

New Growth in Old Eyes

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Nerve cells in the retinas of elderly mice show an unexpected and purposeful burst of growth late in life, according to researchers at UC Davis.

"Mostly, the older you are, the more neurons shrivel up and die. This gives us a more optimistic view of aging," said Leo Chalupa, professor ophthalmology and neurobiology, chair of neurobiology, physiology and behavior at UC Davis, and senior author on the paper, which was published online Aug. 8 by the journal *Proceedings of the National Academy of the U.S.A.*

The nerves of the eye are really a part of the brain, Chalupa said, so this discovery means that it might be possible to encourage other parts of the aging brain to grow back. The group has preliminary evidence that the same process takes place in the eyes of elderly humans.

The nerve cells, or neurons, in the retina form a layer over another layer containing the light-sensitive cells. The neurons collect signals from the light-sensitive layer and relay them back to the brain.

Lauren Liets, a researcher in Chalupa's laboratory, noticed that in mice more than a year old -- roughly 70 to 80 years old in human terms -- the neurons sprouted tendrils into the photoreceptor layer, and the older the mice, the more growth took place.

At the same time, the photoreceptor cells are shrinking and pulling back, so the neurons appear to be following them, perhaps compensating for

those effects, said Chalupa.

Similar sprouting occurs in damaged or detached retinas, Liets said. But this is the first time such an effect has been seen in the normal, aging eye, she said.

Other members of the research group were Kasra Eliasieh and Deborah A. van der List. The work was supported by grants from the National Institutes of Health and a medical fellowship to Eliasieh from the Howard Hughes Medical Institute.

Source: UC Davis

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