The ARVO Foundation for Eye Research serves as a global catalyst for innovation, workforce development and collaboration in the field of vision research. We raise funds through corporate grants, fundraising events and the generosity of ARVO members who wish to support the next generation of eye and vision researchers.
656
ARVO Foundation Travel Grants awarded

434
Number of people who supported the Foundation

$345,730
value of research grants & fellowships

15
International Chapter Affiliates

$18,000
Invested in career development program to support junior researchers

4
New members of the Dowling Society

5
Publication Financial Assistance recipients

$79,500
Awarded to recognize and encourage innovative research
From the Chair

The ARVO Foundation helps to enable ARVO to support and recognize the membership through programs, grants, awards, education and career development. It is an honor to serve as Chair of the ARVO Foundation and to share with you the 2021 ARVO Foundation Annual Report.

The Annual Report highlights the support and growth that we have made. It is astonishing to me that throughout the pandemic and ARVO’s first fully virtual Annual Meeting, our community of eye and vision scientists did not waiver. Support for existing and increased funding opportunities have never been more important. Strong commitment from our donors allows us to continue to build on these opportunities.

We are especially grateful to our donors that supported members in a non-conventional year. I want to thank Erik van Kuijk and his wife, Virginia van Kuijk Brooke, for their 2021 Matching Gift which raised over $43,400 during the virtual ARVO Annual Meeting. Because of their contribution, as well as those of the individual donors, the ARVO Foundation raised over $156,000 which will provide travel grants for researchers to attend the 2022 Annual Meeting.

ARVO Foundation supports the general membership through opportunities such as publication financial assistance, various grants and awards, the Women’s Leadership Development Program and the Developing Country Eye Researcher Travel Fellowship. Please consider giving generously to continue to enhance the ARVO Foundation’s mission to serve as a global catalyst for innovation, workforce development and collaboration in the field of vision research.

I look forward to seeing you May 1 – 4 in Denver, CO for the 2022 ARVO Annual Meeting.

Joel S. Schuman, MD, FARVO
Chair, ARVO Foundation Board of Governors
The ARVO Foundation awarded 656 travel grants through 34 named funds in 2021. These travel grants underwrite the cost of attendance for the ARVO Annual Meeting, allowing young scientists to present their research and network with other eye and vision researchers from around the world. The ARVO 2021 Annual Meeting was virtual, and the ARVO Foundation was able to award more grants.

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- Qais Farjo, MD Memorial
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- Richard Newton Lolley
- Robert B. Barlow, Jr.
- Santen, Inc.
- Sarla P. Kothary Memorial
- Women in Eye and Vision Research (WEAVR)

Travel grant recipients at the ARVO 2019 Annual Meeting.
New Awards

Kreissig Award for Excellence in Retinal Surgery
Ingrid Kreissig, MD is a world-renowned retina specialist and pioneer in ophthalmology. She has devoted her decades-long career to improving the understanding of retinal surgical conditions and their treatments, specifically management of retinal detachments and their resulting long-term visual function.

The Kreissig Award includes a $30,000 honorarium and is given annually to recognize the next generation of investigators who seek to optimize functional outcomes for patients needing retinal surgery.

The inaugural award in 2021 was to a deserving recipient who has developed clinical insights into the long-term (greater than two years) surgical and functional outcomes after retinal detachment repair.

Subsequent awards (2022 onward) will have a broader focus, recognizing excellence in the understanding of the mechanisms of retinal disease requiring surgical management, innovative approaches to management, and/or outcomes of surgical treatment.

Inaugural Recipient
Rajeev Muni, MD
Vitreoretinal Surgeon
St. Michael’s Hospital/
The Hospital for Sick Children/
Kensington Eye Institute/
University of Toronto
Toronto, Canada

Point of View Award
The Point of View Award was established by the Fundació Punt de Vista, or Point of View Foundation, based in Spain, dedicated to advancing scientific research related to disease and injuries of the eye and visual system.

