

New target for Alzheimer's disease treatment

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Researchers have found new evidence that insulating cells, the cells that protect our nerves, can be made and added to the central nervous system throughout our lifetime.

Chief investigator on the paper, Menzies Research Institute Tasmania's Dr Kaylene Young, says there is now evidence that these cells may not be the passive by-standers to [brain function](#) that we once thought.

"Previously it was thought that most insulating cells in an [adult brain](#) were born before reaching adulthood," Dr Young said.

"This research shows that new insulating cells are made from an immature cell type found in our brains, called oligodendrocyte [precursor cells](#) (OPCs).

"In fact, new insulation is added to [brain circuits](#) every day, which

changes the way the circuits function.

"This process is likely to be very important for learning, memory, vision and co-ordination."

"This finding may have important implications for sufferers of Alzheimer's Disease, multiple sclerosis and other neurological disorders.

Alzheimer's disease is the most common form of dementia. There are over 321,600 Australians living with dementia and without a [medical breakthrough](#), the number of people with dementia is expected to be almost 900,000 by 2050. (Alzheimer's Australia)

In Alzheimer's Disease (AD) many nerve cells die. This causes patients with AD to progressively lose their ability to think clearly and remember things, and they can also experience problems with movement and co-ordination.

A single insulating cell in the brain supports the health and function of many nerve cells.

We know from diseases like multiple sclerosis that losing insulation makes nerve cells extremely vulnerable to damage and death.

This may also be true for AD, and there is an increasing amount of evidence that supports the idea that insulating cells are damaged before nerve cells and could contribute directly to nerve cell loss.

By studying [brain scans](#) from patients with AD, researchers previously found that the amount of insulation that is damaged matched the level of the patient's dementia. The more damaged the insulation, the worse the person's memory problems.

Dr Young's research team are now investigating ways to hijack the natural ability of OPCs to make new insulating cells, and repair the insulation damage that is seen in the brains of AD patients.

"Stimulating OPCs in the brain is an appealing possibility since they are found throughout all brain regions, meaning that they are already where they need to be to make new insulating cells!

"We expect that increasing brain insulation, to re-wrap the nerve cells, will prevent more nerve cells from dying. Protecting [nerve cells](#) would prevent the rapid mental deterioration seen in people after they are diagnosed with AD," Dr Young said.

This work was published this month, in the international journal, *Neuron* and involved collaboration with researchers in the United Kingdom and Japan.

Provided by University of Tasmania

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