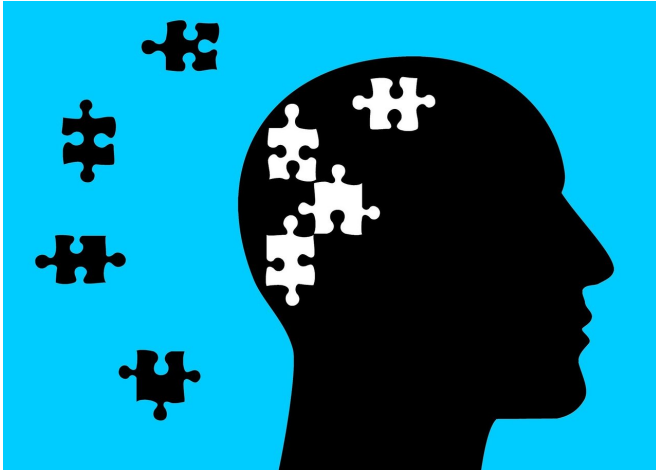


How a protein in your brain could protect against Alzheimer's disease

4 December 2019, by Katie Willis



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New research has found that the most common version of a protein called CD33 plays a crucial role in regulating white blood cells in the human brain, which could have important implications in the fight against Alzheimer's disease.

The study builds on previous research that had identified the protein as a factor that may decrease a person's likelihood of Alzheimer's [disease](#). However, less than 10 percent of the population have that version of CD33 as opposed to the more common one.

According to U of A chemist and immunologist Matthew Macauley, whose laboratory led the study, "White blood cells in the brain, called microglia, play a critical role in Alzheimer's disease—they can be harmful or protective."

Post-doctoral fellow Abhishek Bhattacharjee, who led the study, said the presence of CD33 on microglia suggests the [immune cells](#) can protect the brain from Alzheimer's disease under the right circumstances.

If scientists can target the more common version of CD33 to influence microglia to become more like those that have the protective, rare version of CD33, it could lead the way to making the microglia protective as opposed to harmful—and be a key in treating the disease, Macauley explained.

"These findings set the stage for future testing of a causal relationship between CD33 and Alzheimer's disease, as well as testing therapeutic strategies to sway [microglia](#) from being harmful to protecting against the disease by targeting CD33," added Macauley.

"Microglia have the potential to 'clean up' the neurodegenerative plaques, through a process called phagocytosis—so a therapy to harness this ability to slow down or reverse Alzheimer's disease can be envisioned."

According to the Alzheimer's Association, 747,000 Canadians currently live with Alzheimer's or another form of dementia. The disease affects more than 44 million people around the world.

The study, "Repression of Phagocytosis by Human CD33 Is Not Conserved With Mouse CD33," was published in *Communications Biology* and was funded by GlycoNet.

More information: Abhishek Bhattacharjee et al. Repression of phagocytosis by human CD33 is not conserved with mouse CD33, *Communications Biology* (2019). [DOI: 10.1038/s42003-019-0698-6](https://doi.org/10.1038/s42003-019-0698-6)

Provided by University of Alberta

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