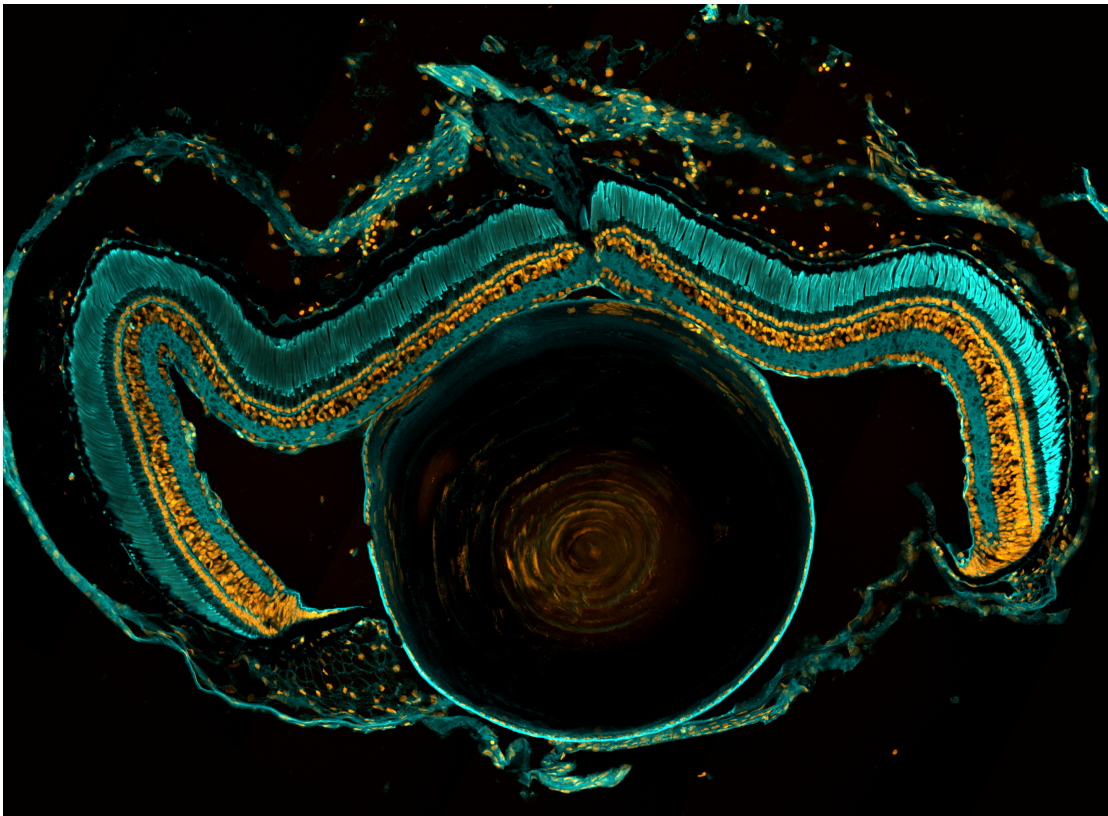


Assessment of the Impact of BrightFocus Foundation Funding on Catalyzing Innovation and Researcher Career Development



**BrightFocus[®]
Foundation**

Cure in Mind. Cure in Sight.

COVER IMAGE:

A whole frog eye labeled with a photoreceptor, cell membrane marker (cyan), and nuclear marker (orange)

Image courtesy of Dr. Brittany Carr from the University of Alberta, Canada

A Report Prepared By:



**AMERICAN INSTITUTE ^{OF}
BIOLOGICAL SCIENCES**

Scientific Peer Advisory and Review Services

950 Herndon Parkway, Suite 450

Herndon, VA 20170

December 19, 2025

DEDICATION

“BrightFocus Foundation extends its heartfelt gratitude to the generous benefactors, whose unwavering support makes it possible to fund groundbreaking research aimed at preventing and treating devastating diseases of sight and mind, providing hope for affected individuals and their families. The Foundation also deeply thanks its dedicated scientists, whose passion, innovation, and tireless efforts bring us closer each day to a deeper understanding of these conditions—and ultimately, to a cure.” – Dr. Diane Bovenkamp

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
INTRODUCTION	3
PHASE 1: GRANTEE SURVEY	5
GRANTEE CASE STUDIES	14
PHASE 2: TRAVEL FELLOWS SURVEY	43
TRAVEL FELLOWS CASE STUDIES	50
PHASE 3: SCIENTIFIC REVIEW COMMITTEE SURVEY	68
DISCUSSION	73
REFERENCES	78
APPENDICES	79

Disclaimer: The American Institute of Biological Sciences, Inc. has in good faith made every attempt to ensure the information contained in this report is accurate and reliable. No warranties or guarantees are made in this regard.

The content is intended to document the impact assessment and to provide general overall analysis and insight into survey results. Interpretations and parsing of data and responses could vary. Presented survey question text and raw response text and data have been provided.

EXECUTIVE SUMMARY

Between August 2024 and November 2025, the American Institute of Biological Sciences (AIBS) conducted a comprehensive, three-phase survey assessment for the BrightFocus Foundation (BFF). The assessment involved grantees, travel fellows, and Scientific Review Committee (SRC) members who had engaged with the Foundation between 1994 and 2025 across its three program areas: the Alzheimer's Disease Research Program, the Macular Degeneration Research Program, and the National Glaucoma Research Program. The surveys were designed to evaluate the multifaceted impact of BFF's support, assessing the influence of its funding on grantees' research outcomes, scientific impact, and career trajectories, while also exploring how the travel fellowships influenced the recipients' research focus and professional paths, and how service on the SRC impacted the careers of its members.

The BFF survey initiative achieved robust engagement across all three phases, with response rates for grantees (**31.1%**) and travel fellows (**29.7%**) exceeding standard benchmarks and qualifying as "good" to "excellent" in terms of online survey reporting standards. The SRC survey yielded an outstanding **79.5%** response rate, suggesting strong commitment from members. This high level of participation enhances the reliability of the collected data on the Foundation's significant impact.

The survey respondent demographics highlight the Foundation's success in promoting diversity and aligning with national statistics. The gender breakdown among grantees and SRC members closely mirrored NIH funding rates (approximately **40-42%** female). Encouragingly, female respondents made up a majority (**58.9%**) of travel fellows, demonstrating positive momentum in closing the gender gap early in scientific careers. Similarly, the racial composition across the three groups matched NIH recipient rates, although the travel fellow group was notably more diverse, indicating promising trends for future generations of researchers funded by BFF.

Overall, the findings demonstrate that BFF funding accelerates career development and yields significant scientific outcomes. It serves as a powerful catalyst for grantee success, driving impressive career trajectories and professional advancement for most respondents (**93.1%**), with nearly half (**47.5%**) reporting a direct link between the funding and their promotion. The funding also contributes to high scientific productivity. Grantees reported publications as the most frequent outcome (**80.8%**), including pivotal research in high-impact journals, with the most common discovery being the identification of new risk factors or disease prevention methods. Beyond publications, the Foundation's support facilitates broader career progression, with nearly **60%** of grantees reporting that their mentees transitioned to career independence with the help of BFF funding.

The Foundation also provides vital support for early-career researchers through strategic travel fellowships, which are critical for kickstarting careers and generating essential momentum. This initial support yields an exceptional return on investment, with a profound impact on professional progression and long-term engagement of scientists. A vast majority of travel fellow respondents (**88.9%**) found the funding vital for their careers, with an even more

significant **91.8%** reporting that the experience directly led to critical networking opportunities. The sustained impact is remarkable: an astounding **95.3%** of supported fellows continued in the research field in which they received support, aligning their long-term focus with BFF's mission. Furthermore, this seed funding positions fellows for substantial independent investment; an impressive **77.4%** secured follow-on funding as a direct result of their fellowship, often leveraging an average \$1,000 grant into subsequent awards totaling hundreds of thousands or even millions of dollars.

The Foundation's impact often extends throughout a scientist's career, highlighted by overwhelmingly positive feedback from SRC members. A remarkable **91.4%** reported an "extremely positive" experience, noting enhanced review skills, increased awareness of cutting-edge technologies, and valuable national and international recognition vital for career advancement and leadership opportunities. This robust engagement ensures expert oversight for highly valued programs like the Postdoctoral Fellowship Awards and Standard Awards.

In the currently challenging US research funding environment, the BFF provides essential support to top emerging talent in the field that sustains vital research. Its various funding mechanisms are at times "career-saving," offering crucial support for innovative research that goes on to yield impactful dividends. The Foundation's funding is key to helping researchers build independence, providing the necessary momentum to secure future competitive grant—and ultimately nurturing the next generation of scientific leaders.

INTRODUCTION

For over half a century, BrightFocus Foundation (BFF) has catalyzed scientific breakthroughs across diseases of mind and sight, leading to novel treatments, prevention strategies, and diagnostic tools. The Foundation's core mission is twofold: to fund exceptional global research aimed at defeating Alzheimer's disease (AD), macular degeneration (MD), and glaucoma, and to provide expert information on these devastating conditions. Since 1973, BFF has committed nearly \$300 million to innovative research, empowering approximately 6,385 scientists in 25 countries. This support has fueled discoveries and breakthroughs, aiding numerous distinguished researchers who are recipients of prestigious awards. BFF also invests in the future of research by educating and training the next generation of brain and eye scientists—a commitment made possible solely by the generous financial support of its donors. Guiding these investments are world-class Scientific Review Committees (SRCs) composed of renowned field leaders. These committees ensure a balanced scientific portfolio and recommend new avenues of research, thereby guaranteeing that every dollar is used to maximum effect.

BRIGHTFOCUS FOUNDATION PROGRAMS

Each of BFF's three programs is designed to fund groundbreaking research, with a unique focus on early-career scientists that distinguishes BFF from other funding agencies. For instance, the Fast Track and Scientific Travel Awards help attract and educate the next generation of scientists from around the world at critical junctures in their careers, ensuring that top-tier talent is retained in the field. Furthermore, because most program grants support early-stage research, BFF encourages fresh perspectives and offers an increased return on investment over time through novel, field-fueling discoveries.

The overarching goal of the Alzheimer's Disease Research Program is to drive innovative research worldwide to defeat AD and related dementias. By providing initial funding for highly innovative, experimental research and creative ideas, the program spearheads revolutionary approaches and life-saving breakthroughs for this devastating disease, which affects 7.2 million Americans aged 65 and older.

The overarching goal of the Macular Degeneration Research Program is to accelerate groundbreaking research that explores the root causes of and prevention strategies and treatments for MD, a leading cause of vision loss.

The overarching goal of the National Glaucoma Research Program is to fast-track groundbreaking research into the root causes of this sight-stealing disease, which is a leading cause of irreversible blindness worldwide, through the support of exceptional scientists studying cutting-edge prevention strategies, treatments, and a cure to defeat glaucoma.

IMPACT AND OUTCOMES ASSESSMENT

On August 1, 2024, the American Institute of Biological Sciences (AIBS) Scientific Peer Advisory and Review Services (SPARS) Division was contracted by BFF to conduct a three-phase assessment of the Foundation's impact on catalyzing innovation and researcher career development.

- **Phase 1:** BFF grantees were surveyed to determine the effect of Foundation funding on research project outcomes, impact, and career trajectory.
- **Phase 2:** BFF travel fellows who received conference funding were surveyed to determine how attendance impacted their subsequent research focus and career trajectory.
- **Phase 3:** Current and former members of BFF SRCs were surveyed to assess how volunteering impacted their careers and to solicit strategic input for future funding directions.

The dissemination schedule for each survey phase was optimized against national agency funding deadlines, BFF programmatic timelines, key holidays, and related timing considerations to ensure maximum responses.

In the ensuing report, each phase of the survey is analyzed separately and can be viewed as a standalone document, with an overall discussion assessing the survey results across the phases.

PHASE 1: GRANTEE SURVEY

MATERIAL AND METHODS

SURVEY DEVELOPMENT AND TESTING

In August 2024, AIBS developed a comprehensive survey to solicit quantitative and qualitative feedback from principal investigators (PIs), co-PIs, and mentors who had received BFF grant awards between 1994 and 2024. The survey focused on four key areas delineated in the statement of work (SOW): *personal statistics and demographics, career impact, scientific outcomes, and community impacts*.

The survey utilized both closed-ended (dichotomous, dropdown, multiple choice) and open-ended (free text boxes) questions to gather responses spanning multiple years of funding. To maximize input, all questions were required except the final one.

Over the following months, the survey underwent review and updates based on feedback from key BFF and Scientific Review Committee (SRC) stakeholders. The final 21-question version was organized into three sections: *About You (demographics and personal statistics), Research Outcomes, and Career Trajectory*, with each section containing between four and twelve questions. The survey was then imported into Wufoo, a secure commercial online form builder software, for dissemination, where it was test-run and verified by BFF and AIBS staff members. A copy of the survey is appended (see Appendix 1).

SURVEY DISSEMINATION AND FOLLOW-UP

On November 18 and 25, 2024, a survey link was emailed to a total of 1,012 grantee email addresses (over two initial batches)—including PIs, co-PIs, and mentors—who had received BFF funding between 1994 and 2024. An initial contact list was prepared by the Foundation, and AIBS and BFF staff subsequently cleaned the data to optimize the accuracy and contact success rate. After the first initial batch, BFF staff worked to identify current email addresses for a large percentage of placeholders that were in the contact list. And with the 30-year grantee date range, a significant portion of email bounce-backs were also expected and received; within a week of the first initial batch, AIBS identified potential alternative email address for most bounce backs. The second initial batch was sent to the BFF identified placeholder email addresses and the AIBS identified alternative email addresses for bounce-backs. The accompanying instructions directed co-PIs and mentors to respond as funding recipients and asked multiple award grantees to organize their responses by award, reflecting all funds received. Grantees were also instructed to complete the survey in one sitting and submit an ORCID ID.

Two weeks after the initial launch, a series of email reminders were sent to non-responders from the office of Dr. Diane Bovenkamp, Vice President of Scientific Affairs at BFF, each 1 week apart. Reminders were sent on December 2, December 10, and December 16, 2024. There were a handful of email bounce-backs with the initial second batch and across the reminders that were not investigated further as a replacement had already been sought or the email address previously went through successfully. The survey remained active over the holiday period to maximize responses before being inactivated on January 2, 2025.

RESULTS

SURVEY RESPONSE RATE*

Of the initial 1,012 email invitations sent to BFF grantees, 872 were successfully delivered, resulting in an 86.2% delivery rate (140 email addresses were not reached). After adjusting for 16 instances of the same person receiving two invitations due to having two active email addresses and 18 duplicate invitations to the same email address across the two initial batches, a total of 838 unique grantees were successfully contacted. When the survey was closed on January 2, 2025, 261 of these unique grantees had completed the survey, representing a 31.1% response rate.

SURVEY RESPONSE ANALYSIS

Survey responses that were dichotomous, categorical, or numeric were analyzed using descriptive statistics and are presented below.

RESPONDENT DEMOGRAPHICS AND PERSONAL STATISTICS

A little less than two-thirds (59%) of grantee survey respondents were male, and slightly over one-third (40.2%) were female; 0.8% preferred not to report their gender. The majority of respondents (164; 62.8%) identified as White/Caucasian. Asian was the next most reported ethnicity (27.2%), followed by Hispanic/Latino (5.4%) and Middle Eastern/North African (4.6%). Some respondents selected more than one ethnicity; see Chart 1 for a full breakout of race and ethnicity data.

Regarding career stage, 74.3% of grantee respondents reported being early- (including postdoctoral fellows) or mid-stage, and the remaining 25.7% identified as late, senior, or semi-

**It should be noted that while AIBS has made every effort to accurately track and report on the survey delivery success and response rate, the large volume of bounce-backs and placeholder emails merged together, multiple email addresses for the same person, and two initial invitation batches complicated these calculations. Confidence is high that these numbers are likely accurate or very close, but a caveat is still warranted.*

retired/retired. The vast majority of grantees (93.1%) work in academia, with non-profit/private foundations, business/industry, and government comprising the remainder of affiliations.

A majority of grantees (59%) were in early- to mid-career positions, aligning with reported career stages. These roles included postdoctoral fellows, instructors/analysts/research scientists, assistant professors, and associate professors. A smaller percentage, 32.6%, held later career positions, such as full professors, while the career stages of 8.4% of grantees were unknown based on the position titles provided. For a complete breakdown of specific job titles, refer to Chart 2.

The majority of responses (approximately 78%) indicated receipt of BFF funding support between 2014 and 2024. A total of 28 grantees (10.7%) reported receiving multiple awards, ranging from two to eight in number (see Chart 3 for the full distribution). Over half of the respondents (57.5%) were grantees for AD research, with 25.7% for MD research and 18.8% for glaucoma research, and a small percentage (2%) receiving funding from more than one program.

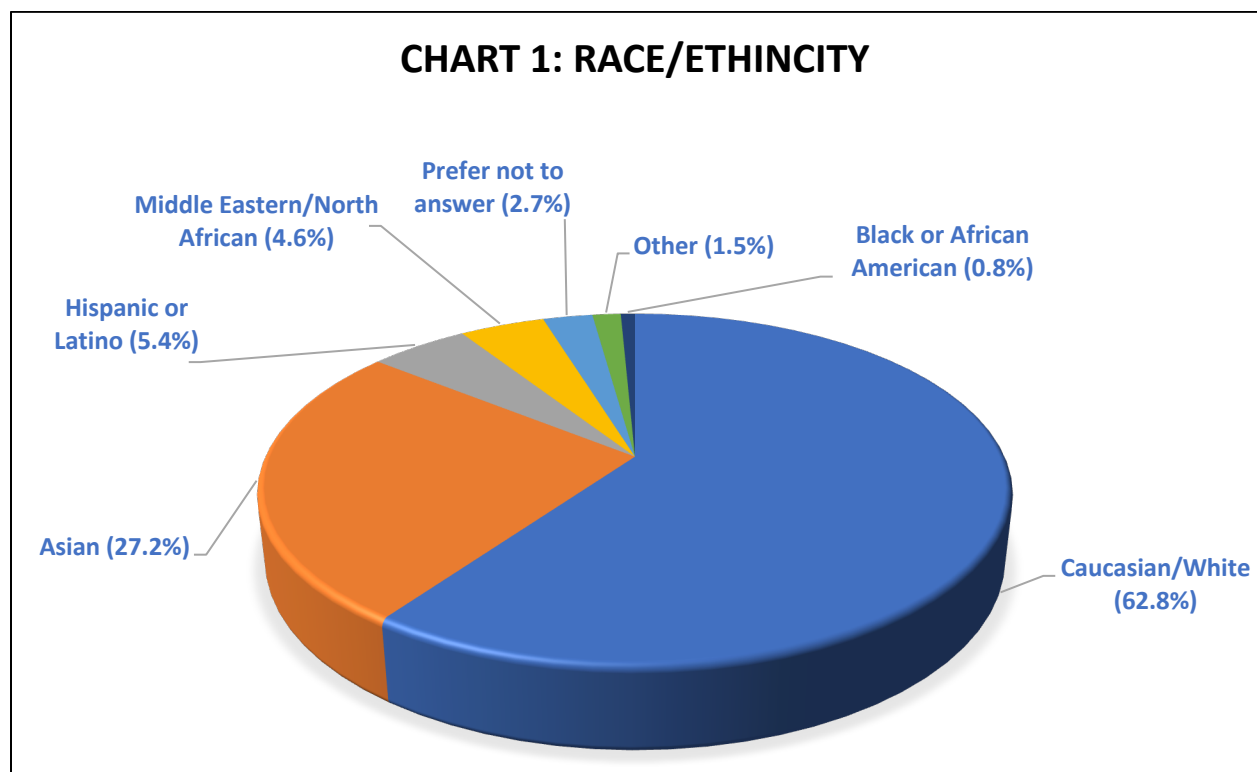
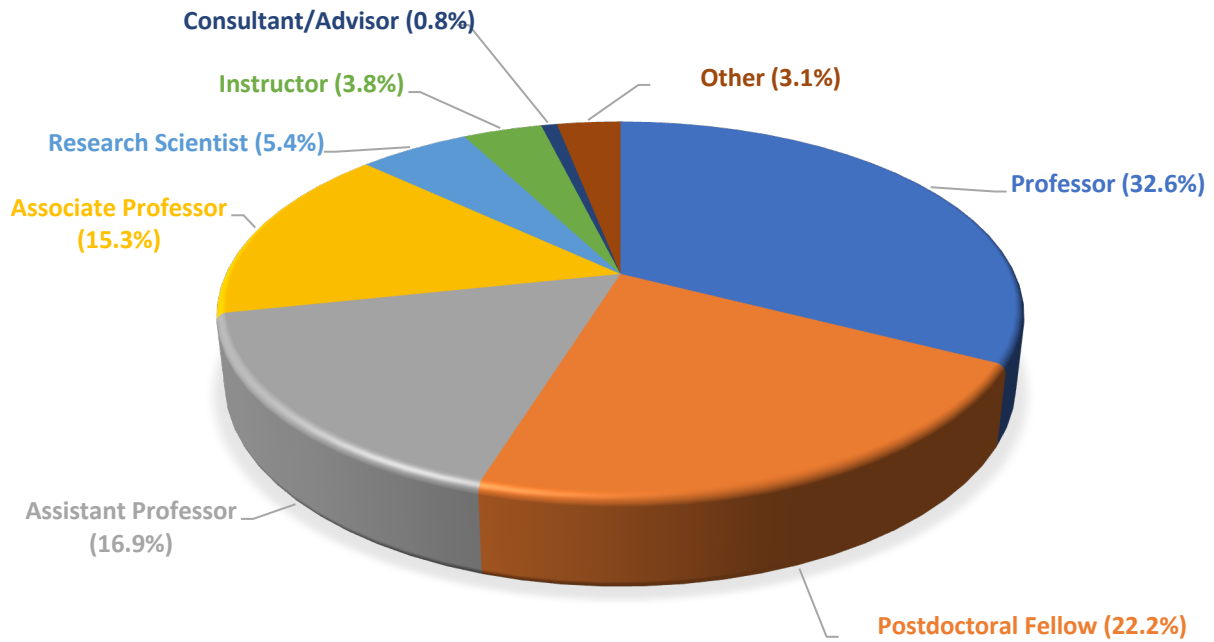
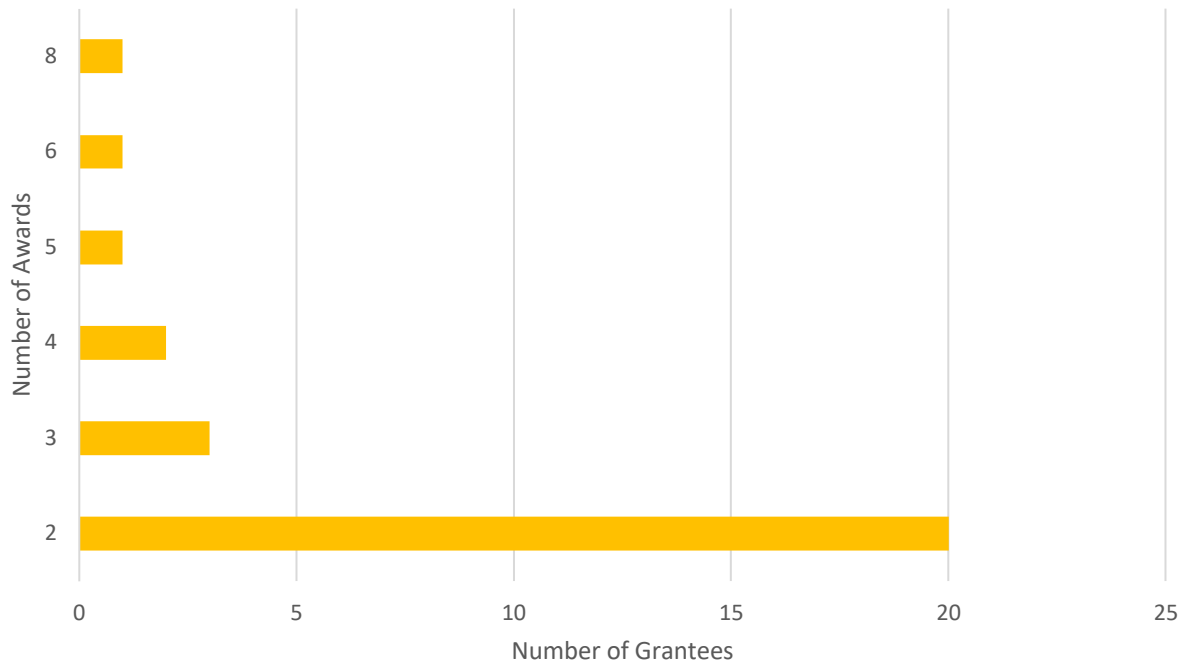
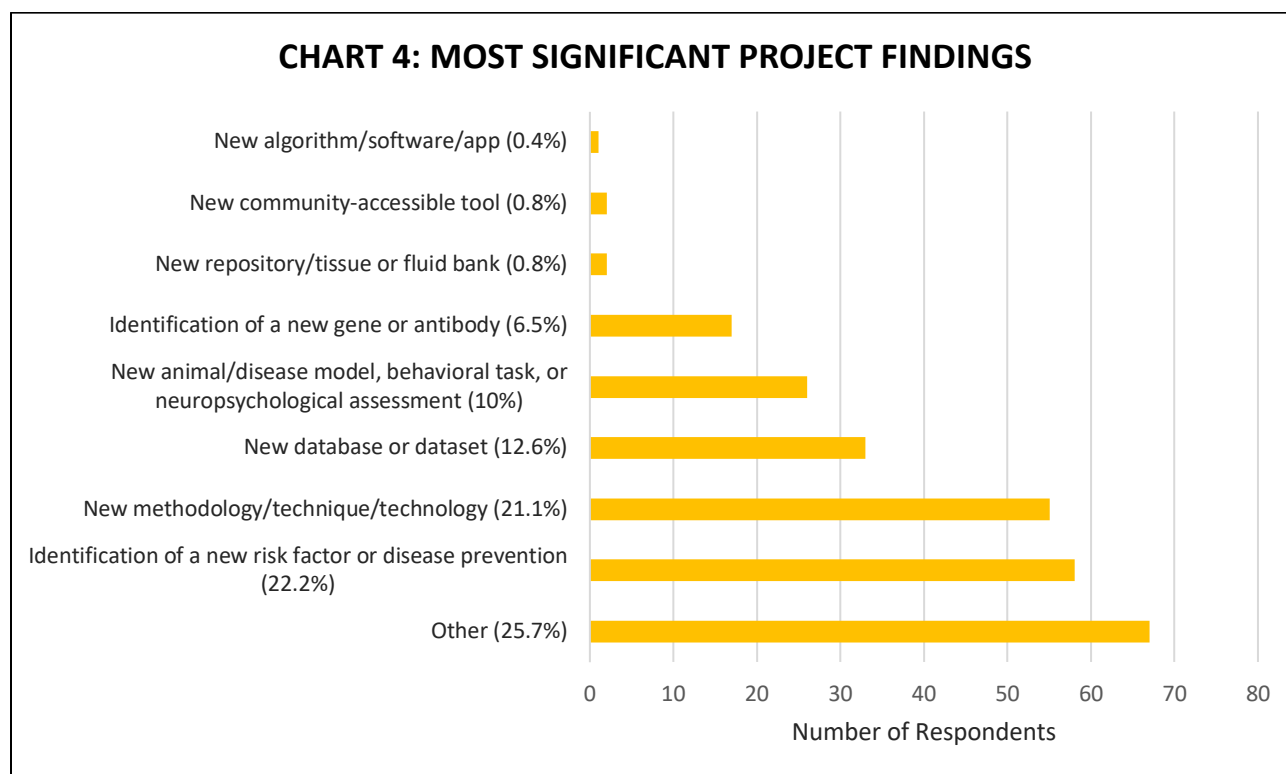


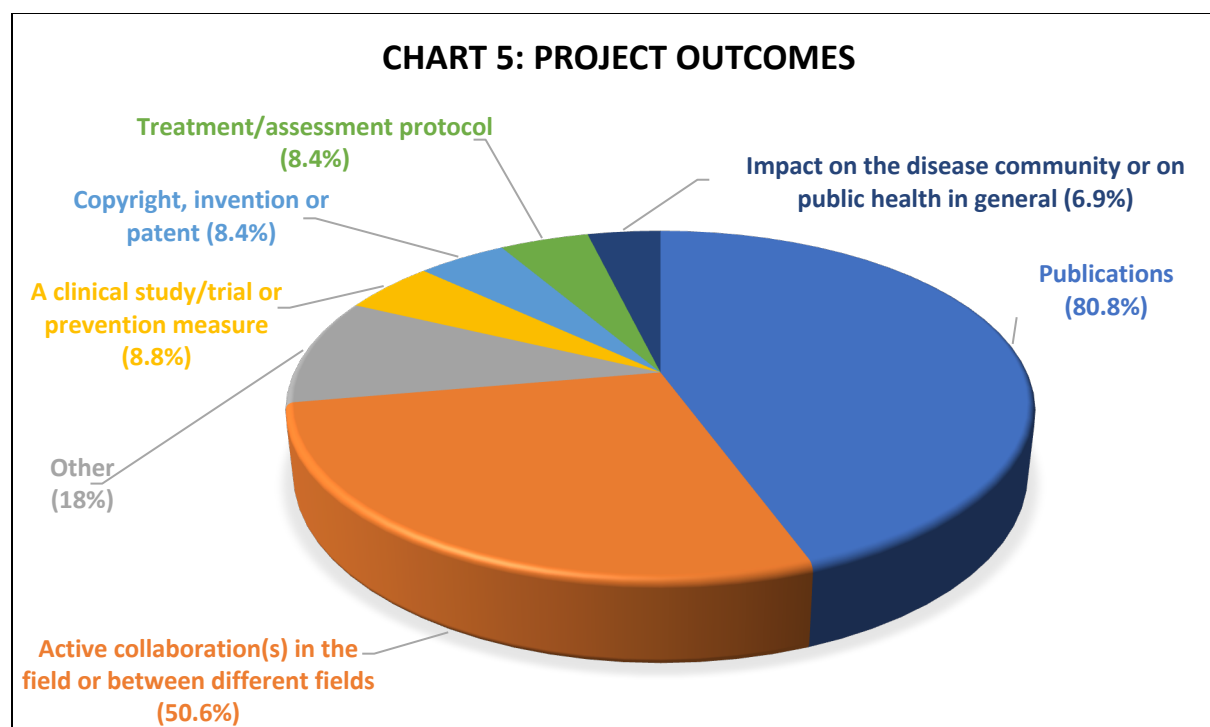
CHART 2: CURRENT POSITION**CHART 3: MULTIPLE GRANT AWARDS**

RESEARCH OUTCOMES STATISTICS

When asked about the most significant experimental finding or outcome from their BFF award(s), 25.7% of grantees selected "other." This category included findings such as new insight into disease pathogenesis, risk communication and refocusing of the research community, novel neuroinflammatory pathways, new molecular targets for neuroprotection, and new or repurposed therapeutics. The next most common responses were identification of a new risk factor or disease prevention (22.2%), development of a methodology/technique/technology (21.1%), development of a new database or dataset (12.6%), and development of a new animal/disease model, behavioral task, or neuropsychological assessment (10%). The full breakout of responses is illustrated in Chart 4. The complete list of these responses can be found in the survey raw data export.

