hope

2019 Annual Report

Alzheimer's Disease Research
Macular Degeneration Research
National Glaucoma Research

BrightFocus® Foundation

Cure in Mind. Cure in Sight.

Dear Friends,

At BrightFocus, as we tackle Alzheimer's, macular degeneration, and glaucoma, diseases rooted in some of science's most complex and unanswered questions, we are guided by a deep, abiding belief: research equals hope.

We see hope in the eyes of the young, promising scientists who each year have their bold research ideas, their audacious "what-if's," accelerated through our Fast Track programs and fellowship awards.

We hear hope firsthand from scientists about their progress toward new tools and technologies to give us earlier, more accurate diagnoses and treatment.

We find hope in the notes we receive from those who say that BrightFocus gave them clear, trusted information, drawn from the latest science, to better understand and manage their health.

Thanks to the generosity of our donors, we are currently supporting a portfolio of nearly 200 research projects around the world. In the past three years alone, we have invested $43 million in the power and promise of science to improve lives for generations to come.

We appreciate your interest in BrightFocus Foundation. On the following pages you will find an overview of our mission to save mind and sight. You will find examples of the research we fund and profiles of just a few of the many scientists and donors who make it possible.

We believe that our Annual Report will help you see why, even in the face of great challenges, we continue to believe that research is the best, most promising pathway to cures.

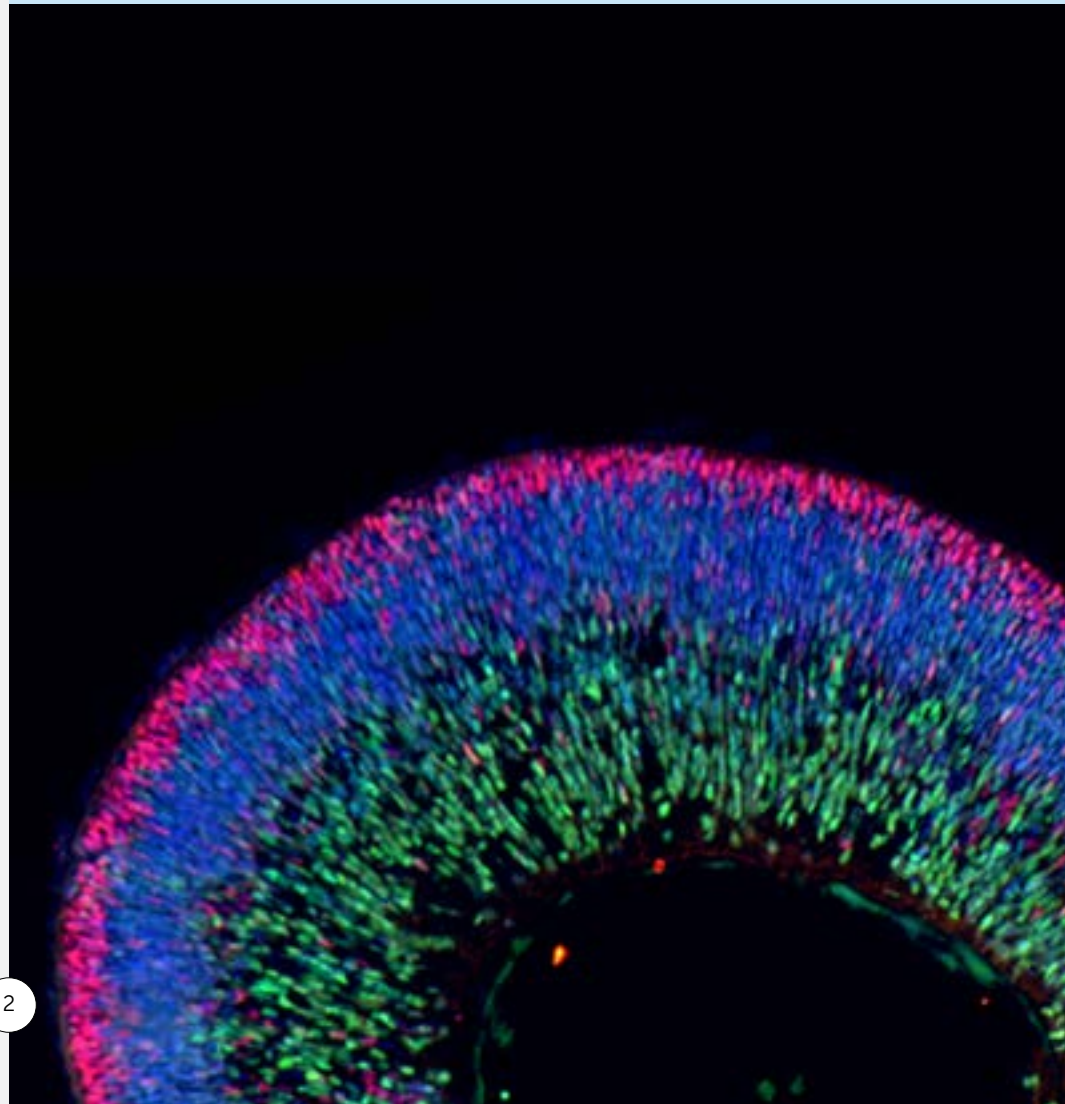
STACY PAGOS HALLER
President and CEO

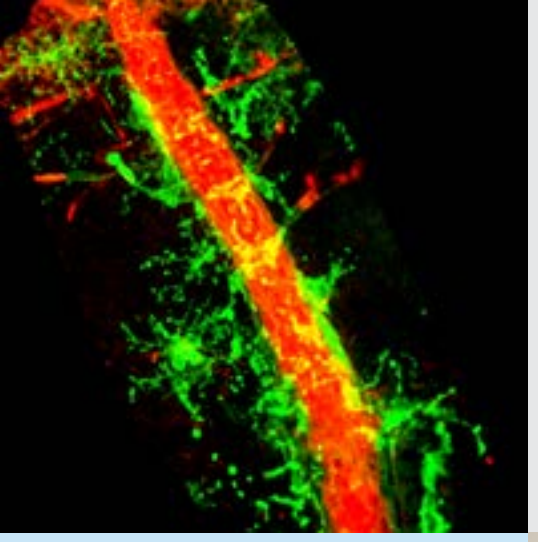
SCOTT D. RODGVILLE, CPA
Chair, Board of Directors

Mission Statement

BrightFocus funds exceptional scientific research worldwide to defeat Alzheimer's disease, macular degeneration, and glaucoma, and provides expert information on these heartbreaking diseases.

Below: *This mini human retina in a dish was created entirely from adult stem cells. (Courtesy of Maria Valeria Canto-Soler, PhD, University of Colorado)*





200 research projects

Left: The intricate network of immune (green) and vascular (red) cells in the retina. (Courtesy of Ye Sun, MD, PhD, Children's Hospital Boston, Harvard Medical School)

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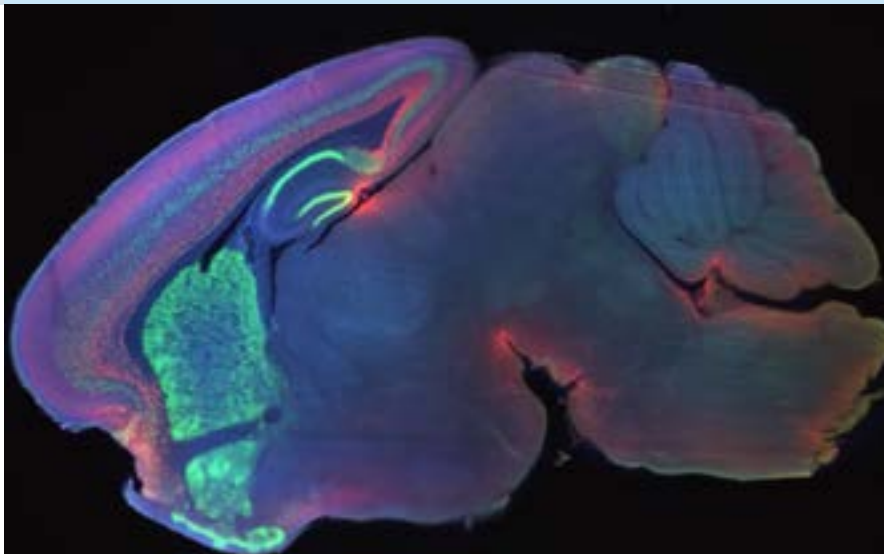
24 countries

