas.org/publications/scientific-journals.

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SLAS publishes two internationally recognized, MEDLINE-indexed journals, now in their 21st year of publication. ***The Journal of Laboratory Automation (JALA)*** *and* ***Journal of Biomolecular Screening (JBS)*** *uniquely serve life sciences discovery and technology professionals. Together, JALA and JBS address the full spectrum of issues that are mission-critical to this important audience, enabling scientific research teams to gain scientific insights, increase productivity, elevate data quality, reduce lab process cycle times and enable experimentation that otherwise would be impossible.*

Specifically, ***JALA*** *explores ways in which scientists adapt advancements in technology for scientific exploration and experimentation. In direct relation to this,* ***JBS*** *reports how scientists develop and utilize novel technologies and/or approaches to provide and characterize chemical and biological tools to understand and treat human disease.*

Journal of Biomolecular Screening (JBS): *2015 Impact Factor 2.218. Editor-in-Chief Robert M. Campbell, Ph.D., Eli Lilly and Company, Indianapolis, IN (USA). In 2017, JBS's title will change to* ***SLAS Discovery*** *(Advancing Life Sciences R&D).*

Journal of Laboratory Automation (JALA): *2015 Impact Factor 1.297. Editor-in-Chief Edward Kai-Hua Chow, Ph.D., National University of Singapore (Singapore). In 2017, JALA's title will change to* ***SLAS Technology*** *(Translating Life Sciences Innovation).*