The award includes a $20,000 honorarium and recognizes an outstanding scholarly article published in a high-impact peer-reviewed journal during the previous calendar year related to efforts to restore vision through regenerative ophthalmology, biotechnology, whole eye transplantation or other approaches to the stated problem.

The intent of the Point of View Award is to recognize and incentivize significant research that may advance the ability to restore sight to those who are blind or have significant visual impairment.

Awardees
Dasha Nelidova, MBChB, PhD
Institute of Molecular and Clinical Ophthalmology
Basel, Switzerland

Botond Roska, MD, PhD
Institute of Molecular and Clinical Ophthalmology
Basel, Switzerland
ARVO/Alcon Early Career Clinician-Scientist Research Awards
These support researchers who are committed to careers as clinician-scientists. The $3,000 award recognizes significant research being presented at the ARVO Annual Meeting.

Kim Jiramongkolchai, MD
Kaiser Permanente
McLean, Va.

Effects of Fetal Hemoglobin on Systemic Oxygenation in Preterm Infants and the Development of Retinopathy of Prematurity

Dr. David L. Epstein Award
This $100,000 award is given in memory of David L. Epstein, MD to a well-established, senior level investigator with a documented history of conducting eye and vision research in glaucoma and a record of accomplishment in successfully mentoring clinician-scientists to independent research in academic careers.

Mentor: Jamie Craig, MBBS, FRANZCO, DPhil

Mentee: Owen Siggs, MD, DPhil
Flinders University
Adelaide, NSW, Australia

Investigating the utility of polygenic risk scores to prevent blindness in primary open-angle glaucoma

Bert M. Glaser, MD Award for Innovative Research in Retina
Given in memory of Bert M. Glaser, MD, this $10,000 award recognizes an early-career investigator who has made a novel discovery of a drug, technique or disease that impacted the understanding and/or treatment of a retinal disease or condition.

Yohei Tomita, MD, PhD
Harvard Medical School
Boston, Mass.

Pfizer Ophthalmics/Carl Camras Translational Research Award
This research award gives $12,000 to early-career researchers who exhibit excellence in research. Their discovery or observation must have led to, or have the promise of leading to, clinical applications.

Alex Huang, MD, PhD
Doheny Eye Institute,
University of California, Los Angeles
Los Angeles, Calif.

Oberdorfer Award in Low Vision Research
Named in honor of Michael D. Oberdorfer, PhD and supported by the Lighthouse Guild, this $1,250 award is given to an invited speaker at the ARVO Annual Meeting whose presentation is on a topic related to low vision.

Caroline C.W. Klaver, MD, PhD, FARVO
Erasmus Medical Center
The Netherlands

Epidemiology of AMD: From Beaver Dam to the Three Continents.
Award and Fellowship Recipients

**Ludwig von Sallmann Clinician-Scientist Award**
This $1,250 award for young clinician-scientists remembers Ludwig von Sallmann, MD, a distinguished international ophthalmologist and ophthalmic investigator, by recognizing an outstanding invited speaker at the ARVO Annual Meeting.

Sai Chavala, MD
Texas Christian University and The University of Northern Texas Health Science Center
Fort Worth, Texas

**Lewis Rudin Glaucoma Prize**
This prize, supported by the May and Samuel Rudin Family Foundation, provides a $30,000 award in recognition of an outstanding scholarly article on glaucoma during the previous year.

Pooja Teotia, PhD
Iqbal Ahmad, PhD
University of Nebraska
Omaha, Neb.

**Genentech Career Development Award for Underrepresented Minority Emerging Vision Scientists**
Supported by Genentech, this new award provides a two-year grant of $100,000 to an early-career underrepresented minority investigator. Recipients must have received their initial faculty appointment and are working to start an independent vision research program.

Elizabeth Zuniga-Sanchez, PhD
Baylor College of Medicine
Houston, Texas

**Mallinckrodt Uveitis Research Fellowship**
This fellowship provides one $45,000 research award to support a well-conceived research project focused on an aspect of uveitis or other inflammatory condition of the eye, including the understanding of the role and interplay of infections and intraocular inflammation. This award was established in 2019 and is supported by Mallinckrodt through the ARVO Foundation.

