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Matthew Farrer, Canada Excellence Research Chair in Neurogenetics and Translational Neuroscience, The University of British Columbia

New Treatments for Neurodegenerative Disease

Research Summary:

Diseases of the brain represent one of the greatest challenges to global medical health in the 21st century. Ten million Canadians—or nearly one-third of Canada's population—will be affected by brain disease, disorder or brain injury at some time in their life. Aside from the physical and emotional burdens for those affected, as well as for their families and caregivers, the financial burden of treating such diseases is estimated to cost Canadians \$30 billion annually.

Although remarkable discoveries have been made throughout the last century about the brain's anatomy and functions, far less is known about how best to intervene when these functions become disordered or diseased. Dr. Matthew Farrer, Canada Excellence Research Chair in Neurogenetics and Translational Neuroscience at The University of British Columbia (UBC), will pioneer new strategies for early detection, and improved treatments for neurodegenerative diseases such as Parkinson's, and introduce a focus on degenerative disorders in children.

Together with researchers from the Centre for Molecular Medicine and Therapeutics at the Child & Family Research Institute, as well as from the Brain Research Centre at UBC and the Vancouver Coastal Health Research Institute, Farrer will establish a research centre for applied neurogenetics. The centre's researchers will study the molecular origins of brain diseases using new genetic and computing technologies.

Building on his earlier successes in studying Parkinson's, Farrer's work is headed towards research breakthroughs and approaches to treatment. His research will not only help define the relatively new field of neurogenetics, but also improve the quality of life of many of the people and families suffering from neurodegenerative diseases.

Farrer's research program aligns extremely well with existing expertise at UBC, and through this program he will help train the next generation of scientists working in clinical neurology, neurogenetics, neuroscience and neuropsychiatry. His team will also advance public health policies by improving understanding of, and practices and therapies for, neurodegenerative diseases in adults and children. As well, it will build strong links between academia and industry by actively pursuing commercialization opportunities for new discoveries through the creation of several university spin-off companies.



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Farrer's research will help maintain Canada's position at the leading edge of tackling health care challenges stemming from an increasingly aging population, will have relevance for people of all ages—including children—and will help relieve the heavy burden brain diseases place on individual families, health care systems and patients themselves.

Biography:

An ambitious researcher, Dr. Matthew Farrer has made several influential discoveries in neurogenetics, and is critically acclaimed for his work on the genetics of Parkinson's disease.

Before accepting his position as Canada Excellence Research Chair in Neurogenetics and Translational Neuroscience at UBC, Farrer was a professor of molecular neuroscience and director of the Division of Neurogenetics, the Transgenic Core Facility, and several neurogenetics laboratories at the Mayo Clinic, Jacksonville, Florida.

In 2008, he was named a Mayo Clinic Distinguished Investigator, the Clinic's highest award for research excellence, for his outstanding contributions to neurogenetics and translational neuroscience. At the Clinic, he worked on innovating new treatments for patients suffering from neurologic disease by refining diagnosis and identifying biomarkers of early and progressive disease. Farrer's studies on model development and characterization have helped define the biologic systems perturbed by genetic mutations, and have laid the foundation for new and effective therapies.

Farrer holds a PhD in human genetics from Imperial College London, United Kingdom, and a bachelor's degree in biochemistry from King's College London, UK. His thesis studies focused on brain disorders, namely age-associated cognitive dysfunction in Down syndrome, and the complex trait genetics of trisomy 21. He was also a postdoctoral fellow in medical and community genetics at St. Mark's National Health Service Trust, UK.

His current research interests are age-related neurodegenerative disorders, with a focus on the molecular genetics and functional modelling of movement disorders, including Parkinson's disease and Lewy body dementia.

Quote:

"We are delighted to welcome Dr. Farrer to UBC and Vancouver to join an already stellar cluster of world-renowned brain and neuroscience researchers based here. The investment that the Government of Canada has made through the Canada Excellence Research Chairs Program will undoubtedly yield breakthroughs in knowledge and treatment for brain diseases and injuries." —Stephen Toope, president, The University of British Columbia