Macular Degeneration Research News

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Sandeep Moothedath Subrahmanian, PhD

SWITCHING OFF A HARMFUL PROTEIN COULD HELP PROTECT VISION

Why does dry macular degeneration begin damaging the eye long before symptoms appear? Thanks to your support, scientists are uncovering critical clues, starting with a protein that acts like a dangerous molecular "switch."

Macular Degeneration Research grantee Sandeep Moothedath Subrahmanian, PhD, is investigating how a stress-response protein called REDD1, the molecular "switch," accumulates in the retina during the early stages of dry macular degeneration. Normally, cells quickly break down REDD1, but when this switch is activated, REDD1 builds up, driving inflammation and oxidative stress, two major contributors to vision loss.

In his earlier work, Dr. Subrahmanian found that too much REDD1 triggers damage to the retinal pigment epithelium and photoreceptors, the cells essential for clear, sharp vision. Now, he's using advanced laboratory models, including human retinal cells, to understand exactly how this process begins and how to stop it.

By uncovering what turns on this harmful switch, his research could reveal new therapeutic targets capable of slowing macular degeneration before it steals sight.

Your generosity makes this work possible. You are fueling promising discoveries like this one, bringing us closer to treatments that protect vision and transform the future for millions living with macular degeneration.

IN THIS ISSUE

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.

SCIENCE CORNER

I am fortunate to speak with scientists around the world who are leading some of the most innovative studies in the fight against macular degeneration.

Their teams are using our grant funding to search for new treatments to help prevent and slow disease progression, as well as fuel groundbreaking discoveries that might lead to a cure.

For example, in this issue you'll read about Ashley Farre, PhD. Her research on the eye's immune cells is crucial to understanding vision loss.

All of us know people with this disease. It is a leading cause of blindness that impacts 20 million people over age 40 in the U.S. alone. An estimated 200 million people worldwide have macular degeneration, with numbers expected to reach 288 million by 2040.

Time is of the essence if we're going to stop it.

Thank you for helping us advance science with your generosity.

Diane

Diane Bovenkamp, PhD
VP, Scientific Affairs

A Navy veteran and professional photographer adapts to life with macular degeneration while urging others to stay proactive about their eye health.

DOUG FINDS HOPE AMID VISION LOSS

For Doug Sanford, sight has always been more than vision; it's been his purpose. As a Navy combat photographer, he captured intelligence imagery for top military leaders before building a thriving commercial photography career.

That's why his diagnosis of macular degeneration, the same disease that once frightened his family when his father developed it, felt overwhelming. "My eyes are my living," he explains. "If they don't work, it's going to be a real challenge."

Today, Doug uses bright light, adaptive tools, and support from loved ones to stay behind the camera. Autofocus technology helps him keep shooting, even though reading a menu now requires a flashlight.

His message to others is simple: Don't lose hope. "The fear is real," Doug says, "but it isn't the end. Get regular eye exams, follow medical guidance, and stay encouraged because research is moving forward every day."

"People are doing research, and BrightFocus Foundation is working on this kind of thing," he says.

Thanks to you, scientists funded by Macular Degeneration Research, a BrightFocus Foundation program, are driving progress toward treatments that could slow the disease and protect sight.

HOW ONGOING TREATMENT HELPS SLOW GEOGRAPHIC ATROPHY

Sara Fard, MD

Geographic atrophy (GA), an advanced form of dry age-related macular degeneration, causes gradual and irreversible loss of retinal cells. But new research is giving hope to people living with this disease. Treatments can help slow the progression of GA, preserving vision for as long as possible.

Sara Fard, MD, a board-certified ophthalmologist and vitreoretinal surgeon at Illinois Retina Associates, explains that GA develops when critical retinal layers begin to deteriorate. While this damage cannot be reversed, injectable therapies such as Syfovre™ and Izervay™ can significantly reduce the rate of retinal tissue loss.

