National Glaucoma Research

SUMMER 2026

REPORT

Can Stem Cell Treatments Cure Glaucoma?

Thanks to your support, National Glaucoma Research-funded scientists are making steady progress toward understanding whether stem cell–based therapies could one day change how glaucoma is treated.

Jason Meyer, PhD, is exploring how adult cells can be reprogrammed and guided to become retinal ganglion cells—the nerve cells that are lost in glaucoma. His team is studying how these cells might one day reconnect the eye and brain, a critical step toward restoring vision.

Other investigators are focused on protecting existing vision. Colleen McDowell, PhD, and her team are examining how cell-based signaling molecules may improve the function of the eye's drainage system, helping to reduce damaging pressure inside the eye before irreversible harm occurs.

Meanwhile, Yuan Lei, PhD, is investigating how small genetic regulators called microRNAs may influence eye pressure and optic nerve health. In early studies, these molecules—and other cell-produced messengers—have shown promise in protecting the optic nerve from glaucoma-related damage.

Your support makes evidence-based scientific discoveries possible.

Together, this work represents a shift toward treating glaucoma at its biological roots, rather than only managing the symptoms.

Because of you, National Glaucoma Research-supported scientists are advancing evidence-based science that brings us closer to more effective treatments for protecting sight. Thank you.

President's Corner

I am inspired by the pioneering research made possible by your generosity. Thanks to you, scientists are accelerating discoveries that bring us closer to new treatments for glaucoma and a future without vision loss.

In this issue, you'll learn how Pete Williams, PhD, is developing a first-in-class injectable drug designed to protect the retina and optic nerve by targeting the root cause of glaucoma. You'll also discover how a groundbreaking 3D model of the eye's fluid drainage tissue is giving researchers their closest look yet at how glaucoma begins. And a leading glaucoma specialist answers your most pressing questions.

Your support fuels this progress. Together, we are advancing science, funding bold ideas, providing valuable information to the public, and creating hope for millions. Thank you for being part of this journey to preserve sight and transform lives.

Stacy Pagos Haller

Researcher Spotlight: Pete Williams, PhD

Developing New Drugs for Glaucoma

Glaucoma damages the retina and optic nerve, often progressing silently until vision loss becomes irreversible. Current treatments focus on lowering eye pressure, but for too many people that approach isn't good enough. The underlying nerve damage continues, and blindness eventually follows.

With support from National Glaucoma Research, Pete Williams, PhD, of Karolinska Institutet in Solna, Sweden, is working to change that. His lab is developing a first-in-class injectable drug designed to protect the retina and optic nerve directly—targeting the root cause of vision loss, not just its symptoms.

> Early results are encouraging, showing the potential to prevent nerve damage and even recover vision.

Dr. Williams's research focuses on restoring a vital nutrient that nerve cells need to survive. When levels fall, nerve cells deteriorate—and a person's vision does too. Early results are encouraging, showing the potential to prevent nerve damage and even recover vision in people living with glaucoma. Because similar depletions play a role in other neurological diseases, the discoveries coming out of his lab could have far-reaching impacts.

Thanks to your generosity, pioneering research like Dr. Williams's brings us closer to treatments that preserve vision and extend independence for millions at risk of blindness.

To Understand What Goes Wrong, First Study What Goes Right

Studies on this 3D model may help develop future treatments for glaucoma.

Glaucoma damages the optic nerve when fluid inside the eye fails to drain properly, causing pressure to build until vision loss becomes irreversible. Yet experts still don't fully understand why that drainage system breaks down—or how to stop it.

National Glaucoma Research–funded scientist Samuel Herberg, PhD, of SUNY Upstate Medical University, is working to fill that gap. Drawing on his background in tissue engineering, Dr. Herberg has built a first-of-its-kind 3D model that re-creates the eye's fluid drainage tissue in the lab, allowing him to study how healthy drainage cells behave under the kind of pressure and stress associated with glaucoma.

The insight behind his approach is simple but powerful: to understand what goes wrong in a diseased eye, you first must understand how a healthy one works. By studying normal cell behavior in conditions that closely mirror real tissue, Dr. Herberg hopes to identify the specific changes that lead to glaucoma and pinpoint new targets for treatment.

It is the most accurate model of its kind ever built for this purpose, and it would not be possible without the generosity of eye tissue donors and supporters like you. Pioneering research like Dr. Herberg's brings us closer to the treatments needed to protect vision and prevent blindness for millions living with glaucoma. Thank you for your support.

Register for Glaucoma Chats

Recently diagnosed with glaucoma? Know someone who has it? Join our FREE monthly phone call with doctors, researchers, and experts on glaucoma to receive valuable information. You can submit questions before or during the live event. Transcripts, audio recordings, and podcasts are available on our website.

To register, call **855-345-6647** or go to **brightfocus.org/NGRchats**.

Your Top Glaucoma Questions, Answered

In a recent Glaucoma Chats session, glaucoma specialist Poonam Misra, MD, of Manhattan Eye, Ear & Throat Hospital, tackled some of the most frequently asked questions from listeners.

What causes glaucoma? "Think of the eye like a sink," Dr. Misra explains. "There's fluid being produced, like a faucet running, and a drain where it must leave the eye. If anything blocks that drain, pressure builds up inside the eye." Over time, that elevated pressure damages the optic nerve—the connection between the eye and the brain—and that damage is how glaucoma is diagnosed. Genetics, certain medications, and poor drainage system function can all contribute.

Will people with glaucoma eventually lose their sight completely? It is one of the most common questions Dr. Misra receives. Her answer is honest but hopeful. While glaucoma does progress over time, the rate varies significantly from person to person, and early detection makes a meaningful difference. "The only way to know your risk is to monitor your own progression," she says. Regular eye exams and visual field tests are essential tools for understanding how quickly—or slowly—the disease is moving.

Is there a cure for glaucoma? Not yet, but research is advancing. "There is no clinically available way to regenerate optic nerve cells right now," Dr. Misra acknowledges. "But there is a lot of research underway, including stem cell therapies that could change that." In the meantime, the best protection remains early screening and consistent monitoring.

What the New Tax Law Means for Your Giving in 2026

Changes to the tax code for 2026 could affect how you choose to give. Among the most significant changes: even donors who don't itemize may now deduct up to $1,000 (single filers) or $2,000 (married couples), meaning gifts of any size can carry a tax benefit. Itemizers will need to give at least 0.5 percent of their adjusted gross income to claim a charitable deduction, and top earners will see a slight reduction in their per-dollar tax benefit.

If you give appreciated stock, real estate, or directly from your IRA, you may find additional ways to maximize your impact. As always, we encourage you to consult your financial advisor to determine the giving strategy that works best for you in 2026, and you can visit brightfocusplannedgiving.org/new-tax-law for more information.

Thank you for supporting National Glaucoma Research

Please share this newsletter with someone who might be interested in learning more about some of the latest advancements in research to diagnose, prevent, treat, and cure glaucoma. This newsletter is published by National Glaucoma Research, a program of BrightFocus Foundation®, a nonprofit organization located at 22512 Gateway Center Drive, Clarksburg, Maryland 20871, 301-948-3244, brightfocus.org.

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