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Contact Information:
Tom Manning, Director of Marketing Communications
Telephone: +1.630.256.7527, ext. 103
E-mail: tmanning@slas.org

UC Berkeley's Vlassakis Named Recipient of 2017 SLAS Graduate Education Fellowship Grant

CHICAGO – SLAS, the Society for Laboratory Automation and Screening, has named Julea Vlassakis, a graduate student and Ph.D. candidate from the University of California, Berkeley, as the 2017 recipient of the SLAS Graduate Education Fellowship Grant.

Vlassakis' research is centered upon High-Throughput Quantitative Electrophoretic Separations of Actin Species from Single Cells. The $100,000 SLAS Fellowship Grant, awarded over two years, will enable Vlassakis to continue her important research under the direction of, and in collaboration with, her faculty advisor at Berkeley, Dr. Amy Herr.

"The caliber of applications for this year's grant was extremely strong, making our job on the judging committee very challenging," said Susan Lunte, University of Kansas, and chair of the SLAS Grant Review Panel. "Certainly, we wish to commend all applicants for their time and effort. Ultimately, the potential impact of the research Julea is undertaking convinced me and other members of the committee that she was most deserving of this Fellowship Grant."

"I am extremely grateful for this fellowship and the opportunities to engage with SLAS as part of this fellowship and throughout my career," said Vlassakis. "SLAS is an outstanding resource to all those who aspire to a career in the life sciences and instrumentation for biological inquiry. I'm excited to continue to grow as a researcher through discourse with fellow SLAS members, and to give back to the global SLAS community in the very near future."

Professor Amy Herr is the director of the Herr Lab at UC Berkeley dedicated to Bioinstrumentation for Quantitative Biology and Medicine. Her research group impacts modern biology and biomedicine through engineering innovation, specifically, in advancing the state-of-the art technology in bioassay performance and capability. Herr believes this grant will benefit Vlassakis in several important ways. "The fellowship will help Julea complete her dissertation studies with a freedom to focus and laboratory instrumentation and needed measurements. Her work has an especially strong relevance to the topic areas highlighted at SLAS. Importantly, in this last year of her research, access to the SLAS

technical community and the visibility that the recognition will afford her, will truly benefit her personally as well as her research."

According to the application jointly submitted by Vlassakis and Herr, the goal of the project is to design a high-throughput electrophoretic separation assay to enable quantitation of F- and G-actin in single cells. Accurate biomolecular screening of the effects of drug treatments on the distribution of actin will become a critical step in the identification of novel therapies. There are three specific aims of the research:

- Design and optimization of a method for delivery of F-actin stabilization lysis buffer for high-throughput lysis and electrophoresis of G-actin
- Design a novel functional material for high-throughput in-hydrogel detection of F- and G-actin from single cells
- Assay validation and application in a high-throughput whole-genome screen to determine genes that protect actin filament stability

According to Vlassakis and Herr, the ultimate vision of the research is to expand the boundaries of how actin structure can be leveraged for the development of new therapeutics to better serve humankind. "We anticipate that our novel, high-throughput single-cell separations of F and G actin will enable quantitative hypothesis testing for the effect of various therapeutics on actin structure. In the future, we will extend upon the proposed assay design to enable quantitation of actin binding proteins, which are critical regulators of actin homeostasis, but difficult to measure in conjunction with existing staining protocols as certain binding proteins prevent accurate staining. In all, we intend to bring previously impossible quantitative resolution to evaluation of actin structure and function with the design of an assay capable of identifying rare sub-populations in thousands of single-cells."

Judging criteria for the Fellowship Grant took into consideration a number of factors, including: quality and capability of the institution and its educational program; endorsement and commitment by the institution and faculty advisor with the student applicant; the quality and record of the specific research program and the quality and promise of the research being proposed. A total of 21 applications from 12 different institutions from three countries were considered in this second iteration of this grant program, originally founded by SLAS in 2015.

Members of the SLAS Grant Review Panel include:

Susan Lunte, Chair, University of Kansas
Frank Fan, Promega
Elliot Hui, University of California, Irvine
Daniel Sipes, Genomics Institute of the Novartis Research Foundation
Krister Wennerberg, University of Helsinki

The application process for the 2018 grant award will open in fall 2017. To access the application or for more information about this grant program, visit the Graduate Education Fellowship Grant Program section of www.SLAS.org, contact SLAS Global Headquarters at +1.877.990.SLAS (5727) or e-mail slas@slas.org.

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