These treatments work by targeting overactive components of the immune system, specifically the complement pathway, which plays a key role in GA. Clinical studies show that patients who stay on consistent therapy experience slower lesion growth, better preservation of central vision, and fewer new blind spots than those who delay care.

Although injections require regular visits, Dr. Fard stresses that early and ongoing treatment offers the greatest chance to protect sight. "The goal is to preserve as much functional vision as possible, for as long as possible," she says.

Emerging therapies, including oral and under-the-skin options, are now in clinical trials, offering even more hope for the future.

Please share this newsletter with others who may be interested!

EYE-HEALTHY SHOPPING LIST

Research shows that certain nutrients can help support eye health and may slow the progression of macular degeneration. The good news? Many of these nutrients are found in delicious, easy-to-find foods. Use this shopping list as a helpful reminder next time you're at the store.

For the antioxidants **lutein** and **zeaxanthin**:

- Broccoli
- Brussels sprouts
- Collard greens
- Corn, yellow
- Egg yolks
- Green beans
- Kale
- Lima beans
- Mango
- Peppers, orange and green
- Spinach
- Squash
- Sweet potatoes

Great sources of **vitamin C**:

- Broccoli
- Cantaloupe
- Citrus fruits
- Green peppers
- Leafy greens
- Strawberries
- Sweet and white potatoes
- Tomatoes

For **vitamin E**:

- Eggs
- Fortified cereals
- Green, leafy vegetables
- Nuts and nut oils
- Wheat germ
- Whole grains

Eat right every day to protect your sight!

Eye-Healthy Tips and Recipes

Making great meals with eye-healthy ingredients is easy. For recipes that will make your whole family happy, visit **brightfocus.org/MDRrecipes**.

Use your mobile device to access our recipes quickly.

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/MacularChats.**

Macular Degeneration Research

BBB ACCREDITED CHARITY

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Ashley Farre, PhD

RESEARCHER SPOTLIGHT: ASHLEY FARRE, PhD

Macular degeneration destroys the eye's light-sensing photoreceptors, leading to vision loss. One promising future strategy is to replace these damaged cells, but for new photoreceptors to work, they must connect correctly with the retina's existing neural circuits.

With your support, Ashley Farre, PhD, of the University of Idaho, is investigating a surprising partner in this process: microglia, the eye's resident immune cells.

Dr. Farre's team is studying whether microglia help guide new photoreceptors as they form functional synapses, the communication points that relay visual information to the brain. Her work could determine which microglial behaviors support healthy wiring and which ones may need to be redirected to ensure successful treatment.

Using advanced live imaging in model retinas, her lab can watch microglia and neurons interact in real time. They are also examining how microglia influence naturally regenerated photoreceptors after retinal injury, offering rare insight into how the retina rebuilds itself.

This research could play a crucial role in designing future cell-replacement therapies for macular degeneration. By understanding how microglia shape these connections, scientists may one day help new photoreceptors integrate seamlessly, restoring sight where it was once lost.

Thanks to your generosity, innovative projects like Dr. Farre's are bringing us closer to effective treatments for macular degeneration.

Macular Degeneration Research

HOW WILL YOU MAKE A DIFFERENCE?

Macular Degeneration Research (MDR), a program of BrightFocus Foundation, depends on generous people like you. We receive no government funding, meaning every breakthrough and every piece of free, trusted information we provide are made possible by your support.

Your tax-deductible gift can take many forms. Each one helps drive research toward better treatments and, one day, a cure.

Monthly Giving	IRA Charitable Giving	Donor-Advised Funds
Provide steady, reliable funding for research and free information for the public. Change or cancel anytime.	If you're 70½ or older, you may reduce your taxable income by giving directly from your traditional IRA.	Recommend a grant through your donor-advised fund and make an impact.

Your support moves us closer to ending macular degeneration—thank you for making a difference. Want to learn about even more ways to give? **Visit: brightfocus.org/MDRwaystogive**

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