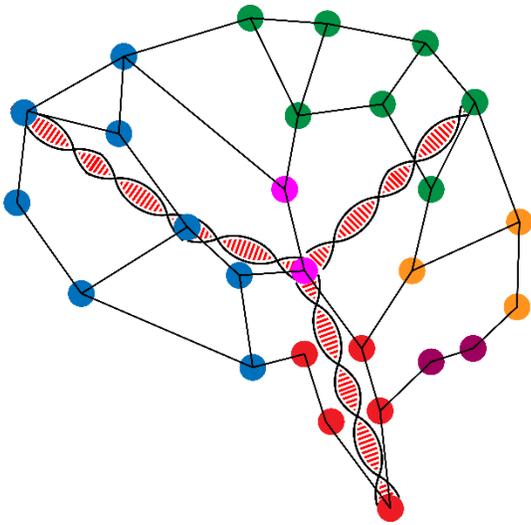


Symposium Wednesday, November 20, 2019



Polygenic Scores, Genetics & Brain Imaging

Wednesday, 20 Nov. 2019 from 8:30 am – 17:30 pm

Location: Jeanne Timmins Amphitheatre @ The Neuro, 3801 University St, Montréal, QC, H3A 2B4

FREE – Register is mandatory: [Eventbrite](https://www.eventbrite.com) or <http://ludmercentre.ca/events> . Open to faculty, students and staff of academic institutes in the greater Montreal area, and professionals in related fields of business.

Poster Session: To register your poster see details at <http://ludmercentre.ca/events> .

Genome-wide association studies (GWAS) have uncovered multiple genetic variants implicated in normal brain function (e.g. educational attainment), neurological illness (e.g. Parkinson’s Disease), and mental illness (e.g. schizophrenia), enabling the development of polygenic risk scores (PRS). Large data-sharing initiatives and novel methodologies for brain imaging analysis are also advancing understanding of brain disorders. This symposium brings together experts in genetics, GWAS, PRS, brain function and neuroimaging.

Organiser: Dr [Alain Dagher](#) and the [Ludmer Centre](#)

Confirmed Speakers, Program

Each speakers will present for 30 minutes followed by 15-minute Q&A.

8:30-9:00	Registration & Coffee (Poster session set-up)	
9:00-9:05		Guy Rouleau , OQ, MD, PhD, FRCPC, FRSC. Director, Montreal Neurological Institute-Hospital (The Neuro), Montreal, Canada <i>Welcome Remarks</i>
9:05-9:20		Alain Dagher , MD: Professor, Neurology and Neurosurgery at McGill University and Neurologist at The Neuro, Montreal, Canada Talk: Introduction: Polygenic Scores & Brain Imaging Dr Dagher is a neurologist specializing in movement disorders and functional brain imaging. His research aims to understand the function of the basal ganglia, with a particular emphasis on appetitive behaviours. He employs various neuroimaging techniques to examine pathological states related to a disruption in dopamine function, from motor disease (Parkinson’s) to addictive disorders (gambling, smoking, obesity).

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Symposium: Polygenic Scores, Genetics & Brain Imaging

9:20-10:05



[Daniel Benjamin](#), PhD. Professor (Research), Center for Economic and Social Research and Economics Department, University of Southern California, USA.

Talk: **Gene discovery and polygenic prediction from a genome-wide association study of educational attainment in 1.1 million individuals**

Dr Benjamin's research in behavioral economics and genoconomics explores errors people make in statistical reasoning; how to use subjective survey measures to track national well-being and evaluate policies; genetic variants associated with outcomes (edu. attainment, subjective well-being), and how economic behavior relates to cognitive ability and social identity (e.g., race, gender, religion). He is one of the principal investigators and co-founders of the [Social Science Genetic Association Consortium](#) (SSGAC).

10:05-10:50



[Alicia Martin](#), PhD, Instructor in Investigation, Analytic & Translational Genetics Unit, Massachusetts General Hospital; Instructor in Medicine, Harvard Medical School, and Associated Scientist, Broad Institute, Boston, MA, USA.

Talk: **Polygenic risk scores in diverse populations**

A population and statistical geneticist, her research examines the role of human history in shaping global genetic and phenotypic diversity. Given vast Eurocentric study biases, she investigates the generalizability of knowledge gained from large-scale genetic studies across globally diverse populations. She is developing statistical methods and resources for multi-ethnic studies and underrepresented populations. A member of [SSGAC](#), her research includes PRS and social/economics measures utilising **UK Biobank data**.

