

Dr. Radha Ayyagari

AGE-RELATED macular degeneration, or AMD, is an Everest-like challenge. It affects 10 million people in the United States and is the number-one cause of blindness in those 55 and older. Which means that aging Baby Boomers, especially, are susceptible.

Complicating the issue is the fact that there are two kinds—**wet and dry AMD**. The wet form, caused by blood-vessel leakage, is treatable. But the dry form, as Dr. Radha Ayyagari, a retinal researcher says, “causes something called RPE atrophy. RPE are retinal pigment epithelium, a thin layer of cells that act as a support system for photoreceptors, the cells that enable us to see. If RPE are not normal,

photoreceptors start dying, and that results in vision loss.”

In particular, central vision loss, as AMD affects the macula, or center, of the retina. And 90 percent of AMD cases are caused by the dry form.

Fortunately, dry AMD is now the focus of many researchers, including those supported by FFB. The latest round of grants approved by its Scientific Advisory Board (SAB) are **funding five projects targeting macular degeneration**, one spearheaded by Dr. Ayyagari, a longtime Foundation associate who has her own lab at the University of California, San Diego.

She recently described that project and discussed FFB’s pivotal role in retinal research.



Dr. Radha Ayyagari in her lab at UC San Diego

Please explain your macular degeneration research.

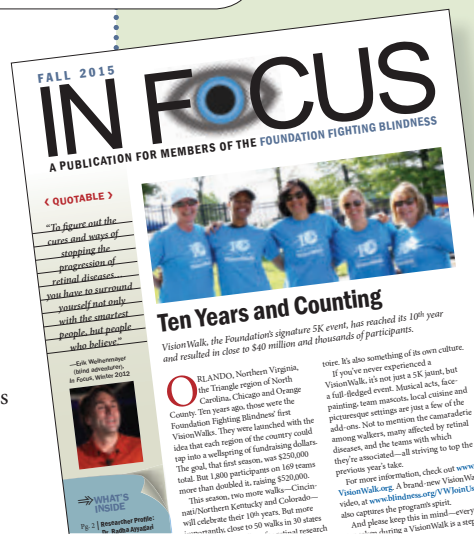
We’ve been studying patients since the late ’90s, including one family that’s had central-vision problems for generations. They’re not diagnosed with AMD, but, by their sixties, they’re showing symptoms for both wet and dry AMD.

MESSAGE FROM **THE CEO**



William T. Schmidt
Chief Executive Officer
Foundation Fighting Blindness

Enjoying the Ride



THIS IS, INDEED, AN EXCITING TIME. Those who’ve been at the center of retinal research for at least a decade are witnessing what was once unimaginable. Back in 2005, when I began with the Foundation, the big news was that a gene therapy for Leber congenital amaurosis that had worked in pre-clinical testing was being prepared for launch.

Today, as that trial winds down—with



“I was recruited to this country as a fellow of the Foundation Fighting Blindness,... to train in retinal genetics.”

Why the current focus on dry AMD?

I think it’s coincidental that the SAB grants target macular degeneration. All submissions to the SAB are judged solely by scientific merit, and they happened to rise to the top.

One thing it indicates, though, is the AMD field has matured. These grants are going to groups trying different ways to understand this disease and develop different types of treatment. Compared to 10 years ago, we know much more about macular degeneration. We have the data that helps understand the disease better, and there are model systems to carry out these studies and the technology to do so.

What has been FFB’s role in this evolution?

I’m originally from India. And if you go back to 1991, I was recruited to this country as a fellow of the Foundation Fighting Blindness, to

the National Eye Institute to train in retinal genetics. Since then, I have continuously been supported by the Foundation, becoming an investigator and a professor.

The thing that got me started is, somebody donated funds to support a fellow. Supporting me made me continue my work and helped me understand these diseases. If someone donates \$300,000, you can support a complete study, like mine. If someone gives a small amount, you can send a student to a conference to learn about retinal diseases and get interested.

So whatever someone can give the Foundation to keep this research going matters. It’s where my career began and why I’ve stayed with retinal research. One, I got the support. Two, it’s very exciting work. And I’ve trained many people, and they’re training many more. We are building an army. 👁

What they share is a mutation in a gene called CTRP5, also known as C1QTNF5, which we’ve found can cause AMD-like disease. So we’ve been studying in the lab exactly what that mutation and others do. The Foundation’s grant allows us to continue these studies so that we can develop treatments.

results showing that 100 people have had eyesight restored—close to 25 trials are either underway or being prepared for launch. Yes, 25! And not just for gene therapies, but for stem-cell and pharmaceutical treatments and retinal prosthetics as well.

Dr. Radha Ayyagari, the subject of the Researcher Profile, above, says it best when explaining the heightened activity in her area of expertise,

age-related macular degeneration. The research, she points out, has “matured.” The data, the technological tools, the resources—all are poised to support a spectrum of clinical trials FFB played a big role in facilitating (pg. 4).

We can’t forget, however, that each trial takes years to conduct. And chances are not all will succeed. Even if they do, the treatments would benefit thousands as opposed

to the millions of people affected by FFB’s targeted diseases.

It’s thus crucial to continue raising awareness and funds—which is why we spotlight in this issue our Vision-Walk program (pg. 1), Gordon and Llura Gund Family Challenge (pg. 6) and gift-planning campaign (pg. 7). We’re encouraged, but our work is far from over.

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