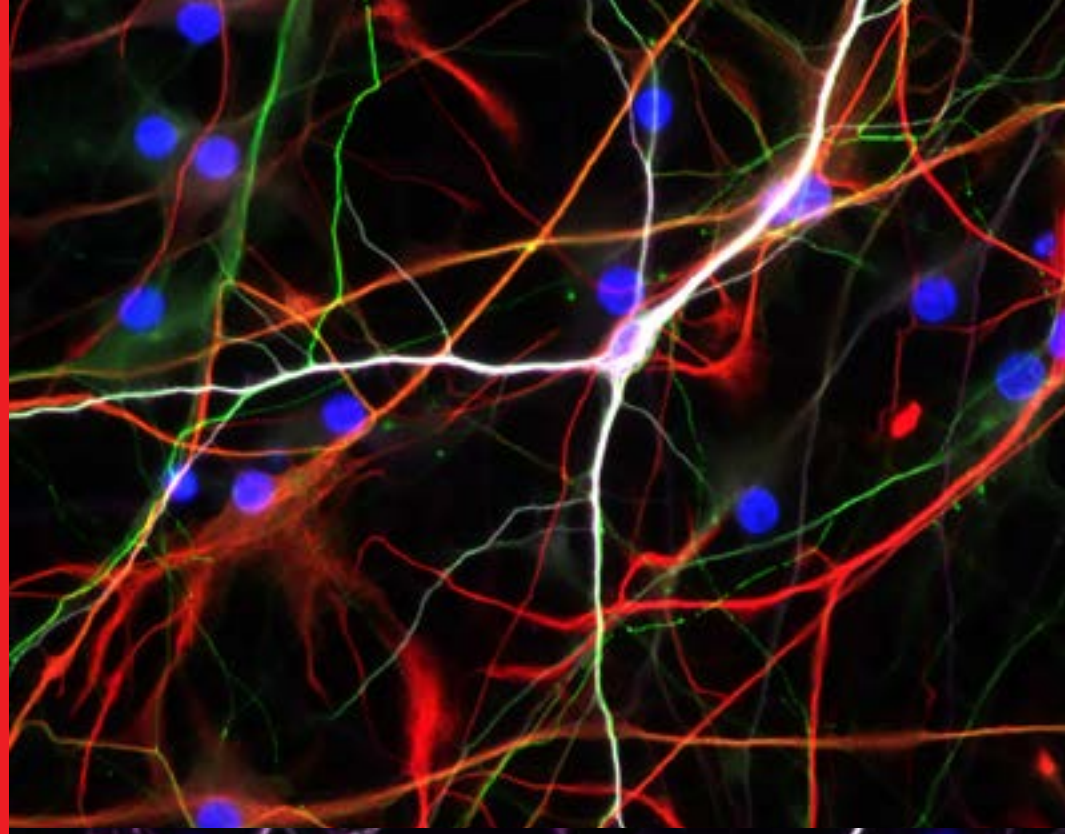
43M in research funding in three years alone

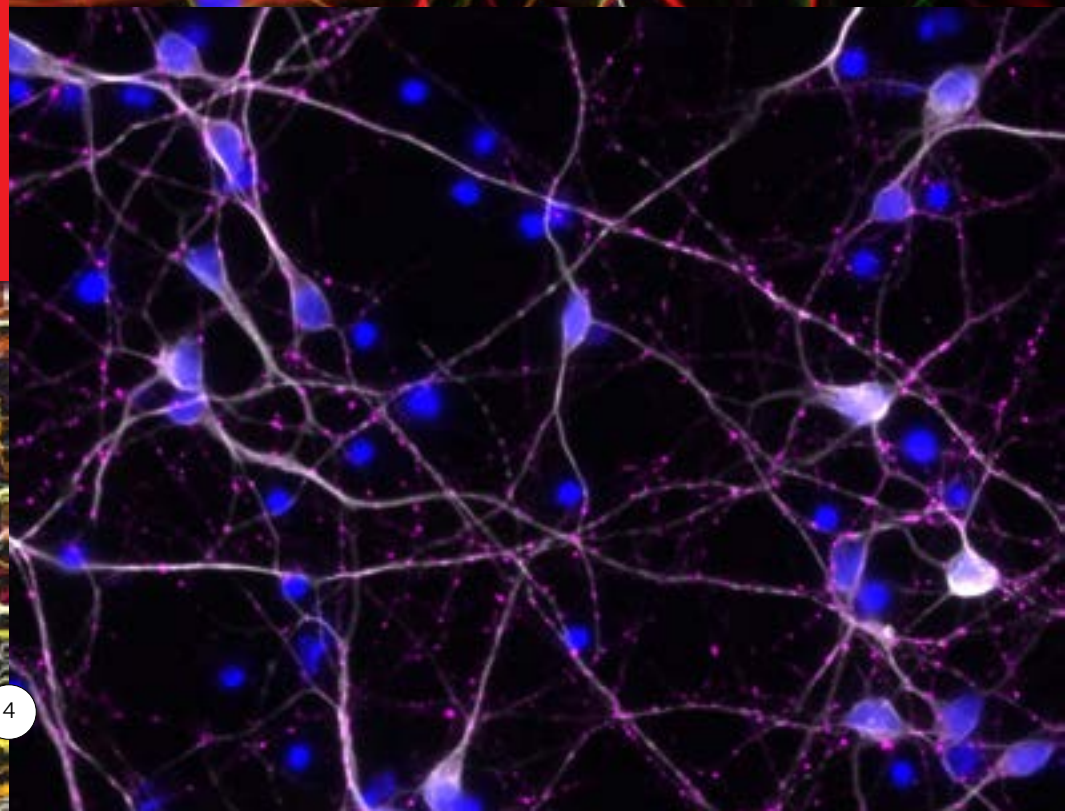
76 new research grants

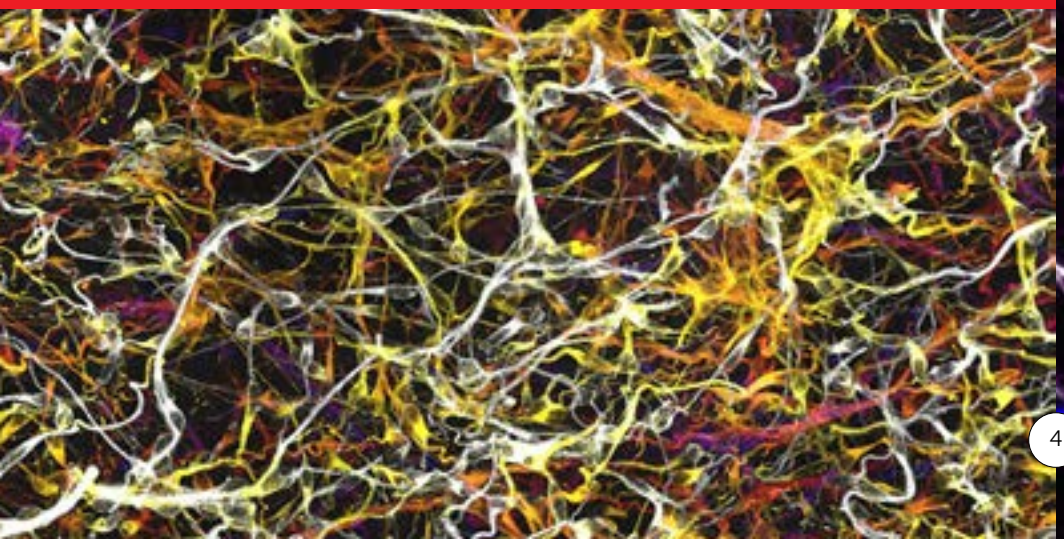
Right: View of a developing mouse brain with different types of neurons stained with different colors. (Courtesy of Alexandre Bonnin, PhD, University of Southern California)



Every 65 seconds another American develops Alzheimer's disease







5.8 million

people live with Alzheimer's in the United States today and by 2050 there will be close to 15 million.

In 2019 BrightFocus awarded funding for

43 new Alzheimer's projects, $10.5 million in research funding.

Above: BrightFocus grantee Nick Cochran, PhD, HudsonAlpha Institute, made news with his work on the "on" and "off" switches of genes implicated in Alzheimer's disease.

Left: Three images of brain cells grown in a lab from adult stem cells. (Courtesy of Dominik Paquet, PhD, Ludwig Maximilian University of Munich, Germany)

Above: A blood test to screen for Alzheimer's turned a major corner toward reaching the marketplace when it was given a "Breakthrough Device" designation by the U.S. Food and Drug Administration. The highly sensitive test could be cheaper and less invasive than the current PET scan or spinal tap diagnostic methods. Joel Braunstein, MD, MBA, and CEO of C2N Diagnostics said, "We are grateful to Alzheimer's Disease Research for being such a strong supporter every step of the way."

"Our studies aim to define what makes some neurons more vulnerable or resilient to disease."

Alzheimer's in the human brain: focusing on one neuron at a time

For Inma Cobos, MD, PhD, it is both a simple question and one of science's great mysteries – how does the brain work?

