Research to Prevent Blindness

NEWS

FALL 2016

Identifying AMD…

If you have turned the corner past middle age, perhaps this has happened to you. You are at the movies. You leave the well-lit lobby and enter the theater during a dark preview and, for a minute or two, your surroundings are plunged into darkness. Gradually, your eyes adjust and you can find your way to a seat.

Your eyes' ability to adjust to darkness after being exposed to bright light is called dark adaptation. Research to Prevent Blindness (RPB)-supported researchers at the University of Alabama at Birmingham believe that adults whose eyes are slow to adjust have a greater risk of developing age-related macular degeneration (AMD), the leading cause of blindness in the developed world.

The researchers recently developed a tool to measure a patient's dark adaptation response time, which is designed to help track the onset or progression of the disease, as well as quickly evaluate new or emerging medications for AMD treatment.

And Treating It

RPB-supported researchers at Massachusetts Eye and Ear Institute (MEEI) and Harvard Medical School (HMS) and scientists at University of Crete have conducted a phase I/II clinical trial investigating the efficacy of statins (cholesterol-lowering medications) for the treatment of patients with the dry form of AMD.

Although effective treatments are available for the wet form of AMD, they are currently lacking for the more prevalent dry form.

The researchers found evidence that treatment with high-dose atorvastatin is associated with regression of lipid deposits and improvement in visual acuity in high-risk AMD patients.

"This is a very accessible, FDA-approved drug that we have tremendous experience with," said Demetrios Vavvas, MD, PhD, a clinician-scientist at MEEI and Co-Director of the Ocular Regenerative Medicine Institute at HMS. "Millions of patients take the drug for high cholesterol and heart disease, and based on our early results, we believe it offers the potential to halt progression of this disease, but possibly even to restore function in some patients with dry AMD."

Learn more about AMD at www.rpbusa.org.

Researcher Spotlight

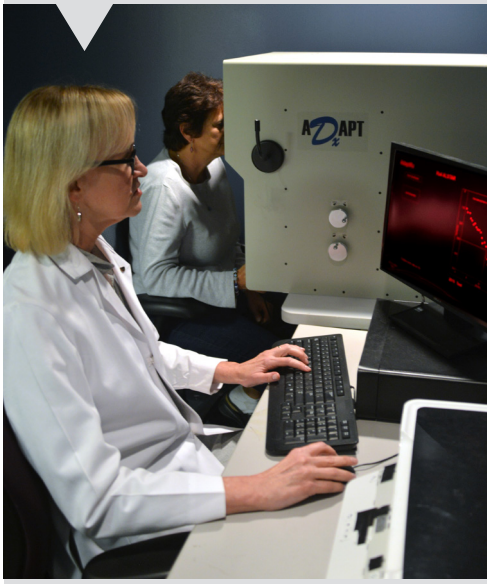

Photo credit: University of Alabama at Birmingham

Cynthia Owsley, PhD, University of Alabama at Birmingham (UAB), is a leading researcher in the area of aging-related vision impairment.

Dr. Owsley used funds from RPB's Unrestricted Grant to the UAB Department of Ophthalmology to support a 16-year pursuit of an early biomarker for AMD.

Here, Dr. Owsley measures a patient's dark adaptation using UAB's prototype research machine.

EYE RESEARCH MATTERS

Protecting Our Most Treasured Sense

Scientific journal *JAMA Ophthalmology* recently published a paper, "Public Attitudes About Eye and Vision Health," that shows that across racial groups, Americans are just as scared of going blind as they are of getting Alzheimer's disease, cancer or HIV/AIDS.

In fact, Americans fear losing eyesight more than any other sense.

The data comes from a national survey supported in part by a grant from RPB.

Unfortunately, blindness and visual impairment are on the rise—due to an increase in conditions such as age-related macular degeneration, glaucoma, diabetic retinopathy and cataracts— and is expected to double over the next 35 years, according to a report published by the National Academies of Sciences, Engineering, and Medicine and supported by multiple funders, including RPB.

This information underscores the need for greater investment in research now, to create the treatments and cures that will save many Americans' worst fears from becoming reality.

Research to Prevent Blindness

1-800-621-0026 · www.rpbusa.org
Facebook: @ResearchtoPreventBlindness

Revolutionizing Cataract Surgery with Stem Cells

In a breakthrough that could have broader implications for human tissue and organ regeneration, RPB-supported scientists at University of California, San Diego report that, by leaving local stem cells intact during surgery to remove the lens in infants who develop congenital cataracts, the body can regrow a functional lens—eliminating the need for potentially problematic synthetic lenses or the potential for rejection of lab-created stem cells.

The researchers are now looking to expand their work to treating age-related cataracts, using this minimally invasive approach. Such a change in cataract surgery technique would be especially timely, since the world's aging population has been predicted to double the need for cataract surgeries over the next 20 years.

Preventing Corneal Transplant Rejection

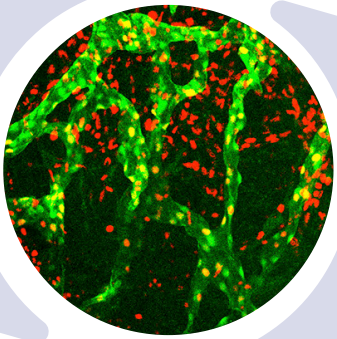

Photo credit: Wei-Sheng Chen, Tufts University School of Medicine

Lymphatic vessels, shown in green, can overgrow in response to a corneal transplant.

A team that included RPB-supported researchers at Tufts University School of Medicine in Massachusetts has successfully prevented corneal inflammation, a condition that contributes to corneal tissue transplantation rejection, by inhibiting the overgrowth of lymphatic vessels.

Earlier this year, the researchers published a study that focuses on the role of a protein, galectin-8, which they discovered promotes the growth of new lymphatic vessels (triggering an overzealous immune response) and thus increases the risk of corneal transplant rejections. The researchers then successfully identified approaches to inhibit galectin-8 and reduce the harmful inflammation.

The findings, published in *Nature Communications*, may have wider impact because the same overgrowth of lymphatic vessels, called lymphangiogenesis, occurs in organ transplant rejection, cancer metastasis, lymphatic obstruction, complications of diabetes and hypertension.

A GIFT TO RPB CAN SAVE SIGHT

Research to Prevent Blindness, Inc. (RPB) is the only public foundation supporting research aimed at treating, preventing or curing all diseases that damage and destroy vision. Your support is critical to the success of our efforts. Contributions totaling up to one million dollars within a calendar year are matched, effectively doubling your gift. ALL GIFTS AND BEQUESTS ARE TAX DEDUCTIBLE.

RPB is recognized by the U.S. Internal Revenue Service as a publicly supported tax exempt organization under section 501(c)(3) of the Internal Revenue Code. Consult with a financial advisor and talk to your attorney regarding the final form of any lifetime or testamentary transfer.