Shilpa Kodati, MD
National Eye Institute
Bethesda, Md.


**ARVO Foundation Collaborative Research Fellowships**
These $10,000 fellowships promote international scientific interactions and innovative research by pairing researchers from developing countries with well-established research scientists for a one-year collaborative project.

Wanjiku Mathenge, MBChB, MMed, MSc, PhD
University of Rwanda
Kigali, Rwanda

Sudhir H. Ranganath, PhD
Siddaganga Institute of Technology
Tumkur, India

Pablo Federico Barcelona, PhD
National University of Córdoba
Córdoba, Argentina
EyeFind Research Grantees

The EyeFind Research Grant Program provides supplemental funding of $5,000 per project to assist researchers with procurement of human eye tissue from eye banks for use in a well-conceived research project.

Frauke Coppieters, PhD
Ghent University, Ghent, Belgium
Eye bank: Biobank of the Antwerp University Hospital
*Design of a novel therapy for autosomal dominant inherited retinal diseases*

Steffi Daniel, PhD
UT Southwestern Medical Center, Dallas, Texas
*Determination of fibulin-3 expression and localization in human ocular tissues*

Martina Kropp, PhD
University of Geneva, Geneva, Switzerland
*iPS-derived RPE cell & human retina co-culture for toxicity and potency assays in intraocular medicine*

Jun Liu, PhD
Ohio State University, Columbus, Ohio
Eye bank: Lions Eye Bank of West Central Ohio
*Biomechanical correlations between cornea and optic nerve head*

Wenlin Zhang, MD, PhD
University of California, Los Angeles
Los Angeles, Calif.
*Quantitative super-resolution localization of SLC4A11 variants in human corneal endothelium in its native environment*

Luisa Holguin Colorado, PhD, OD
Queensland University of Technology, Brisbane, Qld., Australia
Australian Ocular Biobank
*Corneal epithelial dendritic cells: An association between in vivo corneal confocal microscopy and immunohistology*

Eileen Hwang, MD, PhD
University of Utah Moran Eye Center, Salt Lake City, Utah
*Age-related differences in the vitreous collagen fiber network*

Binapani Mahaling, PhD
Medical College of Wisconsin, Milwaukee, Wisc.
*Damage-Associated Molecular Patterns in Diabetic Retinopathy*

Heather Moss, MD, PhD
Stanford University, Stanford, Calif.
*Characterization of novel foveal pit pathology in multiple sclerosis*

Karen Peynshaert, PhD
Ghent University, Ghent, Belgium
*ICG-mediated photoablation of the inner limiting membrane to enhance retinal delivery after intravitreal injection*

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Research to Prevent Blindness

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Publications Financial Assistance Program Recipients

These grants provide no-cost publication to several individuals per year who need funding assistance to publish in any of ARVO’s three journals.

**Investigative Ophthalmology & Visual Science**
Nov. 2021, Volume 62, Issue 14
An Atlas of Heparan Sulfate Proteoglycans in the Postnatal Rat Lens
Corresponding authors: Frank J. Lovicu and Tayler F. L. Wishart

**Investigative Ophthalmology & Visual Science**
February 2021, Volume 62, Issue 2
Contrast Rivalry Paradigm Reveals Suppression of Monocular Input in Keratoconus
Corresponding author: Shrikant R. Bharadwaj

**Translational Vision Science & Technology**
May 2021, Volume 10, Issue 6
Generative Adversarial Network Based Automatic Segmentation of Corneal Subbasal Nerves on In Vivo Confocal Microscopy Images
Corresponding author: Erdost Yıldız

**Translational Vision Science & Technology**
April 2021, Volume 10, Issue 4
Intraocular Pressure Reduction Effect of 0.005% Latanoprost Eye Drops in a Hyaluronic Acid-Chitosan Nanoparticle Drug Delivery System in Albino Rabbits
Corresponding author: Ana Marie L. Rubenicia

**Translational Vision Science & Technology**
October 2021, Volume 10, Issue 12
Risk Assessment of Aerosol Generation During Vitreoretinal Surgery Using High Speed Imaging Amidst the COVID-19 Pandemic
Corresponding author: Chaitra Jayadev
Matching Gift Campaign

In 2021, Erik van Kuijk, MD, PhD, FARVO, and Virginia van Kuijk Brooke, RN, PhD, encouraged the ARVO community to help researchers by matching their generous gift of $20,201.