The most frequently reported outcome of BFF-funded projects was publications, indicated by 80.8% of grantee respondents. This was followed by active collaborations (50.6%) and then other outcomes (18%), as detailed in Chart 5 below.

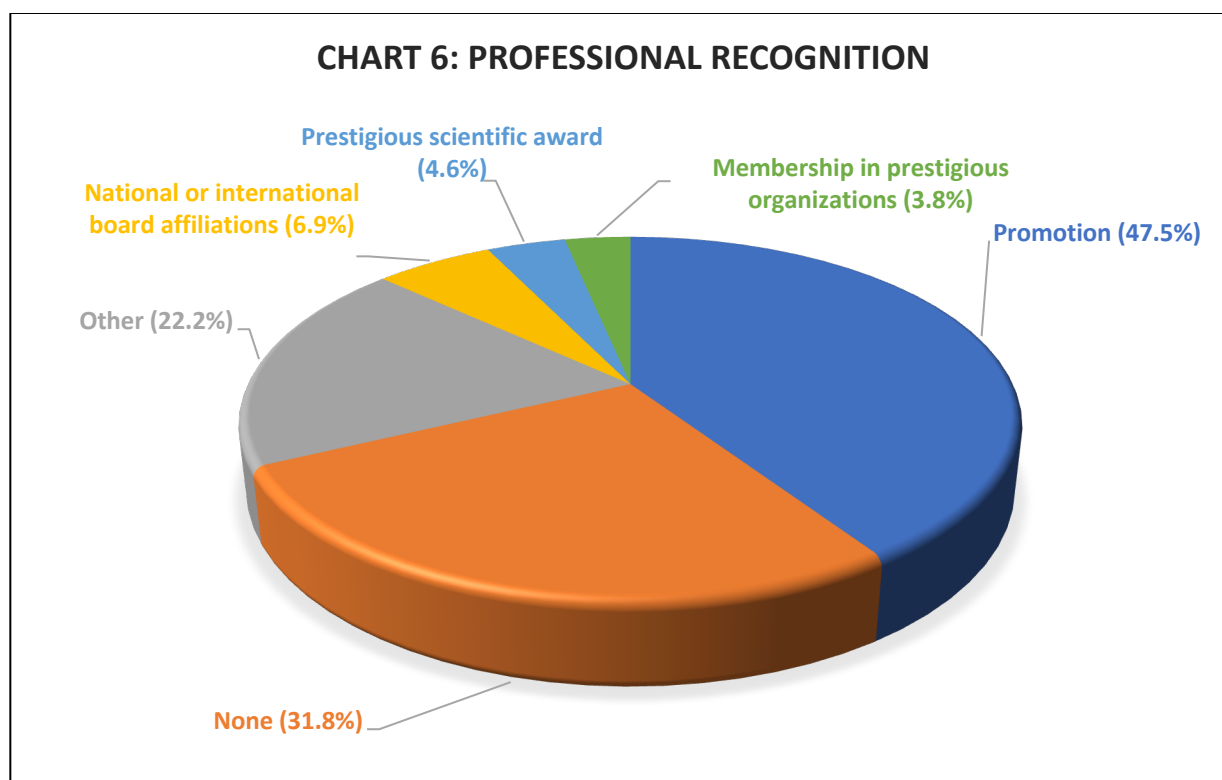




In Question 7 of the survey, 22% of respondents reported being in a mentor role on a BFF grant one or more times. In Question 16, regarding fellows successfully transitioning to career independence, if applicable, 58.6% reported that their fellows had done so, while 31% responded negatively. The remaining 10.3% of mentors indicated "unknown," "varied," or preferred not to answer the question. It should be noted that the 174 grantees who reported not serving as a mentor in Question 16 of the survey, from which these statistics are calculated, is less than the 204 respondents who reported never receiving BFF funding as a mentor in Question 7 of the survey.

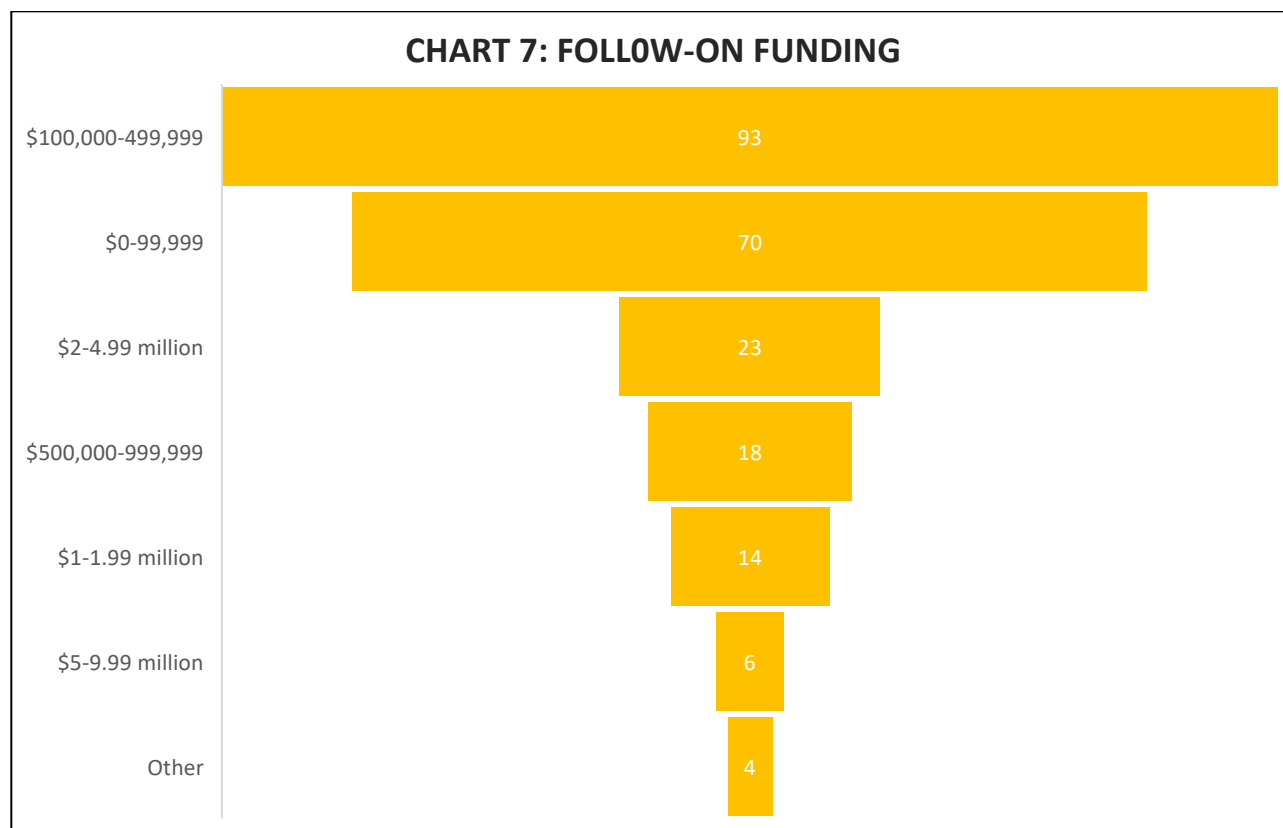
CAREER TRAJECTORY STATISTICS

The majority of grantees reported that BFF funding was critical to their career progression (93.1%) and influential in shaping their research focus (86.2%). When asked whether the funding led to professional recognition, close to 70% indicated that it did, with 47.5% indicating it resulted in a promotion, 22.2% selecting "other", and 15.3% indicating a distinguished award, board affiliation, or membership in a prestigious organization (see Chart 6). The "other" category responses ranged from early career, institutional, and dean awards to serving as a mentor, international recognition, keynote lectures, and funding for a clinical trial (see raw data export for the full set of answers).



Lastly, when grantees were asked about the amount of follow-on funding generated by their BFF awards, the most common funding bracket reported was **\$100,000–\$499,999**, selected by 93 grantees (39.1%). This was followed by the **\$0–\$99,999** range (70 grantees, or 29.4%), and the **\$2–\$4.99 million** range (23 grantees, or 9.6%). A complete breakdown of all reported amounts is available in Chart 7.

Based on these responses, the total estimated follow-on funding falls between a low range of **over \$148 million** and a high range of **over \$474 million**, with the median amount estimated at **\$311 million**.



CASE STUDIES SELECTION

Based on the responses from the 261 survey respondents, AIBS selected 27 grantees with remarkable achievements for the Foundation to consider as case studies. The purpose of these case studies is to feature compelling personal impact stories for use on the Foundation's website, social media, press releases, and fundraising campaigns. These stories highlight how BFF funding has shaped the fields of AD, MD, and glaucoma research and impacted the career trajectories of leaders in those fields.

Selection factors included:

1. Significant research findings and output;
2. An impressive record of follow-on funding and collaboration resulting from BFF support;
3. Career progression; and
4. Powerful personal impact stories.

BFF staff reviewed the list and found the candidates to be exceptional, representative of the research programs funded, and balanced across all career stages.

Of the 27 grantees selected, 19 agreed to be featured as case studies, and 18 of those provided the requested information for their write-ups. The 18 grantees are listed below in Table 1.

TABLE 1: BFF GRANTEE CASE STUDIES

Grantee Name	Gender	Place of Work	Current Position	BFF Program Funding	Year of Award(s)
Kathryn Bowles	Female	University of Edinburgh, Scotland, UK	Group Leader	Alzheimer's Disease Research	2017, 2021
Matthew Campbell	Male	Trinity College Dublin), Ireland, UK	Chair and Department Head	Alzheimer's Disease Research; Macular Degeneration Research	2011, 2013, 2022
Alessandra Carmichael-Martins	Female	University Hospital Eye Clinic Bonn, Germany	Research Scientist	National Glaucoma Research	2022
Brittany J. Carr	Female	University of Alberta, Canada	Assistant Professor	Macular Degeneration Research	2018, 2021, 2024
Marta Cortes-Canteli	Female	Cajal Neuroscience Center in Madrid, Spain	Principal Investigator	Alzheimer's Disease Research	2009, 2011, 2022, 2023
Sarah Doyle	Female	Trinity College Dublin, Ireland, UK	Professor and Director of Research	Macular Degeneration Research	2013, 2016
Robyn Guymier	Male	Melbourne University; Centre for Eye Research; Royal Victorian Eye and Ear Hospital Australia	Professor; Director; and Senior Retinal Specialist	Macular Degeneration Research	2013, 2016, 2018, 2019
Yi Hua	Male	University of Mississippi	Assistant Professor and Director	National Glaucoma Research	2021
Gary Landreth	Male	Stark Neurosciences Research Institute, Indiana University	Professor and Vice Director	Alzheimer's Disease Research	1994, 2007, 2011, 2022
Antonio Escudero Paniague	Male	University of California, Los Angeles	Assistant Project Scientist	Macular Degeneration Research	2021, 2023
Vasanth Rao	Male	Duke University School of Medicine	Distinguished Professor	National Glaucoma Research	2001, 2023
Sheldon Rowan	Male	Tufts Medical School; The Jean Mayer USDA Human Nutrition Research Center on Aging	Assistant Professor, Chair	Macular Degeneration Research	2014, 2017, 2021
Quincy Samus	Female	Johns Hopkins School of Nursing and Medicine	Professor, Associate Director	Alzheimer's Disease Research	2015, 2020
Joel Schuman	Male	Wills Eye Hospital	Endowed Chair, Professor, and Co-Director	National Glaucoma Research	1995, 2010
Zahra Shirzadi	Female	Massachusetts General Hospital, Harvard Medical School	Neuroimaging Scientist and Instructor	Alzheimer's Disease Research	2023
Daisy Shu	Female	University of New South Wales, Australia	Senior Lecturer	Macular Degeneration Research	2020
Emmanuelle Souzeau	Female	Flinders University, Adelaide, Australia	Research Fellow and Genetic Counsellor	National Glaucoma Research	2022
Dietmar Thal	Male	University Hospital Leuven; Katholieke Universiteit Leuven, Belgium	Board-certified Pathologist and Professor	Alzheimer's Disease Research	2022

GRANTEE CASE STUDIES

KATHRYN BOWLES, PHD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN ADR: 2017 AND STANDARD AWARD IN ADR: 2021)

Dr. Kathryn Bowles is a Group Leader for the UK Dementia Research Initiative (DRI) at the University of Edinburgh in Scotland, UK. She was awarded a PhD in Integrative Neuroscience in 2014 from Cardiff University for her work on the role of kinase signaling in Huntington's disease using immortalized cell culture models. Dr. Bowles began her journey into academic research during undergraduate studies in psychology and cognitive neuroscience at the University of Nottingham, where a laboratory rotation with Dr. Charlotte Bonardi sparked an interest in research. From there, Dr. Bowles went on to secure a Wellcome Trust PhD studentship in integrative neuroscience at Cardiff University, which allowed her to specialize in genetics and cell biology under the supervision of Dr. Lesley Jones. Following her PhD, she embarked on a postdoctoral fellowship at the Icahn School of Medicine at Mount Sinai in New York under the mentorship of Dr. Alison Goate, where she developed a love for all things "tau." Despite planning to stay in NYC for just 2 years, Dr. Bowles ended up staying for 7 years and learning everything she could about stem cells, genetics, and tau). After 7 productive years at the Goate laboratory, Dr. Bowles set her sights on launching her own independent program of research on iPSC models of primary tauopathies, and at the end of 2022, moved back to the UK to establish her laboratory at the Edinburgh UK DRI Centre.

"I wasn't aware that research was even a career option until a short rotation in Dr. Charlotte Bonardi's laboratory opened my mind to what is possible in science and to a career in neuroscience research."

Dr. Bowles has received two awards from the BFF. She first received a PFA in 2017 to carry out an unbiased assessment of how splicing of the *MAPT* gene, which encodes for tau, is regulated in humans. Using a combination of computational, cell culture, RNA sequencing, and microscopy approaches, she discovered a coordinated regulation between the splicing of exons 2 and 10 and that the coordination of *MAPT* splicing is differentially altered in the brains of individuals with AD and progressive supranuclear palsy (PSP), which leads to an accumulation of different tau isoforms in the brain. The work was published in the journal *Acta Neuropathologica* in 2022, and has been cited 24 times in the last 2 years. Then, in 2021, Dr. Bowles received a SA (ongoing) to profile the effect of *MAPT* splicing mutations in human brain tissues and in iPSC-organoids. Using a combination of single cell sequencing, cytokine arrays, immunofluorescence and mitochondrial assays, she and her team are investigating the functional impact of these mutations. So far, the results indicate differences in the susceptibility of neurons between synonymous/intronic mutations and missense mutations, which may explain the differential vulnerability of brain regions in patients with different *MAPT* mutations.

"My PFA gave me the opportunity to design and run experiments independently, laying the foundations for my future independence."

Dr. Bowles credits the funding she has received from BFF with shaping her career trajectory over the years. The PFA provided her the opportunity to adopt a multidisciplinary approach to her work, by exposing her to a wide array of different computational and wet lab techniques, including Opal multiplex immunofluorescence, transcriptomic analysis, long-read sequencing and RNA pull-downs; techniques that she continues to use. The SA was awarded shortly before Dr. Bowles was offered a position in the UK, which increased her competitiveness as a candidate, and has supported the development of her laboratory during its first two years. This allowed Dr. Bowles to dive straight back into research after relocating to the UK while applying for additional funding support and provided her with the opportunity to mentor the next generation of scientists.

“The impact of the SA award I received in 2021 has been far-reaching, impacting at least four junior researchers who have been able to learn and contribute to the project and who will have authorship on ensuing publications, thereby supporting their career progression as well.”

MATTHEW CAMPBELL, PHD (YEAR OF AWARDS: STANDARD AWARD IN MDR: 2011; POSTDOCTORAL FELLOWSHIP AWARDS: 2013 [ADR] AND 2022 [MDR])

Dr. Matthew Campbell is Founder and Director of the Neurovascular Genetics Unit in the Genetics Department at Trinity College Dublin (TCD), Ireland, UK, where he serves as Chair of Neurovascular Genetics and Head of Department and leads a program of research focused on the molecular biology and physiology of the vasculature associated with neural tissues, in particular blood retina barrier biology. He received a PhD in retinal biology in 2006 from University College Dublin, which was focused on understanding the role of the blood retina barrier in the degenerating retina. Dr. Campbell then moved to TCD as a postdoctoral fellow to continue his studies on the role of the blood brain/retina barriers in health and disease under the mentorship of Peter Humphries. In 2013, he was awarded a Science Foundation Ireland (SFI) President of Ireland Young Researcher Award (PIYRA), which enabled him to establish his own research laboratory at TCD. Over the past 13 years, he has been the recipient of numerous honors and awards for his program of research and accomplishments, including a prestigious European Research Council award and being named Early Career Researcher of the Year by SFI. Dr. Campbell currently leads an SFI funded EYE-D Programme, a 4-year €3.2M initiative focused on identifying novel therapeutic targets for ocular diseases, and sits on scientific advisory boards for Moorfields Hospital Charity, Sight Research UK, and the Alternating Hemiplegia of Childhood Foundation.

“The BFF funded project on Alzheimer’s Disease was one of the first PI grants I received and allowed me to recruit the first postdoctoral fellow to my newly established laboratory.”

Dr. Campbell initially received a Standard Award (SA) from BFF in 2011 to investigate the role of the inflammasome in the progress of age-related macular degeneration (AMD). This served as a springboard to study a completely new mechanism of disease, which was fundamental to his career progression by supporting work that was peripheral to his research focus at the time and expanding his program of research. The work resulted in high impact publications in *Nature Medicine* (2012), *Science Translational Medicine* (2014) and *IOVS* (2015), as well as a major collaboration with GSK that involved screening one of the company's clinical assets, IL-18, for efficacy as an immunotherapy in animal models of wet AMD. The team continues to drive the therapy towards clinical deployment, as well as pursue a range of novel therapeutic solutions for the treatment of AMD and glaucoma. Then, in 2013, Dr. Campbell's first postdoctoral fellow received a BFF Postdoctoral Fellowship Award (PFA) to study the clearance of amyloid-beta from the brain in Alzheimer Disease (AD), which in part was motivated by a family member's experience in navigating the wake of this devastating disease. The work led to a publication in *Science Advances* in 2014 and a review article on the dynamic movement of material across the blood-brain barrier (BBB) that has been cited more than 600 times. In 2022, Dr. Campbell encouraged a postdoctoral fellow, Dr Lucia Celkova, to apply for a BFF PFA. Dr. Celkova was successful in securing the funding, and Dr. Campbell has been actively mentoring her since as she transitions towards career independence.

"The prestige associated with BFF grants is critical in allowing awardees to be exposed to leaders in the field and is quite unique as a funding platform."

Collectively, the funding received from BFF enabled Dr. Campbell and his team to advance ideas into much larger projects and stimulated the development of his laboratory into a hub of excellence working at the cutting edge of neurological and ophthalmological diseases. Using genetic and molecular biology-based approaches to explore the interplay between neural tissues and the systemic circulation, the team has developed and patented a neural barrier modulation technology with a broad range of applications in retinal and neurological conditions, from facilitating small molecule delivery to the retina and the brain to alleviating cerebral edema and post-traumatic brain injury. Recently, the team published the first evidence of BBB disruption in patients with Long COVID in *Nature Neuroscience*. The publication garnered global attention and led to numerous follow-on clinical studies. Additional seminal discoveries are leading the field and changing the course of how neurological and ophthalmological diseases will be managed and treated in the future. These include a number of ongoing clinical trials exploring methods to restore vascular integrity in the brain and retina based on the team's findings.

"The initial funding I received from BrightFocus in 2012 was a real catalyst for my research career, as it helped establish my own independent laboratory, which, fast forward to 2025, has raised over €12M in research funding while continuing to publish in the world's leading biomedical journals."

ALESSANDRA CARMICHAEL-MARTINS, PhD (YEAR OF AWARD: POSTDOCTORAL FELLOWSHIP AWARD IN NGR: 2022)

Dr. Alessandra Carmichael-Martins, PhD is a Research Scientist at the University Hospital Eye Clinic Bonn, Germany, where she works on the design and implementation of advanced optical systems to understand biological changes in the visual system. In 2019, she received a PhD in Physics from the University College Dublin, Ireland, under the mentorship of Dr. Brian Vohnsen, for her work in designing novel systems to test visual function and wavefront sensing for ocular aberrations using a digital micromirror device. Dr. Carmichael-Martins' interest in the human eye began when she first started studying physics, and her graduate studies led her to specialize in optics and photonics with a view towards optical system design. During her doctoral studies, she developed a keen curiosity about optometry, which led her to pursue a postdoctoral fellowship in the laboratory of Dr. Stephen Burns at Indiana University to further her understanding of how to correct ocular aberrations with adaptive optics in order to image the eye at high resolution for the early detection of ocular diseases. Recently, Dr. Carmichael-Martins began a new position at the University Hospital Eye Clinic Bonn, where she is continuing her research on glaucoma and collaborating on a new project with Dr. Thomas Ach to design and implement a novel hyperspectral retinal imager for the early detection of AMD.

"My background in physics and optics provides me with a unique perspective to improve current ocular imaging systems used both clinically and in basic research and the funding from BFF meant that I could jump right into this endeavor!"

Dr. Carmichael-Martins received a PFA in Glaucoma Research from BFF in 2022 to study the fine structures of the main outflow path of fluid from the human eye and the changes caused by age, glaucoma, and its treatments. To overcome the challenges in studying changes in the trabecular meshwork *in vivo*, Dr. Carmichael-Martins combined a high-resolution 3D imaging modality with clinical imaging. To do this, she designed and manufactured a new custom lens to improve imaging resolution, thereby allowing iridocorneal angle landmarks to be viewed in 3D. Identifying specific locations to target had not been possible up until that point, and the optical improvement of the new gonioscopy design, which is 3D printed and cost-effective, enabled imaging of fine structures within the tissue. The imaging system is currently being used and improved for studying structural changes in the eye. Further, based on the technique, a new custom adaptive optics cellular level resolution imaging system, which encompasses three imaging modalities, has been designed by her and Dr. Burns group at the University of Indiana to further improve imaging resolution in order to study cellular level changes within tissue under several conditions.

"Achieving high-resolution 3D images of the human iridocorneal angle in vivo for the first time with a commercially available optical coherence tomography device has opened a world of possibilities amongst glaucoma specialists."

Based on the precision of the technique in determining which region of the trabecular meshwork to target when considering surgical options, Dr. Carmichael-Martins' imaging system

has garnered a great deal of interest around the globe amongst medical doctors as well as in the ocular imaging industry. This has led to several meetings to discuss the work and its future direction. None of this would have been possible without funding from BFF, which allowed Dr. Carmichael-Martins to design and manufacture the custom lenses. It also facilitated a collaboration with the University of Birmingham, Alabama to translate the imaging modality to non-human primates in order to further assess the comparison between 3D *in vivo* imaging and the histology of the iridocorneal angle. The work has led to 2 peer-reviewed publications in *Biomedical Optics Express*, with 2 more in preparation, and 7 international conference contributions, such as ARVO annual meetings, Visual and Physiological Optics (VPO) conference, or American Academy of Optometry (AAO). Since receiving the award, Dr. Carmichael-Martins transitioned from a postdoctoral position to an independent research position in Germany, which has allowed her to take on MSc and PhD students to work on the project and assume a supervisory role. In 2022, she was awarded a Post-doctoral Training Award in Translational Research TL1 by the Indiana Clinical and Translational Science Institute. She was also selected as an OPTICA Ambassador (Class of 2022), for which she focuses her role on mental health in academia, co-organizing workshops and webinars, as well as career development activities, especially oriented towards minority groups. Dr. Carmichael-Martins has participated in and continues to partake in outreach events at her institution and in collaboration with OPTICA society, including Girls in STEM and Women in Optics.

“Funding from the BFF enabled me to make important connections in the field, which in turn will allow the research to progress in two different countries and continue after the funding ends.”

BRITTANY J. CARR, PHD (YEAR OF AWARDS: TRAVEL FELLOWSHIP AWARD: 2018; POSTDOCTORAL FELLOWSHIP AWARD IN MDR: 2021; AND NEW INVESTIGATOR GRANT AWARD IN MDR: 2024)

Dr. Brittany J. Carr is an Assistant Professor in the Department of Cell Biology at the University of Alberta, Canada. She was awarded a PhD in Neuroscience in 2017 from the University of Calgary for her work on receptor binding and drug development for the treatment of myopia, which led to the discovery of two novel therapeutic targets for myopia inhibition as well as the importance of off-target drug effects when studying pharmaceutical therapies in patients and animal models. Dr. Carr’s interest in vision was piqued in 2010 when a summer project on amacrine cell activation in chickens exposed her to retinal research. Intrigued, she continued this line of research into her undergraduate honors project, investigating residual cone pathways in mice with congenital stationary night blindness. Following her PhD, Dr. Carr switched her research focus from myopia to retinal degeneration. As a postdoctoral fellow at the University of British Columbia, she created two frog models of human inherited blindness, one of which showed hallmarks of age-related retinal degeneration in humans that she developed into a potential model for the study and treatment of dry AMD. In 2022, Dr. Carr moved to the University of Alberta to begin her independent research career. Her program of research is focused on understanding the disease processes underlying inherited and age-related blindness using genetically engineered animal models.

*“One of the difficulties in understanding AMD is that there is no animal model that fully encapsulates all features of the disease. The *Xenopus laevis* model that I developed exhibits key features of early-to-intermediate AMD, which should provide real inroads into understanding how this complex disease progresses.”*

Dr. Carr has received two awards from BFF, as well as a travel fellowship. The PFA that she received in 2021 funded research to develop a frog model of AMD to determine the role of deposits of cellular debris (subretinal drusenoid deposits) in the development of severe forms of AMD, as well as track disease progression and identify relevant disease biomarkers. The research involved a complex array of techniques, including imaging mass spectrometry (MALDI-TOF), optical coherence tomography, and transmission electron microscopy and supported purchase of specialized equipment (an incubator for rearing tadpoles), sample preparation and analysis, and supplies needed for Dr. Carr to start her own new laboratory. The Early Career Research Award (ECRA) in AMD was awarded to Dr. Carr (and co-PI Dr. Jennifer Hocking) in 2024 and is ongoing. The goal of the study is to use two new small animal models of AMD (frog and zebrafish) to investigate mechanisms of retinal degeneration associated with AMD and inform future treatment development. The work is progressing nicely, and the team is making significant headway in the study aims, including establishing the zebrafish as a potential model of drusen development.

“Typically, Canadians do not receive large amounts of money to fund their research, and the PFA from BrightFocus helped fast-track my career by facilitating the payment of key personnel and the purchase of essential pieces of equipment and reagents.”

Dr. Carr attributes the PFA she received from BFF in playing a significant role in helping her secure an Assistant Professorship at the University of Alberta in August 2022. The award, resulted in 2 publications in the high impact journal *J Cell Science* and supported the work of 3 graduate students and 4 undergraduate students, also helped advance Dr. Carr’s career in other ways. It facilitated collaborations with leaders in the field, covered the costs of cutting-edge research techniques, and supported her travel to attend multiple conferences and present her research to the greater vision research field. Dr. Carr is excited about her continued support from BFF. The ECRA will be used to further the team’s work on the *prom1*-null frog model; establish further collaborations with experts in retinal cell biology, drug development, and biochemistry; and test potential pre-clinical therapies. The award, which has already generated findings that will be presented in poster and oral format at the Canadian Neuroscience Meeting in Toronto (May 2025) and is supporting the work of a technician, 6 undergraduates, a graduate, and a doctoral student, has provided Dr. Carr with the confidence that she can secure funding as an ECR. Not only will it help her gather the preliminary data needed for securing funding from the extremely competitive Canadian agencies (12-15% success margins), but also avoid “the valley of death,” a common phenomenon that ECRs in the biomedical research arena experience as they transition into mid-career status.

“Presenting research findings in person and networking with other scientists in the field allows early career scientists to gain valuable insight from additional perspectives, which is essential for their success. My two BrightFocus awards have enabled me to do just that!”

MARTA CORTES-CANTELI, PHD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN ADR: 2009; PILOT AWARD IN ADR: 2011; STANDARD AWARD IN ADR: 2022; AND POSTDOCTORAL FELLOWSHIP IN ADR, MENTOR TO MARTA CASQUERO-VEIGA, PHD: 2023)

Dr. Marta Cortes-Canteli is a Principal Investigator with tenure at Cajal Neuroscience Center in Madrid, Spain, where she heads the Neurovascular Research Laboratory of Alzheimer's Disease. In 2004, she was awarded a PhD in Biochemistry from the Autonomous University of Madrid (UAM) for her exceptional work on the role of the protein C/EBP β in neuronal differentiation, inflammatory processes, and brain damage, which was recognized through an Extraordinary Doctorate Award (UAM) and a Rodríguez Abaytua Doctorate Award from the Spanish Royal National Academy of Medicine. Dr. Cortes-Canteli's passion for science was sparked in high school by an influential biology teacher and led her to pursue undergraduate degrees in biology and biochemistry. After completing her PhD, Dr. Cortes-Canteli secured a highly competitive I3P Postdoctoral Contract from the Spanish National Research Council (CSIC) to continue her work on the function of C/EBP β in different brain processes under the mentorship of Dr. Pérez Castillo. This was followed by two prestigious fellowships at the Rockefeller University, New York under Dr. Sidney Strickland, during which her research focus shifted to investigating the vascular components of Alzheimer's disease (AD). In 2015, she returned to Spain as a Marie Curie Fellow to join the National Center for Cardiovascular Research, where she pursued a new line of research on the heart-brain connection in cardiovascular and neurodegenerative diseases. Over the course of her 20-year scientific career, Dr. Cortes-Canteli has been awarded 8 fellowships and 8 research grants as principal investigator and has raised more than €1.5M in competitive funding in the past 6 years.

“My time at Rockefeller University was fundamental to my growth as an independent research scientist, which in part was powered by my first two PI grants, one of which was a BFF Pilot Award.”