To answer this, Dr. Cobos, at Stanford University, is applying cutting-edge biotechnology, RNA sequencing of single cells, to compare thousands of neurons in the brains of healthy individuals with those of people with Alzheimer's. She wants to understand why some neurons degenerate in Alzheimer's while others nearby remain healthy.

Her goal is to someday lessen the symptoms of the disease and slow its progression. With a grant from BrightFocus' Alzheimer's Disease Research program, Cobos was able to pursue her research ideas, which have subsequently caught the attention of the National Institutes of Health and others in science.

Above: Leading scientists and young investigators thank BrightFocus donors for supporting Fast Track, a signature boot camp on Alzheimer's research.

Incubator for rising researchers

Above: Kamalini G Ranasinghe, PhD, Memory and Aging Center, Department of Neurology, University of California, San Francisco

More than 100 Alzheimer's scientists from across the globe attended BrightFocus' annual Fast Track program. Bringing together senior researchers with those new to the field, they reviewed the latest discoveries and research directions and fostered new collaborations to accelerate progress towards treatments and cures.

"Alzheimer's Fast Track℠ is an immersive learning opportunity specifically created for scientists who are starting or contemplating a career in Alzheimer's research," said Diane Bovenkamp, PhD, BrightFocus Vice President for Scientific Affairs.

Above: Pasquale shares his experience after receiving an Alzheimer's diagnosis and deciding to join a clinical trial. Viewers are encouraged to visit our foundation's website, brightfocus.org, to learn more.

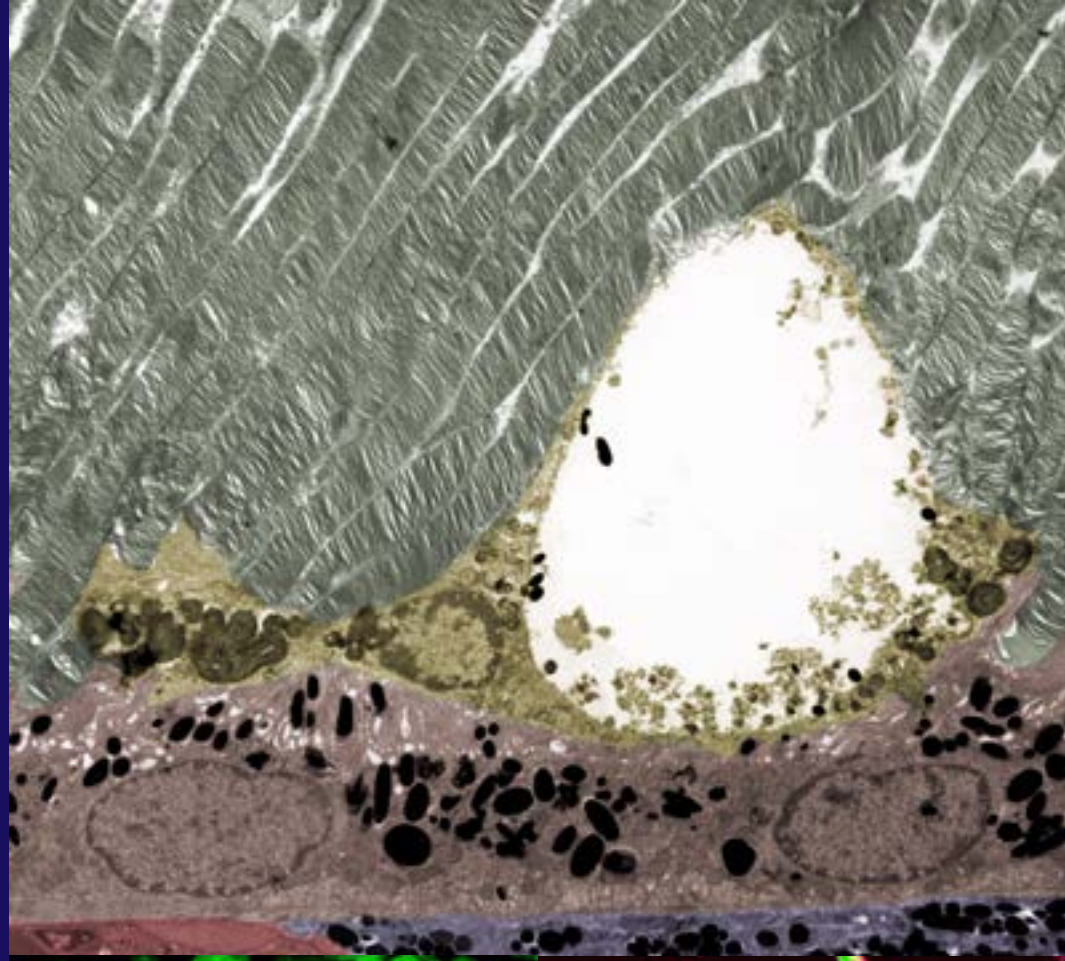
Raising awareness of the impact of Alzheimer's

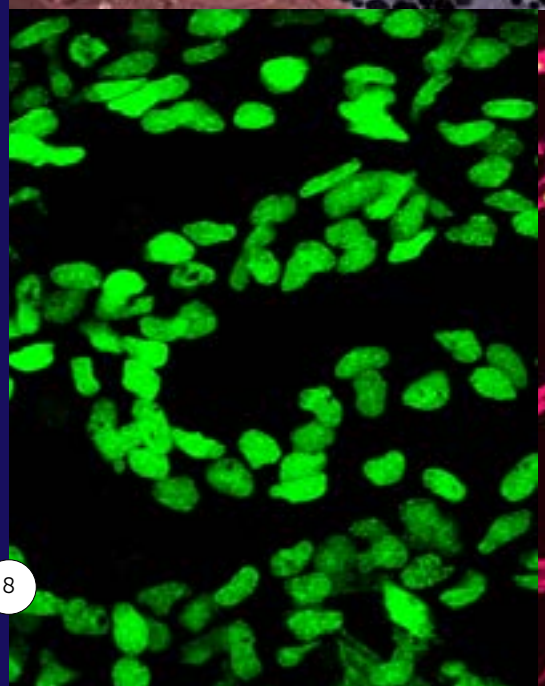
BrightFocus Foundation recently released a new national public service campaign to increase awareness and understanding of Alzheimer's disease. *The Impact of Alzheimer's* public service announcement (PSA) series, in English and Spanish, depicts the powerful, first-person accounts of families impacted by the disease:

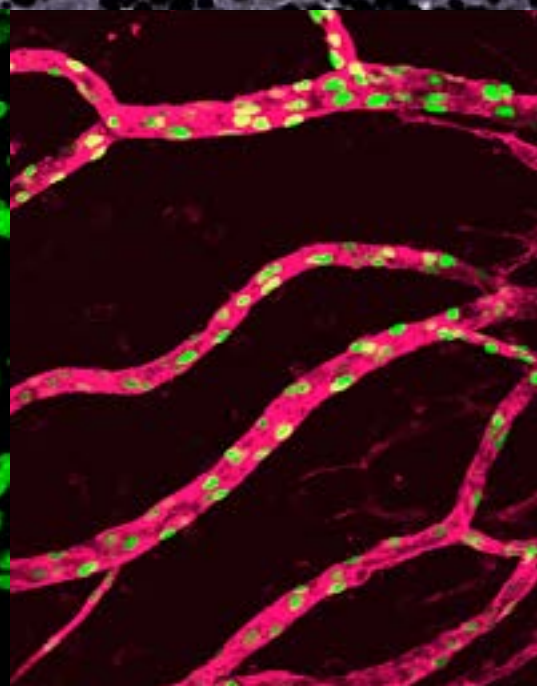
- **Giovanni** lost his father and his grandmother to Alzheimer's disease.
- **Evelyn** is the primary caregiver for her mother who has Alzheimer's.
- **Pasquale** enrolled in a clinical trial after receiving his Alzheimer's diagnosis.

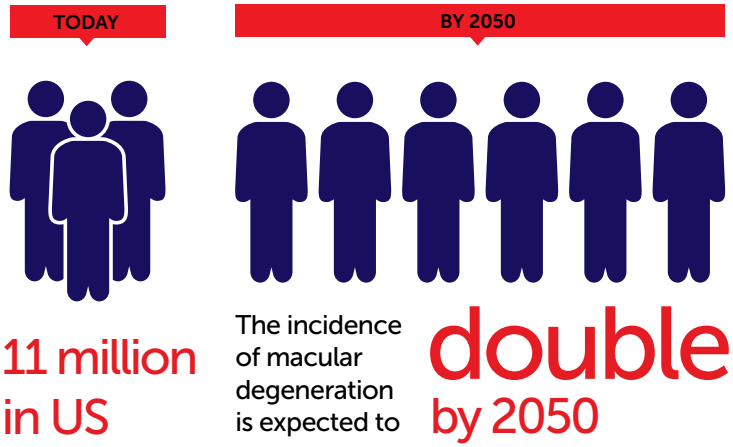
Age-related macular degeneration is a leading cause of irreversible vision loss in the United States,

and for Caucasians older than 40 it is the leading cause of blindness.









