AUSTRALIAN
VISION RESEARCH

2024
Annual Report

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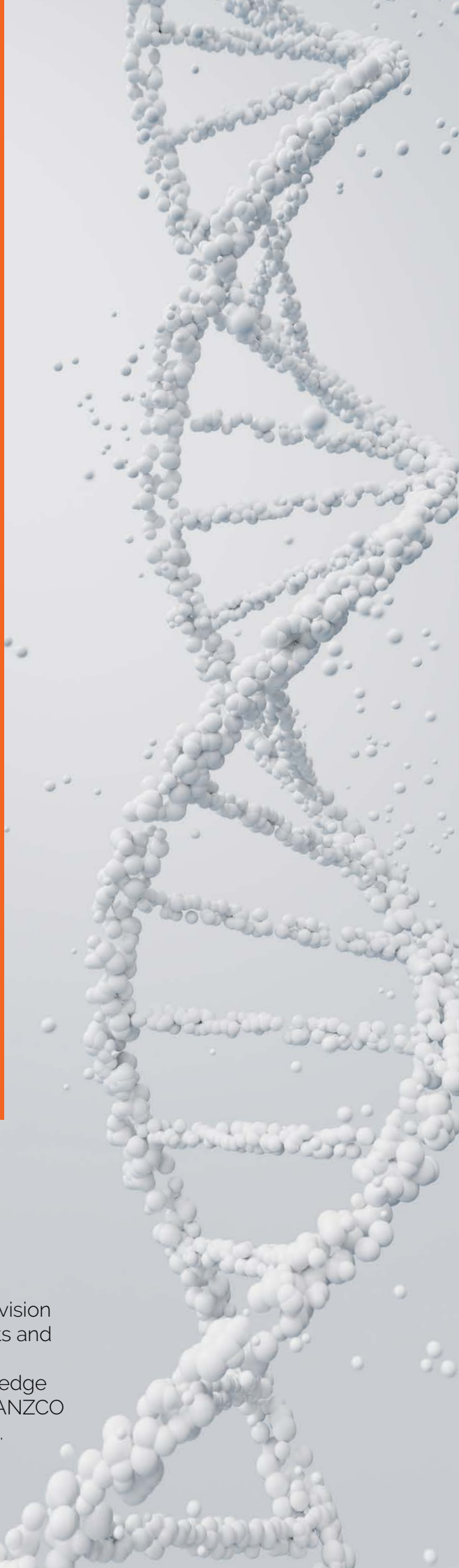


Our Vision

We seek to alleviate the burden from blindness and vision impairment through research that discovers new knowledge and improves patient outcomes and clinical practice.

Our Mission

We support eye and vision research that prevents and treats disorders and discovers new knowledge in partnership with RANZCO and our stakeholders.

Chair's Report

As Chairperson of Australian Vision Research, it is my pleasure to present the Annual Report for 2024, a year marked by significant achievements and exciting developments in our ongoing mission to advance vision science and support our community. Founded by ophthalmologists for ophthalmologists, the Ophthalmic Research Institute of Australia (ORIA) continues its mission under the name Australian Vision Research (AVR). While the name has changed, our mission remains the same—funding clinical ophthalmic research and supporting innovations in eye and vision health to discover new knowledge and advance patient outcomes.

2024 – 2025 Grants Round

In 2024, the board of Australian Vision Research approved over $670,000 for allocation towards 12 projects for 2025. The amount of money available each year varies, and in 2024 Australian Vision Research considered applications for grants of up to $60,000 for a research period of one year.

Priming grants were awarded to a team to support RANZCO fellows who are new to research, with strategic guidance from the Research Advisory Committee during the grant preparation process.

I would like to acknowledge the outstanding contributions of the Research Advisory Committee, led by Professor Alex Hewitt (Committee Chair) and Associate Professor Sam Fraser-Bell (Committee Secretary), for their dedication and leadership in overseeing the grants process as well as the committee members who volunteer many hours of their time.

Additionally, numerous external reviewers, along with the Australian Vision Research executive team, provided invaluable support to the Research Advisory Committee. Their meticulous review of applications ensured that Australian Vision Research maintained the highest standards of governance and integrity in managing the grants program.

Launch of the Australian Vision Research Excellence in Research Awards

A highlight of the year was the successful launch of the Australian Vision Research Excellence in Research Awards. These prestigious awards were established to recognise and celebrate the outstanding contributions of individuals in the field of vision research. With the support of our members and partners, we were able to honour the incredible work being done across Australia, bringing visibility to the innovative research and clinical advancements that are helping to transform lives.

