Macular Degeneration Research

News

SUMMER 2025

CAN STEM CELLS RESTORE VISION LOSS?

Stem cells offer a path forward for restoring sight.

Macular degeneration damages two key types of cells in the retina: photoreceptors and retinal pigment epithelial (RPE) cells. Photoreceptors sense light and send signals to the brain. RPE cells support and nourish them. When RPE cells begin to die, the photoreceptors they protect also deteriorate. This chain reaction leads to vision loss in people with advanced macular degeneration. Researchers are now exploring whether stem cells could be used to replace these lost cells and restore vision.

One major challenge is that free-floating stem cells tend to form clumps instead of a single layer. But recent studies have made real progress. Researchers have successfully grown RPE cells as a flat layer on a thin membrane and implanted that membrane beneath the retina. Photoreceptors are more difficult to replace, but early clinical trials are beginning to show promise.

In one study, a product called **OpRegen** helped participants gain an average of **7.6 more letters** on an eye chart one year after treatment. By comparison, untreated eyes improved by just **1.3 letters**. Another trial used a product called **CPCB-RPE1** and found that participants receiving stem cell implants were more likely to experience vision improvement than those who did not.

These early results suggest that stem cells may offer new hope for people living with macular degeneration, especially those who currently have no treatment options.

Macular Degeneration Research is a BrightFocus Foundation Program
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A variety of resources are available for people living with macular degeneration. To receive a copy of our Resource List, which has information about government programs, transportation assistance, and other special services, please call Macular Degeneration Research at 855-345-6637 or visit our website at brightfocus.org/MDRresources.

PRESIDENT'S CORNER

Macular degeneration is a devastating diagnosis, but together, we're fighting back and making progress that brings hope to millions.

The scientists you help fund are exploring bold, forward-looking ideas which represent some of the most promising work in the field today. From **studying the role of aging, diet, and inflammation** to reprogramming stem cells to restore lost vision, we are pushing the boundaries of science to discover new treatments, and one day a cure.

But now, many universities and institutions face serious cuts to research budgets. Without critical funding, innovative studies may slow or stop entirely, and promising discoveries could be delayed or lost.

That is why your continued support is so important. With your partnership, we will keep pressing forward until we end macular degeneration for good.

Thank you for making this possible.

Stacy Pagos Haller

Stacy Pagos Haller

YOUR MACULA—HOW IT WORKS AND HOW TO PROTECT IT

The macula is a tiny area at the center of the retina, but it plays an outsized role in your ability to read, recognize faces, and see color and fine detail. When the macula is healthy, it allows you to see clearly in your central field of vision. But when it becomes damaged, as it does in macular degeneration, these abilities begin to fade.

An image of the back of the eye that includes the macula, blood vessels, and optic nerve head.

Preeti Subramanian, PhD, former Director of Vision Programs at Macular Degeneration Research, recently discussed how this remarkable part of the eye works and what you can do to protect it.

Light-sensitive cells, called rods and cones, sit in the macula and help you detect motion, see in low light, and perceive color and sharp detail. Underneath them, support layers like the retinal pigment epithelium (RPE) nourish the retina and clear away waste. Macular degeneration causes the RPE to stop working properly, so waste begins to build up, leading to damage in the cells above and, eventually, vision loss.

Here are a few key tips to help safeguard your sight:

- Quit smoking.
- Eat leafy greens rich in antioxidants like lutein and zeaxanthin.
- Get regular exercise.
- Protect your eyes from UV rays.
- Get a comprehensive eye exam every one to two years.

These small steps can lead to healthy vision. To learn more, visit brightfocus.org/AMDfunction.

You're helping scientists make bold discoveries that could lead to vision-saving treatments.

ANNOUNCING $3.8 MILLION IN GRANTS TO SAVE SIGHT

Together, We're Fueling the Future of Vision Science

Macular Degeneration Research just awarded 12 new research grants totaling $3.8 million. Each study was chosen for its bold, innovative approach to ending macular degeneration. By supporting the most innovative ideas, you're helping researchers uncover powerful new paths toward treatments and, one day, a cure.

Here's a preview of three exciting projects you're helping bring to life in 2025:

The Role of Aging, Diet, and Inflammation in RPE Degenerative Processes

This study examines how aging and diet-driven inflammation interact with immune cells to influence retinal health, revealing new potential therapeutic targets.

How Do Lifestyle Changes Affect the Eye Through Blood and Gut?

Drawing on health data from over 13,000 individuals, this project explores how biomarkers and lifestyle habits impact macular degeneration risk, with the goal of creating personalized tools to help prevent vision loss.

How Metabolic Stress Can Drive Macular Degeneration

By studying a key protein that supports retinal pigment epithelial (RPE) cell health, researchers hope to uncover a promising new drug target to slow or stop disease progression.

Thank you for helping to power science that brings hope to millions.

Richard B. Rosen, MD

EXPLORING LIGHT THERAPY FOR MACULAR DEGENERATION

We recently spoke with Richard B. Rosen, MD, of the New York Eye and Ear Infirmary of Mount Sinai. He shared some insights on light therapy, an emerging area of research to treat macular degeneration.

Dr. Rosen addressed growing concerns about blue light exposure. He explained that prolonged exposure to high-energy visible blue light, commonly emitted from phones and computers, may place added stress on the retina. More research is needed to understand the full impact, but he advised simple precautions like limiting screen time and using blue light filters.