In 2019 BrightFocus awarded funding for

$3.1 million for 20 new macular degeneration research awards.

Opposite page, top: *Electron microscopy shows a lipid (fat) bloated immune cell next to the retina. (Courtesy of Florian Sennlaub, MD, PhD, Fondation Voir et Entendre in Paris, France)*

Left: *Image showing mouse vasculature (red) and in green are cells expressing a signaling molecule (Wnt) that determines cell fate. (Courtesy of Ross Poché, PhD, Baylor College of Medicine)*

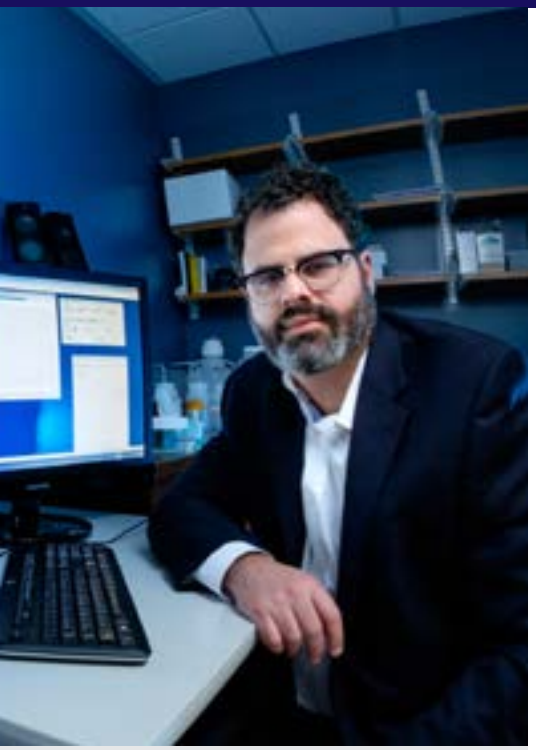
Above: *Featured above are two Macular Degeneration Research grantees, Rajendra Kumar-Singh, PhD, Tufts University, and Aparna Lakkaraju, PhD, University of California, San Francisco, who recently shared highlights of their ongoing projects at the BrightFocus annual awards gala.*

Shaping vision science worldwide

Above: *Our annual BrightFocus Breakfast, held during ARVO, honors incoming vision grantees.*

The annual spring meeting of the Association for Research in Vision and Ophthalmology brings together nearly 12,000 vision scientists from more than 75 countries.

Current and past BrightFocus grantees participate in this global scientific knowledge exchange, and at the 2019 conference, BrightFocus was listed as a funder of more than 80 research presentations. That's a reflection of our growing role as a significant funder of some of the top vision science in the world.



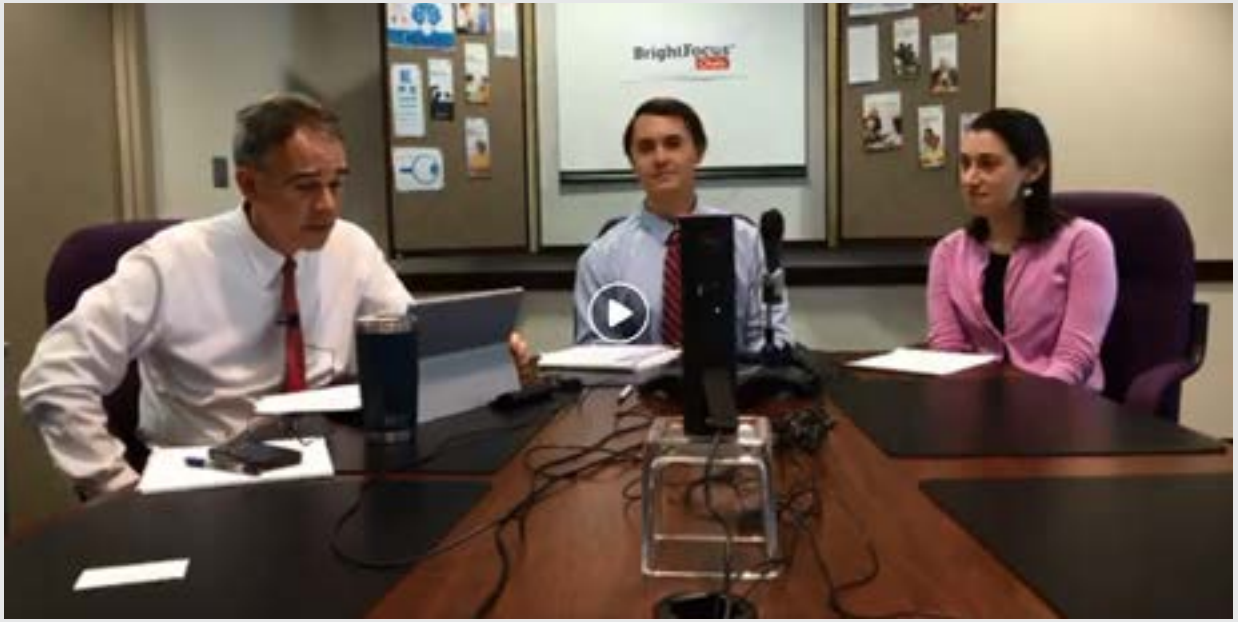
"The role of the immune system in retinal degenerative diseases is an emerging and promising field in AMD research."

Looking beyond the retina to the biology of AMD

Daniel Saban is curious. As a child, it was taking apart toys, watches, pens, and "you name it" to see how they work. Now, holding a PhD and working as a Duke University immunologist, this curiosity means studying how the immune system works in the eye.

Saban's research is examining how the immune cells of the eye support and protect the light-sensing nerves of the retina. He believes that insights into the role and behavior of each immune cell type may lead to new strategies to treat age-related macular degeneration (AMD).

To someone with Saban's drive and curiosity, Macular Degeneration Research, a BrightFocus program, has been crucial, allowing him to "pursue the new and bold ideas" that he says might not be funded by other organizations.



Above: *Michael Buckley, VP, Public Affairs, BrightFocus hosts a Chat with Sean Curry, MPH, and Belinda Weinberg, OD, of the Prevention of Blindness Society of Metropolitan Washington on* Low-Vision Services: Getting the Help you Need.