Dr. Cortes-Canteli is the recipient of an impressive number of BFF awards. The PFA she received in 2009 led to the discovery of cerebral vasculature damage and altered hemostasis in AD patients, which pointed to fibrinogen as an important contributor to AD pathogenesis. These findings garnered a great deal of media attention, were further clarified during a BFF Pilot Award (PA) she received in 2011, and were published in the top-tier journals *Neuron*, *Neurobiology of Aging*, *The Lancet Healthy Longevity** and *Circulation Research** (*rated top 10 in their respective categories). Dr. Cortes-Canteli is hopeful that the findings will lead to better treatment options for this devastating disease. In 2022, she was awarded a SA to investigate the impact of cardiovascular risk factors on brain function during middle age. The study, which is ongoing, is already revealing novel relationships between cardiovascular and brain alterations in

the health-to-disease transition, which in turn could have important implications for interventional and therapeutic approaches. Recently (2023), Dr. Cortes-Canteli served as a mentor to Dr. Marta Casquero-Veiga on a BFF PFA aimed at developing a neuroimaging biomarker to non-invasively identify the 60% of AD patients who present abnormal fibrin deposits in their brains. Dr. Cortes-Canteli is thrilled to be serving as a role model to promote gender equity in the field and make the work of female scientists visible to the research community. Her vast personal and professional knowledge have been invaluable in guiding Dr. Casquero-Veiga through the fellowship award.

“I consider it essential to return the investments made in me to science and society and have a deep-seated commitment to the dissemination of my scientific knowledge and training of future investigators.”

Dr. Cortes-Canteli's attributes her four BFF awards as being instrumental to her career growth as a scientist. Not only did the awards help establish active collaborations with other laboratories, such as the Henrik Zetterberg Laboratory at Gothenburg University (Sweden) and the Fernando Herranz Laboratory at CSIC (Spain), but also obtain competitive funding that helped secure her permanent position. In particular, the PFA for AD research was fundamental to securing the subsequent PA from BFF, which was critical for Dr. Cortes-Canteli to become an independent researcher and key to being awarded the prestigious European Marie Curie Fellowship. Further, the SA she secured once back in Spain opened up many career opportunities, as international grants (especially from outside the European Union) are considered a huge success in Spain, and this was key to Dr. Cortes-Canteli being offered tenureship at CSIC.

“The BFF funding has been central in shaping my career at every juncture, and I would not be where I am now without the generous support of the Foundation and its donors.”

SARAH DOYLE, PHD (YEAR OF AWARDS: STANDARD AWARDS IN MDR: 2013 AND 2016)

Dr. Sarah Doyle is Professor of Immunology in the Department of Clinical Medicine, Trinity College Dublin (TCD), Ireland, UK, where she serves as Director of Research for the School of Medicine. Dr. Doyle received a PhD in Immunology in 2007 from the Department of Biochemistry, TCD, under the mentorship of Prof. Luke O'Neill, which was focused on the discovery and characterization of novel components of immune pathways activated downstream of Toll-like Receptor activation. Dr. Doyle continued her studies on the role of innate immune pattern recognition receptors in health and disease as a Research Fellow in the School of Biochemistry and Immunology, TCD. In 2012, she was appointed to the rank of Assistant Professor in Immunology, which allowed her to establish an independent research laboratory in the School of Medicine at TCD. In 2018, she was promoted to Associate Professor of Immunology and moved to the Trinity College Institute of Neuroscience (TCIN), where she and her research group have been investigating the role of immune system in the retina ever since. Dr. Doyle is currently the academic PI of the first immunology incubator laboratory for the Ophthalmology Department in Roche Basel, Switzerland, an innovative academic/industry

incubator initiative aimed at identifying novel targets for retinal disease. She also serves as co-PI for a Science Foundation Ireland (SFI) funded EYE-D Programme, a 4-year €3.2M initiative focused on identifying novel therapeutic targets for ocular diseases. She sits on the scientific advisory board for the Institute de la Vision, Paris, France and the organizing committee for the Retinal Degeneration Meeting.

“Over the past 13 years, I have received numerous awards in recognition of the impact of my research on retinal disease, including a prestigious European Research Council Award, an SFI Career Development Award, and a Milstein ICIS Young Investigator Award.”

Dr. Doyle is the recipient of two BFF SAs. She initially received a SA in 2013 to investigate the role of the pattern recognition receptor Toll-like receptor 2 (TLR2) in the progress of AMD. The project uncovered that the TLR2 immune pathway was linked with complement activation, which is a hallmark of AMD, and in linking these systems, the research provided an alternative activating mechanism for complement dysregulation for people who do not carry the genetic risk variants. The work resulted in a high impact publication in *Cell Reports* (2020) and contributed to the generation of preliminary data that was used to leverage further funding from SFI, the Health Research Board (HRB) and the Irish Research Council (IRC), the three government funding bodies in Ireland. Later work on TLR2 in AMD led to a patent application, and the team continues to work towards the development of therapeutic solutions for AMD by targeting this inflammatory response. Then in 2016, Dr. Doyle received a second BFF SA to study the role of TLR signaling checkpoint regulators in the pathology of AMD. In this project, she and her group examined whether the normal processes that block unwanted inflammation from occurring in the body are faulty in AMD. The group found that a protein called Sarm1 is pro-degenerative in the retina and that a reduction in its expression resulted in improved visual function in experimental models of disease. This research led to a highly cited publication in *Life Science Alliance* (2020) and further publications in the high impact journals *Frontiers in Neuroscience* (2022) and *Experimental Eye Research* (2022).

“Our findings that Sarm1 is pro-degenerative in the retina resulted in a collaboration with Eli Lilly to pursue therapeutic targets for retinal degeneration. The work is on-going and I am confident that it will lead to the discovery of new targets.”

As her first PI grant, the 2013 BFF SA was critical in serving as a springboard for Dr. Doyle to transition from being a postdoctoral researcher to establishing herself as an independent researcher. It was a key determining factor in her appointment as an Assistant Professor in the School of Medicine, TCD, and it allowed her to recruit the first PhD student to her newly established laboratory. The PhD student, Dr. Kelly Mulfaul, went on to receive her own BFF PDF award and has since been appointed as an Assistant Professor at the University of Iowa. The initial SA was also fundamental to the ultimate direction Dr. Doyle's research has taken. At the time of the award, her research centered more broadly on disease agnostic immune signaling pathways and the pediatric immune system. Since then, Dr. Doyle has consolidated her position as a leader in the research field of inflammation in the retina and currently heads a group of 13

researchers, with the majority focused on retinal immunobiology. The second BFF SA was critical in seeding high-risk high-impact research ideas that have advanced into larger programs of fundamental and translational research and have attracted pharmaceutical industry engagement. It also supported the hire of a postdoctoral research fellow, who has since transitioned to Senior Scientist at Roche Ophthalmology. Since the first BFF award, Dr. Doyle has raised in excess of €9M for retinal research and has established a hub of scientific excellence in retinal immunology at TCD.

“The 2013 BFF SA was my first independent grant. As an immunologist, it allowed me to establish myself as a new researcher in the field of retinal degeneration and generate data that was used to secure larger, highly competitive grants from the three government funding bodies in Ireland.”

ROBYN GUYMER, MD, PHD (YEAR OF AWARDS: STANDARD AWARDS IN MDR: 2013 (co-PI) 2016, 2018 (co-PI) AND 2019 (MENTOR TO ZHICHAO WU, PHD)

Dr. Robyn Guymer is Professor of Ophthalmology at Melbourne University, Deputy Director and Head of Macular Research at the Centre for Eye Research Australia (CERA), and Senior Retinal Specialist at the Royal Victorian Eye and Ear Hospital in Australia, where she heads a team that investigates novel strategies for treating early stages of AMD. In 1984, Dr. Guymer received her medical degree from the University of Melbourne Australia, followed by a PhD in transplantation immunology in 1991 from the Walter and Eliza Hall Institute of Medical Research in Melbourne, studying corneal, pancreatic and skin transplantation, under the mentorship of Dr Tom Mandel. She then undertook training in Ophthalmology at the Royal Victorian Eye and Ear hospital in Melbourne followed by medical retinal training at Moorfields Eye Hospital in London, under the mentorship of Dr. Alan Bird, with a part time rotation as an Ocular Plastics Fellow at Salisbury Hospital under Dr. Tony Tyres. It was at Moorfields Hospital in the medical retinal clinics that Dr. Guymer decided to become a researcher. In 1997, she returned to Melbourne University to work as a clinician scientist in the Department of Ophthalmology, as well as CERA, where she founded the Macular Research Unit, which she has led for the past 28 years. In 2020, she spent a sabbatical as the first ophthalmology visiting professor to F Hoffman La Roche Ltd, in Basel Switzerland, working as Principal Global Medical Director. Dr. Guymer is the recipient of numerous prestigious awards, including being named a Member in the General Division of the Order of Australia in the 2018 Queen’s Birthday Honors List in recognition for her significant service to the field of ophthalmology, particularly AMD, and a 2016 the NHMRC Elizabeth Blackburn Fellowship, for the top-ranked female research fellowship award in clinical medicine.

“During my medical retinal fellowship at Moorfields Hospital, people came from around the world to seek help for AMD, but there was little we could offer and each person received the same disappointing news. It was at this time, I decided to embark on research on this devastating disease in the hope that I might be able to help more people than just those I was seeing in the clinic.”

Dr. Guymer has received three SAs from BFF and is a mentor on a fourth. She was awarded her first SA in 2013, serving as co-PI on a phenotypic characterization study of a large cohort of AMD subjects at the extremes of genetic risk, who were followed longitudinally using advanced retinal imaging and functional testing strategies. The study led to groundbreaking advances in the field concerning reticular pseudodrusen (RPD), nascent geographic atrophy (nGA) and microperimetry. For example, the team was the first to show that in the non-affected eye of people with neovascular (n) AMD, RPD was a significant risk factor for AMD progression and helped establish the importance of RPD as a critical phenotype in AMD. As part of the study, they also described the OCT findings of nGA, which has become recognized as a high-risk factor for progression to GA and potentially a robust surrogate biomarker for disease progression. Being able to measure retinal function in intermediate AMD is critical for early intervention and for showing functional change over time, and the work significantly informed microperimetry and correlations with structure. The work resulted in an impressive number of highly cited publications (8), many in high impact journals, including *Ophthalmology*, *IOVS*, and *Brit J Ophthalmol*. Since the 2013 award, Dr. Guymer has received three other SAs from BFF, as either a PI or a collaborator, for projects to better understand the development and progression of AMD. This includes a Carolyn K. McGillvray Award in 2016.

“Much of the work in the first BFF award was done by PhD candidate Zhichao Wu, who went on to win the Dean’s prize for his PhD and then a prestigious Neil Hamilton Fairely Postdoctoral Fellowship from the National Health and Medical Research Council of Australia.”

The funding received from BFF was not only pivotal to Dr. Guymer’s career trajectory but also that of her early career post graduate researchers. With support from the funding, Dr. Guymer and her team have worked to become a recognized authority on RPD. The funding contributed to a broader portfolio of research in AMD, which was recognized with the Macula Society W. Richard Green Award and Lecture (2020) and the Royal Australian and New Zealand College of Ophthalmologists Norman McAlister Gregg Medal and Lecture (2018) and helped secure competitive grant support from NHMRC Australia; all key to Dr. Guymer’s career progression. Many of Dr. Guymer’s early career researchers have gone on to enjoy illustrious careers in the field. Optometrist Dr. Zhichao Wu is an Associate Professor at the University of Melbourne and CERA, where he heads his own research unit. Dr. Wu is a world leader on structure and functional endpoints in AMD and has gone on to secure his own BFF funding. Ophthalmologist Dr. Robert Finger, who completed his PhD in the Guymer unit, and ophthalmology training in retinal diseases at the Royal Victorian Eye and Ear Hospital, is Professor and Chair in the Department of Ophthalmology at the University of Mannheim, Germany. Dr. Finger plays an instrumental in the landmark Macustar study of AMD and he and Dr. Guymer continue to collaborate on AMD projects. Professor Lauren Ayton, a Postdoctoral Fellow who co-supervised Dr. Wu and played an active role in the 2013 BFF funded study, is a Professor of Optometry at the University of Melbourne and Associate Dean in the Department of Surgery

“The 2013 BFF award resulted in collaborations with internationally renowned AMD and retinal imaging experts, Drs. Gregory Hageman (University of Utah) and Cynthia Toth

(Duke University), who were instrumental in some of the work that led to high impact publications and continue as collaborators to this day.”

YI HUA, PHD (YEAR OF AWARD: POSTDOCTORAL FELLOWSHIP AWARD IN NGR: 2021)

Dr. Yi Hua is an Assistant Professor of Biomedical Engineering and Director of The Vision Laboratory at the University of Mississippi. He received a PhD in Mechanical Engineering at the University of Nebraska-Lincoln in 2016 under the mentorship of Dr. Linxia Gu. His doctoral research initially focused on the biomechanics of blast-induced mild traumatic brain injury; however, as his research progressed, an interest in neural tissue biomechanics led him to explore the optic nerve head (ONH), an extension of the central nervous system that serves as a critical interface between the eye and brain. The ONH is uniquely influenced by intraocular pressure (IOP) from the eye and intracranial pressure (ICP) from the brain, with their interaction creating complex biomechanical challenges. Building on his expertise in brain mechanics, Dr. Hua sought to understand how IOP and ICP shape the biomechanical environment of the ONH. This growing interest ultimately led him to pursue a postdoctoral fellowship at the Laboratory of Ocular Biomechanics at the University of Pittsburgh under Dr. Ian Sigal, where he studied the interplay between biomechanics and hemodynamics in the ONH and refined his expertise in experimental and computational methods. After completing his postdoctoral training, Dr. Hua joined the University of Mississippi and established The Vision Laboratory. His program of research primarily focuses on the role of biomechanics in visual impairment and dysfunction caused by diseases and injuries that affect the eye, brain, or optic nerve connecting them.

“My postdoctoral research led to the development of advanced numerical tools to simulate blood flow and oxygen distribution within the ONH using detailed, eye-specific microvascular networks, which provided novel insights into how IOP affects blood flow and oxygen distribution in the ONH.”

Encouraged by the promising finding of his postdoctoral research, in 2021, Dr. Hua applied for and successfully secured a competitive PFA in Glaucoma Research from BFF. The award supported a series of experiments to characterize the impact of IOP on the ONH’s microvascular structure and blood flow and determine how these structural and hemodynamic changes contribute to retinal ganglion cell axon loss in glaucoma. The outcomes of the research were significant. Dr. Hua identified vessel diameter, neural tissue oxygen consumption rate, and arteriole pressure as the three most influential factors affecting blood flow and oxygen concentration in the ONH. Notably, there was a strong interaction between vessel diameter and arteriole pressure, where the effect of one factor was amplified when the other was reduced. The findings were published in the high impact journal *Experimental Eye Research* and presented at the Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting.

“Through the PFA, I was able to develop the first-ever specimen-specific lamina cribrosa vascular network, enabling the simulation of blood flow and oxygen concentration within the lamina cribrosa.”

Beyond its research impact, Dr. Hua credits the PFA with playing a pivotal role in his career trajectory. As an international postdoctoral researcher, he had very limited experience in applying to funding agencies in the US and consequently in developing his grant writing skills. This lack of experience also posed significant challenges in securing a faculty position, where experience in procuring independent funding is a crucial qualification. The experience of writing and winning a BFF PFA not only afforded Dr. Hua the opportunity to refine his grant writing skills but also demonstrated his ability to secure competitive funding, which provided him with the advantage needed to acquire a faculty position with tenureship at the University of Mississippi.

"I am deeply grateful to the BrightFocus Foundation for this opportunity and for its support of early-career researchers, without which I would not have advanced so quickly to a tenure-track faculty position."

GARY E. LANDRETH, PHD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN ADR, MENTOR TO MIGUEL MOUTINHO: 2022 AND STANDARD AWARDS IN ADR: 1994, 2007, AND 2011)

Dr. Gary E. Landreth is the Martin Professor of Alzheimer's Research, Professor of Anatomy, Cell Biology & Physiology, and Vice Director of Education at the Stark Neurosciences Research Institute (SNRI), Indiana University (IU), where he leads research on the principal genetic risk factors for AD, with a focus on developing drugs to treat central nervous system disorders, including AD. In 1977, Dr. Landreth was awarded a PhD in Neuroscience from the University of Michigan for his work on neuronal regeneration under the mentorship of Dr. Bernard Agranoff, a founder of the newly developed Neuroscience Graduate Program. He was the first graduate of the program. Dr. Landreth's interest in neuroscience was fueled by the consolidation of the neurosciences as an interdisciplinary study of the nervous system. After receiving his PhD, he pursued a postdoctoral fellowship in the newly created Department of Neurobiology at Stanford University to work on neuronal growth factors under the mentorship of Dr. Eric Shooter. He was then recruited by the Medical University of South Carolina to set up his own laboratory, where he continued to study signal transduction mechanisms in neurons. Later, in 1989, he was recruited to the newly founded Alzheimer's Research Center at Case Western Reserve University (CWRU), where he worked for 27 years disentangling how the brain's immune response to amyloid plaques is initiated and ultimately linked to neuronal death. In 2017, he moved to IU, where he continues to study the genetic complexities of AD. Over his career, Dr. Landreth has graduated 30 PhD/MD-PhD students and has trained 17 postdoctoral fellows. He is the recipient of a number of prestigious awards.

"I was recruited to study the cellular mechanisms through which AD pathogenesis and the critical role of microglia at a critical time when we knew very little about disease mechanisms, but had new genetic animal models. It was, and is, very exciting science, and I feel fortunate that I have been able to work on therapies to treat this disease"

Despite compelling evidence, by the mid-1990s the idea that the activation of an immune response by microglia was causal in the pathogenesis of AD was quite controversial, and as a result, Dr. Landreth's NIH application to investigate this linkage was rejected, placing him in financial jeopardy. At the time, the BFF was a relatively new funding source for AD and seemed more receptive to funding grants that were not entirely mainstream. Dr. Landreth secured a SA from the Foundation in 1994, which allowed his research to continue. He has since received two additional SAs and, and two of his trainees have received PFAs. In the late 1990's, the Landreth laboratory demonstrated the involvement of a class of nuclear receptor agonists that suppressed inflammatory gene expression. The discovery that small molecule FDA-approved agonists of peroxisome proliferator-activated receptor gamma rapidly reversed amyloid deposition, suppressed inflammation, and improved cognition led to a patent application for the use of pioglitazone in AD (issued in 2001). Following a successful NIH-funded clinical safety study on the use of pioglitazone in the elderly, the team collaborated with Amgen and GSK to test these drugs in AD mouse models. With BFF funding, they screened other nuclear receptor agonists and found that an FDA approved agonist of retinoid X receptor, Bexarotene, was remarkably effective in reversing AD pathogenesis and improving cognition. A startup company, ReXceptor, was formed, which licensed the technology and conducted a Phase IIb trial in collaboration with C2N Therapeutics. While Bexarotene was found to reduce amyloid levels in mice, it did not efficiently pass the blood brain barrier in humans. BFF was an important and enthusiastic supporter of the effort, assisting in obtaining funding for a clinical trial of Bexarotene, cheering from the sidelines, and even visiting the Landreth Laboratory.

"The BFF funding was quite frankly career saving and came at an absolutely critical time, allowing my team to perform crucial but controversial experiments that would not get through an NIH study section."

The SAs that Dr. Landreth received from BFF were mainly used to demonstrate that the actions of microglia could stimulate inflammatory responses through largely known signaling pathways. He and his team have been working on this exciting line of research for 30 years, and the work would not have been possible without BFF support. Strategically, the team identified small molecule FDA approved drugs targeting microglial intracellular signaling elements that alter AD pathogenesis, which resulted in fast translation into the clinic. This groundbreaking work resulted, directly or indirectly, in more than 100 publications, many of which were published in top-tier journals, such as *Science*, *Science Translational Medicine*, and *Neuron*. The awards also played a big role in Dr. Landreth's career trajectory, particularly his appointments as the Riuko and Archie Co-Professor of Neurosciences in Alzheimer's Disease at CWRU in 2012 and the Martin Family Chair in Alzheimer's Disease at SRNI, IU in 2017. In addition, the funding enabled his laboratory to recruit some very talented trainees, either to work on Dr. Landreth's BFF projects or on their own PFAs. Many of the trainees greatly benefitted from attending Alzheimer's Fast Track Workshops sponsored by BFF, and several have continued their BFF funded line of research into their own independent laboratories and are enjoying successful careers in the field of AD. For example, Dr. Miguel Moutinho, who received a PFA from BFF while in the Landreth Laboratory and PFA awardee Dr. Juan Codocedo, whose work was

recently published in *Cell Reports* and resulted in fundable R01 applications, were both recently promoted to Research Assistant Professors at IU.

"I can't adequately emphasize the impact of even small amounts of funding for projects out of the mainstream. I credit BFF with keeping the faith and supporting student training opportunities, which has served the AD community well."

ANTONIO ESCUDERO PANIAGUA, PHD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN MDR: 2021; TRAVEL FELLOWSHIP AWARDS: 2021 AND 2023)

Dr. Antonio Escudero Paniagua is an Assistant Project Scientist at the University of California, Los Angeles (UCLA), where he studies the cell biology of the retina in the healthy eye and during retinal degeneration, in particular the renewal process of the photoreceptor outer segment (POS), the site where the visual process begins in the eye. In 2016, he was awarded a PhD in Neuroscience with Extraordinary Distinction from the University of Salamanca, Spain, for his work on the role of the polarity protein CRB2 in the development of photoreceptor and retinal pigment epithelial (RPE) cells under the mentorship of Dr. Concepción Lillo. Dr. Paniagua was first introduced to the field of vision research in 2008 when, as an undergraduate student, a foray in the Lillo laboratory piqued his interest in the role of polarity proteins in photoreceptor and RPE cells of the retina. In 2012, he formally joined the laboratory to undertake his doctoral studies. Following his PhD, Dr. Paniagua embarked on a postdoctoral fellowship under the mentorship of Dr. David Williams at UCLA, where he continued his research on the biology of photoreceptor and RPE cells, with a special focus on the mechanisms of POS disk formation, POS tip ingestion and POS phagosome degradation.

"Impaired POS phagosome degradation leads to the accumulation of RPE deposits, which is a hallmark of AMD. I am intrigued by the precise mechanism by which this occurs, and how it leads to the degeneration of the photoreceptor cells and thus to blindness."

In 2021, Dr. Paniagua received a BFF PFA in Macular Degeneration Research for a project to address the link between impairment in POS phagosome degradation and AMD. The goal of the project was to identify the steps and times of day that are most impacted during POS phagosome degradation in AMD, and the project involved developing new methods to study the degradation process of POS phagosomes and analyzing the process in mouse and human models of macular degeneration. Dr. Paniagua found that the rate of POS phagosome degradation is not coupled to that of POS tip ingestion, rather it follows an independent daily rhythm. Both processes are highest at night, contrary to a long-standing assumption that had interpreted the increased number of POS phagosomes in the morning as the peak time of POS phagocytosis. He also identified the specific step that is affected in the degradation process of POS phagosomes in a mouse model of Stargardt 3, a genetic form of macular degeneration. As Dr. Paniagua works on publishing the results, he is hopeful that the findings will provide a better understanding of the POS phagocytosis process and its link to some forms of macular degeneration.

“My work on the rhythm of POS phagocytosis has been paradigm shifting. Contrary to current dogma, I found that POS phagosome ingestion and degradation are highest at night; indicating that studies of the POS phagocytosis process should be focused on the nighttime.”

Being awarded a BFF PFA in Macular Degeneration Research and the Elizabeth Anderson Award for Macular Degeneration Research in 2021 have been key to Dr. Paniagua’s career trajectory. Not only did the awards lead to relative independence, but they also allowed him to start an independent program of research. In addition, the awards provided Dr. Paniagua with the resources and confidence to develop his own ideas. The topic of the BFF PFA has now become a main part of his research program, which he intends to continue building over the years. In 2023, Dr. Paniagua was promoted to Assistant Project Scientist, which he attributes in part to the awards. The awards also helped shape the careers of several mentees who worked on the projects, two of whom are now enrolled in medical school, while another is pursuing an MD-PhD program. Notably, one of Dr. Paniagua’s current mentees, a UCLA undergraduate student, lives with Stargardt’s disease, a juvenile form of macular degeneration, which brings a uniquely personal perspective to his line of research.

“Winning the BFF PFA was a big boost to my confidence and motivation. Not only did the award help me learn how to lead a project, but it also opened up a new line of research that I continue to pursue.”

PONUGOTI VASANTHA RAO, PHD (YEAR OF AWARDS: STANDARD AWARDS IN NGR: 2001 AND 2023)

Dr. Ponugoti Vasantha Rao is the Richard and Kit Barkhouser Distinguished Professor and Professor of Ophthalmology, Pharmacology, and Cancer Biology at Rowan. His scientific journey began with a PhD in Biochemistry from the National Institute of Nutrition (Indian Council of Medical Research) in 1989, where he explored the role of riboflavin in lens growth and function. This foundational work ignited a lifelong passion for lens biology, leading him to the National Eye Institute (NIH) as a Fogarty Postdoctoral Fellow under Dr. Samuel Zigler, Jr. There, he investigated the biological role of zeta-crystallin and its mutation-driven cataract development in guinea pigs. After completing his fellowship, Dr. Rao was promoted to Visiting Scientist, where he carved out his independent research niche, studying Rho GTPases in lens development. In 1998, he joined the Department of Ophthalmology at Duke University as an Assistant Research Professor, expanding his research focus to include trabecular meshwork cytoskeletal regulation and aqueous humor drainage. Over the past 27 years at Duke, his pioneering work has resulted in over 75 publications in high-impact journals and sustained NIH funding. He has also served as a consultant for a variety of pharmaceutical companies and on scientific committees for ARVO, ISER, and NIH.

“My first BrightFocus Foundation award was invaluable in helping me establish my independent program of research by allowing me to establish proof of concept.”

Starting an independent laboratory is like planting a seed in new soil—it requires nourishment, time, and the right conditions to grow. Dr. Rao’s initial SA from BFF provided that crucial early support, allowing him to develop proof-of-concept studies TM actin cytoskeletal dynamics and its role in aqueous humor outflow and intraocular pressure (IOP) regulation. The funding was instrumental in expanding his work on Rho Kinase (ROCK) and its influence on aqueous humor drainage, complementing support from Research to Prevent Blindness and the NIH. Notably, his work on Rho kinase inhibitors served as the foundation for the development of the FDA-approved glaucoma drugs Rocklatan and Rhopressa by Aerie Pharmaceuticals, Inc. (now part of Alcon). Dr. Rao’s second and most recent BFF SA, in collaboration with Dr. Rupalatha Maddala (PI) and Dr. Pratap Challa (co-PI), explored an entirely new dimension of glaucoma research—the role of the septin cytoskeleton in aqueous humor outflow and IOP regulation. The research has uncovered a critical link between dysregulated septin cytoskeletal organization in TM cells and increased IOP, a discovery that could pave the way for novel, cytoskeleton-targeting drugs for glaucoma. Importantly, the findings, published in *JCI Insight*, provided strong preliminary data for Dr. Maddala to submit an NIH grant application as a principal and new investigator.

“What started as a small stream of research funding turned into a powerful current, shaping new therapeutic strategies for glaucoma treatment.”

Dr. Rao’s work has significantly advanced the understanding of TM biology and glaucoma treatment. His contributions to Rho/ROCK signaling and TM-targeted therapy have been foundational in the development of FDA-approved ROCK inhibitors—a true translation of benchside discovery to bedside treatment. Much like unlocking the intricate mechanisms of a watch to understand its movement, Dr. Rao’s research continues to dissect the molecular pathways controlling eye pressure regulation. His research program has also served as a launchpad for aspiring scientists, providing critical training opportunities for postdoctoral fellows, many of whom have secured NIH funding and established independent research careers. His groundbreaking contributions have earned him numerous accolades, including a Dr. Roger Vogel Award for Pharmaceutical Research (*ARVO Foundation*), a RPB Career Development Award, an RPB Lew R. Wasserman Merit Award, a Cataract Research Award (*National Foundation for Eye Research*) and a Master Clinician/Teacher Award (*Duke University School of Medicine*)—one of Duke’s highest honors in recognition for his commitment to mentoring the next generation of glaucoma researchers.

“My research, supported by BFF and NIH, is opening new doors for targeted glaucoma therapies with fewer side-effects, with the ultimate goal of preserving vision for millions at risk of blindness.”

SHELDON ROWAN, PHD (YEAR OF AWARDS: STANDARD AWARDS IN MDR: 2014 (co-PI) AND 2017; TRAVEL FELLOWSHIP AWARD: 2021)

Dr. Sheldon Rowan is an Assistant Professor of Ophthalmology at Tufts Medical School, Scientist II and Assistant Professor of Nutrition at the Jean Mayer USDA Human Nutrition Center of

Aging (HNRCA), and Chair of the Division of Biochemical and Molecular Nutrition at the Friedman School of Nutrition and Science Policy, where he conducts research on the relationship between carbohydrate quality, the gut microbiome, and age-related eye diseases, such as macular degeneration and cataracts. Dr. Rowan was awarded a PhD in Genetics from Harvard University for his work on retinal cell fate determination during embryonic development under the mentorships of Drs. David Fisher and Connie Cepko. Dr. Rowan's longstanding interest in vision research began when he undertook a project in developmental biology to understand how different cell fates in the retina and retinal pigmented epithelium are controlled. After pursuing a postdoctoral fellowship at Brigham and Women's University under the mentorship of Dr. Richard Maas, where he first studied pancreatic development and then transitioned to studying lens development, he was recruited as a scientist to HNRCA at Tufts University in 2012, where he has remained and built a program of research around the pathophysiology of age-related eye diseases.

"Although my training in vision research began with studying how the eye is formed early in development, I realized that the greatest need in eye research was understanding what goes wrong in the process of aging and how we can exploit our understanding of aging to find new treatments."

Dr. Rowan is the recipient of two BFF SAs. The first, awarded in 2014, funded a project to develop a novel cell therapy intervention to treat AMD using replacement retinal pigmented epithelial cells. Dr. Sheldon served as the co-PI on this award; the PI was Dr. Behzad Gerami-Naini. Dr. Gerami-Naini was an expert in stem cell biology and generated some of the first human induced pluripotent stem cell-derived retinal pigmented epithelial cells. Along with Dr. David Kaplan, a pioneer in using silk fibroin for bioengineering, Drs. Rowan and Gerami-Naini demonstrated a new approach to engineering a transplantable source of patient-matched retinal pigmented epithelial cells to treat advanced AMD. Dr. Rowan's second SA was awarded in 2017 and funded a project to determine the importance of the gut microbiome in modulating age-related retinopathy in mice. There were two experimental aims. In the first, antibiotics were used to selectively ablate commensal microbiota to examine the normal protective role of the gut microbiome, and in the second, fecal microbiota transplants were used to modify the gut microbiome independently of diet to test whether gut microbiota are sufficient to impact age-related retinopathy. The BFF finding allowed Dr. Rowan to recruit his first PhD student, Dr. Kelsey Smith, to work on the project. The work compiled the majority of her thesis, and Dr. Smith was awarded a PhD in 2022.