10:50-11:05

Coffee Break & Poster Session

11:05-11:50



[Philipp Koellinger](#), PhD, Professor of Genoconomics, Economics Department, School of Business and Economics, Vrije Universiteit Amsterdam

Talk: **Genetic insights into risky behaviors and their links with health**

Dr Koellinger's research investigates how genes influence economic behavior, and how insights into the genetic architecture of behavioral outcomes can inform social and medical research. He is one of the principal investigators and co-founders of the [SSGAC](#), the Externalizing Consortium, and the [BIG BEAR Consortium](#). His research includes PRS and social/economics measures utilising **UK Biobank data**.

11:50-12:35



[Gideon Nave](#), PhD, Assistant Professor, Marketing, Wharton School and the Wharton Neuroscience Initiative (WiN), University of Pennsylvania, USA

Talk: **Neuroanatomic Differences Partly Mediate Genetic Associations with Risk Tolerance**

Professor Nave's research uses a medley of quantitative and experimental methods from the fields of Computational Neuroscience, Cognitive Psychology, Game Theory, and Machine Learning to reverse-engineer the decision-making process in humans. Dr Nave leverages these and merging biomedical innovations (MRI, genotyping, hormonal assays quantify the biological processes that shape preferences, cognition and decision-making). A member of [SSGAC](#), his research includes PRS and social/economics measures utilising **UK Biobank data**.

12:35-13:15

Lunch in Foyer & Poster Session

13:15-14:00



[Patricia Pelufo Silveira](#), MD, MSc, PhD: Assistant Professor, Department of Psychiatry, McGill U.; Researcher, Douglas Mental Health University Institute; Scientific Director (INT), Ludmer Centre for Neuroinformatics & Mental Health

Talk: **Biologically informed polygenic scores - exploring the effects of gene networks**

Dr Silveira, a paediatrician and neuroscientist, leads research on the interaction between genetics and environmental adversities in childhood, and its effects on endophenotypes and the lifetime risk for disease. She recently developed a biologically-informed PRS to understand

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the co-morbidity between metabolic and psychiatric diseases in the context of an early-life-adversity focuses on gene networks –rather than single SNPs or genes– as the unit of interest.

14:00-14:45		<p>Hugh Garavan, PhD, Associate Professor, Department of Psychology/Psychiatry, University of Vermont, USA</p> <p>Title: Gene-brain associations and substance use in the Open Science Era.</p> <p>Dr Garavan's research applies functional brain imaging to understanding human cognition. He has a specific interest in the cognitive control functions performed by the prefrontal cortex, and how their dysfunction might be relevant for clinical conditions, such as addiction. His research utilised large brain/gene datasets including the EU IMAGEN and Adolescent Brain Cognitive Development (ABCD) studies.</p>
14:45-15:00		<p>Coffee Break</p>
15:00-15:45		<p>Uku Vainik, PhD, Research Fellow, Department of Experimental Psychology, Institute of Psychology, University of Tartu, Estonia</p> <p>Title: Obesity causes personality - evidence from polygenic scores and twins</p> <p>Dr Vainik researches focuses on genetics, brain imaging and heritability in pursuit of precise measurements of impulsivity and self-control. His current research centers on how obesity intertwines with behaviour. While many eating-related behaviours explaining obesity, such as food addiction, disinhibition and emotional eating, are based on both statistics and definitions, his research suggest that these behaviours can be aggregated into a single broad trait – Uncontrolled Eating, which he found summarises important behavioural aspects of obesity.</p>
15:45-16:45		<p>Student Presentations</p>
16:45-17:30		<p>David Glahn, PhD, Associate Chief for Research, Depart of Psychiatry; Director, Tommy Fuss Center for Neuropsychiatric Disease Research; Director, Early Psychosis Investigation Center; Director, Neuropsychiatric Genetics Program; Endowed chair in Behavioral Science Research, Boston Children's Hospital; and Professor, Psychology, Department of Psychiatry, Harvard Medical School</p> <p>Title: The good the bad and the ugly of polygenic scores for risk prediction</p> <p>Dr Glahn's research aims to discover genes and environmental mechanisms that predispose affective and psychotic disorders in children and adults. He develops and applies neuroanatomic, functional neuroimaging, and neurocognitive endophenotypes in large-scale family-based studies. PRS methods underpin his research.</p>
17:30-17:35		<p>Closing remarks - Alain Dagher, MD, PhD</p>
17:35-18:00		<p>Reception & Poster Session, foyer</p>

POSTER SESSION, Wednesday, Nov. 20, 2019: [Click here](#) to register to present your scientific poster. Please plan to attend the symposium.

HACKATHON, Thursday, Nov. 21, 2019: [Click here](#) to register for the Hackathon Open Science in Action: Approaches to Genetics, Brain Imaging & Polygenic Risk Score

Contact: Joanne Clark, Administrative Director, Ludmer Centre @ McGill University
E joanne.clark@mcgill.ca | Cell +1 514 265 3408

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