

# First study to suggest that the immune system may protect against Alzheimer's changes in humans

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Recent work in mice suggested that the immune system is involved in removing beta-amyloid, the main Alzheimer's-causing substance in the brain. Researchers have now shown for the first time that this may apply in humans.

Researchers at the Peninsula College of Medicine and Dentistry, University of Exeter with colleagues in the National Institute on Aging in the USA and in Italy screened the [expression levels](#) of thousands of genes in blood samples from nearly 700 people. The telltale marker of immune system activity against beta-amyloid, a gene called CCR2, emerged as the top marker associated with memory in people.

The team used a common clinical measure called the Mini Mental State Examination to measure memory and other cognitive functions.

The previous work in mice showed that augmenting the CCR2-activated part of the immune system in the [blood stream](#) resulted in improved memory and functioning in mice susceptible to Alzheimer's disease.

Professor David Melzer, who led the work, commented: "This is a very exciting result. It may be that CCR2-associated immunity could be strengthened in humans to slow Alzheimer's disease, but much more work will be needed to ensure that this approach is safe and effective".

Dr Lorna Harries, co-author, commented: "Identification of a key player in the interface between [immune function](#) and cognitive ability may help us to gain a better understanding of the disease processes involved in Alzheimer's disease and related disorders."

Alzheimer's disease is the most common form of dementia and affects around 496,000 people in the UK.

**More information:** Lorna W. Harries, Rachel M. Bradley-Smith, David J. Llewellyn, Luke C. Pilling, Alexander Fellows, William Henley, Dena Hernandez, Jack M. Guralnik, Stefania Bandinelli, Andrew Singleton, Luigi Ferrucci and David Melzer. Leukocyte ccr2 expression is associated with mini-mental state examination (MMSE) score in older adults. *Rejuvenation Research* 2012 [online.liebertpub.com/doi/abs/ ... 0.1089/rej.2011.1302](http://online.liebertpub.com/doi/abs/...0.1089/rej.2011.1302)

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