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Fighting Repeat Cataracts

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Researchers in the University of Dayton's Center for Tissue Regeneration and Engineering at Dayton (TREND) have taken another step in preventing repeated cataract surgeries.

Secondary cataracts are major complications of cataract surgery, according to research published in the *Journal of Molecular Vision*. After the cataract is removed, some cataract-inducing cells remain in the material that holds the artificial lens in place. In many cases, these cells grow and cloud the artificial lens.

By introducing a compound called a C5aR antagonist to the mice test subjects, the researchers found a decrease in cataract-inducing cell proliferation.

"These results suggest a possible therapeutic role of an antagonist to C5aR in preventing secondary cataracts after surgery," the researchers wrote in the study also picked up by *Health & Medicine Week*, *Life Science Weekly* and *Science Letter*.

More than 350,000 cataract operations are performed in the United States every year. Nearly half of all cataract patients need a second surgery to retain their vision.

Panagiotis Tsonis, director the University's TREND center said trials in humans are a long way off, but this study provides another option to medical researchers.

"We perform the basic research as it applies to lens regeneration," he said. "It will be up to others to determine how to apply this research to humans, specifically the eye."

The National Institutes of Health provided funding to the team that includes University of Dayton researchers Rinako Suetsugu-Maki, Nobuyasu Maki, Timothy Fox, Kenta Nakamura, and Tsonis; plus Richard Cowper-Solari and Craig R. Tomlinson of Dartmouth College, and Hongchang Qu and John D. Lambris of the University of Pennsylvania.

Tsonis has conducted research on lens and limb regeneration for more than 20 years at the University of Dayton. The NIH has funded millions of dollars of research throughout that time. In 2005, a team of researchers led by Tsonis was the first to manipulate key genes in the ventral iris of a salamander to regenerate a new lens, which could dramatically reduce the need for cataract procedures. *Nature* published the research.

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