The conversation then turned to red light therapy, a newer form of treatment. One FDA-approved device, the Valeda Light Delivery System, uses **low-level red light to stimulate cellular activity in the retina**. Clinical trials have shown that this therapy may improve visual function for people in the early to intermediate stages of dry macular degeneration.

While light therapy won't replace existing treatments, Dr. Rosen emphasized that it may one day become an important addition to the macular degeneration toolkit. He encouraged people living with macular degeneration to consult with their ophthalmologist before exploring new options.

To learn more and hear the full conversation, visit brightfocus.org/AMDtherapies.

Because of your support, we're able to provide vital sight-saving resources to the public. Thank you.

Please share this newsletter with others who may be interested!

Register for Macular Chats

Recently diagnosed with macular degeneration? Know someone who has it? Receive helpful information from our FREE monthly phone call with doctors, researchers, and experts in the field on timely topics. You can submit questions before or during the event. Transcripts and audio recordings are available afterward on our website.

To register, call 800-437-2423 or go to **brightfocus.org/MDRchats**.

Macular Degeneration Research

BBB ACCREDITED CHARITY

Macular Degeneration Research is a program of BrightFocus Foundation, a charitable organization that complies with all 20 rigorous BBB Wise Giving Alliance Standards.

Juliette Wohlschlegel, PhD

RESEARCH SPOTLIGHT: JULIETTE WOHLSCHLEGEL, PhD

Can the Retina Heal Itself?

One of the most promising frontiers in macular degeneration research is also one of the most extraordinary—the possibility that the retina may one day regenerate itself.

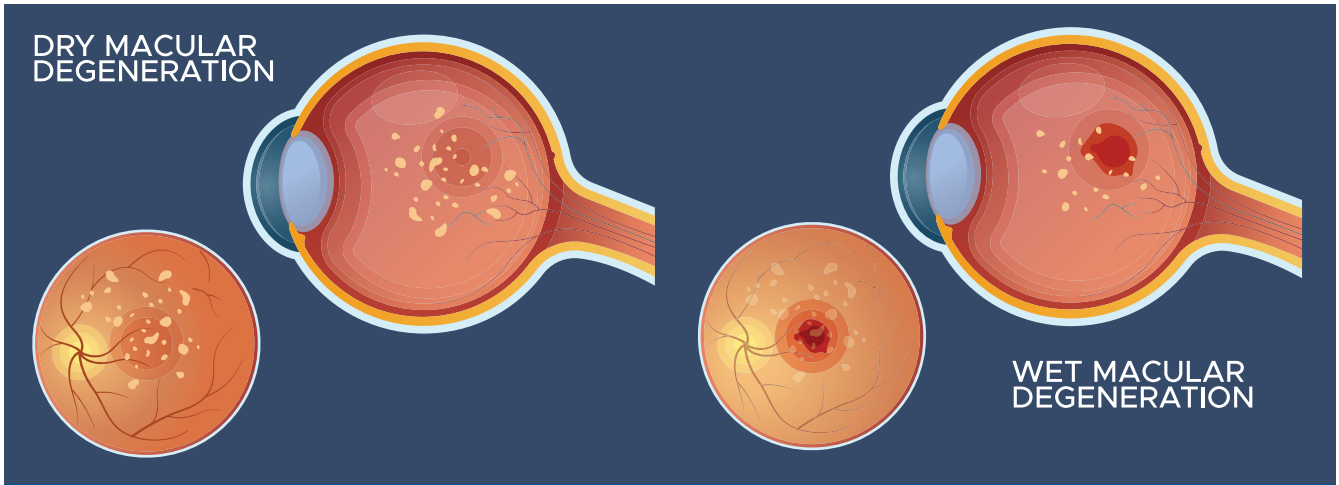
Juliette Wohlschlegel, PhD, and her team are exploring a bold new approach to restore lost vision by activating the retina's natural ability to repair itself. In all vertebrates, including humans, the retina contains support cells called **Müller glia**. In species like fish, these cells can drive regeneration. While the human retina doesn't regenerate on its own, scientists have found ways to coax Müller glia to act more like regenerative cells.

Dr. Wohlschlegel's project aims to **reprogram Müller glia into cone photoreceptors**, the light-sensing cells responsible for sharp central vision. If successful, this could provide a powerful new strategy to replace the cells that progressively degenerate in macular degeneration.

Unlike stem cell transplants, which face challenges such as rejection and cell integration, this approach stimulates the **intrinsic healing potential of the retina itself**. Using advanced 3D retinal models, the research team is testing how to spark this transformation in the macula.

If this technique proves effective, it could open a new chapter in regenerative medicine, one where vision might be restored without surgery or immunosuppressive drugs.

Your support makes this kind of bold, forward-thinking science possible. Together, we're helping to redefine what's possible in the fight against vision loss.



Thanks to your help, scientists are working hard to stimulate retinal cells to regenerate after damage caused by macular degeneration.

MAKE A WILL, MAKE AN IMPACT

Make your will to make an impact for Macular Degeneration Research. August is Make-A-Will Month, and we're encouraging our entire community to make their wills—for their futures, their loved ones, and to find a cure for macular degeneration.

Legacy gifts cost nothing today but support Macular Degeneration Research for years to come. To make this process easier than ever, we've partnered with **FreeWill** because their secure online resource can help you create your will within 20 minutes for free.

Think of it as our gift to you, a free tool that makes giving easier, faster, and more impactful. Visit freewill.com/brightfocus to start today.

We're Here to Help

If you have questions, please contact us at **301-556-9362** or **plannedgiving@brightfocus.org**.

Macular Degeneration Research

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