

Baycrest

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For Immediate Release

Baycrest leads international collaboration to study the brain's ability to recover from damage or disease

Toronto, ONT – Eight research institutes from around the world have joined forces with Toronto's Rotman Research Institute at Baycrest Centre for Geriatric Care in a multi-million dollar endeavour to study the remarkable, but little understood, ability of brain networks to *rewire* after damage caused by stroke, Alzheimer's Disease, and other dementias.

With \$4 million in funding from the prestigious James S. McDonnell Foundation in the U.S., the newly-created ***Brain Network Recovery Group*** (Brain NRG) will begin a series of clinical-research studies involving leading edge brain imaging technologies.

Baycrest, affiliated with the University of Toronto, will work with a stellar group of scientists and clinicians from Cornell University, Indiana University, The University of Chicago, University of Wisconsin-Madison, University College (London, U.K.), Florida Atlantic University, Heinrich-Heine University (Düsseldorf, Germany) and The University of New South Wales (Sydney, Australia). Each member of the Brain NRG has a demonstrated strength in one or more of *three domains*: cognitive neuroscience, clinical treatment, and computational modeling. The union of clinical and computational studies allows large-scale computer simulations of how brain networks may reconfigure after injury and during recovery, helping to predict better clinical outcomes.

“Our group shares the perspective that to understand how the brain recovers from damage or disease, it is no longer useful to concentrate on any one region, but rather to look at the larger network of several regions acting in concert,” says Dr. Randy McIntosh, scientist and assistant director of Baycrest's Rotman Research Institute, and the lead architect of the Brain NRG.

“We have far more knowledge about the function of individual brain regions than we do about the communication between regions”, says Dr. Ana Solodkin of The University of Chicago. Her collaborator at Chicago, neurologist Dr. Steven Small, adds, “Since most accounts of brain recovery implicate rewiring of connections, it is imperative to understand the ways such patterns respond to damage. This approach can have profound effects on the treatment of brain diseases and injury.”

Dr. McIntosh says the focus on “brain network recovery” raises some interesting possibilities. When a person has memory or language problems after a stroke, is it the result of damage to a particular region per se, or could it be the result of the brain’s reconfiguration?

“As the brain rewires at the network level, could it be attempting to preserve one function at the expense of another?” McIntosh asks. “Our research will examine this possibility and what we can do to guide recovery so there is less of the residual deficit and more of a favorable, overall outcome.”

What is most exciting about the Brain NRG initiative is that the integration of scientists with clinicians who are caring for patients will help to fast-track promising findings that improve rehabilitation treatments.

Baycrest will be the central link of the Brain NRG because of its highly regarded integrative strengths in cognitive neuroscience, brain imaging, and clinical treatment of older adults who suffer from devastating conditions such as depression, Alzheimer’s and vascular dementia from stroke. Earlier this year Baycrest launched an innovative model of outpatient care, known as the *Brain Health Centre Clinics*. The unique structure of the clinics allows neuroscientists to work alongside clinicians and monitor the progress of treatment in patients and how the brain is responding or changing.

“The McDonnell Foundation invests in unusual opportunities where new knowledge and its application improve quality of life,” says Dr. Susan Fitzpatrick, Vice President of the JS McDonnell Foundation. “We are pleased to help this exciting, innovative team tackle a serious problem where progress means all the difference for brain injury survivors and their loved ones.”

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