Post-Doctoral Position Available in Mouse to Human Translational Cognition

Two full-time, 2 year senior postdoctoral positions are available immediately to work with the Mouse Translational Research Accelerator Platform (MouseTRAP) team on developing a *harmonized battery of identical or near-identical cognitive tests that can be used in mouse models and patients, facilitating translational efforts in human clinical research.* The postdocs will work with principal investigators including Tim Bussey, Adrian Owen and Lisa Saksida at The University of Western Ontario in London, ON.

MouseTRAP is a unique platform that directly addresses the urgent and critical challenge to translate neurocognitive discovery research in mouse models toward improvements in human health. It is centred on a touchscreen-based cognitive testing system for mice that enables flexible presentation of comprehensive test batteries involving visual stimuli at any location on a screen, as is increasingly done in human patient testing. Mice respond directly to the stimuli with their nose and positive reinforcers such as strawberry milkshake are delivered for correct choices. We have developed over 30 touchscreen tests for mice that tap into disease-relevant aspects of high-level cognition including attention, memory, executive function and motivation. MouseTRAP pairs these touchscreen-based cognitive tests with cutting-edge technologies to record or manipulate neuronal, glial or neurochemical activity, which makes it possible to match—millisecond by millisecond—what is happening in the brain with human-relevant cognitive performance. This can be done in healthy mice or in our extensive catalogue of next-generation disease models, making MouseTRAP a state-of-the-art platform for assessment of robust, reproducible and human-relevant cognitive outcomes in mouse models, for either fundamental discovery research or development of evidence-based therapeutic interventions.

While our preliminary work indicates that testing mice and humans on identical cognitive tests is feasible and that mouse models and patients can show highly similar impairments, the mouse tests have not yet been fully harmonized with human tests beyond one or two examples. We are now at a point at which scaling up this preliminary work is feasible.

Harmonized and validated tasks will increase translational validity of MouseTRAP and relevance to humans, enabling *new approaches for treatment of neurological illnesses*, including the possibility of using identical cognitive biomarkers as endpoints in preclinical drug evaluations in animal models and in clinical trials in patients for new therapeutics for diseases associated with cognitive impairment. This approach will also be paramount to developing co-clinical trials in which next generation humanized mouse models combined with a specific battery of tests will be studied in parallel with human clinical cohorts. The increased translational validity will substantially *improve operational capabilities and quality*, providing added value for MouseTRAP users, both those engaged in fundamental discovery work as well as those working in more applied domains such as therapeutics. One outcome will be *enhanced intersectoral and international collaborations*; in a recent survey of potential pharma partners who work in central nervous system disorders, it was clear that a fully harmonized test battery would be highly attractive.

The postdoctoral fellows will work with a team to develop and validate this harmonized battery of touchscreen tests for humans and mouse models. The successful candidates will work in collaboration with online testing company Creyos and the MouseTRAP team to choose appropriate cognitive tasks, develop the harmonized test battery, and design and implement circuit-level validation experiments using, e.g., fMRI in humans. The successful candidates will

also have excellent opportunities to interact with researchers and core facilities funded by Western's Canada First Research Excellence Fund program in cognitive neuroscience, BrainsCAN.

Western University's BrainsCAN initiative received a $66 million investment from Government of Canada's Canada First Research Excellence Fund (CFREF), providing a significant boost to ongoing research in cognitive neuroscience and imaging. The University of Western Ontario (www.uwo.ca) is a major educational and research center in Ontario with over 25,000 undergraduate and 5,000 graduate students. Cognitive neuroscience in health and disease is a major research focus at Western. London, also known as the Forest City, is an affordable and lively community close to the Great Lakes and two hours from Toronto. The city offers many options for outdoor and cultural activities.

Qualified applicants should have a PhD degree in Psychology, Neuroscience, Pharmacology, or related discipline with demonstrated expertise in cognitive testing, ideally cross-species and with computerized test batteries. Candidates with strong computational skills and/or experience with fMRI experimental design and analysis are preferred. Postdocs will receive $70,000/year (plus benefits) for 2 years with completion by August 31st 2026.

Western is committed to employment equity and diversity in the workplace and welcomes applications from women, members of racialized groups/visible minorities, Aboriginal persons, persons with disabilities, persons of any sexual orientation, and persons of any gender identity or gender expression.

For more information see: https://mousetrapplatform.org, touchscreencognition.org, https://tcnlab.ca, https://creyos.com

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Please send a statement of interest, *Curriculum Vitae*, and the names and contact information of at least two references to: Gregg Paisley, BrainsCAN Administrative Officer, gpaisle@uwo.ca