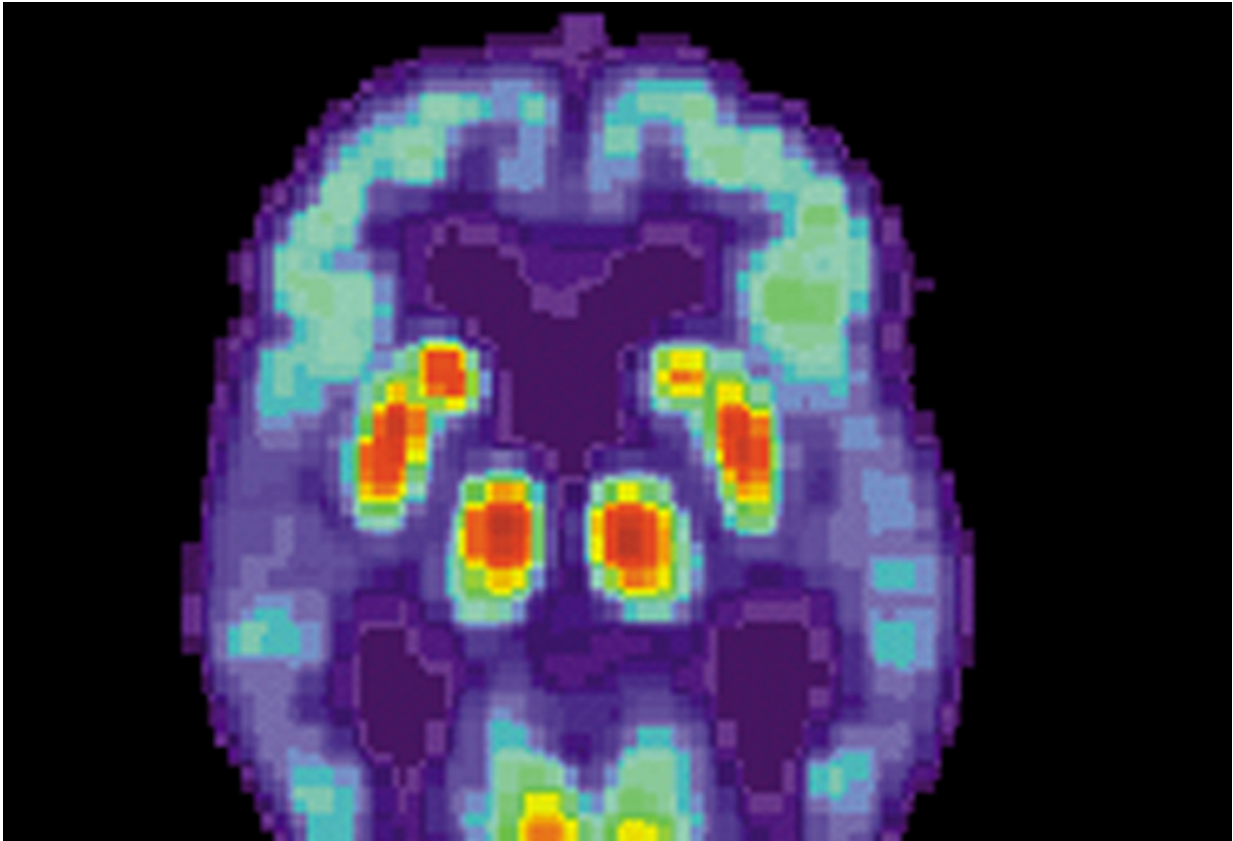


# Can aspirin treat Alzheimer's?

July 2 2018

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PET scan of a human brain with Alzheimer's disease. Credit: public domain

A regimen of low-dose aspirin potentially may reduce plaques in the brain, which will reduce Alzheimer's disease pathology and protect memory, according to neurological researchers at Rush University Medical Center, who published the results of their study today in the

July issue of *The Journal of Neuroscience*.

"The results of our study identifies a possible new role for one of the most widely used, common, over-the-counter medications in the world," said Kalipada Pahan, Ph.D., the study's senior author and lead research investigator, who also is the Floyd A. Davis, MD, Endowed Chair of Neurology and professor of neurological sciences, biochemistry and pharmacology in Rush Medical College.

Alzheimer's disease is a fatal form of dementia that affects up to 1 in 10 Americans age 65 or older. To date, the FDA has approved very few drugs for the treatment of Alzheimer's disease-related dementia and the medications that exist can only provide limited symptomatic relief.

