



G Protein-coupled Receptors, Vesicular Glutamate Transporters and β -arrestins as Targets to Attenuate Huntington's and Alzheimer's Disease Progression

SEMINAR & VISITING SPEAKER SERIES

DATE Thursday, September 25th, 2025

TIME 12:00 PM to 1:00 PM

LOCATION BMSB THEATRE B

SPEAKER

Stephen SG Ferguson, PhD

Distinguished Research Professor in Neurodegeneration
Department of Cellular and Molecular Medicine
University of Ottawa

ABSTRACT

Huntington's disease (HD) and Alzheimer's disease (AD) are both neurodegenerative disorders that, despite differing in their underlying causes and specific symptoms, share several key features. These include age-related onset, progressive neuronal dysfunction and loss, cognitive decline, and a range of behavioral and psychiatric symptoms. Dr. Ferguson's research presentation will explore the role and sex-specificity of metabotropic glutamate receptor 5 (mGluR5) in the progression and pathology of both HD and AD. In addition, the presentation will examine the therapeutic potential of alternative targets, such as vesicular glutamate transporter 3 (VGLUT3), M1 muscarinic acetylcholine receptors (M1 mAChR), and β -arrestins, for slowing disease progression and mitigating pathology in these disorders.

For more information:

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Zoom Meeting: <https://umanitoba.zoom.us/j/62330313895?pwd=k9FrCF5EoZxWzaRFLGDS6AOr2IKPI5.1>

Meeting ID: 623 3031 3895

Passcode: 687723

BIO

Dr. Stephen SG Ferguson is a Professor in the Department of Cellular and Molecular Medicine at the University of Ottawa. He did his B.Sc. in biology at McGill University and received his Ph.D. under the mentorship of Dr. Brian Collier in the Department of Pharmacology and Therapeutics at McGill University (1994) where he held the first Alzheimer's Society of Canada Ph.D. Scholarship. He subsequently received the first Dr. Michael Smith (Nobel Laureate in Chemistry) Medical Research Council of Canada Scholarship to pursue postdoctoral training with the late Dr. Marc G. Caron, a fellow Canadian, at Duke University (1994-1997). Under the mentorship of Dr. Caron he and colleagues investigated the role of G protein-coupled receptor kinases and β -arrestin proteins in regulating G protein-coupled receptor endocytosis, trafficking and signaling. He currently holds a Distinguished Research Chair in Neurodegeneration at the University of Ottawa and is also a Fellow of the Canadian Academy of Health Sciences (2021). He has held four Canada Research Chairs (2001-2022) awarded by three different Prime Ministers. He held the prestigious Ontario Heart and Stroke Foundation MacDonald Scholarship Award given to the highest ranked cardiovascular New Investigator (1998-2003) and was a recipient of three Canadian Heart and Stroke Foundation Career Investigator Awards in 2003, 2008 and 2013. He was also a recipient of the Canada's Top 40 under 40 award in 2004 and received both the Junior (2001) and Senior (2005) Investigator Awards from what is now the Canadian Society of Pharmacology and Therapeutics (CSPT). In 2011 he received the Queen Elizabeth II Diamond Jubilee Medal. His research career has focused on investigating the regulation of G protein-coupled receptor signaling mechanisms in health and neurodegenerative diseases. He currently holds multiple research grants from the Canadian Institutes of Health Research (CIHR) for his research on the role of metabotropic glutamate and m1 muscarinic acetylcholine receptor signaling in Huntington's and Alzheimer's disease. He now also investigates the role of vesicular glutamate 3 transporter activity (VGLUT3) in the progression of Huntington's disease.