Erik van Kuijk made his first gift to the ARVO Foundation in memory of his friend Elizabeth Anderson, whose husband, Robert Eugene (Gene) Anderson, MD, PhD, FARVO, is a longtime ARVO member.

After his initial donation, van Kuijk purchased a table at the ARVO Foundation and Dowling Society Gala at the invitation of then Foundation Chair Nicolas G. Bazan, MD, PhD, FARVO.

He then decided to become more involved in the ARVO Foundation by becoming a Dowling Society member. He asked for his donation to specifically go toward the Elizabeth Anderson Travel Grant, so that an additional student could attend the ARVO Annual Meeting. At the time, the grant supported two young researchers.

A member of the ARVO Biochemistry/Molecular Biology (BI) Section, van Kuijk serves as professor and chair of the Department of Ophthalmology and Visual Neurosciences at the University of Minnesota. Elizabeth Anderson Travel Grantees present abstracts reviewed and accepted by the BI or Retinal Cell Biology Sections of ARVO.

With an interest in raising more funds, the van Kuijk’s designated their latest gift to go to the ARVO Foundation’s Matching Gift Campaign. During the ARVO 2021 Annual Meeting, $43,470 was raised from their donation and Matching Gift campaign contributors.
The Dowling Society

Dowling Society members have made a commitment to the ARVO Foundation of $10,000 or more. The ARVO Foundation welcomed four new members to the Dowling Society in 2021.

2021 Dowling Society members
Thomas A. Ciulla, MD, MBA
Leslie Hyman, PhD
SriniVas R. Sadda, MD, FARVO
Mary Ann Stepp, PhD, FARVO

Dowling Society members
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Jayakrishna Ambati, MD, FARVO
Robert E. Anderson, MD, PhD, FARVO
Joanne Angle*, MLS, MPA
Sally S. Atherton, PhD, FARVO and Robert Atherton
Robert B. Barlow*, PhD, FARVO and Patricia Barlow
Haydee E. P. Bazan, PhD, FARVO and Nicolas G. Bazan, MD, PhD, FARVO
Bernard Becker*, MD, FARVO
David C. Beebe*, PhD, FARVO and Mrs. Betsy Beebe, PA-C
Paul S. Bernstein, MD, PhD, FARVO and Ann Bernstein
Eliot L. Berson*, MD, FARVO and Kyra Kaplan-Berson
Roger W. Beuerman, PhD, FARVO
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Malinda E. C. Fitzgerald, PhD, FARVO
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Robert N. Frank, MD, FARVO
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Juan E. Gallo, MD, PhD, FARVO
Ronnie Glaser and Bert M. Glaser*, MD, FARVO
Israel A. Goldberg, PhD and Diane Goldberg
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Through our numerous projects and activities, the ARVO Foundation continues to make significant strides within eye research. Our ability to collaborate with corporate and foundation partners strengthens the impact of the ARVO Foundation in the vision community.

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$75,000 to $99,000
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■ University of Miami, Bascom Palmer Eye Institute
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■ American Macular Degeneration Foundation
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■ Eye Research Center
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The ARVO Foundation hosted its first virtual Gala during the ARVO 2021 Annual Meeting. All meeting attendees were invited to join the live, virtual event. Emceed by Julia Haller, MD, FARVO, of the Wills Eye Institute, the Gala provided an opportunity to welcome the Foundation's new chair, Joel Schuman, MD, FARVO, and to thank the outgoing chair, Paul Sternberg, MD, FARVO.