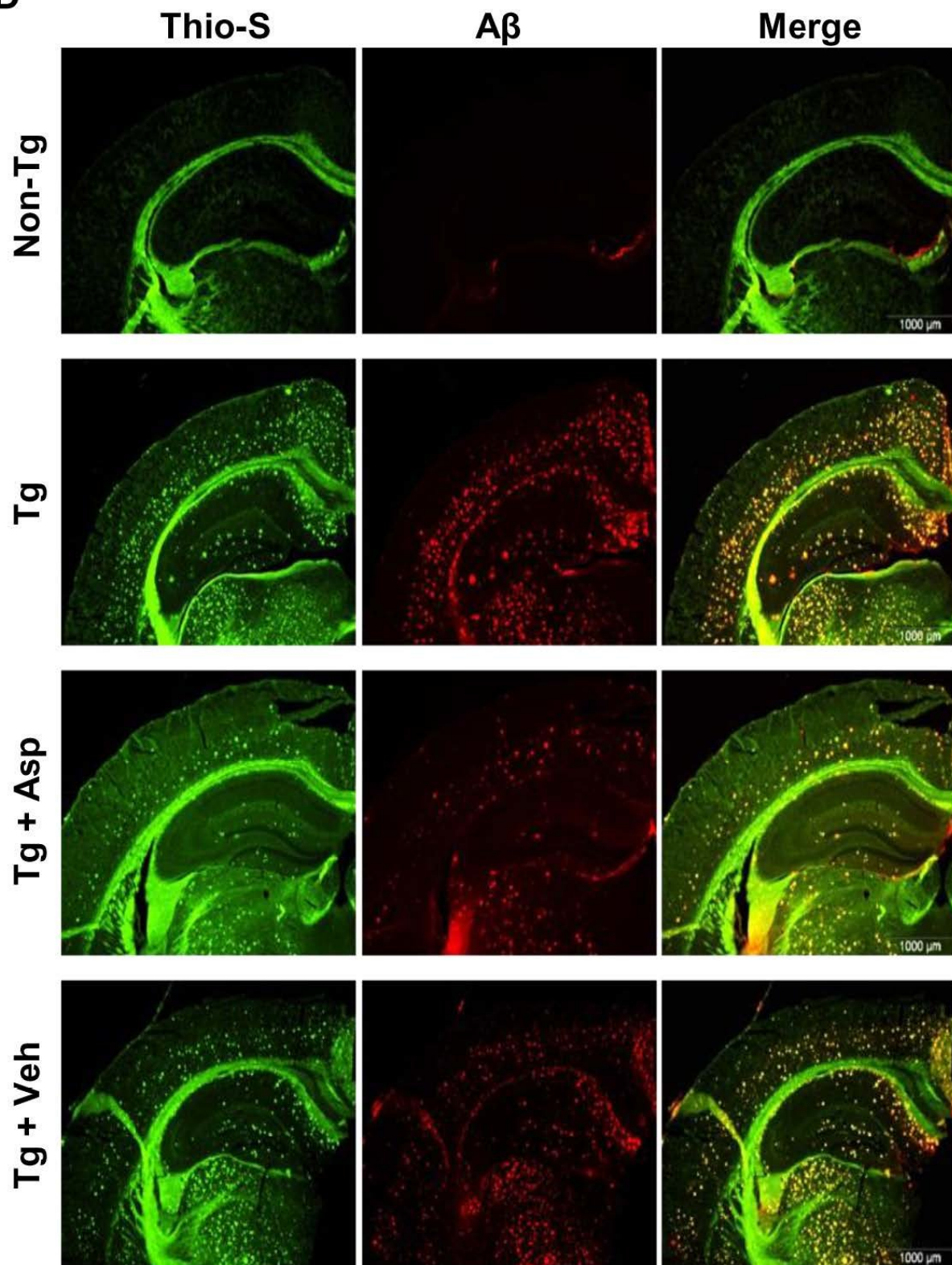
The exact cause of Alzheimer's disease progression is unknown; however, poor disposal of the toxic protein [amyloid beta](#) in the brain is a leading mechanism in dementia and memory loss.

Activating the cellular machinery responsible for removing waste from the brain therefore has emerged as a promising strategy for slowing Alzheimer's disease.

Amyloid beta forms clumps called [amyloid](#) plaques, which harm connections between nerve cells and are one of the major signs of Alzheimer's disease. Building on previous studies demonstrating a link between [aspirin](#) and reduced risk and prevalence of Alzheimer's disease,

Pahan and his colleagues were able to show that aspirin decreases amyloid plaque pathology in mice by stimulating lysosomes—the component of animal cells that help clear cellular debris.

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Aspirin treatment reduces amyloid beta burden in the hippocampus of 5XFAD mouse model of AD. Credit: Chandra et al., *JNeurosci* (2018)

"Understanding how plaques are cleared is important to developing effective drugs that stop the progression of Alzheimer's disease," said Pahan.

A protein called TFEB is considered the master regulator of waste removal. The researchers gave aspirin orally for a month to genetically modified mice with Alzheimer's pathology, then evaluated the amount of amyloid plaque in the parts of the brain affected most by Alzheimer's [disease](#).

They found that the aspirin medications augmented TFEB, stimulated lysosomes and decreased amyloid [plaque](#) pathology in the mice.

"This research study adds another potential benefit to aspirin's already established uses for pain relief and for the treatment of cardiovascular diseases," said Pahan. "More research needs to be completed, but the findings of our study has major potential implications for the therapeutic use of aspirin in AD and other dementia-related illnesses."

**More information:** Sujyoti Chandra et al, Aspirin induces Lysosomal biogenesis and attenuates Amyloid plaque pathology in a mouse model of Alzheimer's disease via PPAR $\alpha$ , *The Journal of Neuroscience* (2018). DOI: 10.1523/JNEUROSCI.0054-18.2018 , [dx.doi.org/10.1523/JNEUROSCI.0054-18.2018](https://doi.org/10.1523/JNEUROSCI.0054-18.2018)

Provided by Rush University Medical Center

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