

# NEWS



## Research to Prevent Blindness

FALL 2024

### New AMD Research Targets Inflammation

Age-related macular degeneration (AMD) is a leading cause of irreversible vision loss in the United States. New research on AMD, from RPB awardee Ruchira Singh, PhD, at the University of Rochester and her collaborators from around the world, was recently published in the journal *Developmental Cell*.

“Current treatments for AMD have limited efficacy and often come with significant side effects,” said Dr. Singh, the lead author of the study. “Our research aims to identify novel therapeutic targets that could potentially halt the progression of this disease.”

The study utilized human stem cells to model AMD, overcoming the limitations of previous research using animal models. By examining genes associated

with both AMD and rarer inherited forms of blindness called macular dystrophies, the researchers identified a key protein involved in the early stages of the disease, which sets off a chain of events that promotes inflammation and the formation of drusen (a hallmark deposit of AMD).

By using a small molecule inhibitor to block the activity of the enzyme associated with inflammation, the researchers were able to reduce drusen formation, suggesting that targeting this pathway could be a promising strategy for preventing AMD.

“This research offers hope for developing new treatments that could significantly improve the lives of millions of people affected by AMD,” said Dr. Singh.



### Watch & Learn

RPB has recent Lunch & Learn webinars, featuring renowned clinician-scientists and researchers, available on the following topics:

 **Stargardt Disease**

 **Thyroid Eye Disease**

 **Geographic Atrophy and Dry Age-Related Macular Degeneration**

 **Sjögren's Disease**

Watch these free, educational videos on the RPB YouTube channel to learn about symptoms, disease management, treatment options and cutting-edge research:

[bit.ly/RPBYouTube](https://bit.ly/RPBYouTube)

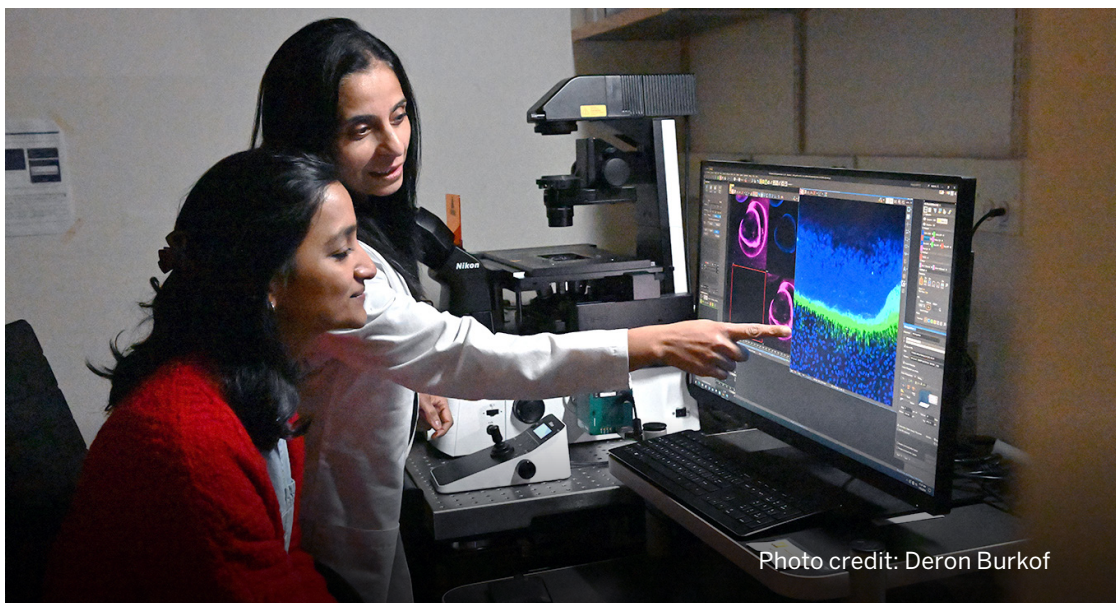


Photo credit: Deron Burkof



## Did You Know...

### Untreated vision loss is a risk factor for dementia

— the 2024 *Lancet* Commission report on Dementia

This takeaway is just one example of the importance of eye health to our overall health. It's also an excellent reason to get regular dilated eye exams.

Thanks to high-tech imaging technology, conditions such as glaucoma, AMD, diabetic retinopathy and more, can be diagnosed early, before significant vision loss occurs.



## 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!

For 2024, RPB's Board of Trustees has generously offered to match all end-of-year contributions totaling up to \$180,000! 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.*

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## Time Outside and More: Combating the Myopia Epidemic

The *Washington Post* recently published an article with the headline, "To avoid myopia, kids should get outside more, report says." The article was based on a report from the National Academies of Sciences, Engineering, and Medicine (NASEM) working group, "Focus on Myopia – Pathogenesis and Rising Incidence," for which RPB is a sponsor.

Myopia is also called nearsightedness, and it means that objects at a distance are blurry. This is due to an elongation, or overgrowth, of the eye. Rates of myopia are soaring around the world, but experts need to better understand why and what we can do about it, which is why the NASEM report was commissioned.

One of the reasons that myopia is a problem (beyond the immediate effects on vision), is that high myopia can predispose someone to serious eye issues, such as glaucoma, cataracts, retinal detachment, and more.

As the NASEM report details, children should spend up to two hours a day outside to reduce their myopia risk. We also need strategic investment in myopia research to add to current evidence-based recommendations. RPB is proud to offer an ongoing research grant specifically focused on myopia, the RPB Physician-Scientist Award in Myopia Research, to build the knowledge base in this area.

## A Discovery for Diabetic Retinopathy



RPB Awardee  
Jeremy Lavine,  
MD, PhD, of  
Northwestern  
Feinberg School  
of Medicine,

published a new study in the *Journal of Clinical Investigation* that sheds light on how white blood cells in the retina function during inflammation. This is highly relevant to retinal vascular diseases with inflammatory components, such as diabetic retinopathy and uveitis.

Previously, Dr. Lavine noticed a buildup of white blood cells, particularly a subtype called macrophages, on the surface of retinas and along blood vessels

in eyes affected by diabetic retinopathy. These blood vessel-associated macrophages are called retinal perivascular macrophages. In this study, Dr. Lavine's laboratory discovered that retinal perivascular macrophages play a role in immune cells crossing the blood-retina barrier (BRB), a physiological barrier that regulates the flow of substances into and out of the retina. When cells cross the BRB it leads to neuroinflammation, or inflammation of the nervous tissue. Both diabetic retinopathy and uveitis are diseases that include breakdown of the BRB, so understanding this process is critical to the future study of these diseases.