



Western BrainsCAN

Transforming brain research.

NON-HUMAN PRIMATE CORE

NON-HUMAN PRIMATE RESEARCH

Functional imaging techniques allow us to see the brain networks that are involved in cognitive processes and allow us to identify changes in those who suffer from devastating neural disorders. However, these techniques do not reveal how the networks actually work and why they are different in patients.

Much more powerful experiments become possible when imaging is combined with more detailed techniques, possible only in experimental animals. Mice and rats are used to answer many of the basic questions, but rodent brains are very different from human brains. For example, rodents lack the prefrontal cortex specialization that is found in monkeys and humans. These differences limit the applicability of rodent studies to the human brain. Thus research with non-human primates (NHPs) is vital to advancing our knowledge of how the human brain works and its role in cognitive, motor and mental illnesses such as Alzheimer's, Parkinson's and depression.

NON-HUMAN PRIMATE CORE

The NHP Core has close ties with all other BrainsCAN cores. It directly employs many of the experimental paradigms that are studied and developed by the Human Core by taking advantage of the sophisticated cognitive and motor skills of NHPs. Many of the projects in the NHP Core also utilize the Imaging Core to directly relate the fMRI response of a particular brain region to the activity of single neurons in the same region, thereby increasing our understanding of the neural basis of fMRI.

The NHP Core also works with the Rodent Cognition Core in translating powerful novel genetic and molecular approaches for imaging and manipulating receptors, neurons, and neuronal circuits to the NHP model. Together with the Computational Core, researchers in the NHP Core are developing techniques and tools for analyzing and modeling the activity and dynamics of large populations of simultaneously recorded nerve cells to ultimately understand how cognition arises from brain activity.

Further information on BrainsCAN research can be found at brainscan.uwo.ca

Accelerator Projects

Single-photon calcium imaging for interrogating the circuitry of the frontoparietal cognitive control network
Everling, Stefan

The role of the basolateral amygdala in gaze avoidance behaviour
Martinez-Trujillo, Julio

The BrainsCAN Non-Human Primate Core is part of Western's \$66M BrainsCAN initiative, supported by the Canada First Research Excellence Fund (CFREF). The CFREF investment enables researchers at the University, along with their national and international academic and commercial partners, to seek answers to fundamental questions regarding how we learn, think, move and communicate.



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