



Kieran O'Donnell, PhD



Dr. O'Donnell is an **Assistant Professor in Epigenetics and Epidemiology** in the Department of Psychiatry at **McGill University**. He is a **Principal Investigator** at the **Douglas Hospital Research Centre**, and the **Ludmer Centre for Neuroinformatics & Mental Health**, a transdisciplinary initiative that uses big-data approaches to better understand brain health.

Dr O'Donnell is a leading expert in perinatal influences on early-childhood development and the biological embedding of early adversity. His research focuses on understanding what is happening, at the molecular level, during the prenatal development period – particularly with respect to a mother's anxiety, depression or stress – and how the early environment shapes a child's neurodevelopment. He is also the lead researcher for the new longitudinal cohort, the Montreal Antenatal Well-Being (MAW) Study.

A transdisciplinary researcher, his work combines psychiatry with genetic, epigenetic and epidemiological approaches in the pursuit of biological markers aimed at identifying at-risk individuals for adverse mental health outcomes. His research has shown that childhood adversity can get 'under the skin' and influence epigenetic markers in our blood. Identifying such markers will ultimately enable the development of early, more-targeted mental health interventions.

Dr O'Donnell's research also seeks to understand the molecular mechanisms by which positive and nurturing environments buffer the effects of adverse early-life experiences (e.g., maternal stress, abuse, trauma). His recent research provided the first evidence in humans that an early intervention program, the Nurse-Family Partnership (NFP), appeared to alter epigenetic marks in children long after the end of the intervention program. To better understand how early-life experiences play out over an individual's lifetime, Dr O'Donnell collaborates on multiple longitudinal birth cohort studies globally, including the Canadian MAVAN study and the Singaporean GUSTO study, as well as intervention programs similar to the NFP, such as the UK-based A Better Start program and the Vietnamese Learning Clubs program, among others.

In 2016, Dr O'Donnell was named a Canadian Institute for Advanced Research (CIFAR) **Azrieli Global Scholar in Child & Brain Development**. He is committed to the **Maternal Mental Health Matters** (MMHM) movement that promotes timely interventions aimed at expecting and new mothers. In 2018, he organized Montreal's first MMHM's symposium, [Begin Before Birth](#), which is now an annual event.

Dr O'Donnell obtained his BSc (2005) in Psychology, with Honors, at the University of Westminster in London then his MSc (2006) in Neuroscience, with Distinction, at the Institute of Psychiatry, Kings College London, and a Doctorate in (2011) in Clinical Medicine at the Imperial College London in the United Kingdom. He completed a Post-Doctoral Fellowship (2016) in Epigenetics in the Michael Meaney Laboratory at the Douglas Hospital Research Center, Montreal. He joined the Ludmer Centre in 2013.