Above: *Gayatri S. Reilly, MD, The Retina Group of Washington, DC.*

BrightFocus® Chats

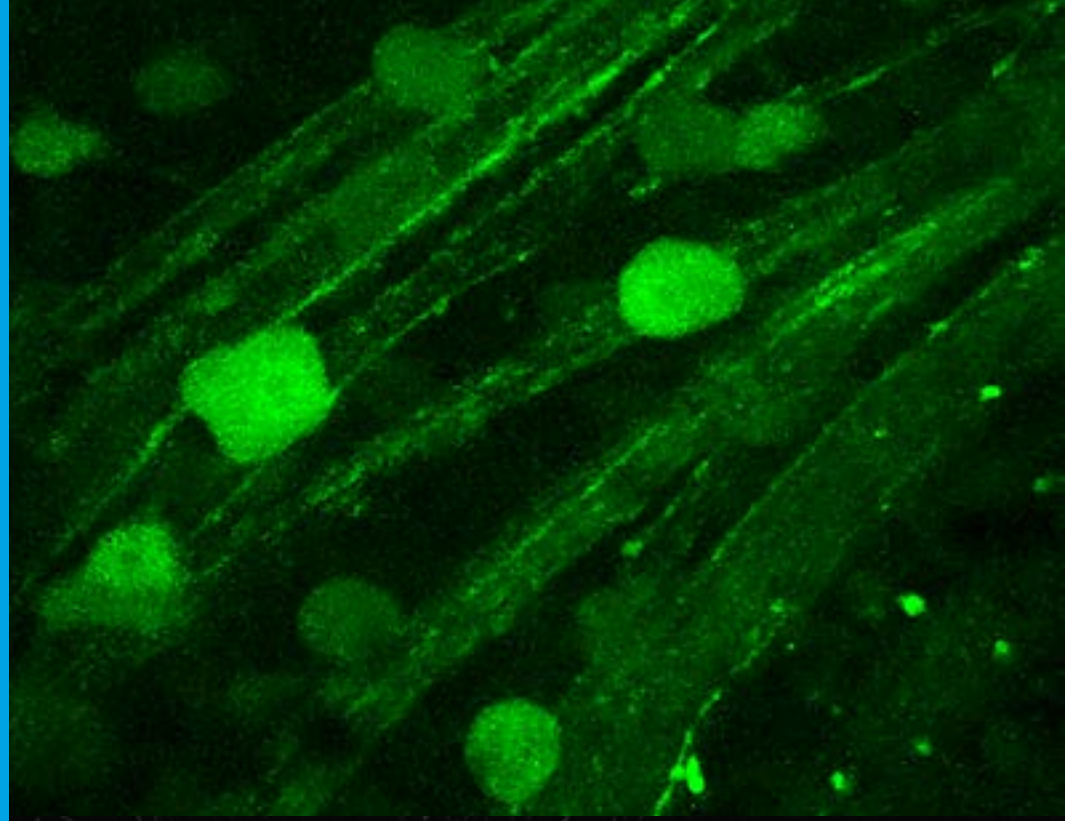
Your AMD questions answered

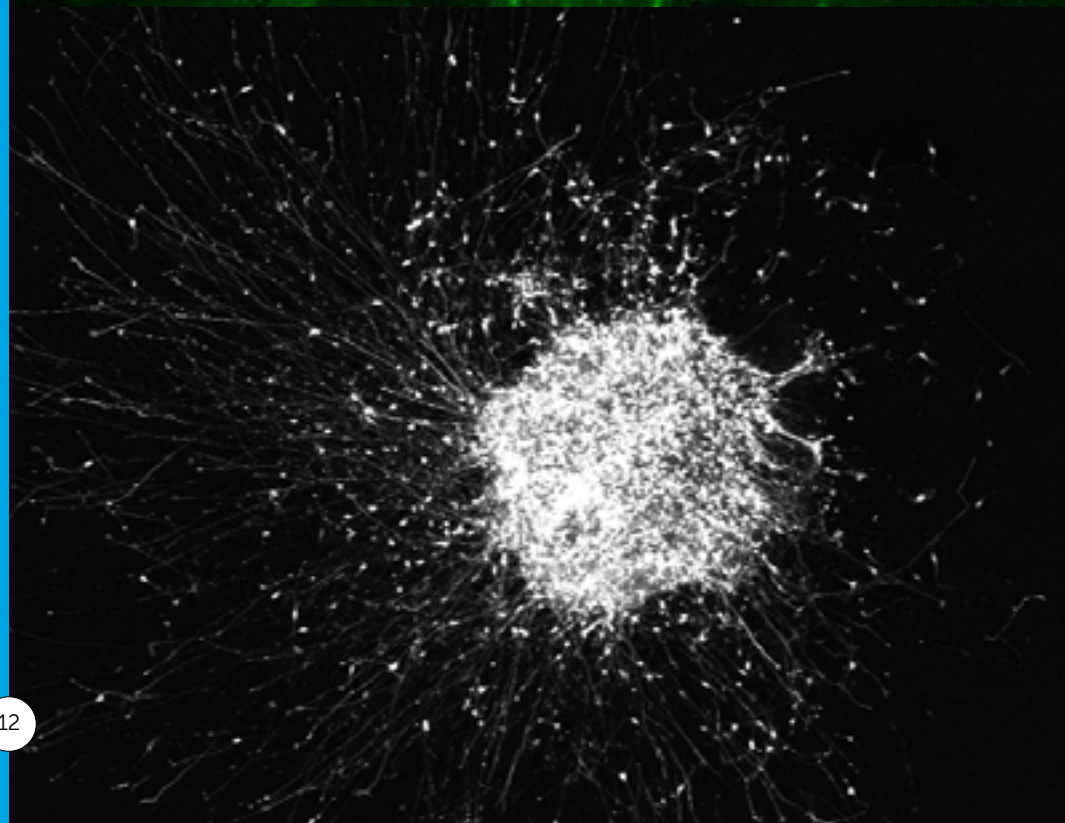
Our free, monthly telephone call-in series, *BrightFocus Chats,* features the latest news and advice for those living with vision loss. Researchers, clinicians, and low vision specialists share their tips and answer questions from participants via phone or online. The *Chats* are archived at BrightFocus.org.

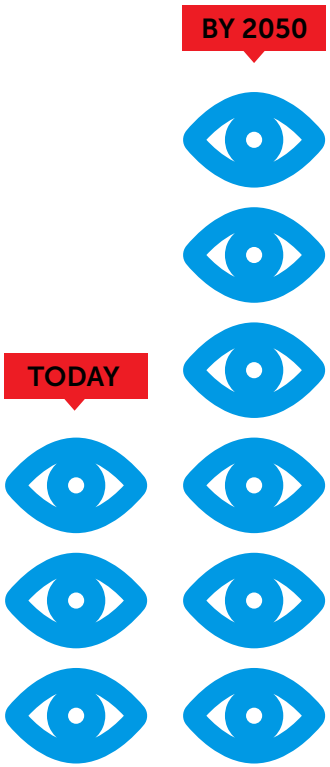
"We're definitely making improvements, and that's the part I find so exciting in doing what we do every day. There are new treatments being investigated. There are new clinical trials being created. There are new genetics in terms of just understanding the disease much better than we did 10 years ago," said Gayatri S. Reilly, MD, a retina specialist with The Retina Group of Washington, DC, who was a recent featured speaker.

Glaucoma is the second leading cause of irreversible blindness worldwide

according to the World Health Organization. And for Hispanics and African Americans in the United States, glaucoma is the leading cause of blindness.







Today, more than **3 million** Americans aged 40 and older have glaucoma. By 2050, it is estimated that the number will double to

6 million people

Above left: In glaucoma, the BAX protein (green) gathers on mitochondria and triggers deaths in retinal ganglion cells. (Courtesy of Robert W. Nickells, PhD)

Below left: Human retina organoid, a three-dimensional tissue culture derived from stem cells. (Courtesy of Robert Johnston, PhD, Johns Hopkins University)

Right: BrightFocus held a Healthy Recipe contest during September to increase awareness of a healthy diet for brain and eye health.

In 2019 BrightFocus awarded funding for

13 new glaucoma research awards, $2.5 million in new research funding.

"This work might pave the way to the discovery of a new pathway that controls eye pressure."

A key microRNA controls eye pressure

Yuan Lei, PhD, of China's Fudan University, grew up watching her father and grandmother gradually lose their eyesight to glaucoma. As a young researcher, she had ideas about what was triggering the abnormally high eye pressure typically found in glaucoma. Yet with her initial funding running out, she was worried that her encouraging but preliminary data would wither on the vine.

Thanks to BrightFocus' National Glaucoma Research program, Dr. Lei is now continuing her research into molecular signaling in glaucoma. She believes that her efforts and those of other scientists who are studying the eyes with "curiosity, diligence, and awe" will lead to new treatments and cures.

Above: Scenes from the Alzheimer's Disease and Parkinson's Disease meeting in Portugal, including, at right, Drs. Bu, Golde, and Bovenkamp, who helped organize and lead the event, along with Dr. Di Polo, who's not shown.

Bridging eye and brain research

BrightFocus is breaking down barriers between research of mind and sight, leveraging the learnings of one disease to better inform and help another.

A recent workshop at the International Conference on Alzheimer's and Parkinson's Diseases convened and led by BrightFocus, *Common Features of Neurodegenerative Diseases: Exploring the Brain-Eye Connection and Beyond,* brought together over 200 researchers to bridge research knowledge of brain and vision scientists, to spark new collaborations and interdisciplinary innovation, and to accelerate progress towards improved treatments and cures.

"BrightFocus is a recognized leader in this new lane of interdisciplinary scientific collaboration, and it's exciting to help bring researchers together to accelerate innovation. Diseases this complex can't be solved in a silo," said Guojun Bu, PhD, Mayo Clinic, Jacksonville, who co-chaired the symposium along with Diane Bovenkamp, PhD, BrightFocus Foundation; Todd Golde, MD, PhD, University of Florida, Gainesville; and Adriana Di Polo, PhD, University of Montreal.

Clinical trials tips and tools

BrightFocus' guide to help families seeking information on clinical trials, *Clinical Trials: Your Questions Answered,* is available free upon request by email to info@brightfocus.org or download at BrightFocus.org.

Families can also use the trial finder tool on our website, powered by *Antidote,* to identify local clinical trials.

These new research awards that were offered total

more than $16.2 million,

part of our ongoing scientific portfolio of nearly 200 projects,
a more than $40 million investment in research worldwide.

2019 BrightFocus Grants at a Glance

BASIC – Research that aims to better understand how a disease happens, and to obtain new ideas of how to stop the disease.

TRANSLATIONAL – Research to move findings from the lab bench to the "bedside" by testing potential treatments.

CLINICAL – Research involving volunteer participants to test the safety and effectiveness of drugs, devices, or other treatment candidates.

