Research to Prevent Blindness

Advances in Eye Research:
Dry AMD & Geographic Atrophy

Age-related Macular Degeneration (AMD) is the leading cause of severe vision loss globally. More than 30 million older adults have AMD. By 2040, that number is expected to increase exponentially to 288 million people with AMD.

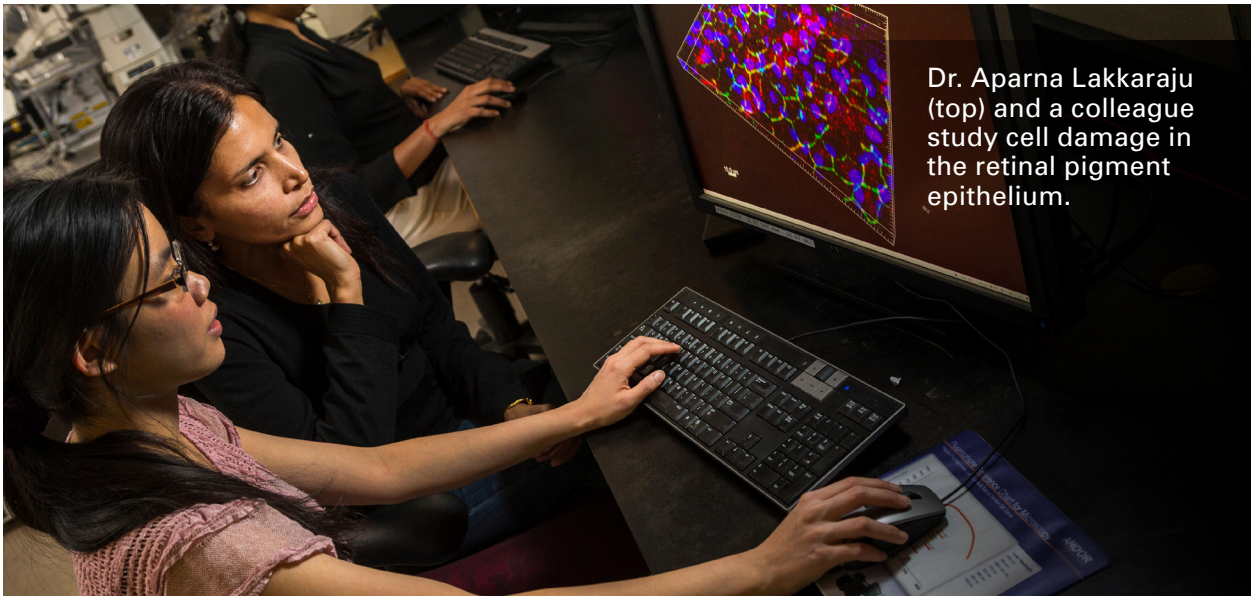
So, what is AMD? It is an eye disease that can blur or reduce central vision because of thinning of the macula. The macula is the part of the eye responsible for clear, central vision. People with AMD usually lose the center of their vision, but not the side, or peripheral, vision. Central vision loss can affect many activities of daily living, such as driving, reading, and seeing faces, and can eventually lead to blindness. A combination of genes and environmental factors are thought to contribute to the development of AMD and the condition tends to progress with age.

There are two forms of AMD: dry AMD and wet AMD. Dry AMD is the most common form and causes a progressive loss of vision. It involves the loss of cells that sense light. Geographic atrophy is an advanced form of dry AMD. In wet AMD (or neovascular AMD), new and fragile blood vessels form in the macula and leak blood, fluid or both, further damaging visual cells.

How Does Dry AMD Work?

We know that light sensing cells in the retina, called photoreceptors, give us the ability to see. However, according to Research to Prevent Blindness grantee Dr. Aparna Lakkaraju of the University of California, San Francisco, these cells are highly susceptible to light damage. To prevent this, they need constant care, support and nourishment from a layer of cells right behind the photoreceptors called the retinal pigment epithelium, or RPE. RPE is the first site of damage in dry AMD.

One of the roles of RPE is to absorb debris that are shed by photoreceptors. In dry AMD, RPE damage leads to build-up of debris, and this affects the health of the photoreceptors, which can eventually die off, leading to the central vision loss that is characteristic of AMD. Typically, each eye is affected by this process separately.



Dr. Aparna Lakkaraju (top) and a colleague study cell damage in the retinal pigment epithelium.

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Risk Factors

Age is the biggest risk factor for dry AMD. However, studies supported by Research to Prevent Blindness show that lifestyle factors, such as smoking and obesity, may also influence the onset and progression of AMD. People with a family history of the disease and people of Caucasian race are also at higher risk.

In good news: lifestyle modifications such as not smoking, maintaining a healthy weight, eating a diet rich in omega-3 fatty acids (such as those found in fish and walnuts) and eating fruits and vegetables, are shown to decrease risk. There is also a dietary supplement formula called AREDS 2 that has been shown to slow the progression of intermediate AMD into advanced AMD.

It is important to see an eye doctor for a dilated eye exam once a year so your eye doctor can track progression of the disease.

Hope Through Research

Many research studies are focusing on geographic atrophy (an advanced form of dry AMD), including some that are already in clinical trials. Research studies focusing on modulating the complement pathway—an arm of our innate immune system—are showing exciting progress to halt the progression of geographic atrophy. In 2023, the U.S. Food and Drug Administration approved SYFOVRE™ (pegcetacoplan injection) for the treatment of geographic atrophy secondary to AMD.

Invest in Your Vision

Since 1960, RPB has led a research effort to preserve vision and restore sight, supporting nearly every major development in the treatment of blinding disorders.

You can join RPB in supporting critical research in the fight against vision loss by sending your tax-deductible donation to the address shown below or online at www.rpbusa.org.

RPB is a public 501(c)(3) foundation. One hundred percent of your contribution will go toward funding critical research for improving the treatment of eye diseases, preventing blindness and restoring sight. Additionally, all contributions totaling up to $1 million in a calendar year will be matched through a fund established by RPB's founder, Dr. Jules C. Stein.

Research to Prevent Blindness

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