

# Researchers target immune system in hunt for new Alzheimer's treatments

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Diagram of the brain of a person with Alzheimer's Disease. Credit: Wikipedia/public domain.

Researchers in Israel have manipulated the mouse immune system to target Alzheimer's disease. The research was published in the journal *Nature Communications* on 18 August 2015.

The research team explored the complex interplay between the body's [immune system](#) and the brain. They used mice that have excess amyloid – a hallmark protein in Alzheimer's disease – to look at the different roles of the immune system in the disease. They were particularly interested in a special type of cell called regulatory T-cells – [white blood cells](#) that keep the immune system in check. Too many of this type of

cell can prevent the body's immune system from responding to damage in the brain.

The researchers used two approaches to reduce the number of regulatory T-cells in mice with hallmark features of Alzheimer's disease. They found that reducing their levels using either a genetic trick or chemical compounds could boost the [immune response](#) to nerve cell damage in the brain. They also found that levels of the toxic amyloid protein dropped. This increase in 'good' inflammation was also associated with improved memory and thinking skills in the mice. In order to explore the role of regulatory T-cells further, the team took the opposite approach to their earlier experiment and used a compound that boosted their ranks. This led to a decrease in 'good' inflammation, an increase in amyloid build-up and a deterioration in memory skills.

Dr Laura Phipps from Alzheimer's Research UK, said:

"The role of the immune system in Alzheimer's disease is incredibly complex and researchers are working hard to unravel how best to target it to promote better brain health. This study in mice suggests that boosting [immune cells](#) that are entering the brain from the rest of the body could slow Alzheimer's changes and benefit memory, but it is too soon to know the relevance for people living with dementia. We know that testing lots of different scientific approaches is crucial in the hunt for new treatments and it's only through increased and sustained investment in dementia research that we will find the answers to our biggest medical challenge."

Provided by Alzheimer's Research UK

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