

Drug rescues memory lost to Alzheimer's disease

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A drug similar to one used in clinical trials for treatment of rheumatoid arthritis and psoriasis has been found to rescue memory in mice exhibiting Alzheimer's symptoms.

The discovery by UC Irvine scientists offers hope that a new treatment may be on the horizon for people in the early stages of Alzheimer's, the leading cause of elderly dementia afflicting more than 5 million people in the U.S. and for which no cure exists.

The drug, called PMX205, prevented inflamed immune cells from gathering in [brain regions](#) with Alzheimer's lesions called amyloid plaques. Cell [inflammation](#) in these areas accelerates neuron damage, exacerbating the disease.

"We used a multidisciplinary approach combining an understanding of immunology and neurobiology to uncover a completely different target than other therapies," said Andrea Tenner, lead author of the study that led to the findings and a [molecular biology](#) & biochemistry professor at UCI.

Study results are reported in the July 15 edition of the *Journal of Immunology*.

For 12 weeks, Tenner and colleagues added PMX205 to the drinking water of mice genetically altered to develop age-related Alzheimer's-like symptoms. The treatment occurred at an age when plaques were

accumulating in their brains.

Scientists gave the treated mice learning and memory tests and then examined their brains for evidence of the disease. Alzheimer's mice that were not given the drug performed significantly worse on the test than normal mice. But - in all but one case - the treated Alzheimer's mice performed almost as well as the normal mice. Those with the rescued cognitive ability had more than 50 percent fewer Alzheimer's lesions and inflammatory [immune cells](#) than the untreated diseased mice.

PMX53, a similar drug that can be taken orally, passed Phase 1 human clinical trials for safety with no major problems reported. Possible side effects include an increased susceptibility to some infections. PMX205 is a modified version that may be more potent for treatment of brain disorders.

"This approach may work even better if combined with treatments targeting other problems in the Alzheimer's brain," said Tenner, also a professor of pathology and neurobiology & behavior, as well as a member of UCI's Institute for Immunology and Institute for Memory Impairments and Neurological Disorders, or UCI MIND.

Source: University of California - Irvine

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