"Thanks to the successful outcomes of my BFF funded projects, I was able to shift a large focus of my research program to explore mechanisms of the gut microbiome, which has led to follow-on funding and collaborations with experts in the microbiome space."

Dr. Rowan credits the outcomes of his BFF SA with completely reshaping his program of research; much of the work in his laboratory is now focused on building upon the outcomes of the microbiome-driven project. The project was the first major microbiome work that his laboratory undertook, and in carrying out the research, the team learned how to successfully

conduct microbiome research. The work and associated research has led to 6 original research publications in the highly regarded journals *FASEB Journal*, *iScience*, *Journal of Nutrition*, and *Bone Reports*, with at least three more in the works. Several of the publications represent critical findings on how the gut microbiome changes with aging and diet, contributes to bone health during aging, and how diet-antibiotic interactions affect health and survival during aging. Further, the finding that the gut microbiome can instruct ocular outcomes independently of diet, which has major implications for AMD, has been presented at the International Symposium on Retinal Degeneration, ARVO, and the American Society of Nutrition annual meeting. The team secured funding from the USDA and Foundation Fighting Blindness for a number of follow-up studies aimed at identifying relevant microbiota and mechanisms and anticipate that the results will lead to a high-profile publication. BFF funding has also played a key role in driving Dr. Rowan's career trajectory. Not only did it help him secure a faculty position and follow-on promotions, but also allowed him to engage and mentor 8 MS and PhD students in his laboratory, several of whom have gone on to pursue their own independent lines of research.

"My BFF award was instrumental in securing an academic position in the Friedman School of Nutrition Science and Policy at Tufts, and I have since been promoted to Chair of the Division of Biochemical and Molecular Nutrition. The expertise I developed through my BFF funded research was cited as key in earning these promotions."

QUINCY SAMUS, PHD (YEAR OF AWARDS: SPECIAL OPPORTUNITIES AWARDS IN ADR: 2015 AND 2020)

Dr. Quincy Samus is Professor of Nursing and Psychiatry and Behavioral Sciences, Associate Director for Innovation at the Center for Health Equity in Aging, Johns Hopkins School of Nursing, and Founding Director of the Memory and Aging Services Innovation Center at Johns Hopkins School of Medicine. Her research is focused on the transformation of dementia care and services through translating evidence-based practices into real-world settings to achieve meaningful results. Dr. Samus was awarded a PhD in Gerontology from the University of Maryland in 2007 for her work on the prevalence, care, and treatment of memory disorders in assisted living settings under the mentorship of Drs. Peter Rabins and Constantine Lyketsos. Her journey into the field of AD and related dementias (AD/ADRD) was motivated by her childhood in a small rural town, where she had very close relationships with her grandparents and great grandparents. Over the past 20 years at Johns Hopkins University, Dr. Samus has become an internationally recognized authority on AD/ADRD-focused health services, leading collaborative projects to better understand the everyday dementia-related needs and challenges faced by diverse groups, particularly vulnerable, marginalized and disadvantaged groups. She is the recipient of a variety of prestigious awards, including NIH Scholarships and a Journal to Hope Pioneer Award, and serves on advisory boards, task forces, and working groups for organizations such as the National Dementia Care Navigation Task Force, Maryland's Virginia I. Jones Alzheimer's Disease Council, and the Lancet Standing Commission on Dementia Prevention, Intervention, and Care.

“My experience as a child growing up in a small rural community with my grandparents and great grandparent planted a deep commitment to improve the quality of care and care delivery for older people at risk and those living with AD/ADRD and their families.”

Dr. Samus is the recipient of two BFF Special Opportunities Awards (SOA), one in 2015 and the other in 2020. Both awards focused on identifying dementia care best practice recommendations for home-based care and evaluation and dissemination of evidence-based programs and practices to accelerate the uptake and impact of effective and efficient home-based dementia care interventions. The 2015 SOA supported the preparation and publication of a national consensus panel report that made the case for the home as the nexus of care and priority area for dementia services and supports in the coming decades. This work included a review and summarization of key issues, barriers, and opportunities relating to payment and care financing for home and community-based dementia care; all important factors to understand when moving home-based dementia care forward in an era of health care reform. The 2020 SOA was focused on identifying the barriers and facilitators to strategically advance dissemination of the Johns Hopkins’ Maximizing Independence (MIND) at Home Dementia Care Navigation Program as a tool to drive health care transformation and greater value-based care in the context of Medicare alternative payment models, such as Maryland’s Primary Care Program. The project utilized a mixed methods approach, including multistakeholder input, health utilization, and cost benefit analyses based on claims data, to explore value proposition for MIND at Home. Collectively, the two awards have informed public health policy and served as part of the evidence base for a new alternative payment and financing model test for comprehensive dementia care services—the Centers for Medicare and Medicaid GUIDE Model.

“I have no doubt that the work from the BFF awards has been instrumental in accelerating the dissemination of models of care for dementia and in galvanizing home- and community-based dementia care as a priority area for development.”

The outcomes of Dr. Samus’ BFF awards have been far reaching, informing public health and influencing science through publications in high impact journals, such as *Alzheimer's and Dementia*, and collaborative efforts with nationally recognized leaders in the field of dementia care and services, including a set of evidence-based guidelines developed by an expert workgroup in 2023 on the key principles, definitions, and outcomes of dementia care navigation models published. The work contributed to the momentum in the public and private sectors to finance comprehensive care approaches focused on medical and social care needs for both patients and their family care partner. For example, the roll out the Centers for Medicare and Medicaid GUIDE Model test in 2023. In addition, the work helped prepare the MIND at Home Care Navigation Model for a leaner, more targeted and streamlined delivery, which is necessary for effective translation into other types of settings, such as primary and specialty care. Dr. Samus also credits the BFF awards with impacting her professional development. Not only did the awards support her promotion to the rank of Professor at Johns Hopkins University, but they also provided a rich research experience for junior faculty and postdoctoral trainees to work on the projects. Trainees have included those with backgrounds

in geriatric medicine, geriatric psychiatry, nursing, health services, and public health—all of whom shared a passion for transforming care and worked on the effective delivery of dementia care, successful translation of the care to practices, and how to think about program value to potential adopters.

“I’ve been so lucky to have worked with outstanding mentees in my BFF funded projects—not only have they been excellent scientists dedicated to improving dementia care at home, but also good human beings with a desire to change the world and make life better for people with dementia and their caregivers.”

JOEL SCHUMAN, MD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN NGR: 1995; STANDARD AWARD IN NGR: 2010)

Dr. Joel Schuman is the Kenneth L. Roper, MD Endowed Chair and Professor of Ophthalmology, Vice Chair for Research Innovation, and Co-Director of Glaucoma Service at the Wills Eye Hospital in Pennsylvania. He received an MD from Mount Sinai School of Medicine, New York in 1984, and following a residency at the Medical College of Virginia, Virginia Commonwealth University, elected to undertake a fellowship at Massachusetts Eye & Ear Infirmary, Harvard School of Medicine in 1988. From a young age, Dr. Schuman developed a fascination with sight, in particular visual perception. This led him to major in perceptual psychology (neuroscience) in college, which sparked a curiosity about the visual system and laid the foundation for his choice to specialize in ophthalmology. This, along with a deep desire to find new and better ways to care for patients with sight impairment, has been the driving force behind his ground breaking accomplishments in glaucoma research over the past 35 years. Dr. Schuman’s research has been published in more than 450 peer-reviewed scientific papers that have been cited 79,950 times and has been supported by over \$15 million dollars in research funding. Dr. Schuman is the recipient of numerous prestigious awards, including awards from The New York Academy of Medicine, The American Glaucoma Society (AGS), The Association for Research in Vision and Ophthalmology (ARVO), and The American Academy of Ophthalmology, to name a few. He has chaired the Ophthalmology Residency Review Committee of the Accreditation Council for Graduate Medical Education as well as the Board of Governors of the ARVO Foundation. He is currently a member of the AOS Program Committee, is a Fight for Sight Board Member, and is Chair of the AGS Foundation Advisory Board. He has been named a Top Doctor by Boston Magazine, New York Magazine, Pittsburgh Magazine and Philadelphia Magazine, as well as Castle Connolly. Dr. Schuman currently holds 24 US patents.

“The notions of how we see what we see and how we perceive the world were central to my choice to take a deep dive into the field of ophthalmology.”

Dr. Schuman first received a PFA from BFF in 1995 to study surface molecules on trabecular meshwork (TM) cells that present differently in glaucoma. The pilot data generated from the award was instrumental in securing additional funding that led to studies on the intracellular molecules in pathways activated in people with glaucoma. Dr. Schuman and his team showed

that endothelial leukocyte adhesion molecule-1 (ELAM-1) is present on TM cells in the outflow pathways of eyes with glaucomas of diverse etiology, which provided the first known diagnostic indicator of glaucomatous TM cells. The work was published in the prestigious journal *Nature Medicine* (2001) and illustrated on the front cover. Later, in 2010, BFF awarded Dr. Schuman a SA to look at aqueous outflow using optical coherence tomography (OCT) imaging. The work, done in collaboration with Dr. Kevin Chan at the University of Pittsburgh, was later expanded to look at changes in the visual brain related to glaucoma and resulted in 8 influential papers in high impact journals, including *IOVS*, *Br J Ophthalmol*, and *Ophthalmology*.

“The BFF funding served as a needed investment in human capital that was the momentum for building my team and provided the resources necessary to grow my program of research.”

Known in the field as a glaucoma visionary, Dr. Schuman’s contributions have had a deep-seated impact on the disease community. The OCT that he invented as part of a team in 1991, which provides quick, non-invasive, high resolution 3D mapping of the eye, has become an essential tool for the detection and treatment of diseases with more than 80,000 OCT devices now being used routinely in clinics around the world. Dr. Schuman continues to develop OCT and methodologies to better analyze the resultant data in order to characterize tissue damage and prognosticate individual glaucoma trajectories. He attributes the initial support from BFF as the springboard for his groundbreaking work on the ELAM-1 pathway, which led to the first diagnostic biomarker for glaucoma. Further, the Foundation’s continuing support allowed his team to expand its work on aqueous outflow measurement using OCT and launched the career of his mentee, Dr. Kevin Chan, who now serves as Director of the Neuroimaging and Visual Science Laboratory at New York University School of Medicine.

“The BFF SA in 2010 enabled my mentee, Kevin Chan, to go on and secure his first R01 grant, essentially serving as the catalyst towards him becoming a highly successful, independent investigator.”

ZAHRA SHIRZADI, PHD (YEAR OF AWARD: POSTDOCTORAL FELLOWSHIP AWARD IN ADR: 2023)

Dr. Zahra Shirzadi, PhD, is a neuroimaging scientist and Instructor in Neurology at the Athinoula A. Martinos Center for Biomedical Imaging at Massachusetts General Hospital (MGH) and Harvard Medical School (HMS), where she investigates human brain function and physiology in Alzheimer's Disease (AD), with a focus on developing novel neuroimaging biomarkers for early diagnosis of AD. Dr. Shirzadi was awarded a PhD in Neuroscience in 2020 from the University of Toronto for her work on developing and validating multi-parametric models for quality enhancement of clinical arterial spin labeling magnetic resonance imaging data in older adults and people with dementia under the mentorship of Dr. Bradley MacIntosh. Her PhD was supported by two prestigious scholarships – a Connaught International Scholarship and the Ontario Graduate Scholarship in Science and Technology. Dr. Shirzadi's interest in degenerative brain disease began when she started working on early-stage lifestyle modification clinical trials with dementia patients in 2013. This first-hand experience working with dementia patients and their caregivers, while fulfilling, affirmed how devastating this condition is and how little clinicians can currently offer. Shortly after that, her grandmother developed cognitive decline and passed away a few years later not being able to remember her grandchildren. These life experiences, along with the fascinating science behind brain function/dysfunction, motivated Dr. Shirzadi to pursue her research in this area. Following her PhD, she received an Alzheimer's Society of Canada research fellowship to begin her postdoctoral studies at MGH, where she embarked on her independent program of research. During her time at MGH, Dr. Shirzadi has secured an impressive number of grants, including a Health Enhancement Scientific Program Fellowship Grant, a BFF PFA, and several small fellowship awards, such as a Human Amyloid Imaging Travel Award. Over the past 12 years, she has led and collaborated on several projects and grants with a group of international researchers, which has resulted in 35 journal articles, including 12 first-author publications, in high-impact journals such as *Annals of Neurology* and *JAMA Neurology*.

"I am passionate about developing novel tools to understand the underlying mechanisms of late-life cognitive decline, in particular the interplay of cerebrovascular injury and proteinopathies in Alzheimer's disease and related dementias."

In 2023, Dr. Shirzadi applied for and was awarded a BFF PFA. Her application received the highest score of all fellowship and standard grants that year, for which she was bestowed the Dr. Edward Koo Award. White matter injury (WMI) is very common in AD patients, and in the BFF funded project, Dr. Shirzadi and her team used a novel approach to examine the relative contributions of brain atrophy, vessel amyloidosis, and vascular risk to WMI. The approach combines routine clinical MRI sequences to build accessible multi-modal neuroimaging tools that can be used in a clinical setting for differential diagnosis of WMI. After processing nearly 11,000 MRI scans from older adults and patients with autosomal dominant and sporadic AD, the team found that signs of WMI in the brain provide information on the risk of small bleeds, which can put patients at risk of life-threatening brain bleeds if given anti-amyloid treatments, and that white matter lesions are related to cerebral amyloid angiopathy and neurodegeneration but not systemic vascular risk in AD-centric cohorts. Importantly, a specific

pattern of WMI was found to occur years before any small or major bleeds and could serve as an early marker, providing an opportunity for intervention and likely prevent brain bleeds. The results have been reported in high-impact journals, such as *Annals of Neurology*, *JAMA Neurology*, and *Journal of Prevention of AD*, and in the media.

“Not only will the outcome of my project provide clinicians and clinical researchers with a better understanding of white matter injury in AD, but also crucial information about the early stages of blood vessel injury prior to bleeds, and may pave the way towards new treatments based on preventive interventions for AD patients at higher risk of brain bleeds.”

Dr. Shirzadi credits the BFF PFA as being instrumental in changing the clinical interpretation of WMI in AD as evidence of brain injury due to elevated systemic vascular risk. The award has also had a far-reaching impact on her early career trajectory. She was recently promoted to a faculty position in the Department of Neurology at MGH and HMS, which is providing access to top-notch resources and expertise to advance her career as a research scientist working in the field of the AD. For example, Dr. Shirzadi has established collaborations with neurologists and radiologists at MGH anti-amyloid clinics to translate her research into clinical practice. In addition, the transition to a neurology faculty position allowed Dr. Shirzadi to start her own laboratory and independent program of research. Using the award and support of her mentors, she was able to hire a full-time imaging analyst, who will not only accelerate new discoveries but also provide important mentoring opportunity critical for a career scientist.

“The BFF PFA has provided me with an unmatched opportunity to perform high-end research in ideal circumstances, to develop and refine a series of critical skills for an early career scientist, and to initiate inspiring and fruitful collaborations with leading scientists in the field while progressively establishing myself as an independent researcher.”

DAISY YAO SHU, PHD (POSTDOCTORAL FELLOWSHIP AWARD IN MDR: 2020)

Dr. Daisy Shu is a Senior Lecturer in Medicine and Health at the School of Optometry and Vision Science, University of New South Wales (UNSW), Australia, where she heads the Retinal Research Group (RRG). She was awarded a PhD in Biology from the University of Sydney in 2019 for her work on the role of growth factor signaling pathways in driving cataract formation under the mentorship of Dr. Frank Lovicu. Dr. Shu’s academic journey in vision research began with undergraduate optometry training at UNSW, where she developed a strong foundation in clinical optometry, eye disease, and therapeutic management. Following her PhD, Dr. Shu joined the University of Harvard Medical School as a postdoctoral fellow to expand her expertise in retinal disease mechanisms, particularly in AMD. Her postdoctoral research integrated metabolomics and transcriptomics techniques to uncover novel pathways driving retinal degeneration. This multidisciplinary approach positioned her as a leader in ophthalmic research, paving the way for securing competitive funding to support her independent program of research at UNSW focused on the role of mitochondrial and metabolic dysfunction in driving the pathogenic processes of retinal inflammation and angiogenesis.

“My training fostered a deep interest in understanding the mechanisms of eye diseases to drive clinical translation and solidified my commitment to uncovering disease mechanisms that could inform the development of better therapeutics to improve patient quality of life, vision, and overall eye care.”

In 2020, Dr. Shu was awarded a PFA in Macular Degeneration Research from BFF. The funding supported investigations on the metabolic and mitochondrial dysfunction underlying AMD, specifically delineating key metabolic pathways that contribute to retinal degeneration and identifying novel therapeutic targets. Using metabolomic profiling and transcriptomic analysis, Dr. Shu characterized metabolic vulnerabilities in retinal pigment epithelial (RPE) cells, a critical cell type implicated in AMD pathogenesis. Findings from the project have had a significant impact on the AMD research community through developing promising avenues for new therapies with clinical translational potential. The research was published in the high-impact journals *Metabolites* and *Frontiers in Molecular Neuroscience* and presented at leading conferences in the field, such as ARVO and ISER, enhancing its visibility in the field. The BFF award not only supported the optimization of methodologies for metabolic flux analysis, mitochondrial function assays, and cell-based screening of potential therapeutics, but also facilitated the purchase of essential reagents and pieces of equipment.

“The research funded by my BFF PFA provided novel insights into metabolic reprogramming in AMD and contributed to a paradigm shift in understanding retinal disease from a metabolic perspective.”

Dr. Shu credits the success of the BFF project as being pivotal in advancing her research career by directly influencing her promotion to Faculty Instructor at Harvard Medical School and then later to Senior Lecturer at UNSW. Through the work, she has become internationally recognized as an expert in retinal cell biology whose research is at the forefront of mechanisms underlying retinal eye diseases. The momentum from the PFA also helped Dr. Shu secure additional competitive grants, including a Mito Foundation Incubator Grant, School of Optometry and Vision Science Diabetes Research Grant, and UNSW Research Infrastructure Scheme Equipment Grant, which has allowed her to take on trainees in the laboratory. Dr. Shu has been recognized through a 2024 ASIP Young Scientist Leadership Award as well as multiple junior faculty scholar awards, further underscoring the broader impact of the PFA on her career trajectory.

“Importantly, the BFF award provided me with opportunities to mentor early-career researchers, contributing to the growth of a vibrant research community in retinal metabolism and AMD.”

EMMANUELLE SOUZEAU, PHD (YEAR OF AWARD: POSTDOCTORAL FELLOWSHIP AWARD IN NGR: 2022)

Dr. Emmanuelle Souzeau is a Research Fellow and Genetic Counsellor with 18 years of experience in genetic counselling in both clinical and research settings. In 2017, Flinders University awarded her a PhD by Prior Published Work for her work on the genetic testing and counselling for inherited glaucoma. The work in her PhD centered around the complexity of the genetics of glaucoma and the many challenges in communicating results and discussing the implications for patients and their family members. Dr. Souzeau's journey into the field of eye disease began in 2008, after completing an MS degree in Genetic Counselling at the University of Montreal in Canada, when she joined Dr. Jamie Craig's research group at Flinders University as a research genetic counsellor working on inherited eye diseases. Since 2008, she has led the genetic testing program of the Australian and New Zealand Registry of Advanced Glaucoma and provides counselling and results feedback to research participants. Her program of research is focused on delineating the phenotypes of glaucoma-associated genes, improving the characterization of genetic results, assessing the psychological implications of genetic testing, and developing the best strategies for communicating genetic results to patients.

"What I enjoy the most in my job is seeing the direct impact research can have on patients. My research projects have often been shaped by my interactions through genetic counselling with families living with glaucoma."

Dr. Souzeau received a PFA for Glaucoma Research from the BFF in 2022 to investigate novel genetic counselling and communication strategies for polygenic risk testing in glaucoma. The goals of the project are to develop patient-friendly reports to communicate glaucoma polygenic risk scores, deliver genetic results using these reports and evaluate the short and long-term psychosocial impact and the comprehension of results. Reports were developed based on existing literature on risk communication, using different visual aid components. They were assessed through interviews with participants to determine their understanding of the content and format and were refined based on participant preferences. While the project is still ongoing, with data collection and analysis set to be completed in 2025, two publications have already resulted from the work that were published in the journals *BMC Medical Genomics* and *BMC Ophthalmology*.

"The recent development of polygenic risk scores for glaucoma makes genetic testing an ideal strategy to identify at-risk individuals who can benefit from early management to reduce preventable blindness."

The funding from BFF has played a pivotal role in launching Dr. Souzeau's research career path. It has helped expand her research on the clinical implementation of polygenic risk testing for glaucoma polygenic risk testing by addressing potential psychosocial adverse outcomes and in developing better communication and support strategies for patients. Further, the fellowship and the associated Thomas Lee Award she received from the Foundation have better positioned her to secure competitive funding. In 2023, she was awarded a National Health and Medical Research Council (NHMRC) Fellowship (an Investigator grant) from the Australia Government. This grant, in combination with the BFF funding, allowed her to employ a genetic counsellor to work on the project, which has enabled the team to make impressive inroads on

the research. The BFF funding also led to an active collaboration with Dr. Sarah Cohen-Woods from the Flinders Institute for Mental Health and Wellbeing where Dr. Souzeau co-supervises Honors students undertaking research related to the project and develops additional research projects. Since 2019, Dr. Souzeau has served on various panels and working groups for the Clinical Genome Resource where she helps define guidelines for the clinical relevance of genes and variants in eye diseases. She is the recent recipient of a Vice-Chancellor's Award for Mid-Career Researchers.

"I have been fortunate to have great mentors throughout my career, both as a researcher and a genetic counsellor. I hope to be able to share my passion and help empower the next generation of confident and inspirational researchers, particularly women in the field."

DIETMAR THAL, MD, PHD (YEAR OF AWARDS: POSTDOCTORAL FELLOWSHIP AWARD IN ADR, MENTOR TO PI SANDRA TOMÉ, PHD: 2022)

Dr. Dietmar Thal is a board-certified pathologist and neuropathologist at the University Hospital Leuven and Professor of Neuropathology at Katholieke Universiteit Leuven in Belgium, where his group explores the contribution of regulated cell death mechanisms in neurodegenerative disorders and its interplay with neuroinflammatory events using novel multiomics approaches, including spatial omics techniques. After securing a medical degree, Dr. Thal studied for a PhD in medicine at the Johann Wolfgang Goethe University Frankfurt in Main, Germany while at the same time training to become a neuropathologist. His doctoral theses focused on the role of lipofuscin in the aging hippocampus. After medical training at the University of Leipzig/Germany, he joined the laboratory of Heiko and Eva Braak at Johann Wolfgang Goethe University Frankfurt in Germany for his postdoctoral training, during which he established a staging system for amyloid plaques. Remarkably, the staging system was adopted by the National Institute of Aging and the Alzheimer's Association as part of their recommended assessments of AD neuropathological changes. Dr. Thal then went on to correlate the pathological distribution of A β plaques using amyloid positron emission tomography (PET) and contribute to the approval of the amyloid PET tracer, Flutemetamol, while serving as a consultant for GE Healthcare (UK).

"My ultimate goal is to help develop a treatment for AD and other neurodegenerative disorders by identifying the proper target(s) and to improve the use of biomarkers."

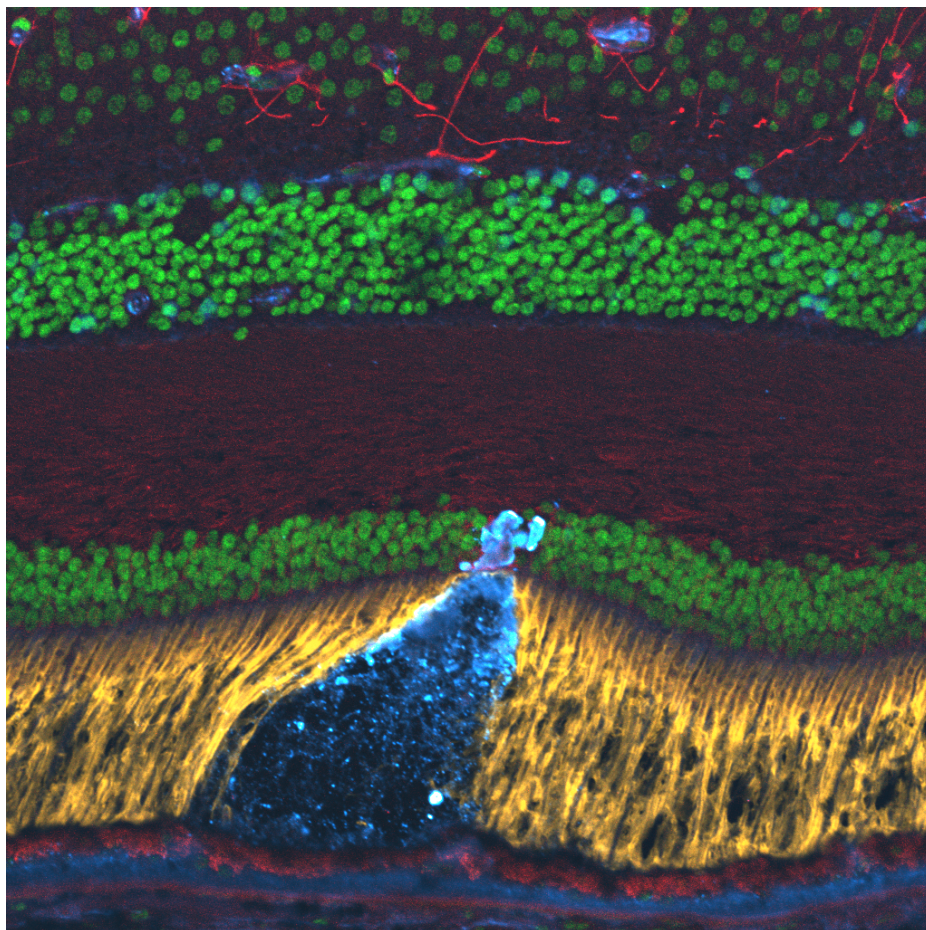
From 2022-2024, Dr. Thal served as a mentor on a BFF PFA investigating TDP-43 pathology in the context of dementia, specifically AD and limbic-predominant age-related TDP-43 encephalopathy (LATE), a recently-defined disease entity. The PI of the award was Dr. Sandra Tomé. In the study, the team aimed to understand the pathological synergy of TDP-43 and tau in the context of LATE-NC in AD as well as TDP-43 aggregation properties in AD and LATE. For part of the study, they used atomic-force microscopy coupled with infrared spectroscopy, a state-of-the-art technique that had never been used on human tissue before, to analyze human brain samples and compare TDP-43 aggregate structure and composition in different

dementias. Funds from the award also supported Dr. Tomé's travel to a number of international conferences relevant to the field, including AAIC 2023 (Amsterdam, Netherlands), the British Neuropathological Society Meeting 2024 (London, UK), and AAIC 2024 (Philadelphia, USA), where she was able to present her findings.

"The PFA was fundamental to the development of Dr. Tomé's career, not only as an early-career independent scientist, but also in learning skills to achieve her career goals as an academic neuropathology researcher and brain bank coordinator."

So far, 8 publications have resulted that are directly or indirectly linked to the BFF funded study, including 2 first-author publications for Dr. Tomé. The main finding, that tau burdens and seeding potential are increased in AD cases with LATE-NC versus AD cases without LATE-NC, was published in the high impact journal *Molecular Neurodegeneration* and selected for a featured research session at AAIC 2023 and a talk at the International Congress of Neuropathology 2023 (Berlin, Germany). The award also provided Dr. Tomé with an opportunity to solidify national and international collaborations in the field, including a collaboration established through a *material transfer agreement* with the company ADx Neurosciences in Belgium. Importantly, the team has been involved in developing updated guidelines for diagnosing and staging LATE-NC in collaboration with Dr. Peter Nelson of the University of Kentucky, and Dr. Tomé was invited to be part of the executive committee for the newly established LATE Professional Interest Area initiative of the International Society to Advance Alzheimer's Research and Treatment. Dr. Tomé was also successful in securing two additional grants, which will allow her to follow on her work from the BFF funded study.

"Through the BFF award, I was able to provide Dr. Tomé with multiple opportunities essential for her career development, including lecturing graduate students, training in human brain autopsies and neuropathological diagnostic reporting, and serving as an external consultant."



Reticular pseudo drusen stained blue located above the retinal pigment epithelium

Image courtesy of Dr. Erica Fletcher and Dr. Robyn Guymer from Melbourne University Centre for Eye Research

PHASE 2: TRAVEL FELLOWS SURVEY

MATERIAL AND METHODS

SURVEY Development AND TESTING

In January 2025, the American Institute of Biological Sciences (AIBS) developed a comprehensive survey to collect quantitative and qualitative feedback from individuals who received travel fellowships, attended the BrightFocus Foundation's (BFF's) signature Fast Track workshops, or participated in other scientific conferences funded by the Foundation between 2005 and 2025. The term "travel fellow" is used throughout this report to describe those who received all these types of funding. The survey focused on key areas outlined in the Statement of Work (SOW): *personal statistics, demographics, and the impact of the fellowship/training on career trajectory, research focus, and networking.*

The survey utilized both closed-ended (dichotomous, dropdown, multiple choice) and open-ended (free text boxes) questions. To maximize respondent input, most questions were required, with the exceptions of the two open text questions and the request for an alternate email address.

The survey was reviewed by key BFF and Scientific Review Committee (SRC) stakeholders and updated based on their feedback. The final 16-question version was organized into two sections: *"About You" (demographics and personal statistics)* and *"Impact of Fellowship, Conference Participation, and/or Fast Track Training,"* with questions ranging in number from 7 to 9 per section. The survey was then imported into Wufoo, a secure commercial online form builder software, for dissemination. It was first test-run and verified by a group of AIBS staff members to ensure correct functionality. A copy of the survey is appended (see Appendix 2).

SURVEY DISSEMINATION AND FOLLOW-UP

The survey was disseminated over two initial batches. On February 18 2025, a link to the survey was emailed to 998 individuals who had received BFF travel fellowships between 1994 and 2024. The Foundation supplied the initial email list, from which clear duplicates had been removed. Approximately 51 grantees who had completed the Phase 1 survey or received a reminder to complete it on December 16 were removed from the Phase 2 email list before dissemination. That said, it is still possible that a few individuals received invitations for both the Phase 1 and Phase 2 surveys. Of these initial 998 invitations, 206 bounced back, which was expected based on typically student and early career status of most funding recipients and the long funding time range. New email addresses were identified for 188 for the bounce-backs, and the survey invitation was disseminated to these new addresses on February 25, 2025.

