

Scientists use immunotherapy to reduce memory problems with Alzheimer's disease

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A new study from the University of Texas Medical Branch at Galveston has revealed that a single dose of an immunotherapy reverses memory problems in an animal model of Alzheimer's disease. The article appears in the March 25 issue of the *Journal of Neuroscience*.

Researchers have been working for decades to map out how Alzheimer's disease wields its devastating effects. Although it's known that two molecules - tau and amyloid beta - are considered responsible for the disease's progression, the relationship between these two proteins and resulting [memory problems](#) has remained unclear.

Brain cells depend on [tau protein](#) to form highways for the cell to get nutrients and get rid of waste. In some neurodegenerative diseases such as Alzheimer's disease, the tau protein changes into a more toxic form referred to as an oligomer. When this happens, molecular nutrients can no longer move to where they are needed and the [brain cells](#) eventually die.

Scientists from UTMB have previously shown their anti-tau oligomer immunotherapy reduced levels of tau oligomers and reversed memory deficits in an [animal model](#) of Alzheimer's. In the current study, it came as a surprise that the immunotherapy also reduced amyloid beta oligomer levels, suggesting that the detrimental effects of amyloid beta are dependent on the presence of toxic forms of tau.

"Our findings with this immunotherapy study indicate a link between tau oligomers and amyloid beta," said lead author and associate professor of neurology, Rakez Kaye. "Because of this relationship, removing tau oligomers with our immunotherapy may also decrease the harmful effects [amyloid beta](#) and mitigate [memory deficits](#)."

What sets Kaye's therapy apart from other tau immunotherapy drugs is that his targets only the toxic oligomer form of tau and leaves the normal

tau alone and able to carry out its typical functions.

These findings provide strong evidence of the benefits of targeting tau oligomers with immunotherapeutic approaches as an Alzheimer's disease treatment.

Provided by University of Texas Medical Branch at Galveston

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