

Research Profile:

Jordan Follett

Research Project:

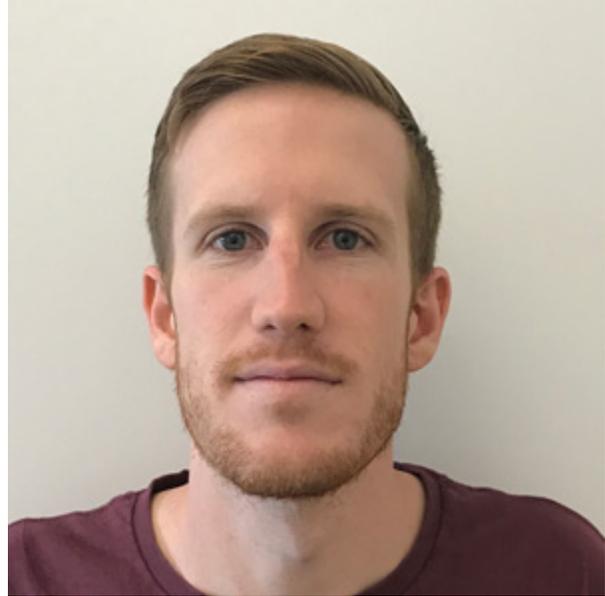
Retromer-dependent regulation of RNA trafficking in Parkinson's disease

Project Grant:

\$80,000 over 2 years funded by Parkinson Society British Columbia through the Parkinson Canada Research Program.

Project Description:

Within our cells, RNA molecules are one of the essential building blocks of life. They carry the instructions from DNA to create proteins, and proteins direct cell function.



At the University of British Columbia, Jordan Follett, a post-doctoral fellow and neuroscientist, is studying the retromer complex, a sorting complex that may communicate where RNA should be positioned within cells. Follett is investigating what happens when the signalling network controlling this process is disrupted.

Follett's research, which involves mouse models, examines the impact of mutated genes within this complex. The genes are implicated in Parkinson's disease.

Brain cells that produce dopamine, the chemical that is critical to healthy movement, are high-energy cells that need RNA to react quickly to produce proteins, particularly if those cells are stressed by toxins or other threats.

If the RNA is misplaced and can't react quickly to produce proteins in distressed cells, the cells can't adapt to changes. They become vulnerable and die, Follett believes.

"It's easy to imagine that if you have a particular part of your body that doesn't move proteins from Spot A to Spot B, that would lead to a lot of cells being unhappy – particularly neurons," Follett says.

Unhappy neurons could then lead to Parkinson's disease.

If Follett can prove his theory about the retromer complex's role in locating RNA in brain cells, it would open a new avenue for drugs or other therapies that could repair the signaling process within those cells – potentially preventing or halting the progression of Parkinson's disease.

Follett's fascination with the way Parkinson's disease develops in the brain began during a molecular medicine class during his undergraduate degree at Griffith University in South East Queensland, in his native Australia. After listening to his professor's lectures about Parkinson's disease, he was hooked.

"I was fascinated by the fact that people ... often go for most of their lives without knowing that they have a lot of toxic protein accumulation in their brain," he says.