A series of email reminders were subsequently sent to non-responders every two weeks from the office of Dr. Diane Bovenkamp, Vice President of Scientific Affairs at BFF. The first reminder was sent on March 3, 2025, the second on March 18, 2025, and the third on March 31, 2025. There were a handful of email bounce-backs with the initial second batch and across the reminders that were not investigated further as a replacement had already been sought or the email address previously went through successfully. The survey was inactivated on April 1, 2025.

RESULTS

SURVEY RESPONSE RATE*

Of the 1,186 email invitations sent to BFF travel fellows in two waves (February 18 and 25, 2025), 942 successfully reached inboxes, resulting in a 79.4% delivery rate (244 emails were not successfully received). After adjusting for three instances of the same person receiving email invitations due to having two active email addresses and 1 duplicate invitation to the same email address over the two initial batches, a total of 938 unique travel fellows were reached. When the survey was inactivated on April 1, 2025, 279 of these unique fellows had completed the survey, a completion rate of 29.7%

SURVEY RESPONSE ANALYSIS

Survey responses that were dichotomous, categorical, or numeric were analyzed using descriptive statistics and are presented below.

RESPONDENT DEMOGRAPHICS AND PERSONAL STATISTICS

Close to two-thirds (58.9%) of the survey respondents were female, and slightly over one-third (39.6%) were male; the remaining 1.4% identified as non-binary/non-conforming or transgender, or preferred not to report their gender. A little less than half of the fellows (134; 48%) identified as White/Caucasian, with Asian ethnicity being the next most reported (33.7%), followed by Hispanic/Latino (10.8%) and Black/African American (5.4%). Some respondents selected more than one ethnicity; see Chart 1 for a full breakout of race and ethnicity data. Institutional affiliations reflected BFF's global funding record, with an array of institutions reported and no more than seven fellows (2.5%) at the most commonly cited institution, the Mayo Clinic.

** It should be noted that while AIBS has made every effort to accurately track and report on the survey delivery success and response rate, the large volume of bounce-backs and merged initial invite batches, multiple email addresses for the same person, and two initial invitation batches complicated these calculations. Confidence is high that these numbers are likely accurate or very close, but a caveat is still warranted.*

Regarding career stage, the majority of respondents (75.3%) selected early career, followed by 23.7% selecting mid-career, and 1% selecting late career. Job positions generally appeared to align with these stages; the largest response categories included postdoctoral fellows (35.1%), assistant professors (15.4%), and research scientists (14.3%). Other, the second most selected category (19.7%), included roles such as clinician, writer, analyst, technical account manager, and medical science liaison. A full breakdown of positions can be found in Chart 2. The complete spectrum of responses is available in the survey raw data export.

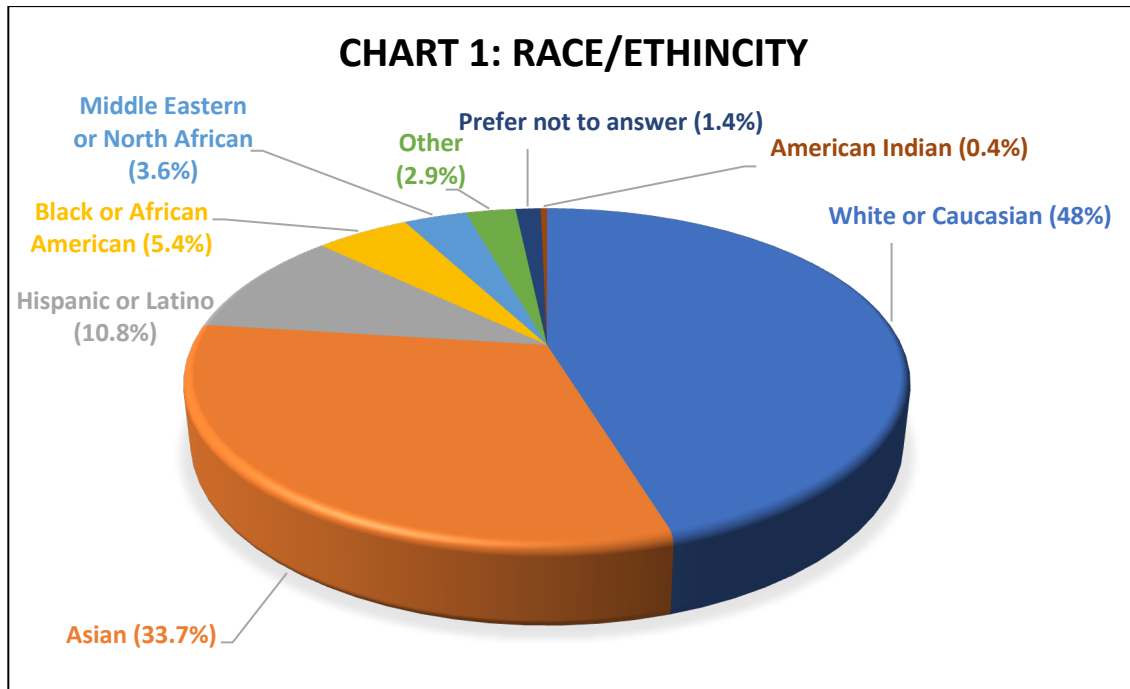
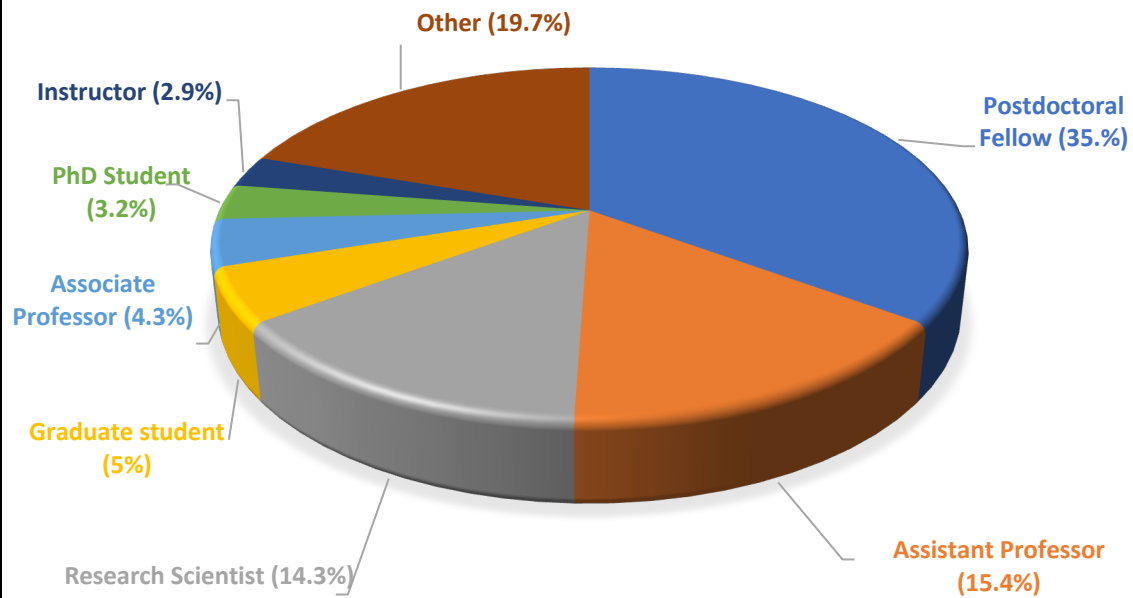
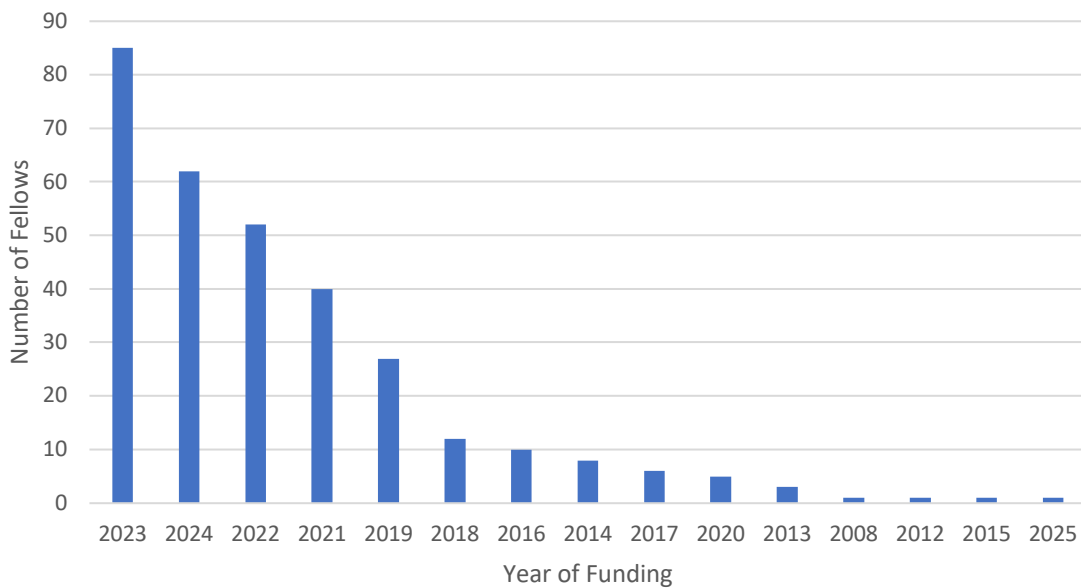


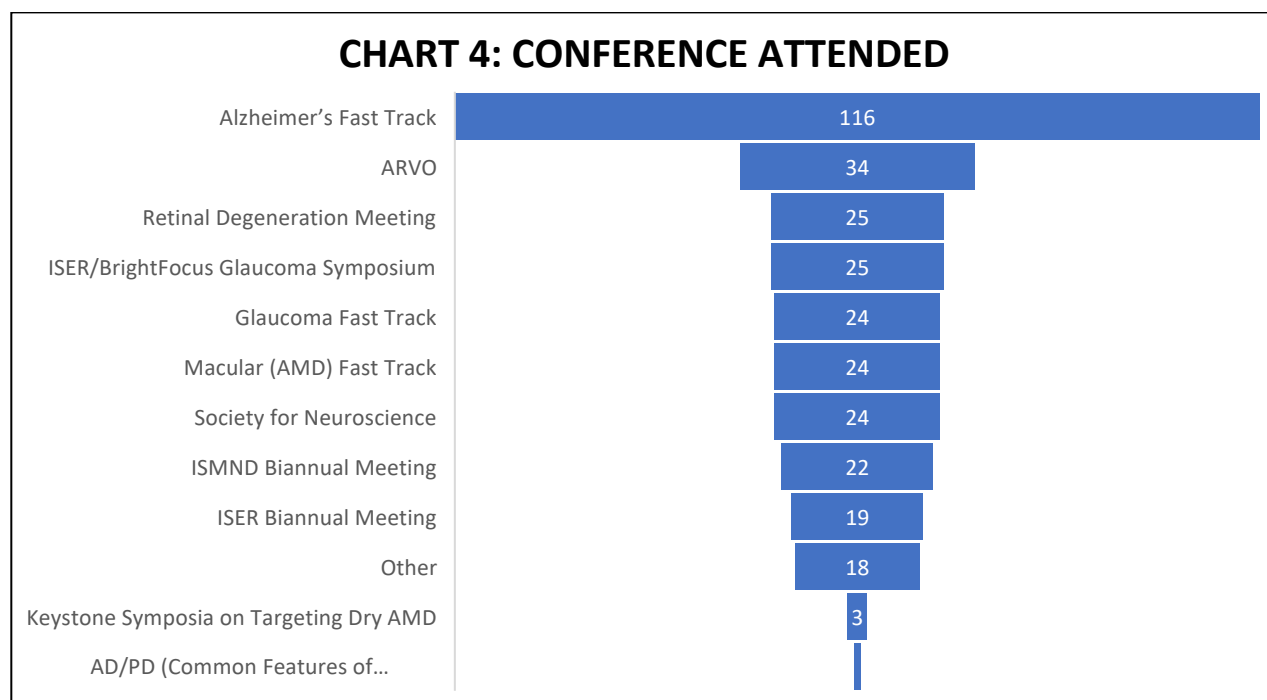
CHART 2: CURRENT POSITION**CHART 3: FREQUENCY OF YEAR OF FUNDING**

Over 85% of respondents received support in the last 4 years. The most frequent year for receiving BFF funding was 2023, with 85 (30.5%) fellows indicating support that year. This was followed by 2024 (62 fellows, 22.2%), 2022 (52 fellows, 18.6%), and 2021 (40 fellows, 14.3%). The full range of responses by year is illustrated above in Chart 3.

In terms of conferences attended, the most commonly reported meeting was the Alzheimer's Fast Track Meeting, attended by 41.6% (116) of the respondents. This was followed by attendance at ARVO (12.2%, 34), the Retinal Degeneration Meeting (8.9%, 25), and the ISER/BrightFocus Glaucoma Symposium (8.9%, 25). See Chart 4 for a full breakout of meeting attendance.

IMPACT OF FELLOWSHIP, CONFERENCE PARTICIPATION, AND/OR FAST TRACK TRAINING STATISTICS

Since receiving the BFF travel funding, the vast majority of respondents indicated that they have continued in the research field of their support (95.3%), and that the support was critical to their career progression (88.9%). Moreover, 76.3% of the fellows reported that the funding impacted their research focus area. The travel funding support also proved beneficial for networking, with 91.8% reporting new opportunities. Furthermore, 77.4% reported that the support led to follow-on funding, with amounts ranging from \$250 to \$5.5M. The full range of these findings can be found in the raw survey data export.



CASE STUDIES SELECTION

Based on responses from the 279 travel fellows, AIBS initially selected a group of 20 whose input demonstrated a significant impact of conference participation and/or Fast Track training on their careers, research focus, and networking. Key BFF staff then reviewed these responses, along with those of the other 259 fellows, and ultimately decided upon a group of 26 individuals to invite as case studies.

The purpose of these case studies is to feature compelling personal impact stories for use on the Foundation's website, social media, press releases, and fundraising campaigns. These stories will highlight how BFF funding has shaped the career trajectories of early career AD, MD, and glaucoma researchers through essential conference attendance and training.

Selection factors included:

1. Impressive career growth;
2. A productive program of research;
3. Meaningful networking in the field;
4. A significant record of follow-on funding; and
5. Powerful personal impact stories.

The BFF staff found the selected group of fellows to be exceptional, balanced across the program areas, and representative of the Foundation's overall funding portfolio. Of the 26 travel fellows selected, 20 agreed to be featured as case studies and provided the necessary information for their write-ups. The 20 fellows are listed below in Table 1.

TABLE 1: BFF TRAVEL FELLOWS CASE STUDIES

Fellow Name	Gender	Place of Work	Current Position	Conference/Meeting Attended	Year of BFF Fellowship(s)
Iman Aganj	Male	Massachusetts General Hospital, Harvard Medical School	Assistant Professor	Alzheimer's Fast Track Meeting	2022
Mehwish Anwer	Female	University of British Columbia, Vancouver	Postdoctoral Research Fellow	Alzheimer's Fast Track Meeting	2023
Resham Chhabra	Female	Conscience, Canada	Program Manager	Alzheimer's Fast Track Meeting	2014
J. Nicholas Cochran	Male	HudsonAlpha Institute for Biotechnology	Assistant Professor	Alzheimer's Fast Track Meeting	2019
Evangeline Monroe Foster	Female	Insmed UK	Scientist II	Macular (AMD) Fast Track Meeting; Retinal Degeneration (RD) Meeting	2023
Colin Germer	Male	University of California Los Angeles	Postdoctoral Fellow	Macular (AMD) Fast Track Meeting	2023
Yi Hua	Male	University of Mississippi	Assistant Professor	Glaucoma Fast Track Meeting	2022
Makoto Ishii	Male	University of Texas Southwestern Medical Center	Assistant Professor	Alzheimer's Fast Track Meeting	2014
Jessica Jasien	Female	Alcon	Principal I Medical Writer	Glaucoma Fast Track Meeting	2017, 2017
Thomas Johnson	Male	Johns Hopkins Wilmer Eye Institute	Associate Professor	Glaucoma Fast Track Meeting	2022
Tyler Lewis	Male	University of Alabama at Birmingham	Assistant Professor	Macular (AMD) Fast Track Meeting; Retinal Degeneration (RD) Meeting	2023
Linda Lorenz	Female	Amsterdam UMC, The Netherlands	PhD Candidate	International Society for Molecular Neurodegeneration (ISMND) Conference	2024
Nicole Noel	Female	University College London, UK	Postdoctoral Fellow	Macular (AMD) Fast Track Meeting; Retinal Degeneration (RD) Meeting	2023
Avril Reddy	Female	Trinity College, Dublin, Ireland	Postdoctoral Fellow	Age Related Macular Degeneration Symposium	2024
Heather Schmitt	Female	Perfuse Therapeutics Inc., United States	Research Scientist	Glaucoma Fast Track Meeting	2017, 2021
Myoungsup Sim	Male	Duke University Eye Center	Research Associate	Glaucoma Fast Track Meeting	2019
Jeremy Strain	Male	Washington University in St. Louis	Assistant Professor	Alzheimer's Fast Track Meeting	2019
Tara Tracy	Female	Buck Institute	Assistant Professor	Alzheimer's Fast Track Meeting	2016
Isaac Alejandro Vidal Paredes	Male	Université de Montréal, Canada	Graduate Student	International Society for Eye Research (ISER) Biennial Meeting; RReSTORe Conference	2024
Wei Zhu	Female	Qingdao University, China	Professor	International Society for Eye Research Meeting; Glaucoma Fast Track Meeting	2016, 2017

TRAVEL FELLOWS CASE STUDIES

IMAN AGANJ, PHD (ALZHEIMER'S DISEASE RESEARCH AWARD; 2016; ALZHEIMER'S FAST TRACK MEETING: 2022)

Dr. Iman Aganj is an Assistant Professor of Radiology at Harvard Medical School and an Associate Investigator at the Athinoula A. Martinos Center for Biomedical Imaging, Massachusetts General Hospital (MGH). During his doctoral studies, he was fortunate to work in a consortium of basic and computational scientists, radiologists, and clinicians at the University of Minnesota that exposed him to medical imaging and led to a PhD in Electrical Engineering in 2010 under the mentorship of Professor Guillermo Sapiro. Dr. Aganj's work at MGH/Harvard is focused on innovating new medical image analysis techniques, such that researchers and clinicians can extract the maximal amount of useful information from the images they acquire with the goal of improving human health. This ranges from deriving mathematical formulae via signal processing approaches to designing robust algorithms and machine learning, with the long-term goal of helping alleviate patient suffering from diseases.

Dr. Aganj initially received a 3-year Alzheimer's Disease Research Award (ADRA) from the BrightFocus Foundation (BFF) in 2016, which led to the development of a new method to quantify structural brain connectivity from diffusion magnetic resonance imaging (dMRI) and publications in *NeuroImage* and *Brain Connectivity*. Then, in 2022, he attended a BFF Alzheimer's Disease Fast Track (ADFT) meeting. Dr. Aganj found the meeting to be extremely helpful in terms of providing him with a general knowledge and context to Alzheimer's disease (AD) outside of his specific research area of imaging.

The data generated from Dr. Aganj's ADRA resulted in preliminary results and publications that became the basis of his next R01 funding from the National Institute on Aging (NIA) to further study how brain connectivity is affected in AD. In addition, the grant practice session at the ADFT meeting proved to be extremely helpful in helping him secure an NIA R01 grant. The funding led to further publications that helped solidify his career path. Attendance at the ADFT meeting also helped Dr. Aganj grow a network of Alzheimer's researchers nationwide, as well as in his own institute, which has opened the door to fruitful collaborations.

MEHWISH ANWER, PHD (ALZHEIMER'S FAST TRACK MEETING: 2023)

Dr. Mehwish Anwer is a Postdoctoral Research Fellow at the University of British Columbia, Vancouver, where she joined the laboratory of Dr. Cheryl Wellington to investigate the processes that occur in the brain after traumatic injury and their association with dementia and posttraumatic stress disorder. Prior to this, Dr. Anwer received a PhD in Molecular Medicine from the University of Eastern Finland through a prestigious Marie Skłodowska Curie Fellowship from the European Union, under the mentorship of Dr. Asla Pitkanen.

In 2023, Dr. Anwer received a BFF award that enabled her to attend the ADFT meeting in Washington DC. The award covered her registration, meals, and accommodation for the duration of the meeting. As a Black, Indigenous, and People of Color (BIPOC) woman in science, attending the BFF fast track program was truly impactful and empowering, and enabled her, as an early-career scientist, to develop compelling and highly impactful research proposals to secure funding for high-quality, meaningful work.

Attending the 2023 ADFT meeting not only provided Dr. Anwer foundational training in grant writing and scientific communication, but also helped build lasting connections with fellow trainees and investigators in the field. The workshops significantly boosted her confidence in articulating research ideas and developing proposals. Since then, she has been actively writing grant applications in preparation for an independent research career. In addition, Dr. Anwer had the pleasure of reconnecting with several of the ADFT participants at the 2024 Alzheimer's and Parkinson's Disease (AD/PD) Conference and remains in contact with many. Having this growing network has helped foster a strong sense of community. Further, the work that Dr. Anwer presented and the training she received at fast track were instrumental to her subsequent success. She includes this experience in fellowship applications and was fortunate to be awarded several competitive postdoctoral fellowships in 2024 from the Canadian Institutes of Health Research (\$75,000 CAD/year) and Health Research British Columbia (\$65,000 CAD/year).

RESHAM CHHABRA, PHD (ALZHEIMER'S FAST TRACK MEETING: 2014)

Dr. Resham Chhabra's scientific training began with an MSc in Neuroscience from King's College London, where she specialized in neurodegeneration. She then completed a PhD in Molecular Medicine with a focus on neuroscience and nanomedicine at Ulm University, Germany under the mentorship of Dr. Andreas Grabrucker. This academic foundation led to a postdoctoral fellowship at the Johns Hopkins University School of Medicine, where she joined the laboratory of Dr. Philip C. Wong to investigate the molecular drivers of AD.

Dr. Chhabra's connection with BFF began when she attended an ADFT workshop as a PhD student in 2014. This served as an extremely valuable learning experience; the workshop provided a broader perspective on AD-related neurodegeneration, along with sessions on grant writing and scientific pitching. It gave her a clearer understanding of how to structure research ideas effectively for grant submissions to funding agencies. During Dr. Chhabra's postdoctoral fellowship at Johns Hopkins, she put those insights into practice and successfully secured a BrightFocus Foundation's Postdoctoral Grant Award. Using this award, she conducted research under the mentorship of Drs. Tong Li and Philip Wong to investigate whether depletion of TAR DNA-binding protein 43 (TDP-43) in neurons contributes to pathological conversion of tau or accelerates tauopathy, a critical driver of neuron loss and cognitive decline in sporadic AD. Beyond supporting her research, the BFF award provided Dr. Chhabra with first-hand experience in developing and managing research projects, which has played a key role in her transition into scientific program management. Over time, Dr. Chhabra's interests changed and

she now manages a drug discovery and development funding program within the nonprofit sector. The networking skills she gained at ADFT have proved invaluable and she still keeps in touch with several people she met at the workshop.

J. NICHOLAS COCHRAN, PHD (ALZHEIMER'S FAST TRACK MEETING: 2019)

Dr. J. Nicholas Cochran's career in research began as an undergraduate student at Auburn University, where he worked in the laboratory of Dr. Douglas Martin on cat models of lysosomal storage diseases. After that, he embarked on graduate training at the University of Alabama at Birmingham (UAB) in the laboratory of Dr. Erik Roberson as part of the Howard Hughes Med-to-Grad fellowship program, studying AD using mouse models and biochemical approaches. After being awarded a PhD in Neuroscience in 2015, Dr. Cochran joined the laboratory of Dr. Richard Myers at the HudsonAlpha Institute for Biotechnology as a UAB-HudsonAlpha genomic medicine trainee. Throughout his career, Dr. Cochran's research has focused on AD and other neurodegenerative diseases, including Parkinson's disease (PD) and frontotemporal dementia (FTD).

In 2019, Dr. Cochran received a 2-year fellowship from BFF to study the mechanisms of MAPT regulation, a gene that codes for the tau protein, one of the key pathologies in numerous diseases, including AD. As part of the fellowship, he was invited to attend the ADFT workshop. Attendance at the workshop was extremely impactful and provided Dr. Cochran with insight into the powerful and collaborative nature of research in the field of AD, which helped solidify his choice of career path. The networking opportunities that were promoted as part of the workshop helped Dr. Cochran grow his scientific network.

Dr. Cochran attributes his BFF fellowship with providing the ripple effects that are always hoped for with a philanthropically-funded fellowship. As a direct result of the fellowship, he was ideally positioned to write and obtain an NIH K99/R00 award in 2020 (\$850k), which was instrumental in helping secure his faculty position. Then, in 2024, he received his first NIH R01 grant, totaling ~\$3.5M, to identify trans-regulatory elements controlling MAPT transcription, work directly related to the research conducted under his BFF award. All-in-all, the BFF fellowship and ADFT workshop have had a substantial and far-reaching impact on Dr. Cochran's career trajectory and have facilitated impactful science that is advancing the field of AD and related dementias.

EVANGELINE MONROE FOSTER, PHD (MACULAR FAST TRACK MEETING; RETINAL DEGENERATION MEETING: 2023)

Dr. Evangeline Monroe Foster's academic journey began with an undergraduate degree in Biomedical Science at University College London (UCL), where she developed a keen interest in the brain and nervous system. She was then accepted at Oxford University to pursue an MSc in Neuroscience followed by a DPhil (PhD), during which she studied the role of Clusterin, a key genetic risk factor in AD, under the mentorship of Dr. Professor Sir Simon Lovestone, Professor Noel Buckley and Professor Sir Mene Pangalos, and supported by AstraZeneca and a Valat Jones

Scholarship (Nigel and Francoise Jones). Motivated to expand her skillset and explore a new disease area, she accepted a postdoctoral position at the UCL Institute of Ophthalmology to study the immune system's role in age-related macular degeneration (AMD). In October 2024, Dr. Foster transitioned from academia to industry and joined Insmed UK (IIUK), a biopharmaceutical company based in Cambridge, where she applies the skills and knowledge gained during her academic career to translational research in neurodegenerative diseases, with a strong clinical and therapeutic focus.

In 2023, Dr. Foster received BFF funding to attend the International Symposium on Retinal Degeneration (RD2023). This was her first invitation to speak at an international conference, which provided the opportunity to present her research to an audience of approximately 300 attendees. This experience was incredibly valuable and helped Dr. Foster build confidence in presenting at international meetings, where she shared her research with a global audience and established lasting connections with researchers from around the world, many of whom have continued to support and inspire her career development. In addition, the opportunity increased the visibility of her work within the AMD research community, opened doors to several networking opportunities, including potential job prospects, and helped clarify the direction of her career. During the conference, Dr. Foster had the opportunity to attend the Macular (AMD) Fast Track Workshop, which offered valuable insights from leading experts and broadened her understanding of AMD beyond the scope of her own research. The support that Dr. Foster received from BFF played a pivotal role in shaping the opportunities that followed—both professionally and personally.

Presenting research to a large international audience and engaging in meaningful discussions over several days with leading experts in the field was truly invaluable. Dr. Foster received constructive feedback on her work and had important conversations—not only about the science itself but also about career development. The visibility and experience gained at RD2023 directly contributed to subsequent opportunities. Most notably, Dr. Foster was invited to be an Early Career Researcher (ECR) speaker at the Association for Research in Vision and Ophthalmology (ARVO) conference in 2024. Additionally, while at UCL, she was awarded an internal ECR grant to support the generation of pilot data for future funding applications. This helped build her research independence, strengthen her scientific trajectory, and position her competitively for funding. Collectively, these experiences and achievements were key stepping stones in helping Dr. Foster secure her current position at Insmed.

COLIN GERMER, PHD (MACULAR FAST TRACK MEETING; RETINAL DEGENERATION MEETING: 2023)

Dr. Colin Germer has always had an interest in the eye and was fortunate as an undergraduate student to study corneal wound healing in the laboratory of Dr. David Greenspan at the University of Wisconsin-Madison. Shortly after graduating, he began work in the laboratory of Dr. Aparna Lakkaraju at the same university studying mechanisms of AMD in the retinal pigment epithelium. After 2 years, Dr. Lakkaraju elected to take Dr. Germer on as a graduate student and soon moved to the University of California-San Francisco (UCSF). What followed was an incredibly fun and challenging series of varied projects, ranging from release of

exosomes from the retinal pigment epithelium (RPE) to examining potential therapies in models of AMD, that eventually led to a PhD in Pharmaceutical Sciences and Pharmacogenetics.

In 2023, Dr. Germer received a BFF Full Travel Fellowship for the 20th Retinal Degeneration meeting (RD2023) and the AMD Fast Track Workshop, which allowed him to travel to Spain and present his research findings on extracellular vesicles secreted from the RFE. Attendance at RD2023 and AMD Fast Track not only allowed Dr. Germer to talk with and gain insight from numerous experts in the field, fostering crucial interpersonal relationships, but also receive valuable feedback for next steps in his research. In addition, it helped reinvigorate his passion for the field of vision and solidify his commitment to a career in academia while at a critical crossroads of considering switching tracks to private industry.

Dr. Germer credits the BFF travel fellowship as being absolutely essential to his career progression in academia. As a final year PhD student, it afforded him the opportunity to have informal talks with Dr. David Williams at the University of California-Los Angeles (UCLA) and Dr. Soile Nymark at the Tampere University in Finland. After RD2023, both professors invited him to their respective institutions for in-person interviews, which resulted in offers of postdoctoral fellowships in their laboratories. Dr. Germer currently works at UCLA as a postdoctoral fellow under the mentorship of Dr. Williams, where he investigates mechanisms of photoreceptor tip ingestion. The grant writing training that he received at AMD Fast Track was key to helping him secure an NIH T32 award, and he is currently putting the training to good use in applying for an NIH F32 award.

YI HUA, PHD (GLAUCOMA FAST TRACK MEETING: 2022)

Dr. Yi Hua's academic journey into the field of ophthalmology began in 2011 when he joined the University of Nebraska-Lincoln to pursue a PhD in Neuroscience under the mentorship of Dr. Linxia Gu, where his research focused on the biomechanics of blast-induced mild traumatic brain injury. As Dr. Hua's research progressed, he became increasingly interested in the biomechanics of neural tissues, in particular the optic nerve head (ONH), a region uniquely influenced by intraocular pressure (IOP) from the eye and cerebrospinal fluid pressure (CSFP) from the brain. This growing interest in the complex mechanical environment of the ONH led him to pursue a postdoctoral fellowship in the laboratory of Dr. Ian Sigal at the University of Pittsburgh, where he refined his expertise in experimental and computational techniques and focused his research on the interplay between biomechanics and hemodynamics in the ONH. This work laid the foundation for Dr. Hua's current program of research at the University of Mississippi, which bridges biomechanics, hemodynamics, and neurodegeneration in glaucoma.

