

Dr. Jarrett Adams

Talk title: "NGS enabled antibody discovery using synthetic repertoires"

Brief biography: Jarrett Adams has been a research associate with the Donnelly Centre, University of Toronto since 2012 and previously trained as a post doctoral fellow at Stanford University and graduate student at Queen's University. Over the last 8 years, Jarrett Adams has worked extensively in the fields of structural biology and protein engineering. His work has been focused on antigen recognition of antibody and T cell receptors using phage and yeast display technologies.

Stephen Scherer, PhD, DSc, FRSC

Director, The Centre for Applied Genomics, The Hospital for Sick Children, Director, the McLaughlin Centre for Molecular Medicine, University of Toronto

Biography

Prof. Scherer holds the GlaxoSmithKline-Canadian Institutes of Health Research Endowed Chair in Genome Sciences at The Hospital for Sick Children (SickKids) and University of Toronto (UofT) and he is Director of the UofT McLaughlin Centre, as well as The Centre for Applied Genomics at SickKids. His group contributed to the discovery of global gene copy number variation (CNV) as a common form of genetic variation in human DNA. They also identified CNV in the aetiology of autism and many other disorders, and the Database of Genomic Variants he founded facilitates hundreds of thousands of clinical diagnoses each year. He has won honors such as the Steacie Prize, an Howard Hughes Medical Institute Scholarship, and the Premier's Summit Award for Medical Research. In 2014, he was selected as a Thomson Reuters Citation Laureate in the field of Physiology or Medicine for "*The discovery of large-scale CNV and its association with specific diseases*"

Ken Welch

"Next-gen sequencing in the ruby-throated hummingbird: tiny bird, huge reads"

Ken Welch received a BSc in biology from Trinity University in San Antonio, Texas in 1998, an MA and PhD in ecological physiology at the University of California Santa Barbara in 2007. Following a two-year postdoctoral researcher position at the University of California Riverside, he joined the University of Toronto Scarborough as an assistant professor of comparative vertebrate physiology in 2009. He was promoted to associated professor in 2015. At the University of Toronto Scarborough, he has developed an integrative laboratory and field based research program that centers on the study of animal energetics, locomotor physiology and behaviour, and fuel use, principally in flying organisms. He has only recently begun utilizing next-gen sequencing approaches as part of a Human Frontier Science Program-funded research project in collaboration with researcher at Johns Hopkins University and CIC-BioGUNE in Spain.

Nataly Ivanova, Lead DNA Scientist
Centre for Biodiversity Genomics, Biodiversity Institute of Ontario, University of Guelph

Talk title: "A Biocomplexity Perspective on Authentication of Herbal Supplements"

Nataly received her Ph.D. in Molecular Biology from Lomonosov Moscow State University in 1998. Most of her Ph.D. data on the molecular systematics of lichens was gathered at the NMNH, Smithsonian Institution. In 2004 Nataly joined the Hebert laboratory and contributed to the development of cost-effective high throughput barcoding protocols for the Canadian Centre for DNA Barcoding (CCDB) currently processing 1M specimens per year. Her research portfolio includes DNA extraction protocols for high-throughput robotic environment; room temperature DNA storage and shipment; express DNA barcoding; authentication of food and Natural Health Products using NGS; metagenomics of art objects and toxigenic algal blooms; and biomonitoring of vertebrates in water and sediments using eDNA.

Dr. Ryan Yuen

Talk title: Whole genome sequence-based resource for autism research

Brief Bio:

Ryan Yuen is a Research Associate working with Dr. Stephen Scherer in the Genetics and Genome Biology Program at the Hospital for Sick Children from Toronto. He obtained his PhD degree in Medical Genetics from the University of British Columbia, where he studied epigenetics in human development. His current research focuses on developing novel methodologies to study Autism Spectrum Disorder and other related neurodevelopmental disorders using whole genome sequencing technologies. Ryan has received the Autism Speaks Meixner Postdoctoral Fellowship in Translational Research. He currently holds the CIHR Fellowship, NARSAD (National Alliance for Research on Schizophrenia and Depression) Young Investigator Grant and the Thrasher Research Fund Early Career Award.

Dr. Yingfu Li - Professor, Biochemistry and Biomedical Sciences McMaster

Title: Probing sequence space of functional DNA via NGS

Bio: Yingfu Li received a BSc in chemistry at Anhui University in 1983, an MSc in applied chemistry at Beijing Agriculture University in 1989, and a PhD in chemistry and biochemistry at Simon Fraser University in 1997. After two-year postdoctoral research at Yale University between 1997-99, he joined McMaster University as an assistant professor in the Department of Biochemistry and Biomedical Sciences and the Department of Chemistry and Chemical Biology, was promoted to the rank of associate professor in 2005 and full professor in 2010. At McMaster, he has established a research group to take advantage of the powerful test-tube evolution technique to develop artificial DNA molecules that can be used to address fundamental biochemical and evolutionary questions or can be utilized for wide-ranging applications. He has published 158 research and review articles, 15 book chapters, edited 1 book, and filed 22 patents. He also serves as an associate editor of Journal of Molecular Evolution. He has received several recognitions, including Canada Research Chair, New Investigator Award from the Canadian Institute of Health Research (CIHR), Premier Research Excellent Award from Ontario Government, W. A. McBryde Medal from Canadian Society of Chemistry and Outstanding Young Scientist from National Science Foundation of China.

Dr. Henrik Poinar

Professor Poinar is a molecular evolutionary geneticist and biological anthropologist by training. He relies heavily on interdisciplinary research, using both chemical and molecular techniques to elucidate the state of preservation within forensic, archeological and paleontological remains. This information is subsequently used to devise novel techniques to extract the molecular information (DNA, RNA and/or protein sequences) and use it to address anthropological questions, such as the identification of pathogens responsible for past pandemics (i.e. The Black Death, The Plague of Justinian) as well as the evolutionary dynamics of infectious disease (i.e. *Vibrio cholera*).