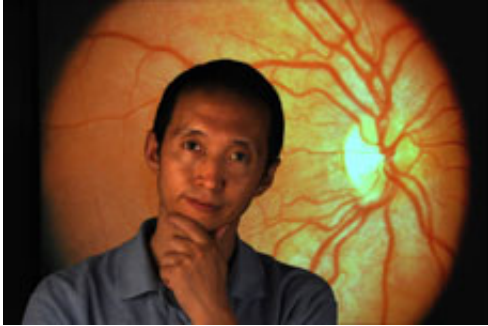


# Alzheimer's lesions found in the retina

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UCI neuroscientist Zhiqun Tan lead research that found the retinas of mice may mirror the brain ravaged by Alzheimer's disease. Photo by Daniel A. Anderson

(PhysOrg.com) -- The eyes may be the windows to the soul, but new research indicates they also may mirror a brain ravaged by Alzheimer's disease.

UC Irvine neuroscientists have found that retinas in mice genetically altered to have Alzheimer's undergo changes similar to those that occur in the brain - most notably the accumulation of amyloid plaque lesions.

In addition, the scientists discovered that when Alzheimer's therapies are tested in such mice, retinal changes that result might predict how the treatments will work in humans better than changes in mouse brain tissue.

These findings are key to developing retinal imaging technology that

may help diagnose and treat people with Alzheimer's, which afflicts 5.3 million people in the U.S. and is the leading cause of elderly [dementia](#). Brain imaging techniques are being tested, but retinal imaging could be less invasive, less expensive and easier to perform.

"It's important to discover the pathological changes before an Alzheimer's patient dies," said Zhiqun Tan, a UCI neuroscientist leading the research. "Brain tissue isn't transparent, but retinas are. I hope in the future we'll be able to diagnose the disease and track its progress by looking into the eyes."

For a study appearing in the November issue of the [American Journal of Pathology](#), Tan and colleagues analyzed the retinas of Alzheimer's mice that had been treated with immunotherapy.

Vaccinated mice performed better on learning and [memory](#) tests than untreated mice, and their brains had fewer plaque lesions. Similarly, retinas in the treated mice had fewer lesions than in untreated mice. However, the treated mice's retinas had worse inflammation and vascular changes associated with Alzheimer's than did their brains.

When immunotherapy was tested in humans, inflammation of [brain tissue](#) occurred similar to that observed in the mice retinas. "This tells us the [retina](#) may be more sensitive at reflecting changes in the human brain," Tan said.

UCI researchers, including Dr. Steven Schreiber, neurology professor and interim chair, are working on retinal imaging technology for Alzheimer's patients.

"New ways to view various body parts with high resolution are being invented at a rapid pace," Schreiber said. "I expect the imaging field will continue improving as we progress in developing our retinal technique."

Source: University of California - Irvine

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