

New MS research harnessing the brain's healing power

05 March 2025: A new multiple sclerosis (MS) research project designed to help the brain repair itself by activating its own healing processes has been announced as part of MS Australia's latest \$5.7 million research investment.

This pioneering work is just one of the 35 new research initiatives funded by MS Australia's latest research grant round, which focuses on advancing better treatments, prevention, and cures for MS.

MS Australia's largest ever funding round in terms of the number of projects has been made possible thanks to the investment and support of MSWA.

The research, led by Dr Jessica Fletcher from the Menzies Institute for Medical Research at the University of Tasmania, focuses on regenerating myelin—the protective coating around nerve fibres that allows efficient communication between the brain and body.

In MS, the immune system mistakenly attacks myelin, disrupting these vital signals and leading to debilitating symptoms such as fatigue, mobility issues, and cognitive challenges.

Dr Fletcher's team is examining how to activate the brain's natural repair system by boosting the activity of myelin-producing cells, called oligodendrocytes, to encourage new myelin growth.

"We're working to activate the brain's natural repair mechanisms by encouraging the growth of new myelin, giving it the chance to heal itself," Dr Fletcher said.

The team's research centres on a molecule found in oligodendrocytes called Olig2, which acts as a 'switch' to control myelin production. By targeting Olig2, the team aims to stimulate repair processes and reverse the damage caused by MS.

"Our ultimate goal is to develop targeted therapies that focus specifically on the cells responsible for myelin repair without affecting other parts of the body. This approach could lead to safer and more effective treatments for people with MS."

In addition to its normal contribution to MS Australia research, MSWA contributed a further \$2.4 million dollars into this grant round which allowed for the funding of an additional 10 of the 35 funded projects, guaranteeing important MS research would commence, not just in Western Australia, but throughout the country.

These grants enable a diverse array of projects, from novel studies to multi-year investigations of MS through fields such as neurobiology, genetics, epidemiology, immunology, and social and applied research.

MS Australia's Head of Research, Dr Julia Morahan says these grants address the complexity of MS to discover solutions for those affected by the disease.

"MS affects people in many different ways, which is why our research needs to be equally diverse to create the greatest impact – from uncovering the biology of the disease to exploring how lifestyle factors like diet and exercise can improve outcomes," Dr Morahan said.

In addition to supporting research, MS Australia is fostering the growth of a world-class MS research workforce by funding scholarships, postgraduate studies, and fellowships.

"Australia has a world-leading MS research community and by investing in people as well as projects, we're building the foundation for continued innovation and progress," Dr Morahan said.

MSWA CEO, Melanie Kiely said on the contribution that she is delighted that MSWA can bolster MS research efforts on the national stage.

"Ultimately this investment is about getting us closer to cures, closer to better treatments and ensuring Australians living with MS can maintain their ability to do what matters to them for longer."

"I want to acknowledge the generosity of the Western Australian community that has, for so long, enthusiastically supported the work of MSWA."

Over the past 20 years, MS Australia has invested \$60 million into MS research, fostering collaboration and driving advances across the research community.

This commitment has delivered significant outcomes for Australians living with MS, including faster diagnosis, slower disease progression, and improved life expectancy on par with the general population.

CEO Rohan Greenland highlighted the importance of MS Australia's research strategy and its continued investment in delivering these advances.

"MS Australia's scientific agenda is delivering better outcomes for people living with MS today while accelerating progress toward a cure for tomorrow," Mr Greenland said.

"This vital work is made possible by the brilliance of our researchers, the dedication and support of our Member Organisations – MSWA, MS Plus, MS Queensland and MS SA & NT - and the incredible support from donors, fundraisers and the entire MS community."

Highlighted Projects

The highlighted projects below demonstrate the diverse and innovative approaches being taken to address key challenges in MS through MS Australia's latest research grant round:

Mining Cells and Medical Records for Early Signs of MS – Dr Seyhan Yazar (Garvan Institute of Medical Research & UNSW, NSW): This project investigates the early symptoms of MS (prodromal phase) by analysing large datasets and identifying blood biomarkers, with the goal of enabling faster, more accurate diagnosis, particularly for individuals at high risk.

"Understanding MS during its earliest stages may enable doctors to diagnose and treat patients sooner, potentially preventing long-term damage and improving quality of life," said Dr Yazar.

How are inflammatory immune cells switched on in MS? – Dr Iain Comerford (The University of Adelaide, SA): This project explores how immune cells, such as neutrophils and T cells, drive inflammation in MS. The research aims to understand how these cells interact to identify new treatment targets that could protect nerve cells from damage.

"Our goal is to uncover the signals between immune cells that drive inflammation, helping us identify new therapeutic targets to protect nerve cells," said Dr Comerford.

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Assets

Here is a link to a Google Drive folder with broadcast-quality video grabs and images of key spokespeople:

https://drive.google.com/drive/folders/1MrZLF13bVNv-QhwWyR_PVX71LQsrXAJr?usp=sharing

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About MS

MS is the most commonly acquired chronic neurological disease affecting young adults, often diagnosed between the ages of 20 to 40 and, in Australia, affects three times more women than men. As yet, there is no cure. There is no known single cause of MS, but many genetic and environmental factors have been shown to contribute to its development.

About MS Australia

MS Australia is Australia's national multiple sclerosis (MS) not-for-profit organisation that empowers researchers to identify ways to treat, prevent and cure MS, seeks sustained and systemic policy change via advocacy, and acts as the national champion for Australia's community of people affected by MS.