Dr. Hua received a National Glaucoma Research Postdoctoral Fellowship from BFF in 2021 following a competitive peer-review process. Not only did the fellowship support his research, but it also played a critical role in advancing his professional development. As part of the award, Dr. Hua attended the Glaucoma Fast Track Workshop, held during the 2022 International Society for Eye Research (ISER) conference, where he received essential training in grant writing and project management—critical skills for building a successful academic career. Attending the

conference also provided Dr. Hua with opportunities to engage with leading glaucoma doctors and researchers, fostering valuable and lasting collaborations in the field and expanding his professional network.

The funding that Dr. Hua received from BFF had a profound impact on both his research and career trajectory. As an international postdoctoral fellow, Dr. Hua had limited opportunities to apply for independent funding in the U.S., making it difficult to gain the grant-writing experience expected for faculty positions. The BFF fellowship filled that critical gap, enabling him to refine his grant-writing skills and secure competitive funding. This achievement significantly enhanced his competitiveness on the academic job market and led to his appointment as a tenure-track Assistant Professor in the Department of Biomedical Engineering at the University of Mississippi. In 2024, after joining the department, Dr. Hua was awarded the Ralph E. Powe Junior Faculty Enhancement Award in 2024 to continue the line of research initiated with BFF support. The fellowship also advanced his understanding of how mechanical and vascular factors interact in the ONH, a research focus he continues to pursue and build upon in his independent laboratory.

MAKOTO ISHII, MD, PhD (ALZHEIMER'S FAST TRACK MEETING: 2014)

Dr. Makoto Ishii's first research experience was as a summer undergraduate research fellow at the University of Texas Southwestern Medical Center, which resulted in the discovery of a novel family of peptide signaling molecules found in the hypothalamus. Since then, he has remained fascinated by the hypothalamus and how dysfunctions of the hypothalamus contribute to clinical disorders. This led Dr. Ishii to undertake a dual MD-PhD degree at the Tri-Institutional Program, where he received an MD from Weill Cornell School of Medicine and a PhD from Rockefeller University under the mentorship of Dr. Jeffrey Friedman, focusing on identifying novel pathways in the hypothalamus that regulate appetite and body weight. From there, Dr. Ishii decided to pursue clinical training in neurology and combine his clinical and research interests to understand the role of the hypothalamus in AD, particularly weight loss associated with the disease. This interest became personal when Dr. Ishii's grandmother was diagnosed with AD and he witnessed not only her memory loss, but also a significant amount of weight loss.

Dr. Ishii has been very fortunate to receive two BFF awards to support his research; the first in 2015, when he was embarking on his independent research program at Weill Cornell School of Medicine, and the second in 2020. Prior to receiving his first BFF award, Dr. Ishii attended the Alzheimer's Fast Track Workshop, where he learned to develop critical skills, such as refining his elevator pitch and preparing grant applications. It also provided the opportunity to interact with leaders in the field, and as a direct result, Dr. Ishii refined his research focus by identifying potential gaps and areas in his line of research where underlying methodologies and justifications needed to be clarified. For example, one established investigator challenged his overarching hypothesis and rationale, which led Dr. Ishii to dive deeper into the literature and more rigorously develop the premise behind his research. Equally important, the workshop provided the opportunity to meet, learn from, and establish networks with fellow trainees and

early investigators, as well as interact with representatives of BFF, from which Dr. Ishii gained a deeper appreciation for the mission of the Foundation.

The BFF awards have been instrumental in Dr. Ishii's career progression. As a newly minted faculty member, they helped showcase his productivity when he was up for promotion to Assistant Professor. Around the same time, he was fortunate to receive a prestigious Paul Beeson Career Development K08 Award in Aging from the National Institute of Aging (NIA). The BFF funding also enabled him to generate critical data that led to several manuscripts and some much-needed preliminary data for a successful NIH R01 application. In sum, the generous support from BFF and its donors allowed Dr. Ishii to grow an idea generated during his early professional training and personal experiences into a career in AD as a clinician-scientist. Now a mentor himself, Dr. Ishii continues to recommend the Fast Track Program to trainees and those new to the field of AD as a must-do, career-enhancing experience.

JESSICA JASIEEN, PHD, FAAO (GLAUCOMA FAST TRACK MEETING: 2017 AND 2019)

Dr. Jessica Jasien's journey and passion for ophthalmic research began while working directly with patients at New York Glaucoma Research Institute and Glaucoma Associates of New York at New York Eye and Ear Infirmary of Mount Sinai under Drs. Robert Ritch, Jeffrey Liebmann, Celso Tello, Christopher Teng, and C. Gustavo de Moraes. This passion later developed towards translational research during her doctoral studies in the School of Optometry at the University of Alabama at Birmingham (UAB), where she obtained a PhD in Vision Science for research that focused on the use of wireless telemetry in nonhuman primates to measure IOP and intracranial pressure (ICP) under the mentorship of Dr. J. Crawford Downs.

During her graduate studies, Dr. Jasien received travel grants from BFF in 2017 and 2019 to attend ISER and the Glaucoma Fast Track Workshop. These funding opportunities not only allowed Dr. Jasien to present her doctoral research twice to an international audience of glaucoma experts, but also network closely with researchers in the field. The Fast Track workshop was particularly beneficial, as it allowed her to learn directly from the best in the field, become up-to-date on the most recent research, and ask detailed and specific questions, both in formal and informal setting. The opportunity to share her research with a small and specialized group of glaucoma focused colleagues and gain feedback and ideas from fellow colleagues was unprecedented and the most beneficial way to network scientifically.

Specifically, Dr. Jasien's attendance at ISER and Glaucoma Fast Track led to a collaboration with several key glaucoma experts on a new project outside of her doctoral work. This in turn yielded an Ireland Travel Scholarship from UAB, which allowed Dr. Jasien to travel to Duke Eye Center and collaborate across several institutions with Drs. Daniel Stamer, C. Ross Ethier, Joseph Sherwood and Brian Samuels. The collaboration not only resulted in new research relationships, skills, and funding, but also a manuscript. The networking and sharing of scientific ideas also led to new introductions and several post-doctoral fellowship offers. In the end, Dr. Jasien settled on a position as a Senior Vision Scientist at the *National Aeronautics and Space Administration* (NASA) Cardiovascular and Vision Laboratory to pursue her passion for

translational glaucoma research in astronauts. After her time at NASA, she joined Alcon's Clinical R&D Team as a Principal I Medical Writer, where she works across franchises utilizing her background and training in ophthalmic research to write about clinical trials across vision care, medical devices, instrumentation, and pharma.

THOMAS JOHNSON, MD, PHD (GLAUCOMA FAST TRACK MEETING: 2022)

Dr. Thomas Johnson's interest in medicine began as a child through spending many Saturdays in his father's veterinary practice. By high school, his interests had turned to human patients, which led him to pursue an undergraduate degree in Neuroscience at Northwestern University, followed by a year of clinical research under Drs. Carl Camras and Jony Kipnis at the University of Nebraska investigating aqueous humor dynamics as well as glaucoma neuroprotection. This experience prompted him to defer his admission to medical school to complete a PhD in Neuroscience at the University of Cambridge as a Gates-Cambridge and OxCam Scholar under the mentorship of Drs. Keith Martin and Slava Tomarev. His thesis focused on transplantation of mesenchymal stem cells as a neuroprotective therapy for glaucoma. In 2010, Dr. Johnson began medical school at Johns Hopkins University (JHU), where he remained for his medical internship, ophthalmology residency, glaucoma fellowship, and chief residency. In 2019, he joined the faculty of JHU and quickly rose to the rank of the Shelley & Allan Holt Rising Professor of Ophthalmology at the Wilmer Eye Institute, where he leads a translational neuroscience laboratory dedicated to advancing vision restorative treatments for patients with optic neuropathy.

In 2022, Dr. Johnson was awarded a fellowship from the BFF National Glaucoma Research Program to develop methods for tracking, in real time, the establishment of new connections between optic nerve neurons transplanted into the eye and the recipient's own retina. The fellowship allowed him to attend the BFF Glaucoma FastTrack Workshop and Glaucoma Meeting at Emory University, where he met many investigators in the field, formed new research collaborations, and generated novel, cutting-edge ideas for innovative lines of research that helped advance his research. Most noteworthy is that the idea for the collaborative grant program administered by the International RGC Repopulation, Stem Cell Transplantation, and Optic Nerve Regeneration (RReSTORE) Consortium was born out of the meeting through discussions with Dr. Diane Bovenkamp. The mission of RReSTORE is to promote collaborative work that addresses the key challenges to vision restoration and blindness reversal in patients suffering from glaucoma and other optic neuropathies, and BFF supports this mission through the sponsorship of travel for early-stage investigators and trainees, conference attendance, and collaboration grants. See <http://rrestore.info> for more information.

The BFF fellowship was instrumental to several key outcomes of Dr. Johnson's research. It supported a productive collaboration with Dr. Ji Yi, a biomedical engineer and optics expert at JHU. Together, they developed two different custom-built microscopes that enable high resolution imaging of the retina as well as transsynaptic circuit tracing methods for labeling successful neuron connections after transplantation. Outcomes of the funding also helped Dr.

Johnson secure an R21 grant from the National Eye Institute and served as the primary basis for an R01 application. One manuscript describing the results is currently under review, with several others on the way. The fellowship also had a big impact on Dr. Johnson's career trajectory, in particular his promotion to Associate Professor in 2024. With regard to RReSTORe, BFF's continuing support has helped grow the organization to over 300 members, moving it from a thinktank concept to a collaborative work group that is actively overcoming challenges to vision restoration in optic neuropathy. Dr. Johnson credits BFF's involvement in the vision science community as key to bringing new treatments that reverse blindness to fruition years sooner than would have otherwise occurred.

TYLOR LEWIS, PHD (MACULAR FAST TRACK MEETING; RETINAL DEGENERATION MEETING: 2023)

Dr. Tylor Lewis's career in vision science research began as a graduate student at the Medical College of Wisconsin, where he studied the basic biology of photoreceptor cells under the mentorship of Dr. Joseph Besharse. After graduating with a PhD in Cell and Developmental Biology in 2018, Dr. Lewis embarked on postdoctoral training at Duke University in the laboratory of Dr. Vadim Arshavsky and expanded his research interests to the pathophysiology of retinal disease. In the Fall of 2024, he moved to the University of Alabama at Birmingham (UAB) as an independent investigator to study poorly understood aspects of photoreceptor pathophysiology and the symbiotic relationship between photoreceptors and the retinal pigment epithelium (RPE) in health and disease. His work employs a combination of cellular, genetic, biochemical and proteomic approaches aimed towards the development of therapeutic strategies for a wide range of retinal degenerative diseases, including MD.

During his postdoctoral training, Dr. Lewis was fortunate to receive a BrightFocus Travel Fellowship to support his attendance at the BrightFocus Macular Fast Track Workshop and the Retinal Degeneration Meeting in Spain in 2023. The workshop was an incredibly useful and immersive experience that facilitated interactions with leading experts in MD research and introduction to the latest discoveries in the field. While being trained largely in the basic biology of photoreceptor cells, the workshop helped Dr. Lewis transition into his independent research program and expand his research interests to the pathophysiology of disease disrupting photoreceptor-RPE symbiosis, including AMD. He also developed a deeper appreciation for the impressive work of the BFF in supporting vision research.

The BFF fellowship had a huge impact on Dr. Lewis's career path. The Macular Fast Track Workshop and Retinal Degeneration Meeting occurred at a critical time during his job search for an independent faculty position and were influential in this endeavor, allowing him to showcase his work and network with leading researchers while applying for positions. In fact, most of the initial networking for his faculty position at UAB occurred during the workshop and meeting. Dr. Lewis is looking forward to future collaborations and continuing to grow his network in the BFF community.

LINDA LORENZ, MS (INTERNATIONAL SOCIETY FOR MOLECULAR NEURODEGENERATION CONFERENCE: 2024)

Ms. Linda Lorenz's journey into the field of neurodegeneration began with an MS in Healthcare Neuropsychology at the University of Amsterdam in the Netherlands, followed by a Research Assistant position at the Alzheimer Center Amsterdam working on the 100-Plus study. This role later evolved into an opportunity to pursue a doctoral degree at Alzheimer Center Amsterdam, which she is currently pursuing, focusing on the role of blood-based biomarkers in cognitively healthy centenarians. The unique cohort presents a wealth of information for the team to mine, in particular the biological mechanisms that contribute to exceptional cognitive resilience in extreme old age.

In 2024, Ms. Lorenz received a BFF Travel Fellowship to attend the International Society for Molecular Neurodegeneration (ISMND) Conference in Seoul, South Korea. Attending the conference allowed Ms. Lorenz to present her research on the associations between blood-based biomarkers, cognitive performance, and neuropathological outcomes in centenarians to a large international audience. In addition, it facilitated meaningful interactions with senior researchers and potential collaborators in the neurodegeneration field and promoted face-to-face dialogue with scientists in adjacent fields. Such interactions stimulated unplanned yet productive exchanges of ideas that drive scientific advancement. In particular, the exceptional presentation skills of one distinguished lecturer, Dr. Melanie Samuel, profoundly shaped Ms. Lorenz's perspective on effective scientific communication and serves as a model for translating complex concepts in an accessible and compelling way.

Ms. Lorenz credits the BFF Travel Fellowship with significantly influencing her career trajectory and allowing her to explore potential career options upon completion of her PhD. The experience at ISMND 2024 increased Ms. Lorenz's visibility within the neurodegeneration research community and helped strengthen the scientific profile of her work. More broadly, the BFF funding accelerated the momentum of her research within the larger field of AD resilience research and was instrumental in securing a follow-on Alzheimer's Netherlands Travel Award.

NICOLE NOEL, PHD (MACULAR FAST TRACK MEETING; RETINAL DEGENERATION MEETING: 2023)

Dr. Nicole Noel has been investigating photoreceptor cells in health and disease for well over a decade. Her fascination with the field of vision began when she embarked on an MSc in Biological Sciences at the University of Alberta, focusing on fundamental aspects of photoreceptor biology and connectivity. This naturally led to a PhD in Medical Genetics at the University of Alberta, where she researched and modelled inherited photoreceptor diseases under the mentorship of Dr. Ian MacDonald. After completing her PhD, Dr. Noel decided to pursue a new model system and focus on age-related retinal disease at the University College London. She was very fortunate to receive a BrightFocus Macular Degeneration Fellowship to pursue this new line of research using turquoise killifish as a novel model for AMD.

In 2023, Dr. Noel received a BrightFocus Travel Fellowship to attend the International Symposium on Retinal Degeneration (RD2023) and the Macular Fast Track Workshop. Attending the symposium and workshop allowed her to disseminate exciting new results to the international research community, learn about the current work in the field, network with junior and senior researchers, receive expert advice on her research, and establish a new collaboration. This was essential for Dr. Noel as she made the transition from postdoctoral fellow to independent PI and began establishing herself within a new research niche and making others aware of her work. She also became aware of new techniques and tools that she has since taken advantage of to enrich her research program and output.

The Macular Degeneration Fellowship that Dr. Noel received from BFF was essential in forging her career path, as it facilitated her move to a new research environment in the UK to start a novel research program and establish herself as an expert in a novel model system. As a next step in her career, she has begun applying for Assistant Professor positions and has interviewed for a faculty position at a Canadian university. Since receiving the travel award, Dr. Noel has successfully acquired additional funding to support her work, including a prestigious Banting Postdoctoral Fellowship, Moorfields Eye Charity Springboard Award, a small grant from Fight for Sight, and a Macular Society Seedcorn grant, demonstrating the springboard effect of the award.

AVRIL REDDY, PHD (AGE-RELATED MACULAR DEGENERATION SYMPOSIUM: 2024)

Dr. Avril Reddy's academic journey into the field of macular degeneration (MD) began with an undergraduate degree in human genetics, during which she developed a strong interest in ageing and neurodegeneration. Intrigued, she chose to pursue this further and embarked on a PhD in Genetics under the mentorship of Professor Matthew Campbell at Trinity College Dublin, where her research focused on the role of the inner blood-retinal barrier and microglia in dry AMD, as well as the development of therapeutic strategies for the wet form of the disease. As she neared the end of her PhD, Dr. Reddy decided to gain a broader perspective of the evolving research landscape and key priorities in the field.

In September 2024, Dr. Reddy received a BFF Travel Fellowship to support her attendance at a Keystone Symposium entitled, *"Targeting Dry Age-related Macular Degeneration: Pathophysiology and Emerging Therapies"* in Pacific Grove, California. The fellowship substantially alleviated the cost of travel from Ireland and enabled her to fully participate in high-impact sessions focused on dry AMD, engage directly with leading researchers, and gain exposure to the most current scientific questions in the field. The symposium served as a masterclass in dry AMD, providing an up-to-date and multi-faceted understanding of dry AMD, from disease-driving mechanisms to the current challenges in therapeutic translation, highlighting current knowledge gaps, and complimenting Dr. Reddy's own laboratory training with broader scientific context and professional networking.

Overall, the BFF Travel Fellowship came at a pivotal moment in Dr. Reddy's career and has played a key role in guiding her transition from graduate student to early-career researcher.

With her PhD thesis due just two weeks after the Keystone Symposium, the experience helped Dr. Reddy contextualize her findings within the broader field and completely reshaped how she thought about her research findings and structured them in her thesis. It also highlighted important knowledge gaps that she is carefully considering as she prepares her research for publication and has shaped how she designs and frames her postdoctoral research. Dr. Reddy is currently continuing her work in the Campbell Laboratory as a postdoctoral fellow in order to complete multiple manuscripts, add some crucial data that is missing in the field, and increase the relevancy and impact of her research. In addition, the BFF Travel Fellowship helped bolster Dr. Reddy's track record, contributing to follow-on awards and increasing the attractiveness of her CV for future job opportunities.

HEATHER SCHMITT, PHD (GLAUCOMA FAST TRACK MEETING: 2017 AND 2021)

Dr. Heather Schmitt's journey into the field of vision research began as a graduate student at the University of Wisconsin-Madison while undertaking an MS in Biomedical Science under the mentorship of Dr. Janis Eells and studying retinitis pigmentosa. This led her to pursue a PhD in Cellular and Molecular Pathology in the laboratory of Dr. Robert Nickells (at the University of Wisconsin-Madison), where her research focused on neurodegeneration in glaucoma. Dr. Schmitt then embarked on postdoctoral training at Duke University, where she studied the outflow pathway in glaucoma in the Stamer Laboratory. The transition from research on the back of the eye to research on the front of the eye provided Dr. Schmitt with a well-rounded background in glaucoma and has proved invaluable in her current position at Perfuse Therapeutics as a nonclinical and, more recently, clinical scientist developing a neuroprotective therapy for glaucoma.

Dr. Schmitt was very fortunate to receive two BFF Travel Fellowships; one in 2017 and the other in 2021. The 2017 fellowship supported her attendance at the ISER/BrightFocus Glaucoma Symposium, where she presented her graduate research on the role of HDAC3 in gene silencing and cell death pathways in retinal ganglion cells. In addition, it allowed her to network with key researchers in the field, including Dr. Dan Stamer, who would later become her postdoctoral mentor. The 2021 fellowship also supported Dr. Schmitt's attendance at the ISER/BrightFocus Glaucoma Symposium, but this time during her transition to industry. While at the symposium, she presented her postdoctoral research on the role of LOXL1-AS1 on global gene regulation in cells that make up the outflow pathway in glaucoma. Along with networking opportunities, attending the symposium as an awardee helped highlight Dr. Schmitt's work and opened up opportunities for future collaborations.

The BFF Travel Fellowships were instrumental in springboarding Dr. Schmitt's career as a glaucoma scientist by providing her access to the great networking and educational event that is the ISER/BrightFocus Glaucoma Symposium. Specifically, the first fellowship directly supported her hiring as a postdoctoral fellow at Duke University by giving her the opportunity to network with Dr. Stamer, and the second increased the competitiveness of Dr. Schmitt's CV by acknowledging her continued achievements in the field. This recognition helped support her hiring at Perfuse Therapeutics. The fellowships also had a trickle-on funding effect. After she

received the first fellowship, Dr. Schmitt was awarded a grant from The Glaucoma Foundation (\$65,000) to support another project at Duke University, as well as an ARVO Travel Grant and a Member-in-Training Abstract Award.

MYOUNGSUP SIM, PHD (GLAUCOMA FAST TRACK MEETING: 2019)

Dr. Myoungsup Sim's academic journey in vision science began with a strong interest in molecular genetics and cell biology during his graduate training, which led to a PhD in Molecular Biology and Genetics at Seoul National University in Korea. He then moved to the United States for postdoctoral training at the University of California, San Diego, where he investigated the molecular mechanisms underlying glaucoma pathophysiology, with a particular focus on retinal neuronal survival and mitochondrial function in ocular cells. Following this, Dr. Sim joined the Liton Laboratory at Duke University as a Research Associate, where he studied intraocular pressure regulation with a focus on the role of autophagy in maintaining intraocular pressure homeostasis. This work led him to investigate the role of primary cilia and nitric oxide signaling in the conventional outflow pathway, with the goal of developing new therapeutic strategies for glaucoma treatment.

In 2019, Dr. Sim attended the Glaucoma Fast Track Workshop. The experience proved pivotal for him as an early-career investigator, providing exposure to the latest research trends in the field and opportunities to interact with other researchers. In particular, it enabled him to engage with leading experts in glaucoma research and to explore innovative approaches in aqueous humor dynamics and outflow regulation. The networking opportunities also helped him establish connections that later supported collaborations on projects investigating segmental outflow and primary cilia function in the trabecular meshwork.

Attending the Glaucoma Fast Track Workshop had a transformative impact on Dr. Sim's career trajectory. The experience helped solidify his commitment to a research career focused on ocular physiology and disease mechanisms, ultimately guiding his transition into a principal investigator role. In 2022, Dr. Sim secured a two-year BrightFocus Foundation Research Award, which provided critical support for launching a novel and technically challenging project that would have been difficult to pursue with institutional funding alone. The visibility and productivity resulting from this work fostered new collaborations and refined the direction of his research program. In 2024, Dr. Sim was honored with the Shaffer Prize for Innovative Glaucoma Research, recognizing the originality and potential clinical relevance of his work. This recognition further enhanced his career visibility, opening up new opportunities for professional advancement and additional funding.

JEREMY STRAIN, PHD (ALZHEIMER'S FAST TRACK MEETING: 2018)

Dr. Jeremy Strain's journey into the field of neurodegeneration began with a PhD in Cognitive Neuroscience at the University of Texas at Dallas under the mentorship of Dr. John Hart Jr. During his doctoral studies, Dr. Strain honed his expertise in neuroimaging processing and analysis techniques with a focus on elucidating the neuroimaging and cognitive consequences associated with concussion and traumatic brain injury (TBI). Given that TBI is a recognized risk factor for the development of AD pathology, he expanded his research interests to encompass neurodegenerative diseases in order to gain deeper insights into the biological mechanisms that contribute to sporadic AD. This academic transition led Dr. Strain to join the Ances Laboratory at Washington University in St. Louis as a postdoctoral researcher, where he has since risen to the rank of Assistant Professor and investigates structural imaging markers to differentiate between variants of dementia for clinical diagnosis.

In 2018, Dr. Strain was honored to receive a BFF Research Award for a project to assess the vascular contributions to AD. The project resulted in a seminal paper addressing the regional specificity of white matter hyperintensities across different etiologies and a fruitful collaboration with Dr. Manu Goyal, that has culminated in two further publications and a third currently under review. As part of the BFF award, Dr. Strain attended the Alzheimer's Fast Track Workshop. Attendance at the workshop facilitated his engagement with a vibrant community dedicated to supporting early-career investigators. Through this community, he became aware of grant opportunities available through the Congressionally Directed Medical Research Program administered by the Department of Defense (DoD). Notably, a specific announcement focusing on the link between TBI and AD, which aligned seamlessly with his research objectives.

The BFF Award significantly contributed to Dr. Strain's promotion to Instructor by laying the foundation for his current research program and increasing his competitiveness as a candidate. He continues to reap the benefits of collaborations fostered through the BFF funding mechanism, which extend beyond the publications resulting from the work. He is currently PI on two active DoD grants (\$750k and \$2.5m) and co-I on special grant awarded through NIA (\$5.5m), largely owing to the support of BFF. All of this has enhanced his career trajectory as an early stage investigator and opened up new research opportunities.

TARA TRACY, PHD (ALZHEIMER'S FAST TRACK MEETING: 2018)

Dr. Tara Tracy's interest in neurocognition began as an undergraduate student at Wesleyan University, when she became fascinated by the brain and the biology underlying healthy brain function and brain dysfunction in disease. This led her to pursue a PhD in Neuroscience at the University of California, Berkeley, under the mentorship of Dr. Lu Chen, focusing on the mechanisms that regulate synapse development. Dr. Tracy then completed postdoctoral training in the laboratory of Dr. Li Gan at the Gladstone Institutes/University of California, San Francisco elucidating how tau triggers pathogenesis in AD and related dementias. Following this, Dr. Tracy launched her own independent laboratory at the Buck Institute with a program of research that is focused on understanding how synapses are dysregulated in aging and in

age-related neurodegenerative diseases, such as AD, where she now serves as an Associate Professor.

In 2016, Dr. Tracy was awarded a BFF Postdoctoral Fellowship for a research project to investigate deficient kidney and brain expressed protein (KIBRA) signaling at synapses in AD. The fellowship allowed her to make significant progress on determining how KIBRA-mediated signaling at synapses is disrupted by pathogenic tau and led to the discovery that the C-terminal domain of the KIBRA protein can repair synaptic plasticity in neurons that model tauopathy-related pathogenesis. As part of the fellowship, Dr. Tracy attended the Alzheimer's Fast Track Workshop, where she was inspired by the supportive and encouraging atmosphere that was fostered by the mentors and other attendees of the workshop. It provided a highly collaborative environment where she could think critically, together with other participants, about how to approach difficult questions to advance understanding of AD. The workshop also served as a valuable opportunity to network with leading researchers. Through this networking, Dr. Tracy learned a lot about current research in the field and established key connections that would later help with her transition to independent investigator.

Dr. Tracy credits the BFF Postdoctoral Fellowship as coming at a critical time in her career, helping her obtain a faculty position and start her laboratory. Not only did the fellowship provide Dr. Tracy with a competitive edge but it also allowed her to generate important preliminary data that served as the basis for an NIH Next Generation of Researchers in AD/ADRD Research R03 grant that she awarded in 2018. Since then, she has published the BFF funded work on KIBRA signaling in AD. This initial award allowed her laboratory to continue growing studies on the key role of KIBRA in synapse dysfunction and susceptibility to age-related cognitive decline, for which she received the McKnight Brain Research Foundation Innovator Award in Cognitive Aging & Memory Loss in 2022. Now funded by the Forever Healthy Foundation, her laboratory's ongoing work is focused on a new translational investigation of the potential for a KIBRA-based synapse repair therapeutic to reverse memory loss in AD and related dementias.

ISAAC ALEJANDRO VIDAL PAREDES, MSc (INTERNATIONAL SOCIETY FOR EYE RESEARCH BIENNIAL MEETING; RRESTORE CONFERENCE: 2024)

Mr. Isaac Alejandro Vidal Paredes began his academic training in Mexico, earning a BSc in Biosciences and a MSc in Biomedical Sciences from Tecnológico de Monterrey. Early on, he developed a strong interest in ophthalmology research, progressing from studies on corneal tissue engineering and wound healing to glaucoma related fibrosis. Currently, Mr. Vidal Paredes is pursuing a PhD in Neurosciences at the Université de Montréal, under the mentorship of Dr. Adriana Di Polo, investigating how the blood-retinal barrier is disrupted during the early stages of glaucoma. Collectively, this training helped shape his interest in translational research and long-term goal of developing therapies to help treat or prevent blindness.

In 2024, Mr. Vidal Paredes received a BFF Travel Fellowship to attend the International Society for Eye Research (ISER) Biennial Meeting in Buenos Aires, where he was invited to present

recent findings from the Di Polo Laboratory on mitochondrial health and the blood-retinal barrier in glaucoma to world leaders in the field. As a PhD Student, having the distinction of invited speaker was a huge honor and a significant milestone in his PhD training. He engaged with leading experts, refined his ideas, and gained new insights into glaucoma pathophysiology, which in turn enhanced his visibility within the scientific community and boosted his confidence as an early-career scientist. In addition, the presentation sessions and scientific dialogue highlighted key unanswered questions in the field, directly shaping the course of his research. With support from a travel grant awarded by the conference organizers, which was funded in part by BFF, Mr. Vidal Paredes also attended the RReSTORE Conference in Seattle, which introduced him to cutting-edge regenerative strategies that closely align with his own interests in translational neuroscience. Together, the conferences served to strengthen Mr. Vidal Paredes' scientific communication skills and expand his professional network at a critical stage of his career.

The BFF funding has resulted in a number of tangible impacts on Mr. Vidal Paredes' growth as an early stage investigator. The critical feedback that he received on his presentation at ISER significantly improved a manuscript that is currently under review for publication. The presentation was also instrumental in helping secure a Fonds de recherche du Québec- Santé (FRQS) Doctoral Training Scholarship, one of the most competitive graduate fellowships in Quebec. Further, the recognition gained through ISER enhanced his academic track record, directly contributing to offers from both FRQS and the Quebec Merit Scholarship for Foreign Students. The RReSTORE experience broadened Mr. Vidal Paredes' perspective on regenerative approaches for retina and optic nerve repair and helped him identify potential postdoctoral laboratories aligned with his translational interests. Overall, these experiences renewed his momentum and confidence in his scientific trajectory, strengthened connections to the international vision and neuroscience scientific community, and opened doors for future collaborations and career opportunities.

