



Understanding the cellular and molecular landscape of autism spectrum disorders

SEMINAR & VISITING SPEAKER SERIES WORLD WIDE NEURO PLATFORM

DATE

Monday, March 15, 2021
12:00 PM (noon) CST

WORLD WIDE NEURO LINK

<https://www.crowdcast.io/e/manitobaneuro5>

MEETING ID & PASSCODE

None required

SPEAKER

Karun Singh, Ph.D.

Senior Scientist, Krembil Research Institute,
University Health Network, Toronto
Associate Professor, Faculty of Medicine, University
of Toronto

BIO

gh completed his undergraduate studies at McMaster University, and his Ph.D. studies at the University of Toronto and the Hospital for Sick Children. He then performed postdoctoral studies at the Massachusetts Institute of Technology (MIT). He joined McMaster University from 2012-2020 where he was a Scientist and the Neural Program Lead at the Stem Cell and Cancer Research Institute, and an Associate Professor in the Department of Biochemistry and Biomedical Sciences at McMaster University.

Dr. Singh joined the Krembil Research Institute at UHN in 2020 as a Senior Scientist, and is a member of the Donald K. Johnson Eye Institute. He holds appointments in the Departments of Ophthalmology and Vision Sciences, and Laboratory Medicine and Pathobiology (LMP) at the University of Toronto.

RESEARCH

Large genomic studies of individuals with autism spectrum disorders (ASD) have revealed approximately 100-200 high risk genes. However, whether these genes function in similar or different signaling networks in brain cells (neurons) remains poorly studied. We are using proteomic technology to build an ASD-associated signaling network map as a resource for the Autism research community. This resource can be used to study Autism risk genes and understand how pathways are convergent, and how patient mutations change the interaction profile. In this presentation, we will present how we developed a pipeline using neurons to build protein-protein interaction profiles. We detected previously unknown interactions between different ASD risk genes that have never been linked together before, and for some genes, we identified new signaling pathways that have not been previously reported. This resource will be available to the research community and will foster collaborations between ASD researchers to help accelerate therapeutics for ASD and related disorders.

OBJECTIVES

1. Understand the genetic landscape of Autism spectrum disorder.
2. Learn how different research tools can help to understand large-scale genetic data.
3. Understand the importance of using biologically-relevant models to study brain development.

For more information:

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