

NEWS *Macular Degeneration Research*



BETTER HEALTH THROUGH RESEARCH

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Scientists supported by Macular Degeneration Research have demonstrated that suppressing a protein called CCR3 can reduce the abnormal growth of blood vessels that leads to AMD. These findings may enable physicians to catch the disease before the center of the eye's retina has been destroyed, and develop more effective treatments.

"This is a major paradigm shift in macular degeneration research," said Dr. Jayakrishna Ambati, a professor of physiology at the University of Kentucky College of Medicine. "With CCR3, we have for the first time found a unique molecular signature for the disease. This brings us closer than we have ever been to developing a clinical diagnostic tool to discover and treat the disease early, before vision is lost."

Current AMD treatments are designed to block vascular endothelial growth factor (VEGF), which triggers the growth of abnormal blood vessels. However, some scientists fear these treatments may prove unsafe over the long term because VEGF is also critical to the growth of healthy blood vessels. Moreover, some two-thirds of AMD patients do not respond to anti-VEGF agents.

The University of Kentucky researchers, working with colleagues from the University of North Carolina, made their first breakthrough when they found that



the CCR3 protein could be detected in the eye tissue of AMD patients but not in the eyes of people without AMD. By using drugs or genetic engineering to block the protein, they were able to slow the growth of abnormal blood vessels. They also found that drugs targeting CCR3 were more effective than drugs targeting VEGF.

The researchers will now look to see if the protein can be detected outside the human eye – in the bloodstream. If so, it could be used to determine which persons are at risk for AMD.

"The work of Dr. Ambati and his research team has opened an exciting new avenue for AMD diagnosis and treatment," says Brian Regan, Ph.D., president of Macular Degeneration Research. "We look forward to seeing how they build on their discoveries in the years ahead, and we are proud to be their partners in creating new generations of therapies that can minimize or even reverse the damage caused by AMD."

A variety of resources are available for people who suffer from macular degeneration. For a list of agencies that offer counseling, training and other special services please call Macular Degeneration Research at **1-800-437-2423** or visit our website at **www.ahaf.org/macular**.

Macular Degeneration Research is a Program of the American Health Assistance Foundation

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President's Corner

Why we do what we do

What makes Jayakrishna Ambati so remarkable?

To begin with, he is a brilliant researcher who has made serious headway in the battle against a terrible disease.

More than that, he has benefited from the support of Macular Degeneration Research.

The contributions you make to this organization – like the contributions we make to cutting-edge researchers like Dr. Ambati – are fundamentally an act of faith. And, as this issue of **Macular Degeneration Research News** makes clear, that faith is being amply rewarded.

Dr. Ambati, for instance, has found that a potentially promising treatment for age-related macular degeneration and other conditions may also compromise immune function. And his most recent discoveries have helped to isolate a protein that may be critical to both diagnosing and to treating macular degeneration.

His example serves to remind us why it is so important to sponsor research at the ground level. No matter where the research leads, we will be the richer for knowing it. And we will be that much closer to rescuing the sight of future generations.



Brian K. Regan, Ph.D.

AMD Cases to Rise Substantially by 2050

Health impacts will be mitigated by new therapies, says study

The number of age-related macular degeneration (AMD) cases is expected to jump markedly by 2050, according to an analysis published in *Archives of Ophthalmology*, but the use of more effective therapies will likely lower the percentage of cases that result in vision loss and disability.

Using existing health data, a team of scientists at RTI International projected the disease's future prevalence under different treatment scenarios. In every scenario, cases of AMD increased from 9.1 million in 2010 to 17.8 million in 2050.

“Our model predicts large increases in both cases of early and advanced AMD and the visual impairment and [legal] blindness attributable to it over the next 40 years regardless of the treatment steps taken, with virtually all of these increases attributable to the aging of the U.S. population,” write the article's authors.

They add, however, that existing medical therapies could reduce attendant visual impairment by as much as 35 percent, translating to 565,000 fewer cases in 2050.

In particular, the authors cite vitamin therapy as a cost-effective way of delaying AMD progression. “Public prevention efforts should focus on expanding the use of antioxidant vitamins in people with early AMD and ensuring that these patients use the correct dosage,” write the authors. They also recommend improved access to anti-VEGF and laser therapies.



bbb.org/charity

Macular Degeneration Research is a program of the American Health Assistance Foundation, a charitable organization that complies with the 20 rigorous BBB Wise Giving Alliance Standards.

Scientists Find New Drug Candidate for Slowing AMD



Researchers have zeroed on a drug that could, for the first time, enable physicians to treat AMD in its early stages, according to findings published in the *Journal of Biological Chemistry*.

Working with laboratory-engineered mice, scientists with the Case Western Reserve University School of Medicine used a drug called retinylamine to slow AMD's progression. "We have the potential to intervene in the middle of the disease's advancement so we can prevent rapid degeneration of the eye," says study co-author Krzysztof Palczewski.

FDA Expedites Approval Process for Eye Implant

New technology might even replenish retinal cells

The Food and Drug Administration has fast-tracked a novel eye-implant technology that could significantly advance the treatment of vision conditions like AMD.

Devised by the biotech company Neurotech, the surgically implanted capsule contains genetically engineered cells that produce a protein called CNTF, or ciliary neurotrophic factor. The protein diffuses through a semipermeable membrane into the retina, protecting light-sensitive cells.

In animal studies, the capsule has been shown to reduce the degeneration of retinal cells and even in some cases, regenerate them. "The real challenge is whether we'll be able to translate the positive observations in animals in humans," Weng Tao, chief scientific officer of Neurotech, told *Technology Review*. That question will be settled by a second phase of trials.

Ambati to Be Honored for Research Advances

A researcher sponsored by Macular Degeneration Research has been chosen to receive the internationally esteemed Cogan Award for 2010 from the Association for Research in Vision and Ophthalmology.

Dr. Jayakrishna Ambati, professor and vice chairman of ophthalmology and visual sciences at the University of Kentucky, is being recognized for his insights into the interrelationship between AMD treatments and the immune system.

"I am delighted and honored to be chosen for this prestigious award," said Ambati. "While such recognition from my peers is tremendously gratifying, my professional mission is to hasten the day when blindness due to macular degeneration becomes a faded memory."

To date, Macular Degeneration Research has awarded \$200,000 to the work of Dr. Ambati and his team.

Reminder!

The Pension Act of 2006 will expire on December 31, 2009. This means that, beginning next year, IRA owners who are 70½ or older will no longer be able to make tax-free charitable gifts of up to \$100,000 per year from their IRAs. Please keep that in mind as you make your end-of-the-year charitable donations.

Acknowledge the Special People in Your Life

Honor gifts to Macular Degeneration Research give twice over



Looking for a special way to acknowledge the important people in your life? Consider an honor gift to Macular Degeneration Research.

Honor gifts can be given on special occasions – a friend’s or relative’s birthday, graduation or anniversary – or they can be given on holidays like Christmas, Hanukkah, Mother’s Day and Father’s Day. Or they can be given at any time of the year to show appreciation for someone’s kindness or to recognize someone’s impact on your life.

Our honor gift program can help you to thank others for their unselfish acts of kindness – while advancing sight-giving and life-enhancing research and educational efforts.

For more information on this unique way of giving, contact Katherine Jimenez of Macular Degeneration Research at 1-800-437-2423.

Thank you for thinking of Macular Degeneration Research!



Log on to our website at www.ahaf.org and click on the Macular Degeneration Research link to learn more about what’s new in the world of research, as well as important information about risk factors for macular degeneration.

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