54%
BASIC RESEARCH GRANTS

27%
TRANSLATIONAL RESEARCH GRANTS

19%
CLINICAL RESEARCH GRANTS

Alzheimer's Disease Research

Peter Abadir, MD
Characterizing Brain Angiotensin System
JOHNS HOPKINS UNIVERSITY

Darrick T. Balu, PhD
Glial D-Serine in the Amygdala and Alzheimer's Disease
MCLEAN HOSPITAL AND HARVARD MEDICAL SCHOOL

Ana Batista, PhD
The Effect of TTR Gene Therapy in Alzheimer's Disease
UNIVERSITY OF MASSACHUSETTS

David Berron, PhD
Learning About the Early Consequences of Alzheimer's Disease on our Brain and Cognitive Functions
LUND UNIVERSITY (SWEDEN)

Alexandre Bonnin, PhD* & Axel Montagne, PhD
Prenatal Inflammation Programs Alzheimer's Disease Risk Later in Life
UNIVERSITY OF SOUTHERN CALIFORNIA

Marc Aurel Busche, MD, PhD
Mechanisms of Neuronal Dysfunction in Early Alzheimer's Disease
UNIVERSITY COLLEGE LONDON (UK)

Becky Carlyle, PhD
Investigating Neuropeptides as Biomarkers and Novel Therapeutics for Alzheimer's Disease
MASSACHUSETTS GENERAL HOSPITAL

Maria Calvo-Rodriguez, PhD
Dysfunction of Astrocytic Mitochondria in Alzheimer's Disease
MASSACHUSETTS GENERAL HOSPITAL

Nick Cochran, PhD
How an Important Gene for Alzheimer's called MAPT is Turned On
HUDSONALPHA INSTITUTE FOR BIOTECHNOLOGY

Luca Colnaghi, PhD
Molecular Mechanisms in Alzheimer's Disease
ISTITUTO DI RICERCHE FARMACOLOGICHE MARIO NEGRI (ITALY)

Camin Dean, PhD
Treating Memory Loss in Alzheimer's Disease by Strengthening Synapses
EUROPEAN NEUROSCIENCE INSTITUTE, GOETTINGEN (GERMANY)

Hemraj Dodiya, PhD
Microbiome Influences Microglia Phenotypes and Beta-Amyloid Amyloidosis in a Sex-Specific Manner
UNIVERSITY OF CHICAGO

Alireza Faridar, MD
Does Immune System Play a Role as a Potential Therapeutic Target in Alzheimer's Disease?
HOUSTON METHODIST RESEARCH INSTITUTE

Michelle Farrell, PhD
Improving Detection of the Earliest Signs of Alzheimer's Disease to Help Prevent Memory Loss
MASSACHUSETTS GENERAL HOSPITAL

Garrett Gibbons, PhD
Blood Test to Identify and Distinguish Alzheimer's from Other Neurodegenerative Diseases
UNIVERSITY OF PENNSYLVANIA

Syed Abid Hussaini, PhD
Does the Brain Region Responsible for Sleep Trigger Alzheimer's disease?
COLUMBIA UNIVERSITY

Kei Igarashi, PhD
Rescuing Impaired Memory in Alzheimer's Disease Using Reactivation of Brain Network Activity
UNIVERSITY OF CALIFORNIA, IRVINE

Lukasz Joachimiak, PhD
Detecting the Shape Changing Protein Tau in Alzheimer's Disease
UNIVERSITY OF TEXAS SOUTHWESTERN MEDICAL CENTER

WonHee Kim, PhD
Understanding Alzheimer's Disease to Avoid Side Effects of Drugs
TUFTS UNIVERSITY

* indicates principal investigators. All others listed are co-principal investigators and may be at other institutions

Hosung Kim, PhD* & Arthur Toga, PhD
Machine-Learning Applied to Neuroimaging Data Can Predict Brain Biological Age and Acceleration of Aging in Early Alzheimer's Disease
UNIVERSITY OF SOUTHERN CALIFORNIA

Giacomo Koch, MD, PhD* & Martorana Alessandro, MD, PhD
Magnetic Stimulation to Treat Alzheimer's Disease
IRCCS SANTA LUCIA FOUNDATION (ITALY)

Thomas Kukar, PhD
A New Approach to Understand Why Defects in the Lysosome Pathway Increase the Risk of Developing Alzheimer's Disease
EMORY UNIVERSITY

Min-Kyoo Shin, PhD
Determination of Whether a Novel Biological System in the Brain Regulates Nerve Cell Death and Behavioral Abnormalities in Alzheimer's Disease
CASE WESTERN RESERVE UNIVERSITY

Masato Maesako, PhD
A New Method to Visualize Amyloid Beta Generation
MASSACHUSETTS GENERAL HOSPITAL

***** indicates principal investigators. All others listed are co-principal investigators and may be at other institutions

Arjun Masurkar, MD, PhD
This grant is made possible in part by the support from the Ping Y. Tai Foundation.
Towards New Stimulation Methods to Correct Memory in Alzheimer's Disease
NEW YORK UNIVERSITY

Jerome Mertens, PhD
Reprogramming of Skin Cells from Alzheimer Patients into Brain Neurons to Understand and Fight Cellular Memory Loss on the Molecular Level
UNIVERSITY OF INNSBRUCK (AUSTRIA)

Henrietta Nielsen, PhD
Assessment of Associations Between a Liver-Generated Profile in the Blood, Behavior and Alzheimer's Disease Related Changes Inside the Brain
STOCKHOLM UNIVERSITY (SWEDEN)

Anna Orr, PhD* & Adam Orr, PhD
Alleviating Alzheimer's Disease with Novel Therapeutic Agents That Can Precisely Block The Production of Reactive Oxygen
WEILL CORNELL MEDICINE

Bryndon Oleson, PhD
Understanding the Function of the Biomolecule Polyphosphate During Aging and Alzheimer's Disease
UNIVERSITY OF MICHIGAN

Dominik Paquet, PhD
A Human Brain-in-a-Dish Model to Investigate Central Factors Required for the Formation of Alzheimer's Disease Pathology
LUDWIG-MAXIMILIANS-UNIVERSITY MUNICH (GERMANY)

Anna Pimenova, PhD
Uncovering the Features of PU.1-Protective Microglia in Alzheimer's Disease
ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

Bede Portz, PhD
New Protein Modifiers and Therapeutic Targets to Combat Toxic RNA Foci in Frontotemporal Dementia
UNIVERSITY OF PENNSYLVANIA

Gustavo Rodriguez, PhD
Improving the Quality of Spatial Information Processing by Combating Dysfunctional Neuronal Activity in Alzheimer's Disease Mouse Models
COLUMBIA UNIVERSITY

Wenyan Sun, PhD
Determine Whether PIWIL and piRNAs are Dysregulated in Tau Transgenic Mice and Human Neurodegenerative Tauopathies
UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO

Yuxiang Sun, PhD
A New Intervention to Control Inflammation in Alzheimer's Disease
TEXAS A&M

Matthias Truttmann, PhD
The Alzheimer's Mystery: Why Proteins Clump Up and Kill Our Memories
UNIVERSITY OF MICHIGAN

Nicholas Varvel, PhD
Brain-Invading Monocytes at the Intersection of Alzheimer's Disease and Seizures
EMORY UNIVERSITY

Eitan Wong, PhD
Relationship Between Biological Clock and γ-secretase, the Enzyme Responsible for Generating Senile Plaques in Alzheimer's Disease
MEMORIAL SLOAN-KETTERING CANCER CENTER

Justyna Dobrowolska Zakaria, PhD* & Robert J. Vassar, PhD
A New Method to Separate Sub-groups of Alzheimer's Disease by Measuring sAPPβ in Human Cerebrospinal Fluid
NORTHWESTERN UNIVERSITY

Zhen Zhao, PhD
This grant is made possible in part by support from Alzheimer's Los Angeles.
Understanding the Vascular Link Between Traumatic Brain Injury and Alzheimer's Disease
UNIVERSITY OF SOUTHERN CALIFORNIA

Macular Degeneration Research

Stephen Aller, PhD* & Alecia K. Gross, PhD
The Three-Dimensional Structure of a Protein that Causes Macular Degeneration
UNIVERSITY OF ALABAMA AT BIRMINGHAM

Paul Baird, PhD*, Adam Kowalczyk, PhD & Alice Pebay, PhD
A New Method for Prediction of the Two Advanced Types of AMD
THE UNIVERSITY OF MELBOURNE (AUSTRALIA)

Tim Corson, PhD
Carolyn K. McGillvray Award.
A New Way to Target Abnormal Blood Vessel Growth in Wet Macular Degeneration
INDIANA UNIVERSITY SCHOOL OF MEDICINE

Michael Farkas, PhD
The Role of Long Non-coding RNAs in HTRA1 Regulation
UNIVERSITY AT BUFFALO

Joelle Hallak, PhD*, Daniel Rubin, MD, MS, Theodore Leng, MD, FACS, & Luis de Sisternes, PhD
New Automated Method to Predict AMD Progression
UNIVERSITY OF ILLINOIS

