# UW Researchers Develop New Model for Macular Degeneration

March 12 2010

(PhysOrg.com) -- Exposing albino rats to moderately intense light has produced a new animal model for the most common cause of severe vision loss in humans.

The new model could help "provide important new insights into the pathogenesis" of age-related macular degeneration (AMD), says a commentary in a recent *Journal of the American Medical Association*.

While AMD is the leading cause of blindness in people over 60 and affects an estimated 10 million Americans, there hasn't been a good animal model of the disease until now, says lead author Dr. Daniel Albert.

Until now, researchers have used lasers to scar the retinas of research animals in order to produce the proliferation of blood vessels that characterizes AMD. But that approach doesn't mimic the slowly developing nature of the disease, says Albert, a professor of ophthalmology in the UW School of Medicine and Public Health.

"This give us a chance to study causes and treatments at the various stages of the progression of macular degeneration, from the dry form of the disease to its wet form," says Albert, director of the UW Eye Research Institute.

Albert's co-author Richard Dubielzig, a professor of veterinary pathology, noticed in reviewing slides of the eyes of aging albino rats

that they had abnormal blood-vessel proliferation invading into the retina. He showed the slides to Albert, who realized the rat eyes looked like slides taken from his AMD patients.

But rather than waiting for the elderly rats to develop the disorder, Albert, Dubielzlig and co-author Nader Sheibani, an associate professor of Ophthalmology and Visual Sciences, worked out a method of bringing on the disorder more quickly by exposing the rats to 12 hours a day of 3,000-lux light for period of one, three, or six months. The longer the exposure, the more advanced was the blood vessel proliferation that developed. Thus the rats can model the disease at its various stages.

Albert noted that the lights were only moderately intense - humans using light treatment for seasonal affective disorder sometimes gaze at lights that give off 10,000 lux of illumination. But albino rats, which lack natural pigmentation, are exquisitely sensitive to light.

The JAMA commentary noted that the new model isn't perfect - light exposure is likely only one contributing factor to the human disease, and humans with AMD don't have the photoreceptor damage seen in the rats.

Still, the model is likely to be useful for testing potential treatments.

The research was published in the February edition of the *Archives of Ophthalmology*.

Provided by University of Wisconsin-Madison