The introduction of these awards is an important step forward in fostering further excellence within the field. The Australian Vision Research Board of Directors encouraged all members to nominate deserving colleagues or self-nominate for any of the following prestigious Australian Vision Research Excellence Awards:

- Emerging Ophthalmic Researcher Award
- Women in Ophthalmic Research Award
- Distinguished Service to Ophthalmic Research Award

We received some outstanding applications, and I'm pleased to congratulate the following recipients of the Australian Vision Research Excellence in Research Awards in 2024:

- Associate Professor Weng Chan (Emerging Ophthalmic Researcher Award)
- Professor Lyndell Lim (Women in Ophthalmic Research Award)
- Professor Paul Mitchell (Distinguished Service to Ophthalmic Research Award)

Continued Relationship with RANZCO

Our ongoing collaboration with the Royal Australian and New Zealand College of Ophthalmologists (RANZCO) remains a cornerstone of our work. This partnership has been invaluable in advancing the scientific knowledge and clinical practice in the field of ophthalmology. The shared commitment to improving vision health and supporting research efforts has enabled us to work together on various grants and initiatives, and we look forward to building on this strong relationship in the years ahead.

We would like to acknowledge the outgoing president of RANZCO, Dr Grant Raymond, for his contributions and collaboration with Australian Vision Research and welcome the incoming president, Professor Peter McCluskey AO. We look forward to working with him in the year ahead.

Excellent Year for Investments

2024 also proved to be a successful year for our investments, allowing us to continue strengthening our financial foundation. The sound management of our investment portfolio has enabled us to direct more resources towards our key programs, including funding cutting-edge research and supporting the professional development of those working within the vision science field. We remain focused on ensuring the long-term sustainability of Australian Vision Research, so that we can continue our mission for many years to come.

At the end of 2024, the balance of Australian Vision Research's portfolio stood at $7,228,852 for the DW Research Trust Fund and $9,906,705 for the General Fund.

Free Lifetime Memberships for Retired Fellows

In recognition of the tremendous contributions of our retired fellows, we are proud to announce the introduction of free lifetime memberships for retired members. This initiative serves to honour their legacy within the vision research community, while also ensuring that they remain an integral part of Australian Vision Research. It is our hope that this gesture will foster continued engagement and provide opportunities for our retired members to stay connected to the important work being done in the field.

Australian Vision Research Insights Videos

In a bid to capture and celebrate the rich history of Australian Vision Research and its impact over the past 72 years, we produced over a dozen video interviews with Australian Vision Research members. These interviews provide a powerful testament to the remarkable contributions of our community, showcasing the personal and professional journeys of those who have shaped our organisation. These videos will serve as an inspiring record for future generations, illustrating the profound difference Australian Vision Research has made in the field of vision research.
To view the Australian Vision Research Insights series, visit:
https://australianvisionresearch.org/videos

Governance

Following the previous year's governance review, 2024 saw the addition of two independent non-executive directors to the board. After a thorough recruitment process, the board appointed Leann Meiers and Payal Mahindroo. Their extensive experience in fundraising and law will complement the skills of the elected members on the Board.

I wish to thank all the members of our board of directors, including my fellow office bearers Dr Jennifer Fan Gaskin (Company Secretary) and Clinical Associate Professor Paul Healey (Honorary Treasurer).
I also thank our team consisting of Phillip Cenere (CEO), Alla Serhan (Fundraising), and Betsy Pineda (Administration and Grants) for their efforts in ensuring that we deliver on our mission and strategic goals.

Thank you! Donors, Supporters and Volunteers

Our work would not be possible without the generous support of our members, sponsors, and the broader community. On behalf of the board, I extend our heartfelt thanks to the Royal Australian and New Zealand College of Ophthalmologists NSW Branch (RANZCO NSW), the Perth Eye Foundation, the Australian and New Zealand Society of Retinal Specialists (ANZSRS), and the DW Fund for their invaluable contributions.
As Australian Vision Research approaches its 73rd year, we continue to welcome new sponsors and corporate partners. We are actively seeking partnerships with businesses, foundations, and stakeholders passionate about advancing ophthalmic research. Partnership opportunities range from $1,500 to $100,000, with customisable packages available.

For more information, visit www.australianvisionresearch.org or contact our team at supporters@australianvisionresearch.org.
Fellows and members of the public can also explore our resources page to support vision research while enhancing patient engagement. Learn more at: www.australianvisionresearch.org/members.

As we reflect on the successes of 2024, we remain deeply grateful for the ongoing support and dedication of our members, partners, and stakeholders. This year has been one of growth, innovation, and collaboration, and I am excited to see what the future holds for Australian Vision Research and the vision research community.