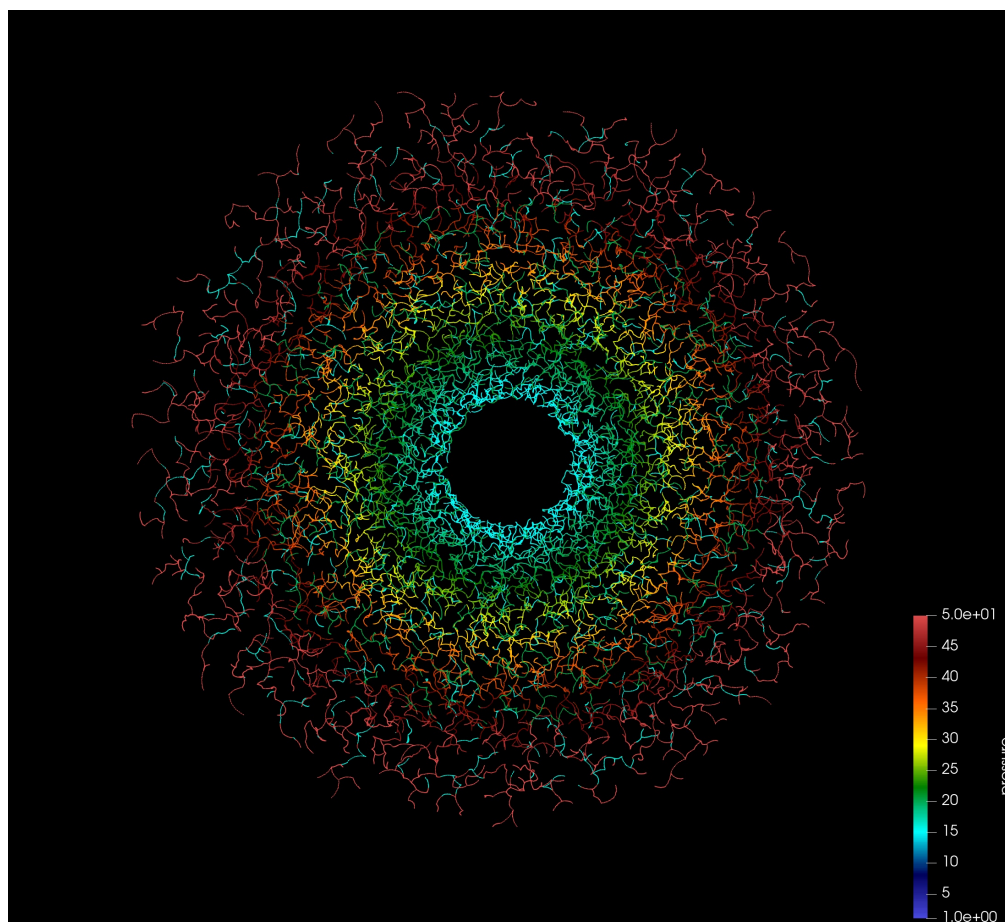
WEI ZHU, PHD (INTERNATIONAL SOCIETY FOR EYE RESEARCH BIENNIAL MEETING: 2016 AND 2017; GLAUCOMA FAST TRACK MEETING: 2017)

Dr. Wei Zhu received a PhD in Biochemistry and Molecular Biology from Shandong Agricultural University in China, under the mentorship of Dr. Chengchao Zheng, for research that looked at the key roles of metallothionein in regulating reactive oxygen species (ROS) balance. Following this, she pursued an initial Postdoctoral Fellowship at Qingdao University in China investigating alpha A-crystallin and its anti-oxidative role in pathogenesis of corneal neovascularization, and then moved to the USA for a second fellowship at the University of Iowa, working under the supervision of Dr. Markus J. Keuhn on stem cell-based therapies for the conventional outflow pathway. Dr. Zhu then returned to Qingdao University as an Assistant Professor and began a program of research focused on induced pluripotent stem cell (iPSC)-based therapies for trabecular meshwork degeneration in glaucoma. During that time, she had the opportunity to visit Dr. C. Ross Ethier's laboratory at Georgia Institute of Technology as a visiting scholar, which led to a greater understanding of aqueous humor dynamics. Currently, Dr. Zhu serves as a

Professor in the Department of Pharmacology at Qingdao University, where she works on reconstructing the conventional outflow pathway for glaucoma patients.

In 2016, Dr. Zhu received an International Society for Eye Research (ISER) Travel Fellowship Award from the Knights Templar Eye Foundation. This supported her attendance at the XXII Biennial ISER Meeting in Tokyo, Japan, where she presented her findings on iPSC-based therapy for aged Tg-MYOC^{Y437H} mice. This opportunity allowed her to engage with leading experts in the field of glaucoma, receive valuable feedback on her research, and foster collaborations. The following year, she was honored to be selected as an ISER Awardee and also attend the BFF Glaucoma Fast Track Workshop in Atlanta. During the workshop, she had the opportunity to talk to Dr. Ethier, which led to a visiting scholarship in his laboratory from 2019 to 2020. The ISER travel award boosted Dr. Zhu's confidence and provided the push she needed to persist in her investigations on stem cell-based therapies for glaucoma.

Attending ISER twice as a travel awardee significantly shaped Dr. Zhu's career goals. After receiving valuable feedback at the 2016 ISER meeting, Dr. Zhu made an important decision to apply for a National Key Research and Development grant focused on translating iPSC-based therapies, which she was awarded in 2017. The funding helped establish her own independent laboratory. While iPSC are a valuable resource with the potential to treat degenerative diseases, Dr. Zhu and her team encountered several challenges when attempting to rebuild the damaged conventional outflow pathway in glaucoma. One significant challenge was her limited knowledge of aqueous humor dynamics. After visiting Dr. Ethier's laboratory, she gained a better understanding of the conventional outflow pathway and learned new techniques for evaluating the function of aqueous humor outflow. This knowledge has allowed her to make significant inroads in assessing the regenerative role of iPSC-derived cells, greatly facilitating the clinical translational of iPSC-based therapies.



Simulated lamina cribrosa capillary network with vessel pressures visualized by color

Image courtesy of PhD candidate Milan Rai from the Hua Laboratory at the University of Mississippi

PHASE 3: SCIENTIFIC REVIEW COMMITTEE MEMBER SURVEY

MATERIAL AND METHODS

SURVEY DEVELOPMENT AND TESTING

In March and April 2025, AIBS developed a survey to solicit quantitative and qualitative feedback from current or past members of the BrightFocus Foundation (BFF) Scientific Review Committee (SRC) who had served on committees for fiscal year (FY) 2015 to 2026. The survey focused on assessing how participating in the review process for BFF impacted SRC members' career trajectories and gathering strategic input on future funding directions for the Foundation, as outlined in the Statement of Work (SOW).

The survey used both closed-ended (dichotomous, dropdown, multiple choice) and open-ended (free text boxes) questions. To maximize input from each respondent, all of the questions were required except the final one.

Throughout April 2025, the survey underwent review by key BFF and SRC stakeholders and was updated on the basis of their feedback. The final 14-question version was organized into two sections—*"About You"* (demographics and personal statistics) and *"SRC Participation"*—with the number of questions in each section ranging from 5 to 9. The survey was then imported into Wufoo, a secure commercial online form builder software platform, for dissemination, where it was test-run and verified by AIBS staff members. A copy of the survey is appended (see Appendix 3).

SURVEY DISSEMINATION AND FOLLOW-UP

Due to ongoing national funding issues, BFF requested that the survey dissemination be delayed until NIH had released its funding for the current fiscal year. Consequently, a link to the survey was emailed on October 7, 2025, to 117 email addresses of current or past BFF SRC members on committees for FY 2015 to 2026. These invitees and email addresses were prepared by the BFF staff.

Of the 117 invitations, only 2 bounced back, and there was 1 autoreply for which a new forwarding email address had been supplied. New email addresses were found for both bounce-backs, and invitations were resent to the three new addresses shortly thereafter.

Two weeks after the initial dissemination of the survey, a series of email reminders were sent to non-responders that were scheduled around holidays and grant deadlines to ensure maximum response rates. The first reminder was sent on October 20, 2025, the second on October 28, and the third on November 6. All communications were sent from the office of Dr. Diane Bovenkamp, Vice President of Scientific Affairs at BFF. Furthermore, during the week of

November 3, Dr. Bovenkamp individually emailed the, as of then, 68 non-responding SRC members requesting their feedback. The survey was inactivated on November 10, 2025.

RESULTS

SURVEY RESPONSE RATE

After adjusting for the three resends to new email addresses, 100% of the 117 email invitations sent to SRC members successfully reached recipients' inboxes. When the survey was inactivated on November 10, 2025, 93 of these 117 SRC members had completed the survey, resulting in a 79.5% completion rate.

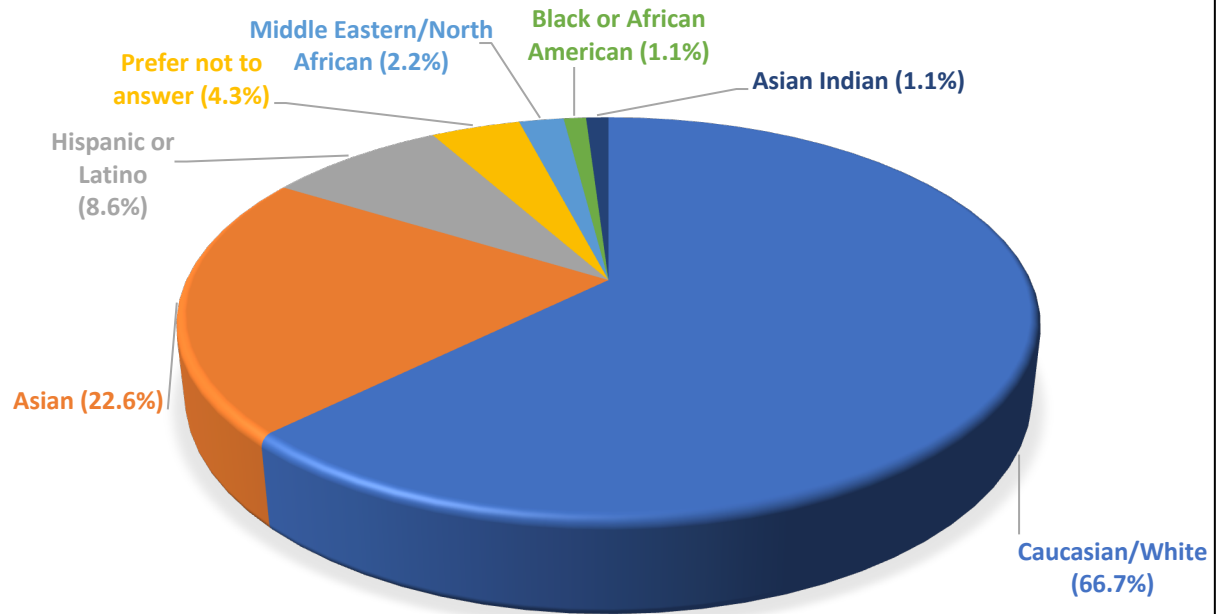
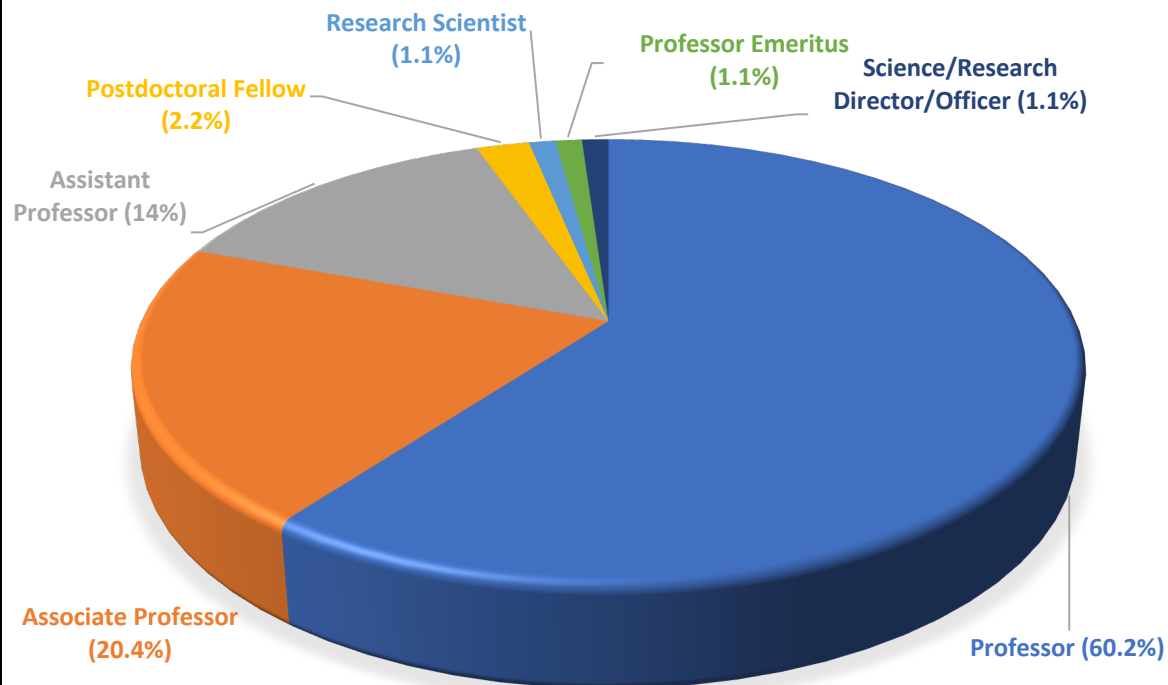
SURVEY RESPONSE ANALYSIS

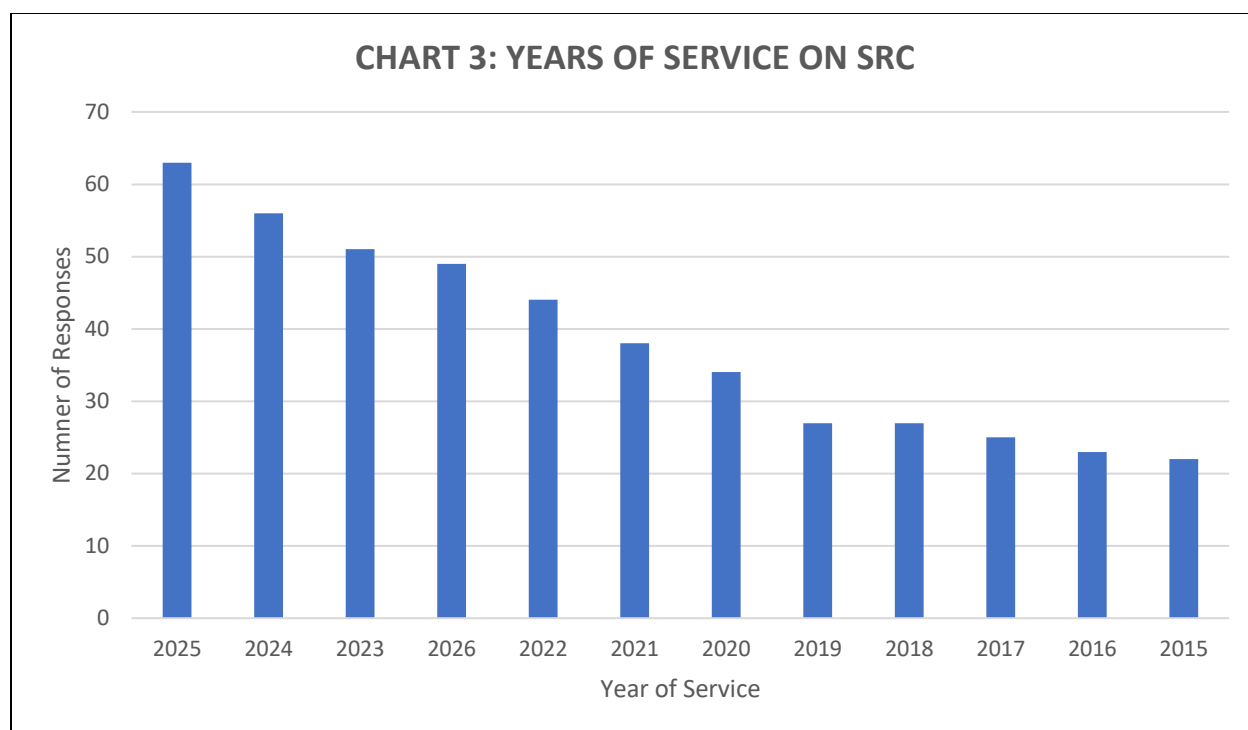
Survey responses that were dichotomous, categorical, or numeric were analyzed using descriptive statistics and are presented below.

RESPONDENT DEMOGRAPHICS AND PERSONAL STATISTICS

A little over half (53.8%) of the SRC survey respondents were male, and 42% were female, with the remaining 4.3% preferring not to report their gender. Exactly two-thirds of the respondents (66.7%) identified as White/Caucasian, while Asian ethnicity was the next most reported (22.6%), followed by Hispanic/Latino (8.6%). Some respondents selected more than one ethnicity; see Chart 1 for a full breakout of race and ethnicity data.

Regarding career stage (either current or at retirement), most respondents were at the mid to senior career level, with 82.8% selecting full professor, associate professor, professor emeritus, or science/research director (Chart 2). The majority of SRC members reported serving within the last 5 years, with 73% of service occurring for committees for FY 2020 to 2026, and 2025 being the most commonly selected year of service (a full breakdown is illustrated in Chart 3). Ratios of respondent review service across the different BFF programs was closely aligned with the ratio of program funding levels: 41.9% of respondents served on the Alzheimer's Disease Research Program, 30.1% on the Glaucoma Research Program, and 28% on the Macular Degeneration Research Program.

CHART 1: RACE/ETHNICITY**CHART 2: CAREER STAGE**

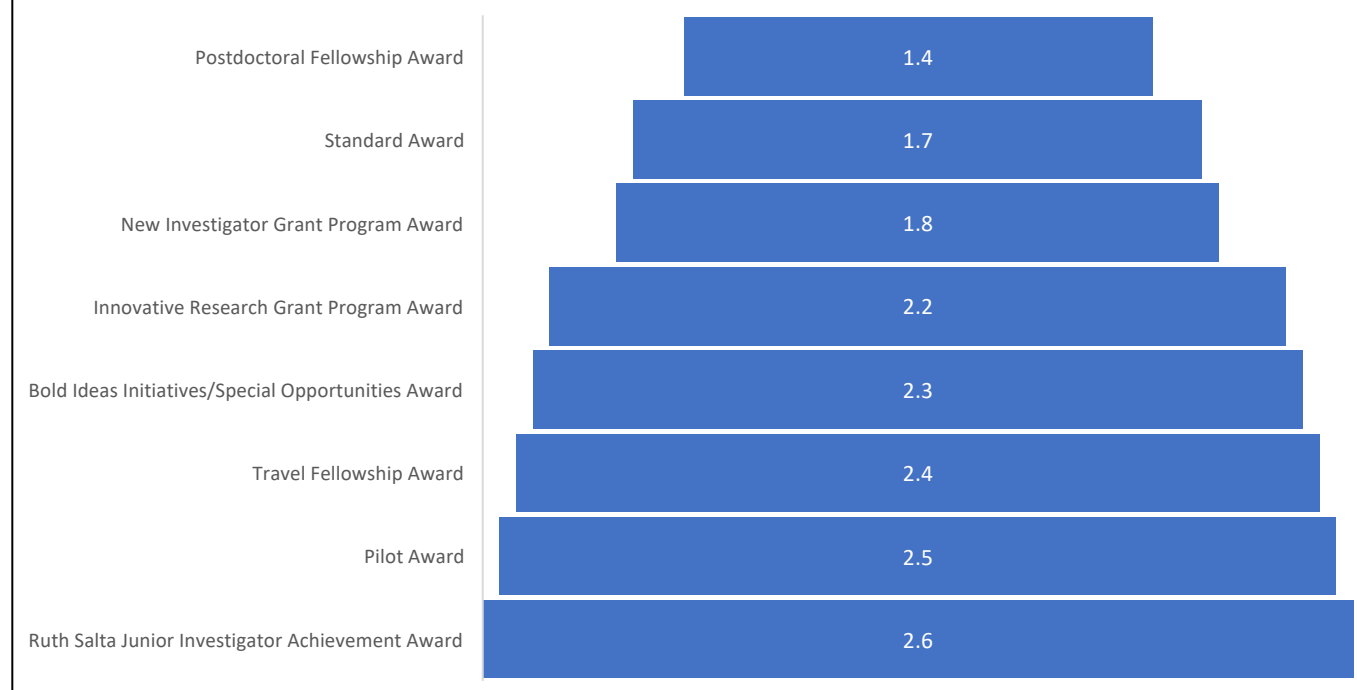
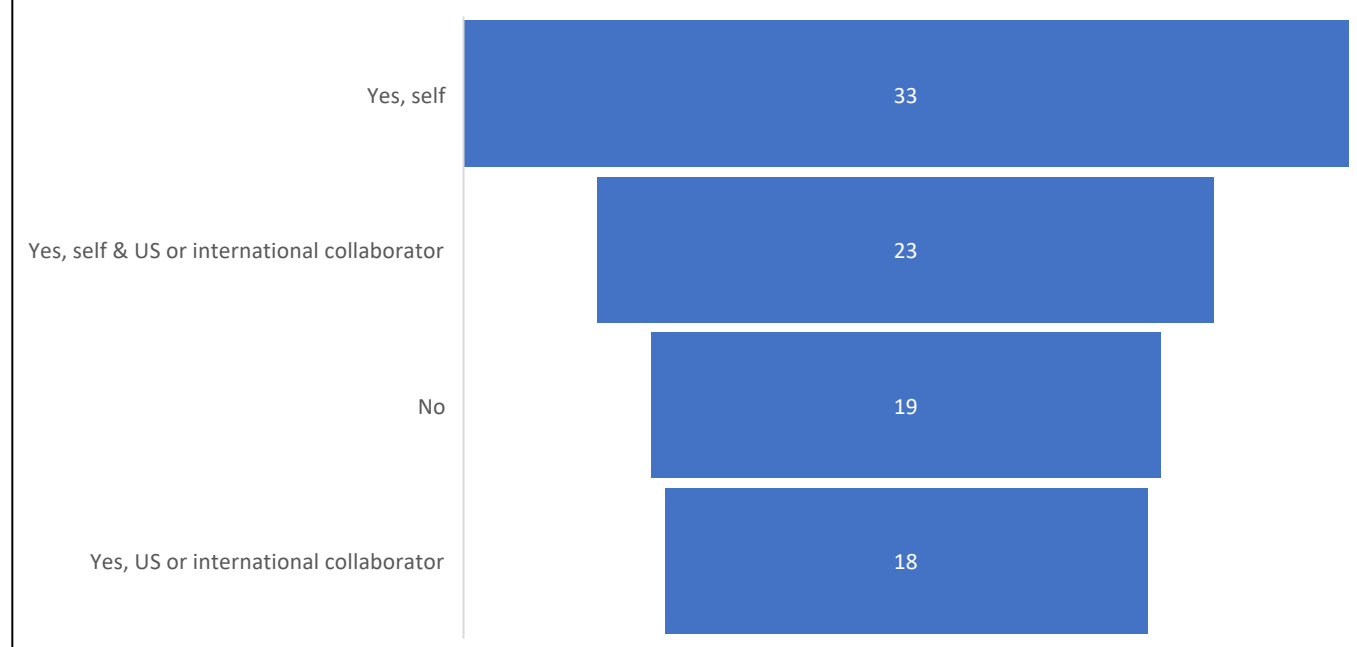


SRC PARTICIPATION

The majority of respondents (82.8%) indicated that participating on a BFF SRC had been helpful to their career progression. Similarly, the vast majority (91.4%) reported their experience on the SRC had been extremely positive, with 60.2% reporting an outstanding experience.

Respondents were asked to rank the importance of each of the BFF awards on a scale of 1 to 5, where 1 was the highest rating and 5 was the lowest. On average, three of the awards—Postdoctoral Fellowship Awards (1.4), Standard Awards (1.7), and New Investigator Grant Program Award (1.8)—received ratings between "extremely important" and "important." The remaining programs were rated between "important" and "neutral" (see Chart 4).

Lastly, when asked about the current funding climate, most respondents (80.1%) indicated that they and/or a national/international collaborator had been negatively impacted (Chart 5 shows the full breakout of responses).

CHART 4: AWARD RATING**CHART 5: IMPACTED BY RESEARCH CLIMATE**

DISCUSSION

SURVEY RESPONSE RATES

The initial two phases of the BrightFocus Foundation (BFF) surveys yielded highly respectable response rates—**31.1%** for Phase 1 Grantees and **29.7%** for Phase 2 Travel Fellows. These figures surpass the acceptable 20-25% online survey response rate noted by Edwards (2024), and for Travel Fellows, the rate falls in the upper end of the "good" range (10-30%) reported by Graglia (SurveyMonkey), and for grantees, reaches the "excellent" threshold (>30%). The **79.5%** response rate for the Phase 3 Scientific Review Committee (SRC) survey is nothing short of outstanding. The active role Dr. Diane Bovenkamp took in reminding SRC members to complete the survey was likely a significant factor with this, but it also seems clear that committee members are engaged and vested in supporting the Foundation's initiatives.

RESPONDENT DEMOGRAPHICS AND PERSONAL STATISTICS

In terms of demographics, the survey results showed solid and encouraging trends regarding gender representation across the phases. Male respondents constituted **59%** of the Phase 1 Grantees and **53.8%** of the Phase 3 SRC members, while female respondents made up a solid **40.2%** and **42%** of these two groups, respectively. Conversely, the gender ratio was reversed among the Phase 2 Travel Fellows, where the majority (**58.9%**) of respondents were female, compared with **39.6%** male.

The **40.2%–42%** female composition among the grantee and SRC member respondent groups strongly aligns with the 40% female funding rate reported by the NIH in 2024 and the 41% rate of women actively engaged in research cited by Elsevier in a recent 2024 report on gender and diversity in research. The notably higher **58.9%** female composition of the Phase 2 Travel Fellows group speaks positively to the Foundation's efforts to bridge the gender divide early in a scientist's career, especially considering that the percentage of women in research typically drops to 27% as careers advance (Lancet Editorial, 2024). Given the generally younger age of travel fellows, this bodes well for closer to equal gender representation in the future for the grantees and SRC members. To further address this divide, BFF could introduce dedicated grants, fellowships, and awards for female researchers at various career stages, mirroring initiatives already introduced by other funding agencies for early-career female researchers (Lancet Editorial, 2024).

The racial composition of the Phase 1 Grantees and Phase 3 SRC members survey respondents was highly similar. The three most commonly reported races for both groups were White/Caucasian (**62.8%** and **66.7%**, respectively), Asian (**27.2%** and **22.6%**, respectively), and Hispanic/Latino (**5.4%** and **8.6%**, respectively). These figures remarkably mirror the 2024 grant funding rates reported by the NIH (RePORT, NIH Data Book), which recorded recipients as 69.4% White, 24.5% Asian, and 6.5% Hispanic/Latino. Impressively, the racial composition of the Phase 2 Travel Fellow survey respondents presents a more diverse picture, with **48%**

identifying as White/Caucasian, **33.7%** as Asian, **10.8%** as Hispanic/Latino, and **5.4%** as Black/African American. This increased diversity showcases the Foundation's efforts to reduce the racial divide in future generations of scientists. These initiatives could be further enhanced by introducing dedicated grants, fellowships, and awards specifically for minority researchers, mirroring successful programs already implemented by other funding agencies like the NIH and NSF.

There were similarities in career stages between the Phase 1 Grantees and Phase 2 Travel Fellows: a little under half of the grantees (**43.3%**) and the majority of the travel fellows (**75.3%**) indicated they were at an early career stage. These findings align well with BFF's focus on funding the next generation of scientists. Conversely, the majority (**82.8%**) of SRC respondents were in mid- to senior-level career positions, reflecting the strong expertise and experience that is helpful for review and advisory work. Furthermore, most respondents across all three surveys had either received funding or participated on an SRC within the past 10 years. In Phase 1, the majority of respondents (**78%**) indicated receiving BFF funding between 2014 and 2024. In Phase 2, over **85%** of respondents received travel support in the last 4 years; and in Phase 3, the majority of respondents reported serving on the SRC within the last 5 years, with **73%** of service occurring between FY 2020-2026. These figures demonstrate that survey participation and Foundation activity engagement is more likely when related funding/review service activities are recent (within 5-10 years). Not surprisingly, Alzheimer's disease (AD) was the dominant program area across all groups, aligning closely with the distribution of BFF funds. AD was the program area with the most awards received (**57.5%** of grantees), conferences attended (**41.6%** of travel fellows), and service on SRCs (**41.9%** of SRC members).

FUNDING OUTCOMES

The BFF grantees constitute a group of highly productive researchers whose work frequently results in significant discoveries. Notably, the identification of new risk factors or disease prevention methods was the most frequent significant outcome, accounting for **22.2%** of all responses. This impactful research includes seminal work by Dr. Yi Hua of the University of Mississippi, whose study identified vessel diameter, neural tissue oxygen consumption rate, and arteriole pressure in the optic nerve head as the three most influential risk factors in retinal ganglion cell axon loss related to glaucoma. Furthermore, the most (**80.8%**) frequently reported outcome of the BFF-funded projects was publications. This high rate of dissemination includes impressive research led by Dr. Joel Schuman at the University of Pittsburgh, where a BFF Standard Award (SA)-supported project on aqueous outflow using optical coherence tomography imaging resulted in 8 influential papers published in high-impact journals.

Beyond research outcomes, the BFF funding also accelerated careers. Close to **60%** of respondents with applicable mentoring experience indicated that, through BFF, their mentees transitioned to career independence. Dr. Dietmar Thal of Katholieke Universiteit Leuven affirms this impact, crediting a Postdoctoral Fellowship Award (PFA) on which he served as a mentor as being fundamental to the development of his mentee's career, not only as an early-career

independent scientist, but also in learning skills to achieve career goals as an academic neuropathology researcher and brain bank coordinator.

Similarly, the BFF travel fellows present as a highly accomplished group of early-career scientists. An impressive **77.4%** went on to secure follow-on funding as a direct result of their travel fellowship, with the most commonly reported amount being **\$200,000**. This represents an impressive 200-fold return on investment for the Foundation when considering that the average travel grant is approximately \$1,000. This initial funding often creates a ripple effect, as noted by Dr. J. Nicholas Cochran of the HudsonAlpha Institute for Biotechnology. His BFF fellowship ideally positioned him to obtain an NIH K99/R00 award for **\$850,000**, which was then followed by an NIH R01 grant totaling a staggering **\$3.5M**. Furthermore, the majority (**76.3%**) of travel fellows indicated that the fellowship influenced their research focus, with the vast majority (**95.3%**) centering their program of research in the same field as their fellowship. Dr. Avril Reddy's experience, for instance, was instrumental in both contextualizing her own findings within the broader field of age-related macular degeneration (AMD) and highlighting important knowledge gaps that now inform her postdoctoral research and upcoming publications.

CAREER PROGRESSION

BrightFocus Foundation (BFF) funding has been a powerful catalyst for grantee success, driving impressive career trajectories and professional advancement for the majority of respondents (**93.1%**), with nearly half (**47.5%**) reporting that the funding directly led to a promotion.