Zongchao Han, MD, PhD
A Selective Anti-Oxidant Nanoparticle to Treat AMD
UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Haijiang Lin, MD, PhD* & Bo Tian, PhD
Investigation of Novel Pathogenesis and Therapeutic Strategy for AMD
UNIVERSITY OF MASSACHUSETTS

Alexander Marneros, MD, PhD
Inhibiting Inflammation to Prevent Wet AMD
MASSACHUSETTS GENERAL HOSPITAL AND HARVARD MEDICAL SCHOOL

Raju Rajala, PhD
The Elizabeth Anderson Award.
Defective Energy Utilization in AMD
UNIVERSITY OF OKLAHOMA HEALTH SCIENCES CENTER

Raunak Sinha, PhD
Understanding the First Step in Human Vision
UNIVERSITY OF WISCONSIN

Ye Sun, MD, PhD
A Novel Negative Immune Regulator to Control Wet AMD
BOSTON CHILDREN'S HOSPITAL AND HARVARD MEDICAL SCHOOL

MD Imam Uddin, PhD
A Novel Gold Medicine for the Treatment of AMD
VANDERBILT EYE INSTITUTE

Elizabeth Vargis, PhD
A New Approach to Modeling Subretinal Tissue
UTAH STATE UNIVERSITY

Zhichao Wu, PhD
New Visual Function Tests to Enable Treatment Trials of AMD
CENTRE FOR EYE RESEARCH AUSTRALIA (AUSTRALIA)

Ming Zhang, MD, PhD
This grant is made possible by the support from Nancy Ferguson Seeley Trust in Memory of Mildred F. Ferguson.
Association Between Cytomegalovirus Infection in the Eye and the Development of AMD
AUGUSTA UNIVERSITY RESEARCH INSTITUTE

National Glaucoma Research

Alejandra Bosco, PhD
Thomas R. Lee Award
Complement-Targeted Therapy to Restrict Glaucoma Progression
UNIVERSITY OF UTAH

Kevin Chan, PhD
Thomas R. Lee Award
The Role of Waste Removal in the Visual Pathway in Glaucoma
NEW YORK UNIVERSITY

Eldon Geisert, PhD
Making Optic Nerve Regeneration Faster
EMORY UNIVERSITY

Haiyan Gong, MD, PhD
The Role of Thrombospondin-1 in Regulating the Pressure Inside the Eye
BOSTON UNIVERSITY

Meredith Gregory-Ksander, PhD* & Kip M. Connor, PhD
Targeting the Immune System to Prevent Glaucoma
SCHEPENS EYE RESEARCH INSTITUTE, MASSACHUSETTS EYE AND EAR AND HARVARD MEDICAL SCHOOL

Michael Hauser, PhD
The Genetic Risk of Glaucoma
DUKE UNIVERSITY

John Hetling, PhD*, Thasarat Vajaranant, MD, & Jason McAnany, PhD
A New Method for Diagnosing Glaucoma in the Peripheral Retina
UNIVERSITY OF ILLINOIS

Robert Johnston, PhD
Growing Human Retina in a Dish to Model Glaucoma
JOHNS HOPKINS UNIVERSITY

Saidas Nair, PhD
A Novel Genetic Model to Study Glaucoma
UNIVERSITY OF CALIFORNIA, SAN FRANCISCO

Chan Young Park, PhD
New Compounds for Glaucoma Therapy
HARVARD T. H. CHAN SCHOOL OF PUBLIC HEALTH

Gareth Thomas, PhD
Protecting Eye-Brain Connections in Glaucoma
TEMPLE UNIVERSITY

Trent Watkins, PhD
Stimulating the Natural Genetic Programs for Survival and Repair of Ganglion Cells
BAYLOR COLLEGE OF MEDICINE

Sarah Zhang, MD
Targeting Inflammatory Cells to Treat Glaucoma
STATE UNIVERSITY OF NEW YORK AT BUFFALO

Special Thanks to Donors Supporting Ongoing Research

ALZHEIMER'S DISEASE RESEARCH

Karen Duff, PhD
This grant is made possible in part by the support from Lois and Duane Luallin in Memory of Denver E. Perkins and Edwin Luallin.
Slowing Alzheimer's Disease by Enhancing Cellular Clearance
COLUMBIA UNIVERSITY

Jessica Young, PhD
This grant is made possible in part by support from the Jerome Jacobson Foundation.
A New Method to Assess Cellular Dysfunction in Alzheimer's Using Human Neurons
UNIVERSITY OF WASHINGTON SCHOOL OF MEDICINE

Yingjuan Zhao, PhD
This grant is made possible by the support from the J.T. Tai Foundation.
A Novel Approach for Memory Improvement in Alzheimer's Disease
XIAMEN UNIVERSITY

MACULAR DEGENERATION RESEARCH

Rosario Fernandez-Godino, PhD
This grant is made possible in part by the Ivan Bowen Family Foundation.
The Relationship Between Genetic Predisposition and Age in AMD
MASSACHUSETTS EYE AND EAR, HARVARD MEDICAL SCHOOL

William K. Scott, PhD* & Margaret A. Pericak-Vance, PhD
This grant is made possible by support from Dr. H. James and Carole Free.
Using Genetics and Retinal Imaging to Predict Progression to Advanced AMD
UNIVERSITY OF MIAMI

Our world class scientific review committees

comprised of renowned leaders in their fields, recommend new research opportunities for BrightFocus to advance our goal of defeating Alzheimer's, macular degeneration, and glaucoma.

BrightFocus grantees have received numerous prestigious awards over the years.

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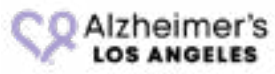
BrightFocus works closely with nonprofit and corporate partners on issues of common concern.

As a respected member of broad coalitions, we communicate with key policymakers and elected officials on the importance of research funding and caregiving support.



Global Network for Alzheimer's

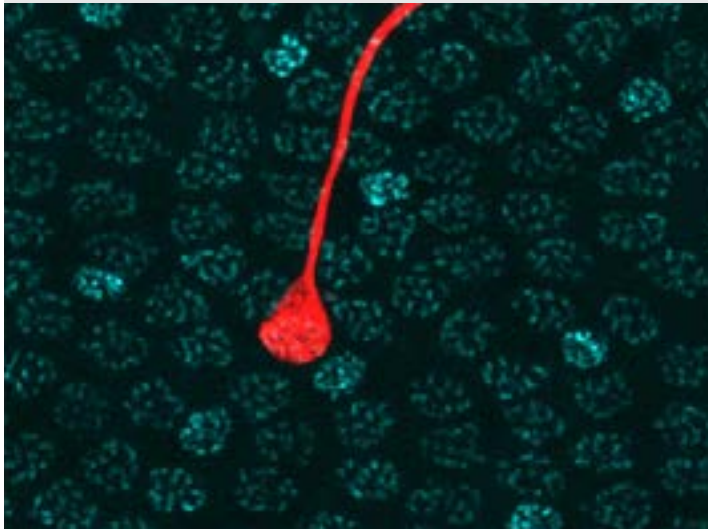
BrightFocus has worked with partners worldwide to advance research and provide public awareness of Alzheimer's disease including:

Belgium
Stichting Alzheimer Onderzoek

France
Fondation Vancre Alzheimer

Germany
Alzheimer Forschung Initiative e.V.

The Netherlands
Alzheimer Nederland



Right: A cone photoreceptor, filled with red dye overlaid on an array of other cone terminals (cyan) in the primate fovea. (Courtesy of Raunak Sinha, PhD, University of Wisconsin School of Medicine and Public Health)

BrightFocus thanks our donors for their generosity toward our three scientific and public awareness programs:

Alzheimer's Disease Research, Macular Degeneration Research, and National Glaucoma Research.

The support of individual donors, family foundations, and corporate partners makes our work possible.

A wide range of giving opportunities is available to accommodate resources and charitable goals. Each gift is important and needed to help us find a cure.

Sowing the Seeds of Scientific Progress

BrightFocus-funded researchers often go on to receive awards

TEN TIMES GREATER

from NIH and other sources, a

1,000% return

on our early investment.

2019 Honorees and Distinguished Guests:

Joel S. Schuman, MD, FACS, Scientific Impact Award; Stacy Pagos Haller, President and CEO, BrightFocus; Laine Hardy, 2019 American Idol winner; Honorable Connie Morella, Public Leadership Award; Huda S. Zoghbi, MD, Pioneer in Genetics Award; and Richard Lui, MSNBC.

