



Society for Analytical Chemists OF PITTSBURGH



JANUARY MEETING

Monday, January 11, 2010
8:00 p.m.

Duquesne University
Laura Falk Hall

Dinner: City View Café (6th Floor)



SHANA O. KELLY, PH.D.

DIRECTOR OF THE DIVISION OF BIOMOLECULAR SCIENCES IN THE FACULTY OF PHARMACY
PROFESSOR OF CHEMISTRY, PHARMACEUTICAL SCIENCES, AND BIOCHEMISTRY.
UNIVERSITY OF TORONTO, CANADA

"Nanostructure-enabled Electronic Diagnostic Devices"



5:30 PM	Social Hour.....	Student Union – City View Café (6 th Floor)
6:30 PM	Dinner.....	Student Union – City View Café (6 th Floor)
7:30 PM	Student Affiliate Meeting.....	Mellon Hall – Room 410
7:40 PM	Business Meeting.....	Mellon Science Building – Laura Falk Hall
8:00 PM	Technical Meeting.....	Mellon Science Building – Laura Falk Hall

ABSTRACT:

The analysis of panels of molecular biomarkers offers valuable diagnostic and prognostic information for clinical decision making. Robust, practical platforms that detect low levels of biomolecules (< 1000 copies) are urgently needed to advance medical care by diagnosing and predicting the progression of cancer and other disease states. Electrochemical methods providing low cost and direct biomarker read-out have attracted a great deal of attention for this application, but have, to date, failed to provide clinically-relevant sensitivity. We hypothesized that controlled nanostructuring of electrode surfaces could promote surface accessibility and enhance capture rate and efficiency to solve this long-standing problem, and recently showed that the nanoscale morphologies of electrode surfaces control their sensitivities. In addition, we have worked towards integrating nanomaterials-based electrodes into a chip-based platform to facilitate multiplexed analysis in a robust, practical format. Our efforts to use this platform to detect nucleic acid and protein biomarkers in clinical samples to develop tests for infectious disease diagnosis, oncological management and pharmacogenetic/pharmacoproteomic profiling will be featured in this lecture.

BIOGRAPHY:

Dr. Shana Kelley obtained her Ph.D. at the California Institute of Technology in Chemistry in 1999 and her B.A. *summa cum laude* from Seton Hall University in 1994. After a NIH postdoctoral fellowship at Scripps Research Institute, she began her independent career in 2000 at Boston College, was promoted directly to Full Professor in 2006, and moved that same year to University of Toronto. She is currently the Director of the Division of Biomolecular Sciences in the Faculty of Pharmacy, and a Professor of Chemistry, Pharmaceutical Sciences, and Biochemistry.

Shana's interdisciplinary research efforts are directed towards developing new technologies for biosensing using techniques and approaches that involve aspects of biological, analytical, organic, and materials chemistry. In particular, her group uses electrochemical methods to create new platforms for biomolecular detection. Most recently, her group has focused on the use of nanomaterials as sensor elements for multiplexed analysis systems.

Dr. Kelley has been recognized for her contributions with several awards. She was named one of "Canada's Top 40 under 40" just this past year. She has also been recognized with the Pittsburgh Conference Achievement Award, an Alfred P. Sloan Research Fellowship, a Camille Dreyfus Teacher-Scholar award, a NSF CAREER Award, a Dreyfus New Faculty Award, and was also named a "Top 100 Innovator" by MIT's Technology Review. Kelley was a co-founder of GeneOhm Sciences, a molecular diagnostics company acquired in 2006 by Becton Dickinson.

DINNER RESERVATIONS:

Please email Julie Theys, Arrangements Co-Chair at theysj@pittcon.org, by Thursday, January 7, 2010 to make your dinner reservation. Should you not have email, please call Julie at 814-563-7236. The entrée for January is Herb Crusted Pork Chop. Dinner will cost \$8 (\$4 for students) and checks can be made out to the SACP. If you have any dietary restrictions, let Julie know when you leave a message.

PARKING:

Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Should any difficulties arise, please contact Dr. Mitch Johnson at Duquesne University.