

Discover the link between infectious disease and brain health



At Western, our scientists are uncovering how viruses and other infections affect the brain, and how we can act faster to protect it.

Infections such as HIV, Zika, West Nile, COVID-19 and other emerging or chronic pathogens can leave lasting impacts on memory, cognition and mental wellbeing. Yet the mechanisms behind these effects remain poorly understood. With the rise of global health threats and the long-term impacts of pandemics, understanding how infections interact with the brain has never been more urgent.

Western is a global leader in neuroscience, immunology and infectious disease. Our researchers are pushing the boundaries of this new frontier, harnessing deep expertise and world-class facilities to develop faster, more effective ways to detect, treat and prevent infection-related brain damage. Few institutions worldwide can match Western's ability to integrate advanced neuroimaging, cognitive science, pathogen biology and cross-disciplinary collaboration so seamlessly.

At the centre of this work is Imaging Pathogens for Knowledge Translation (ImPaKT), Canada's most advanced imaging facility for infectious disease research. One of the only centres in the world where scientists can safely observe infection in real time, ImPaKT enables researchers to track how pathogens spread, how they disrupt brain tissue and where interventions can make the greatest impact.

Western has been at the forefront of neuroscience research, testing, treatment and training for more than fifty years. Building on this legacy, we are poised to deliver game-changing breakthroughs that will protect memory, cognition and mental health for Canadians and people worldwide.

With your support, we will accelerate innovation in infectious disease and brain health to advance early detection, develop treatments and prevention strategies, and train the next generation of researchers and clinicians to lead in this rapidly evolving field.

“Western is a world leader in neuroimaging. We're using cutting-edge technology to study how diseases affect memory, and even how to predict memory loss before it happens. In my experience, this is the first team I've seen anywhere in the world that is tackling how viruses impact brain function in such a coordinated, high-tech way.

Robyn Klein, Canada Excellence Research Chair in Neurovirology and Neuroimmunology

A WORLD-CLASS RESEARCH ENVIRONMENT

Western is home to one of the most advanced and integrated research environments in Canada, and globally, for studying infection and the brain.

ImPaKT Facility: One of the very few labs in the world with top-level safety standards, where scientists can watch how infectious diseases behave in living organisms in real time.

Advanced neuroimaging platforms: Including advanced scanners and microscopes, micro-ultrasound, super-resolution microscopy and the new 15.2T MRI — one of the most powerful brain imaging tools in the world.

Cognitive testing and assessment: State-of-the-art labs to measure memory, learning and executive function, allowing researchers to map how infections alter cognition.

Purpose-built expansion capacity: Space and plans to grow Canada's first dedicated program in infection and brain health, including production of novel biotherapeutics for first-in-human testing.

Are you all in?
Get in touch.

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