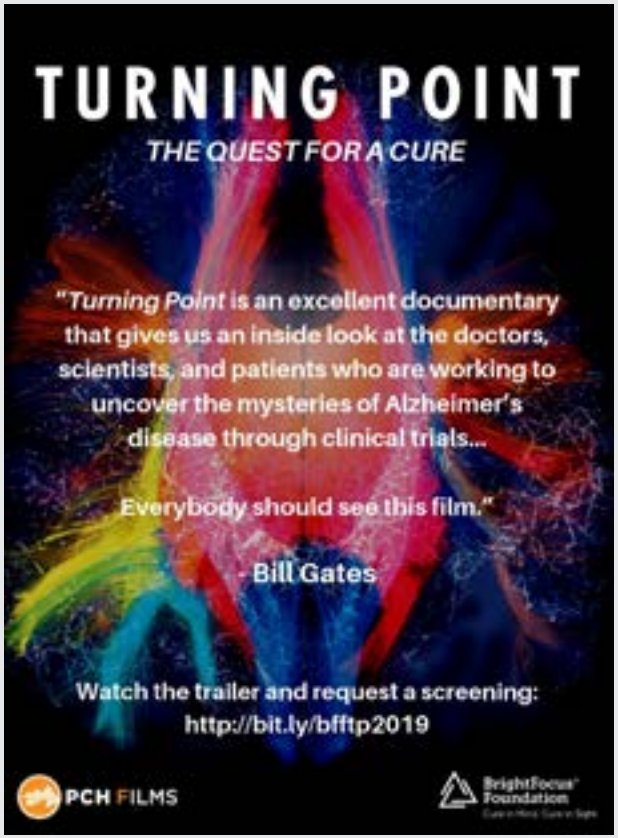
An Evening of BrightFocus

Hundreds of leaders from the scientific, philanthropic, private and public sectors joined together at the Embassy of Italy for our fourth annual dinner to celebrate the most promising science and bold advocacy to end diseases of mind and sight.

At a well-attended reception prior to the awards program, six BrightFocus-funded scientists shared highlights from their ongoing research, showing encouraging progress toward ending diseases of mind and sight.

Above right: *David Irwin, MD, University of Pennsylvania School of Medicine.*

Below right: *Richard Lui interviewing Laine Hardy, and his father, Barry Hardy.*



Left: *Panel discussion following a screening of* Turning Point *at the Heartland International Film festival in Indianapolis: Phyllis Ferrell, Eli Lilly; James Keach, PCH Films; Nancy Lynn, BrightFocus; and Eric Siemers, Integration LLC.*

Quest for a cure: *Turning Point*

BrightFocus is proud to be a presentation partner for *Turning Point,* a new documentary that captures the drama and personal dedication of researchers who are pursuing drug breakthroughs to make Alzheimer's a distant memory.

Directed by award-winning filmmaker James Keach, the film has been seen by more than 10,000 people at 40 screenings in five countries since its premiere in May 2018.

"What I like to see is the good research and the results."

BrightFocus donors often have special connections to the scientific research programs they support. We are honored to share two of those stories with you.

Committed to saving sight: Ken Spitler

A retired business executive with a long career at Sysco, Ken Spitler of Houston well understands the personal impact of vision disease. Ken was diagnosed with wet macular degeneration in his left eye over 20 years ago, but after a surgical procedure, his vision was largely restored.

Ken now undergoes eye injections every eight weeks to maintain his vision, and he hopes that others don't have to encounter such a frightening disease in the future.

He became actively engaged in the fight against vision disease, and began donating to fund research through Macular Degeneration Research (MDR), a program of BrightFocus Foundation that funds promising vision research. Ken also volunteered with the Houston Eye Associates Foundation, which meets the surgical and medical eye care needs within the community.

"What I like to see is the good research and results," says Ken. "When BrightFocus shares the news and updates from the scientists' projects, I feel like I am part of the research."

"If I could say something directly to the MDR researchers it would be, 'Thank you for the work you have done and keep up the fight.'"

RACERS

Right: Screening of Turning Point *at Emory University for patients, clinicians and caregivers to encourage participation in Alzheimer's clinical trials.*

A Partnership with Gates Ventures—RACERS Initiative

With funding from Gates Ventures, BrightFocus is working in collaboration with the National Institute on Aging to help health care providers learn, and be proactive about, early detection and diagnosis of cognitive impairment/Alzheimer's/related dementias.

With a goal of providing patients and their families the opportunity to participate in research studies, the **RACERS** project focus is to:

r — **recognize** early signs of cognitive issues

a — conduct or refer patient for **assessment**

c — **communicate** to patient and family re: diagnosis, treatment/care options and planning, and talk about the opportunity to participate in clinical trials

ers — **enroll** in **research studies** as appropriate

"I am hopeful that this study will help advance knowledge to find solutions for Alzheimer's disease."

Honoring memories: Carol Terrell

For Carol Terrell of Vancouver, Washington, Alzheimer's is personal. The disease runs in her family—her mother, her maternal grandmother, and her aunt all suffered from Alzheimer's disease.

To honor their memories—and to hopefully spare her daughters from this disease—Carol supports Alzheimer's Disease Research, a program of BrightFocus Foundation, and also volunteers for a leading clinical trial.

The clinical trial, the A4 study (Anti-Amyloid Treatment in Asymptomatic Alzheimer's) is the largest effort to prevent Alzheimer's-related memory loss due to amyloid build-up in the brain. Led by a BrightFocus grantee, it is funded by the National Institute on Aging and Eli Lilly and Company, has already uncovered insights that will inform researchers in the future.

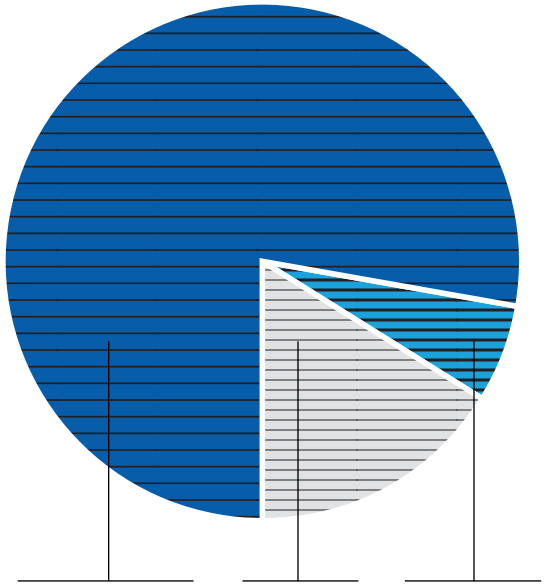
Carol makes monthly visits to a nearby study site for an infusion of drugs and monitoring. She is proud to be among the more than 1,000 participants enrolled in this scientific research using family history, imaging equipment, and genetic analysis, to identify precursors to Alzheimer's early on so that treatment can start before symptoms begin.

Her contribution to clinical research could make the difference for the next generation. "I am hopeful that this study will help advance knowledge to find solutions for Alzheimer's disease," says Carol.

Investing in hope

BrightFocus is a nonprofit organization designated under Section 501(c)(3) of the Internal Revenue Code. All contributions to BrightFocus and its programs are tax-deductible to the extent allowed by law. The Foundation is supported entirely by voluntary private contributions.

BrightFocus received in-kind donations to expand public health information outreach and these are included in Program Services expenses. This allowed the organization to reach millions of people with information about risk factors, treatments and caregiving.



78% Research, Health Information and Donated Services

16% Fundraising

6% Management

A complete copy of financial statements audited by Marcum, LLP is available upon request from the BrightFocus Foundation, 22512 Gateway Center Drive, Clarksburg, MD 20871 or on our website at www.brightfocus.org.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION As of March 31, 2019 *(in thousands of dollars)*	
ASSETS	
Cash and Investments	$41,500
Charitable Trusts and Bequests Receivable	8,547
Rental Property	3,803
Fixed Assets, Net	3,965
Other Assets	1,179
TOTAL ASSETS	**$58,994**
LIABILITIES	
Accounts Payable and Other Liabilities	$839
Grants Payable	23,816
Charitable Gift Annuities	1,060
TOTAL LIABILITIES	**25,715**
NET ASSETS	
Without Donor Restriction	15,151
With Donor Restriction	18,128
TOTAL NET ASSETS	**33,279**
TOTAL LIABILITIES AND NET ASSETS	**$58,994**

CONSOLIDATED STATEMENT OF ACTIVITIES For the Fiscal Year Ended March 31, 2019 *(in thousands of dollars)*	
SUPPORT AND REVENUE	
Contributions and Grants	$29,321
Bequests	10,097
Donated Services	9,488
Investment Income	956
Rental & Other Income	1,190
TOTAL SUPPORT AND REVENUE	**51,052**
EXPENSES	
Program Services	
Research	20,552
Health Information Services	18,097
Total Program Services	**38,649**
Supporting Services	
Fundraising	7,758
Management and General	3,235
Total Supporting Services	**10,993**
TOTAL EXPENSES	**49,642**
CHANGE IN NET ASSETS	**$1,410**

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