

Multiple sclerosis drug improves memory in mice modeling Alzheimer's disease

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Losing memory is a hallmark of Alzheimer's, a symptom of the disease

that depletes a patient's quality of life. Improving memory and slowing cognitive changes caused by the disease is an ongoing challenge for researchers seeking to develop novel therapies. In a newly published paper in *Frontiers in Neuroscience*, researchers at the Del Monte Institute for Neuroscience at the University of Rochester found that glatiramer acetate, a prescription drug currently used to treat patients with multiple sclerosis (MS), improved memory in a mouse model of Alzheimer's disease.

"This research extends our information about glatiramer acetate's potential use in Alzheimer's disease," said M. Kerry O'Banion, M.D., Ph.D., professor of Neuroscience and senior author of the study. "This isn't a cure, but it could be a step in the right direction for a treatment to slow the symptoms of this debilitating disease."

Using a mouse model, researchers found changes in microglia—part of the brain's [immune system](#)—and improvements in cognitive behavior when glatiramer acetate was used. These changes were associated with less [amyloid plaques](#) and modifications to tau pathology—a protein found in [neurodegenerative diseases](#)—in the brain, indicating that molecular hallmarks of Alzheimer's disease had been impacted. Previous studies have found that glatiramer acetate can alter brain pathology in Alzheimer's disease mouse models, but the exact mechanisms that are impacted in the brain are still unknown.

"Overall, these findings provide further evidence that therapies that modify the immune system could be effective in the treatment of Alzheimer's disease," said Dawling Dionisio-Santos, Ph.D., a first-year resident in Neurology and graduate of the Medical Scientist Training Program and co-first author on the paper. "It adds evidence to support trials that test the use of glatiramer acetate in patients at risk for developing Alzheimer's."

Co-authors on this paper include Berke Karaahmet, Elizabeth K. Belcher, Ph.D., Laura D. Owlett, Ph.D., Lee A. Trojanczyk, and John A. Olschowka, Ph.D. The research was funded by the National Institute on Aging.

More information: Dawling A. Dionisio-Santos et al, Evaluating Effects of Glatiramer Acetate Treatment on Amyloid Deposition and Tau Phosphorylation in the 3xTg Mouse Model of Alzheimer's Disease, *Frontiers in Neuroscience* (2021). [DOI: 10.3389/fnins.2021.758677](https://doi.org/10.3389/fnins.2021.758677)

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