The Foundation was pleased to recognize the 2021 honorees, who made outstanding commitments to ARVO and the ARVO Foundation. The following honorees were recognized:

- Cheryl M. Craft, PhD, FARVO
- Chi Pui Calvin Pang, BSc, DPhil, FARVO
- Al Sommer, MHS, MD
- NIH National Eye Institute

Attendees received live updates on the progress toward the Matching Gift Campaign, made possible by a generous donation from Erik van Kuijk, MD, PhD, FARVO, and Virginia van Kuijk Brooke, RN, PhD.

ARVO Foundation was pleased to acknowledge and welcome new Dowling Society members. To welcome Dr. Schuman to his new board position, Dr. Sternberg arranged for Grammy nominated country musician Brandy Clark to perform. The ARVO's Got Talent contest winner, Sohaib Rufai, BMBS, BMedSc, MRes, of the NIHR, London, UK, was announced during the Gala.

Grammy-nominated Country musician Brandy Clark performed her hit “Like Mine.” ARVO's Got Talent winner Sohaib Rufai playing his guitar rendition of the Eagles’ “Hotel California.”

ARVO Foundation Honorees

Cheryl M. Craft, PhD, FARVO
Chi Pui Calvin Pang, BSc, DPhil, FARVO
Al Sommer, MHS, MD
NIH National Eye Institute
The Women in Eye and Vision Research (WEAVR) initiative was established to further develop and strengthen women seeking or pursuing careers in the visual sciences. WEAVR raises philanthropic dollars to support women through its annual event that’s held at the ARVO annual meeting. The featured speaker of the 2021 virtual event was Katherine High, MD, co-founder and former president of Spark Therapeutics, Inc. She presented on the topic of “Merging Discovery and Entrepreneurship” where she described her transition from being a professor and HHMI investigator to being a leader of a biotech company.

High started her career as a researcher of hemophilia/HIV at UNC Chapel Hill. She then set up a lab studying gene therapy for hemophilia at the University of Pennsylvania and then later set up a gene and cell therapy vector production facility at the Children’s Hospital of Philadelphia. Her program expanded its research to include AAV administration to gene mutations in inherited blindness, skeletal muscle, and the liver. After successful consultations with biotech, High was recruited to the startup company Spark Therapeutics and faced with the difficult decision to leave her research and her renewed HHMI grant.

Concerned with whether her research products would ever cross the finish line, High took the position as president and chief scientific officer of Spark. She went on to acknowledge her outstanding recruits at Spark and detailed her AAV manufacturing and licensing to the production of the novel gene therapy Luxturna. In 2019, Luxturna won the Prix Galien USA Best Biotech Product Award.

High concluded the WEAVR event by citing stark statistics of women vs. men in biotech:
- Less than 2% of start-up funding went to companies founded by women.
- Only 8.4% of venture principals are women.
- Harvard Business School reports that generally male entrepreneurs are asked about all the ways their company can succeed, while women are asked about all the ways they can fail.
- Faculty thinking: “most founders of the past have been men, so most successful startups are led by men, and thus the safe bet is to invest in men.”
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WEAVR chair Stella Robertson, PhD, FARVO, talking with 2019 WEAVR Luncheon attendees.
Financials

**Assets**
- Cash and equivalents: $1,100,839
- Investments: $6,797,515
- Receivable, net: $104,849
- Total assets: $8,003,203

**Liabilities and Net Assets**

**Liabilities**
- Accounts payable and accrued expenses: $636,168
- Deferred revenue: $87,100
- Total liabilities: $723,268

**Net Assets**
- Without donor restrictions: $4,090,471
- With donor restrictions: $3,189,464
- Total net assets: $7,279,935

**Total Liabilities and Net Assets**: $8,003,203

As of December 31, 2021

**Program expenses**

- Research Grants and Fellowships: 45.99%
- Education and Meetings: 13.77%
- Travel grants: 27.86%
- International Chapter Affiliates: 1.44%
- Awards: 10.93%