FIGHT MND.

Project

Disease biomarkers

Generating a proteomics-based biomarker for MND

Currently, there is no marker that can accurately diagnose or define MND. This project aims to overcome this barrier by creating a specific profile for MND using patient blood samples and clinical data. Investigators will measure protein levels in blood samples and identify those linked to the onset and progression of MND.

This project is co-funded by FightMND and the MND and Me Foundation in Queensland. Together they have invested $250,000 in this research.

"I saw firsthand the devastation this disease causes for both the patient and their family and friends."

Project Lead

Dr Allan McRae

The University of Queensland, QLD

Dr Allan McRae was already collaborating with researchers in the Sporadic ALS Australia Systems Genomics Consortium (SALSA-SGC) when his mother-in-law was diagnosed with MND.

He says he *"saw firsthand the devastation this disease causes for both the patient and their family and friends"*, something that *"reinforced the need to identify biomarkers to improve the speed of diagnosis, monitor progression, and to identify potential avenues for treatment,"* he said.

Protein levels in blood plasma

Dr McRae's project is working to characterise neurological protein levels measured in blood plasma.

"These proteins are generated in the central nervous system and are presumably released into the blood plasma from neurons that are damaged in MND," he says.

His research hopes to determine if these proteins could serve as biomarkers that contribute to individual disease risk prediction or diagnosis, and ultimately, personalised clinical management.

"Proteins represent the main layer of information transfer from the genome to disease and represent the largest class of drug targets," he says.

"This means that findings from our study of protein differences have strong potential for identifying new biomarkers for disease diagnosis and progression monitoring, as well as identifying possible drug targets," he adds.

How FightMND helps

Dr McRae is a first-time recipient of funding from FightMND and says he was very excited to receive the investment into his research.

"I believe the proteins being investigated in this project have strong potential as MND biomarkers and will enable us to make a substantial contribution to our understanding of disease onset and progression."

Dr McRae also noted that this was the first time his group has received funding to specifically focus on MND and that the funding will firmly establish MND research within his group into the future.

"Without dedicated funding, we would not be able analyse sufficient numbers of samples to draw solid conclusions…samples provided by MND patients are a precious resource, and it would be difficult to justify performing this experiment at a smaller scale," he says.

This grant is awarded in honour of Queensland man Murray Geale (who is currently fighting MND), in recognition of his significant contribution to the MND field through fundraising, raising awareness and participation in research projects and initiatives, including his pivotal role on the inaugural MND Research Summit Committee.

This project is co-funded by FightMND and the MND and Me Foundation in Queensland. Together they have invested $250,000 in this research.

About Dr Allan McRae

Dr Allan McRae leads the Systems Genomics group at the Institute for Molecular Bioscience at The University of Queensland. With a research background in statistics and genetics, Dr McRae works with measures of molecular traits to understand the regulation of the genome and how this creates variation between people. Over the last few years, he has been applying these approaches to the understanding of the causes of MND and the heterogeneity in disease onset and progression.