

FIGHT MND.

Project

Preventing neuroinflammation in MND by inhibiting the mPTP

Investigators in this study have identified that an immune response occurring before the onset of MND is triggered when the powerhouse of a motor neuron, known as mitochondria, is damaged and leaks genetic material through a channel called the mPTP.

This project will find out if drugs that block the mPTP channel and stop the genetic material from leaking, can reduce the immune response and be used to prevent or slow down the progression of MND.



Project Lead

A/Prof Seth Masters

The Walter and Eliza Hall Institute, Vic

When asked about his favourite research project to date, A/Prof Masters says that working with several families with autoinflammatory disease to understand the characterisation of a novel genetic condition known as PAAND, is at the top of his list. That project was instrumental in leading to the creation of relevant therapeutic options for people with the condition.



Inflammation and MND

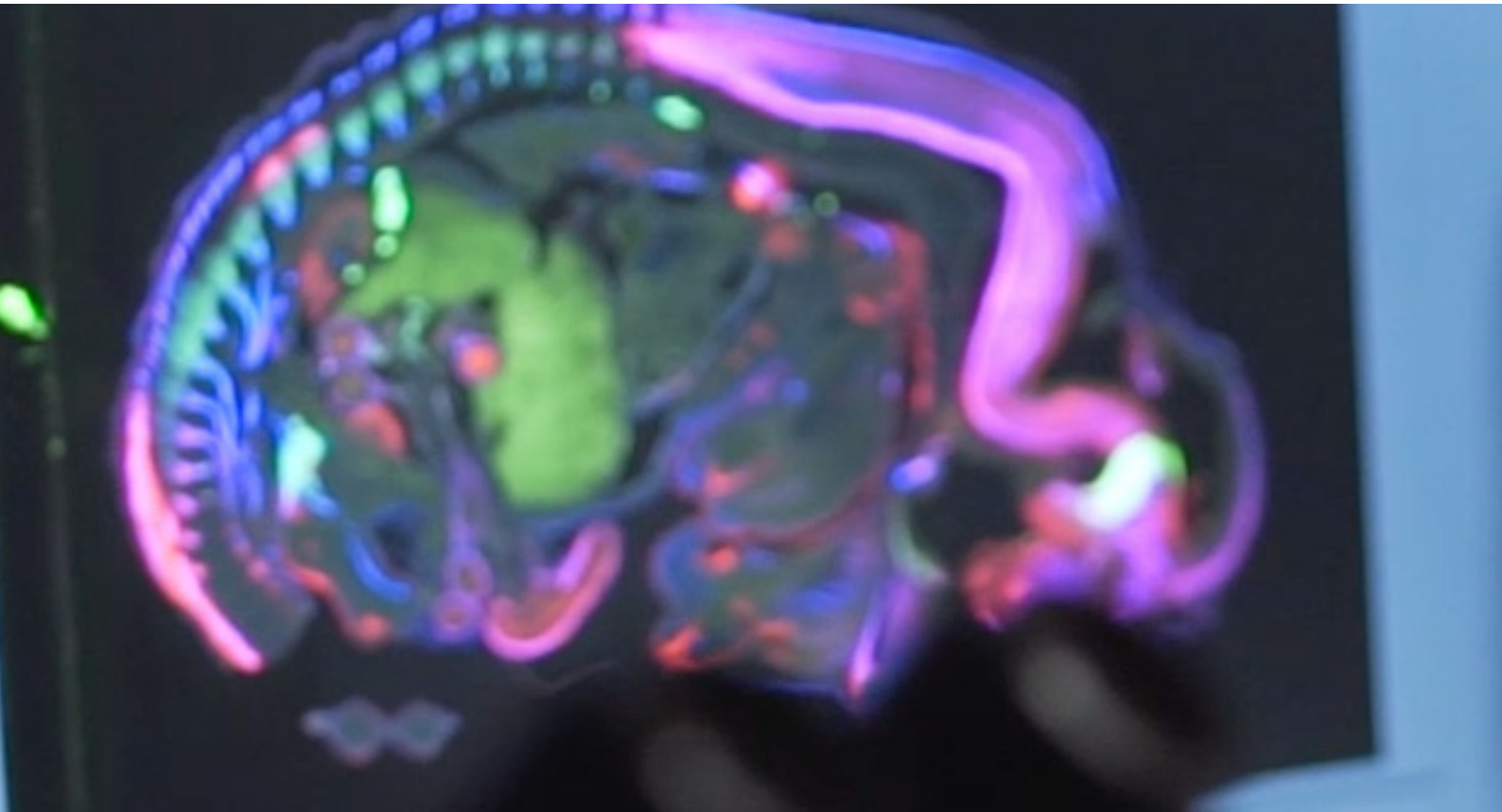
That research also has potential implications for MND. Genetic insights from inflammatory conditions are being used as the basis to show how the same pathways (mPTP) are pathogenic in complex diseases including neurodegenerative diseases.

Prof Masters says that his team has “found activation of a specific inflammatory pathway in MND, which usually recognises DNA viruses. However, in this case it was activated by the cells own DNA leaking out of the mPTP, which are small pores present in mitochondria.”

“Targeting inflammation...[via] this pathway, and the mPTP specifically, is a new way to prevent disease progression,” says A/Prof Masters.

When asked how the funding from FightMND will impact his work and the lives of people living with MND, Prof Masters points to “the opportunity to speed up the progress of getting molecules into the clinic to target the mPTP and block inflammation in MND.”

FightMND has invested \$999,718 in this research.



About A/Prof Seth Masters

A protein biochemist by training, A/Prof Seth Masters completed his PhD at The Walter and Eliza Hall Institute followed by two postdoctoral posts, one at the National Institute of Health (USA)

and one at Trinity College Dublin (Ireland). He is now a researcher at the Walter and Eliza Hall Institute in Melbourne.