These statistics translate into powerful personal impacts: Dr. Sarah Doyle leveraged her funding to jumpstart her independent research career and promotion at Trinity College Dublin, while Dr. Quincy Samus credits her awards with supporting her promotion to full professor at Johns Hopkins University. The ripple effect continues with follow-on funding: **87.4%** of respondents secured additional funds, most commonly in the **\$100,000 to \$499,999** range (**39.1%** of grantee respondents). For Dr. Matthew Campbell, his initial BFF support catalyzed his entire career, helping him raise over **€12M** for his laboratory to date.

Beyond direct grants, BFF also provides vital support for early-career researchers through travel fellowships. This support is critical for boosting careers and creating essential momentum. The vast majority of travel fellow respondents (**88.9%**) found the funding vital for their professional progression. For example, Dr. Mehwish Anwer credits her Fast Track training with securing competitive postdoctoral awards, and Dr. Collin Germer leveraged his travel fellowship to secure informal talks that resulted in a postdoctoral position offer. The impact on professional connections is even more significant, with **91.8%** of respondents reporting that the travel fellowship experience directly led to networking opportunities. Interactions with leaders in the field helped Dr. Makoto Ishii refine his research focus and develop his premise more rigorously. Similarly, Dr. Jessica Jasien's attendance at International Society for Eye Research (ISER) and

Glaucoma Fast Track initiated a new collaboration with key experts, which subsequently yielded an Ireland Travel Scholarship for a multi-institutional collaboration at Duke Eye Center.

The positive impact of the Foundation extends to those who generously give their time and expertise. The experience of serving on a BFF Scientific Review Committee (SRC) consistently receives exceptional feedback: the vast majority of respondents (**91.4%**) reported an "extremely positive" experience, with **60.2%** specifically calling it "outstanding." This high level of satisfaction underscores the value SRC members derive from their contributions, with a majority (**82.8%**) noting that their participation was directly helpful to their own career progression.

Members highlighted multiple benefits of their service, spanning skill development and career advancement. Dr. Catherine Bowes Rickman of Duke University noted how participating in the grant review process enhanced her evaluation and grant writing skills, served as a forum to learn about cutting-edge new technologies that impacted her research program, and offered valuable networking opportunities. Dr. Adriana Di Polo of the University of Montreal shared that serving on the SRC was a tremendous learning experience, allowing her to evaluate the field's best research and promote innovative scientific advances while building strong professional connections with fellow members and BrightFocus staff, an experience she found both intellectually and personally enriching. This service further helps build recognition and advance careers, Dr. Aristeidis Sotiras of Washington University shared that participation on the SRC helped him gain national and international recognition important for his promotion, and Dr. Paloma Liton of Duke University found that her involvement led to leadership opportunities, enhanced her international standing as a field leader and supported meaningful career advancement.

The positive reception of the SRC experience also reflects the perceived quality and strategic importance of the programs being reviewed. When members ranked the importance of BrightFocus awards on a scale of 1 (highest) to 5 (lowest), three programs consistently stood out: the Postdoctoral Fellowship Awards (average rating 1.4), Standard Awards (1.7), and New Investigator Grant Program Award (1.8). All three received ratings between "extremely important" and "important," highlighting their high regard among expert reviewers. The value of the Foundation's focus on key areas like early-career support was specifically reinforced by members. For example, Dr. Lance Johnson of the University of Kentucky emphasized the necessity of concentrating efforts on early-career investigators and diversity initiatives, arguing that failure to do so risks losing an entire generation of stellar scientists. Similarly, Dr. Kate Keller of Ohio State University advocated for a greater emphasis on more equal funding for female applicants.

The Foundation's targeted support becomes even more critical in the challenging current funding environment. Most SRC respondents (**80.1%**) indicated that they, their team, or an international collaborator had been negatively affected by recent funding shifts. For instance, Dr. Karl Wahlin of the University of California, San Diego, notes that funding delays and budget cuts of 15%-20% have complicated research operations while costs simultaneously rise.

Crucially, Dr. David Borchelt of the University of Florida reported that his department lost funding intended to support initiatives to recruit diverse faculty and students. These challenges underscore the vital role that BFF plays in funding and nurturing the next generation of scientists. The Foundation offers a truly unique support system that extends throughout a scientist's career, ensuring that top talent is retained and advanced. This effect is achieved through both vital early-career opportunities, such as workshops and conference attendance, and substantial ongoing funding. The impact of this long-term commitment is evidenced by numerous instances of repeat funding (**10.7%** of grantee respondents reported receiving multiple awards), which helps researchers build independence and secure future opportunities. For example, multi-award grantee Dr. Kathryn Bowles of the UK Dementia Research Initiative credits her initial Postdoctoral Fellowship Award (PFA) with laying the foundations for her future independence, while a subsequent Standard Award (SA) increased her competitiveness as a candidate and supported the development of her laboratory. Dr. Brittany J. Carr of the University of Alberta attributes her PFA to playing a significant role in helping her secure an Assistant Professorship and a follow-on New Investigator Grant Award (NIGA) with helping her gather the preliminary data needed for securing funding from extremely competitive Canadian agencies. A third awardee, Dr. Marta Cortes-Canteli of the Cajal Neuroscience Center, who received BFF funding across 14 years, asserts that BFF funding has been central in shaping her career at every juncture.

The Foundation's flexible approach is essential to high-risk, high-reward science. At times, BFF funding has been the critical last resort, ensuring promising research remains alive to deliver key findings. Dr. Gary Landreth of the Stark Neurosciences Research Institute summarized this unique impact: "The BFF funding was quite frankly career saving and came at an absolutely critical time, allowing my team to perform crucial but controversial experiments that would not get through an NIH study section."

Underpinning this entire process is a layer of expert guidance. The diligent oversight of the SRCs helps ensure that the Foundation is impactful, scientifically relevant, and delivers maximal societal benefits by adapting to emerging research, funding trends, and the realities of a global aging population—the demographic group most impacted by Alzheimer's disease, macular degeneration, and glaucoma.

REFERENCES

SurveyLab; What is a good response rate for a survey? Edwards, K., 21 Jan 2024:

<https://www.surveylab.com/blog/what-is-a-good-response-rate-for-a-survey/>

SurveyMonkey; What is a good survey response rate? Graglia, D:

<https://www.surveymonkey.com/curiosity/how-many-people-do-i-need-to-take-my-survey/>

Progress toward gender equity in research and innovation: 2024 review.

[DOI: 10.17632/bb5jb7tssv.1]

Research Grants: Awards by sex and percentage to female; NIH Data Book Report ID: 171.

<https://report.nih.gov/nihdatabook/report/171>

Advancing women in science: closing the final gap. Editorial. Lancet Reg Health Am. 2024 Jul

15;35:100840. doi:[10.1016/j.lana.2024.100840](https://doi.org/10.1016/j.lana.2024.100840)

RePORT, NIH Data Book: <https://report.nih.gov/nihdatabook/category/26>

APPENDICES

APPENDIX 1

BrightFocus PI/co-PI/Mentor Survey

Thank you for completing this survey for the BrightFocus Foundation (*prior to 2013, the American Health Assistance Foundation*), hereafter referred to as BrightFocus.

Purpose:

Over its history, BrightFocus has awarded more than \$300 million of groundbreaking research funding to thousands of individuals in 25 countries. Having recently celebrated 50 years of operations, BrightFocus is very interested in assessing the range of its impact from this remarkable history. As a recipient of funding from BrightFocus, we kindly request your response to this brief survey.

Feedback from all those who have been supported by BrightFocus is critical to ensuring the success of this assessment, as well as guiding future funding initiatives. Collecting feedback will not only provide valuable insight for BrightFocus but importantly will also demonstrate the impact to all those who have generously donated to BrightFocus.

We want to know what happened to you after you received funding from BrightFocus – what kind of outcomes came from your research, did you stay in the field, or did your career take another path? **We will be highlighting and publicizing several grantee survey respondents who present remarkable or extraordinary examples of how BrightFocus impacted their program of research, research findings, and/or career trajectories as case studies.** So, please don't hold back on sharing your unique story! We'll also be sharing infographics and analyses of the combined results.

Approach:

The survey has three main sections: personal details, research outcomes, and career trajectory.

Some important response guidance:

- If you are a Co-PI and/or Mentor, please provide responses as funding recipient. Even though the PI/Postdoc signed the contract, the goal is to assess the full impact of the direct funding.
- If you have received multiple awards from BrightFocus, your responses should reflect all awards.
- Please distinguish responses in text fields (organizing responses by award).

Some helpful suggestions:

- Please note that the survey must be completed in one sitting, so it may be beneficial to read through the whole survey first to get a sense of the questions.
- A PDF version of the survey is [available here](#) to aid in the preparation of your responses.
- If you don't have an ORCID iD, please [create one here](#). Also, if you haven't already, please give permission for BrightFocus to post your funded awards on your page.
- It may also be helpful to have an electronic copy of your latest NIH (or similar) biosketch to refer to and/or log on to your proposal central account to aid in your responses.

If you experience any technical difficulties when filling out the survey, please email

BrightFocus@aibs.org.

* denotes required question

ABOUT YOU

1. What is your gender? *

- | | |
|---|-----------------------------------|
| ☐ Female | ☐ Male |
| ☐ Non-binary/Non-conforming | ☐ Transgender |
| ☐ Prefer not to answer | ☐ Other |

2. What is your race/ethnicity (select all that apply)? *

- | | |
|---|--|
| ☐ Aboriginal or First Nations | ☐ Alaska Native |
| ☐ American Indian | ☐ Asian |
| ☐ Black or African American | ☐ Hispanic or Latino |
| ☐ Middle Eastern/North African | ☐ Native Hawaiian or Pacific Islander |
| ☐ White or Caucasian | ☐ Prefer not to answer |
| ☐ Other [please specify below] | |

3. What career stage best describes your current position? *

- | | |
|-----------------------------|-----------------------------|
| ☐ Early | ☐ Mid |
| ☐ Late | ☐ Other |

4. In which sector do you currently work (or did you work at retirement)? *

- | | |
|---|---|
| ☐ Academia | ☐ Business/Industry |
| ☐ Communications | ☐ Government |
| ☐ Non-profit/Private Foundation | ☐ Public Policy/Legislation |
| ☐ Other | |

5. What is your current institutional/organizational affiliation (or was your last position at retirement)? Include country, if outside the United States. ***6. What title best describes your current position (or was your last position at retirement)? ***

- | | |
|--|--|
| ☐ Analyst | ☐ Assistant Professor |
| ☐ Associate Professor | ☐ Business Owner |
| ☐ Chief Scientific Officer | ☐ Consultant/Advisor |
| ☐ Doctor/Clinician | ☐ Executive Director/Chief Executive Officer |
| ☐ Instructor | ☐ Lecturer |
| ☐ Postdoctoral Fellow | ☐ Professor |
| ☐ Program Manager | ☐ Regulatory Affairs/Tech Transfer |
| ☐ Research Scientist | ☐ Science (Research) Director/Officer |
| ☐ Writer/Communications | ☐ Other |

7. In what role and how many times have you received funding support from BrightFocus? If you never received BrightFocus funding in one or more of the roles listed, please select the “Never” option (#6) for that role. *

	Once	Twice	Three	Four	Five+	Never
Principal Investigator	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Co-Principal Investigator	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Mentor	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Travel Fellowship	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
Other	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Other [please specify type and number]

8. In what year(s) did you receive BrightFocus funding? (Please add full year followed by comma if you have received multiple awards, i.e., 2014, 2016) *

9. In what program area(s) did you receive funding from BrightFocus (select all that apply)? *

- ☐ Alzheimer’s Disease Research (ADR)
- ☐ Macular Degeneration Research (MDR)
- ☐ National Glaucoma Research (NGR)
- ☐ Other program award(s)

If available, provide the BrightFocus grant reference number(s), title(s), recipient institution, and country for all of your award(s). *

10. Please enter your ORCID iD. If you don’t currently have an ORCID iD, then please create one (visit: <https://orcid.org/>). This will enable BrightFocus to keep track of your accomplishments in real time moving forward and help to educate the public about your accomplishments. In addition, an ORCID iD is required to apply for any future BrightFocus

grants. *

11. Please enter the Research Organization Registry (ROR) ID for your current research organization, if available. If you don't know your organization's ROR, you can look it up here: <https://ror.org/>. For example, BrightFocus' ROR is 03cvfxv40 (<https://ror.org/03cvfxv40>). This will enhance our ability to track your accomplishments moving forward. *

Maximum of 250 characters. Currently Used: 0 characters.

12. Please provide any web links for lab sites, university profiles, social media pages, etc. Separate each entry with a comma, i.e, www.ubirmingham.com, www.facebook.com. *

RESEARCH OUTCOMES

13. In lay terms, what were the main objectives of your BrightFocus funded research? Provide a brief description, no more than 2-3 sentences per award. (If you were a mentor and don't have the requested information, please enter "Mentor" as your response.) *

14. What was the most significant experimental finding/outcome from your BrightFocus award(s)? (If you were a mentor and don't have the requested information, please select "Other" and enter "Mentor" as your response.) *

- ☐ New methodology/technique/technology
- ☐ New community-accessible tool
- ☐ New database or dataset
- ☐ New repository/tissue or fluid bank
- ☐ Identification of a new gene or antibody
- ☐ Identification of a new risk factor or disease prevention
- ☐ New animal/disease model, behavioral task, or neuropsychological assessment
- ☐ New algorithm/software/app
- ☐ Other [please specify below]

Please provide any additional information that will help qualify your answer(s); no more than 2-3 sentences per award. *

15. What outcomes did the findings of your BrightFocus funding lead to (select all that apply)? (If you were a mentor and don't have the requested information, please select "Other" and enter "Mentor" as your response.) *

- ☐ Licensing or commercialization of a tool/methodology/technology
- ☐ Formation of a company or another entrepreneurial endeavor
- ☐ Copyright, invention or patent (include provisional patents, even if they did not ultimately progress to a full patent or invention)
- ☐ A clinical study/trial or prevention measure (this includes observational or genetics studies)
- ☐ Treatment/assessment protocol
- ☐ Active collaboration(s) in the field or between different fields
- ☐ Informing or influencing science-based policy
- ☐ Impact on the disease community, such as patient or advocacy groups, or on public health in general
- ☐ Publications
- ☐ Other [please specify below]

Please provide any additional information that will help qualify your answer(s); no more than 2-3 sentences per award. *

16. If you were a mentor on a BrightFocus award(s), to the extent of your knowledge, did the fellow(s) you mentored transition to career independence? (Please select N/A if you were not a mentor on a BrightFocus award) *

Yes 

List the name, current position, and place of work of all fellows that you mentored with BrightFocus funding. *

CAREER TRAJECTORY

17. Was BrightFocus funding critical to your career progression or the careers of other key

personnel supported by the award(s)? * ☒ Yes ☐ No

If you answered yes, how was the funding critical to your (or others') career progression? If you answered no, explain why not. *

18. Was BrightFocus funding influential to your research focus (or that of other key personnel supported by the award), such as shaping the program of research and/or career choice in the disease area that was funded? *

☐ Yes ☐ No

If you answered yes, how was the funding influential to the focus of your (or others') research program? If you answered no, explain why not. *

19. What recognition did the findings of your BrightFocus funding lead to (select all that apply)? (If you were a mentor and don't have the requested information, please select "Other" and enter "Mentor" as your response.) *

- ☐ A prestigious scientific award such as: Nobel Prize, Gairdner Award, Lasker Award, Cogan Award, Proctor Medal, Potamkin Prize, ANA, etc.
- ☐ Membership in prestigious organizations, such as the of National Academies of Science, Engineering, and Math
- ☐ National or International board affiliations
- ☐ Professional promotion
- ☐ Other [please specify below]
- ☐ None

20. Please estimate the total amount of follow-on funding you received as a result of your BrightFocus funding (across awards). (If you were a mentor, please select the "Mentor" option.) *

- ☐ \$0-99,999
- ☐ \$100,000-499,999
- ☐ \$500,000-999,999
- ☐ \$1-1.99 million
- ☐ \$2-4.99 million
- ☐ \$5-9.99 million

- ☐ \$10-49.99 million
- ☐ \$50-99.99 million
- ☐ \$100+ million
- ☐ Mentor

21. Please share any other comments related to the funding you received from BrightFocus. And if anyone else benefited from the funding you received from BrightFocus, please specify and provide their contact information, if available.

This site is protected by reCAPTCHA Enterprise and the Google [Privacy Policy](#) and [Terms of Service](#) apply.

APPENDIX 2

BrightFocus Travel Fellowships & Conference Survey

Thank you for completing this survey for the BrightFocus Foundation (prior to 2013, the American Health Assistance Foundation), hereafter referred to as BrightFocus.

Purpose:

Over its history, BrightFocus has awarded more than \$300 million of groundbreaking research funding to thousands of individuals in 25 countries. Having recently celebrated 50 years of operations, BrightFocus is very interested in assessing the range of its impact from this remarkable history. As a recipient of funding from BrightFocus, we kindly request your response to this brief survey for travel fellows.

Feedback from all those who have been supported by BrightFocus is critical to ensuring the success of this assessment, as well as guiding future funding initiatives. Collecting feedback will not only provide valuable insight for BrightFocus but importantly will also demonstrate the impact to all those who have generously donated to BrightFocus.

We want to know what happened to you after you received your travel fellowship from BrightFocus or attended one of BrightFocus' signature Fast Track workshops (Alzheimer's Fast Track, Glaucoma Fast Track, Macular (AMD) Fast Track) or other scientific conference—Did you stay in the field? Did the fellowship experience, scientific learnings and/or networking opportunities impact your career trajectory or research focus? **We will be highlighting and publicizing several travel fellow survey respondents who present remarkable or extraordinary examples of how BrightFocus impacted their field of study and career trajectories as case studies.** So, please don't hold back on sharing your unique story! We'll also be sharing infographics and analyses of the results.

Approach:

The survey has two main sections: personal details and fellowship impact.

Some important response guidance:

- If you have received multiple awards from BrightFocus, your responses should only reflect the impact of the travel fellowship(s).
- If you attended a Fast Track meeting, but did not receive a BrightFocus Travel

Fellowship, then we would still like to hear from you on the impact that these events made in your scientific career.

- Please note that the survey must be completed in one sitting, so it may be beneficial to read through the whole survey first to get a sense of the questions.

- * denotes required question

If you experience any technical difficulties when filling out the survey, please email BrightFocus@aibs.org.

ABOUT YOU

1. What is your gender? *

- | | |
|---|-----------------------------------|
| ☐ Female | ☐ Male |
| ☐ Non-binary/Non-conforming | ☐ Transgender |
| ☐ Prefer not to answer | ☐ Other |

2. What is your race/ethnicity (select all that apply)? *

- | | |
|--|--|
| ☐ Aboriginal or First Nations | ☐ Alaska Native |
| ☐ American Indian | ☐ Asian |
| ☐ Black or African American | ☐ Hispanic or Latino |
| ☐ Middle Eastern or North African | ☐ Native Hawaiian or Pacific Islander |
| ☐ White or Caucasian | ☐ Prefer not to answer |
| ☐ Other [please specify below] | |

3. What career stage best describes your current position? *

- | | |
|-----------------------------|-----------------------------|
| ☐ Early | ☐ Mid |
| ☐ Late | ☐ Other |

4. In which sector do you currently work (or did you work at the time of retirement, if relevant)? *

- | | |
|---|---|
| ☐ Academia | ☐ Business/Industry |
| ☐ Communications | ☐ Government |
| ☐ Non-profit/Private Foundation | ☐ Public Policy/Legislation |
| ☐ Other | |

5. What is your current institutional/organizational affiliation? Include country, if outside the United States. *

6. What title best describes your current position (or was your last position at retirement)? *

- | | |
|---|--|
| ☐ Analyst | ☐ Assistant Professor |
| ☐ Associate Professor | ☐ Business Owner |
| ☐ Chief Scientific Officer | ☐ Consultant/Advisor |
| ☐ Doctor/Clinician | ☐ Executive Director/Chief Executive Officer |
| ☐ Instructor | ☐ Lecturer |
| ☐ Postdoctoral Fellow | ☐ Professor |
| ☐ Program Manager | ☐ Research Scientist |
| ☐ Science (Research) Director/Officer | ☐ Writer/Communications |
| ☐ Other | |

7. In what year(s) did you receive your Travel Fellowship or Attend a Fast Track (select the year(s) that apply)? *

- | | | | | | | | | |
|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| ☐ 2005 | ☐ 2006 | ☐ 2007 | ☐ 2008 | ☐ 2009 | ☐ 2010 | ☐ 2011 | ☐ 2012 | ☐ 2013 |
| ☐ 2014 | ☐ 2015 | ☐ 2016 | ☐ 2017 | ☐ 2018 | ☐ 2019 | ☐ 2020 | ☐ 2021 | ☐ 2022 |
| ☐ 2023 | ☐ 2024 | ☐ 2025 | | | | | | |

8. Indicate the scientific conference and/or society meeting(s) that you attended with BrightFocus support (select all that apply). *

- ☐ Alzheimer's Fast Track
- ☐ Glaucoma Fast Track
- ☐ Macular (AMD) Fast Track
- ☐ ISMND Biannual Meeting (Molecular Neurodegeneration Journal)
- ☐ AD/PD (Common Features of Neurodegenerative Disease)
- ☐ Society for Neuroscience
- ☐ Retinal Degeneration (RD) Meeting
- ☐ ISER Biannual Meeting
- ☐ ISER/BrightFocus Glaucoma Symposium
- ☐ ARVO
- ☐ FASEB
- ☐ Keystone Symposia on Targeting Dry Age-related Macular Degeneration
- ☐ Keystone Symposia on Alzheimer's Disease
- ☐ Canadian Association for Neuroscience
- ☐ Target AD
- ☐

9. Please provide any web links for lab sites, university profiles, social media pages.

IMPACT OF FELLOWSHIP, CONFERENCE PARTICIPATION AND/OR FAST TRACK TRAINING

10. Have you continued in the research field of your funded travel fellowship (i.e., Alzheimer's, Glaucoma, or Macular Degeneration)? *

☐ Yes ☐ No

11. Was the BrightFocus Travel Fellowship critical to your career progression? *

☐ Yes ☐ No

If you answered yes, how was the fellowship critical to your career progression? If you answered no, explain why not. *

12. Was the BrightFocus Travel Fellowship influential to your subsequent research focus, such as shaping your program of research and/or career choice? *

☐ Yes ☐ No

If you answered yes, how was the fellowship influential to the focus of your research program and/career choice? If you answered no, explain why not *

13. Did the BrightFocus Travel Fellowships provide networking opportunities for your research focus and/or career? *

☐ Yes ☐ No

If you answered yes, how did the fellowship foster networking opportunities? If you answered no, explain why not. *

14. Did the BrightFocus Travel Fellowships lead you to receive follow-on-funding in your research? *

☐ Yes

☐ No

15. Any other comments or information that you'd like to provide?

16. If you would like to provide an alternate email address for contacting you, please provide below. As noted in the instructions, we will be following up with select respondents to further highlight their stories.

This site is protected by reCAPTCHA Enterprise and the Google [Privacy Policy](#) and [Terms of Service](#) apply.

APPENDIX 3

BrightFocus Scientific Review Committee Survey

Thank you for completing this survey for the BrightFocus Foundation hereafter referred to as BrightFocus.

Purpose:

Over its history, BrightFocus has awarded more than \$310 million of groundbreaking research funding to thousands of individuals in 28 countries. Having recently celebrated 52 years of operations, BrightFocus is very interested in assessing the range of its impact from this remarkable history. As a current and/or previous member of a Scientific Review Committee (SRC) for BrightFocus, we kindly request your response to this brief survey.

Feedback from those who have participated in the BrightFocus review process and are familiar with its funding portfolio is critical to ensuring the success of this assessment. The feedback we collect will also be very important in guiding future plans and the direction of the foundation.

Approach:

The survey has two main sections: personal details and SRC feedback.

This survey is NOT anonymous and is linked to your email address.

Some important response guidance:

- If you have served on different SRCs for BrightFocus, your responses should reflect all experience.
- Please note that the survey must be completed in one sitting, so it may be beneficial to read through the whole survey first to get a sense of the questions.
- For reference, here is the information about our programs/award applications currently available to applicants on the BrightFocus website: <https://www.brightfocus.org/about/for-scientists/apply-for-a-research-grant/>
- * denotes required question

If you experience any technical difficulties when filling out the survey, please email BrightFocus@aibs.org.

ABOUT YOU

1. What is your gender? *

- ☐ Female ☐ Male
- ☐ Non-binary/Non-conforming ☐ Transgender
- ☐ Prefer not to answer ☐ Other

2. What is your race/ethnicity (select all that apply)? *

- | | |
|--|--|
| ☐ Aboriginal or First Nations | ☐ Alaska Native |
| ☐ American Indian | ☐ Asian |
| ☐ Black or African American | ☐ Hispanic or Latino |
| ☐ Middle Eastern or North African | ☐ Native Hawaiian or Pacific Islander |
| ☐ White or Caucasian | ☐ Other [please specify below] |
| ☐ Prefer not to answer | |

3. What title best describes your current position (or was your last position at retirement)? *

- | | |
|---|--|
| ☐ Assistant Professor | ☐ Associate Professor |
| ☐ Doctor/Clinician | ☐ Executive Director/Chief Executive Officer |
| ☐ Instructor | ☐ Lecturer |
| ☐ Postdoctoral Fellow | ☐ Professor |
| ☐ Program Manager | ☐ Research Scientist |
| ☐ Science/Research Director/Officer | ☐ Other |

4. In what fiscal year(s) did you participate on a Bright Focus Scientific Review Committee? (select the year(s) that apply)? *

- ☐ 2015 ☐ 2016 ☐ 2017 ☐ 2018 ☐ 2019 ☐ 2020 ☐ 2021 ☐ 2022 ☐ 2023
- ☐ 2024 ☐ 2025 ☐ 2026

5. Indicate which BFF program you participated in as an SRC member (select all that apply). *

- ☐ Alzheimer's Disease
- ☐ Glaucoma
- ☐ Macular Degeneration
- ☐ Other [please specify below]

SRC PARTICIPATION**6. Has participating in a BrightFocus SRC been helpful to your career progression? ***

- ☐ Yes ☐ No

If you answered yes, how was participation helpful to your career progression? If you answered no, explain why not. *

7. How would you rate your experience(s) on a BrightFocus SRC? *

- | | |
|-----------------------------------|--|
| ☐ Outstanding | ☐ Very Good |
| ☐ Average | ☐ Fair |
| ☐ Poor | ☐ Not completed full cycle yet |

Please describe your experience(s), whether positive or negative. *

8. Do you have any suggestions on changing the general procedures for application solicitation and review processes at BrightFocus? *

9. Looking into the future for BrightFocus, please assess the importance of these currently-offered and expired funding mechanisms. *

	Very Important	Important	Neutral	Unimportant	Very Unimportant
Innovative Research Grant Program Award (MDR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
New Investigator Grant Program Award (MDR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Postdoctoral Fellowship Award (ADR, MDR, NGR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Standard Award (ADR, MDR, NGR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Pilot Award (ADR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

	Very Important	Important	Neutral	Unimportant	Very Unimportant
Bold Ideas Initiatives/Special Opportunities Awards (ADR, MDR, NGR)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Travel Fellowship Award	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Ruth Salta Junior Investigator Achievement Award	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

If there is another BrightFocus Award type not listed above that you would like to include, please specify and provide an assessment of importance using the same assessment scale.

10. Looking into the future for BrightFocus, would you suggest any changes to its use of funds in supporting vision and neurocognitive research and the next generation of researchers in these fields? *

11. Are there any emerging and promising research finding that could become focus areas over the next few years? *

12. Given recent significant changes to US federal scientific research policies and funding budgets, how can BrightFocus best support scientists and the Alzheimer's, glaucoma and macular degeneration communities for the long-term? *

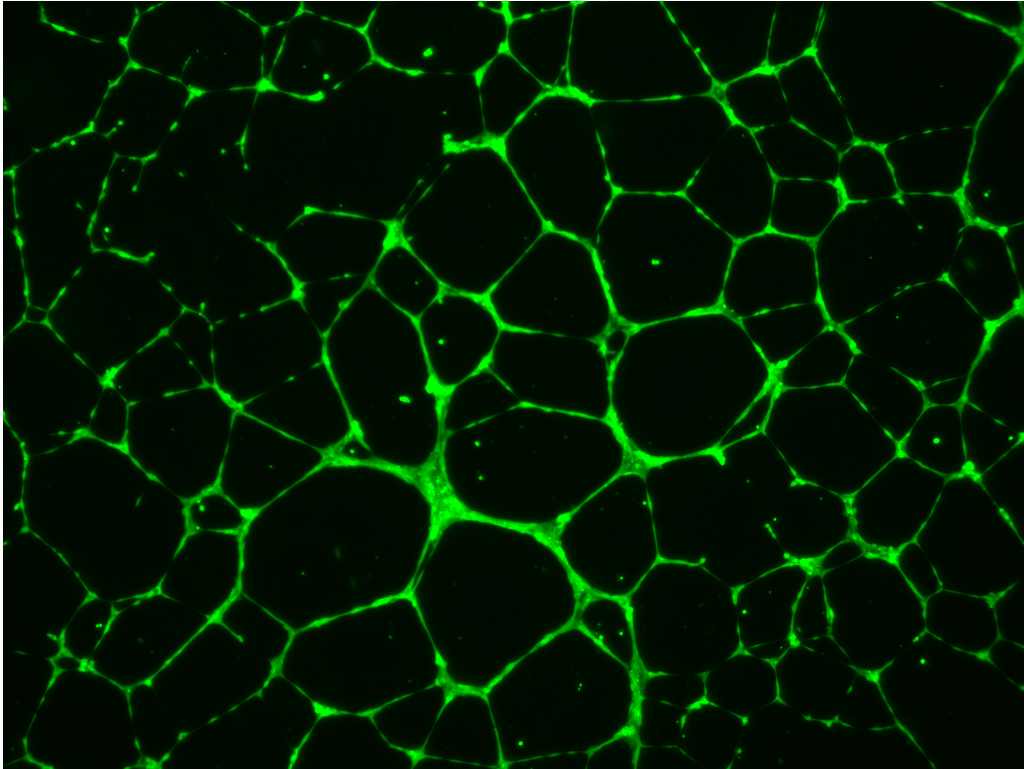
13. Have you or a US or international collaborator been personally affected by the current climate in research funding? *

- ☐ Yes, self
- ☐ Yes, US or international collaborator
- ☐ Yes, both (self and US or international collaborator)
- ☐ No

Please give a brief description, along with how BrightFocus could consider helping individuals in the short term. *

14. Any other comments or feedback that you'd like to provide?

This site is protected by reCAPTCHA Enterprise and the Google [Privacy Policy](#) and [Terms of Service](#) apply.



Tube formation of retinal endothelial cells in culture

Image courtesy of Dr. Daisy Shu from the University of New South Wales