On behalf of the board, I would like to extend my sincere thanks to all who have contributed to our success. Together, we are making a lasting impact on the lives of those affected by vision loss, and we look forward to continuing this important work in the years to come.

Professor Stephanie Watson OAM FARVO
Chair, Australian Vision Research

RANZCO's President Report

The period July 2024 to June 2025 has been marked by rapid change, or at the very least, the threat of rapid change. This has taken both positive and negative forms. For much of this period, the College staff have been busy embedding a new Continuing Professional Development (CPD) ecosystem. This was largely in response to feedback that the existing system was cumbersome for Fellows to use and influenced by the changes to CPD by the regulators in Australia and New Zealand. The College's first foray into Human Centred Design and structured Project Management yielded excellent results. Testament to the improvements achieved, our Fellows set new records around CPD compliance in 2024. Feedback about the new system has been overwhelmingly positive.

Another high of 2024 was the Annual Scientific Congress, with some 2,222 delegates attending. The vast majority of attendees presented, in person, in Adelaide, with some watching the live stream from afar. The Congress was marked by an overwhelmingly positive vibe and high rates of engagement. The RANZCO Plenary showcased the extensive ground being covered by Vision 2030 and beyond and its various working groups, many of whom met at Congress. Indeed, some 45 committee and working group meetings occurred at Congress. At the Graduation and Awards Ceremony, there were 10 awards presented, typifying the high levels of engagement by those nominating awardees and those being presented with awards. These were:

Honorary Fellowship: A/Prof Svetlana Cherepanoff
College Medal: Dr Diana Semmonds AM and Prof Glen Gole AM
Distinguished Service Medal: Dr Arthur Karagiannis, Prof Justine Smith AM, A/Prof Penelope Allen, Prof Robyn Guymer AM and Dr Clayton Barnes
Federal Meritorious Service Award: Prof Adrian Fung and Dr Nisha Sachdev

During the year, Journal Impact Factor (JIF) scores were released. RANZCO's scientific journal, Clinical and Experimental Ophthalmology, has risen to a JIF of 5.0. This impressive feat is largely attributable to the tireless work of outgoing Editor in Chief, Professor Justine Smith, and her team of Editors and Reviewers.

Throughout the year, RANZCO's advocacy efforts saw a range of collaborative care workshops take place under the auspices of Vision 2030 and beyond. These innovative workshops pull together a wide breadth of members of the eye care team to discuss pragmatic solutions to protracted issues. Not to be outdone, in New Zealand, the Eye Health National Clinical Network pulled together a range of eye health groups to pursue its strategic objective is to build an eye service that embeds Te Tiriti principles and articles to improve health outcomes for Māori. It aims to improve equitable quality eye health by building a strong eye health workforce and culture.

Back in Australia, the National Health Practitioner Ombudsman's undertook consultation and reviews regarding its reforms to Australia's specialist medical training sites. The College is cautiously optimistic that these reforms will usher in a uniform system of training accreditation across sites that house multiple specialties, however, it holds concerns about the impact on the College's ability to resource reforms.
Less optimism was felt during the year as the expedited specialist international medical graduate (SIMG) pathway in Australia, as recommended by the Kruk Report was implemented. While this has not as yet been implemented for ophthalmology, the College's Board and I were kept busy attending various meetings and updates to understand the problems this pathway seeks to solve. The expedited pathway takes a one-size-fits-all approach to workforce across all of medicine, assuming overall shortage of practitioners. This is not the case for ophthalmology in Australia, where reforms to expand rural training places and support for rural and remote practitioners would be better solutions to the problem we do face: maldistribution. Moreover, the underlying premise of the expedited pathway is that other countries have substantially comparable training systems. In fact, RANZCO's comprehensive generalist training programme is unique and helps to create a workforce that can treat and manage our diverse and geographically dispersed populations.

In 2024–25, ANZEF disbursed $420,000, funding eight new projects and 85 scholarships to address eye health inequities across Australia, New Zealand and the Pacific, empowering healthcare providers across the region to deliver sustainable, culturally safe eye care.
ANZEF launched its third annual grant round in 2025 and, through strategic initiatives like First Nations, Māori, and Pacific ophthalmology scholarships, innovative mentoring programs, and university partnerships, continued to grow the future ophthalmology workforce, with five Māori and Pacific and five First Nations trainees currently in the VTP program.

Overall, the July 2024 to June 2025 reporting period has been a productive and exciting one for the College. While some changes have been challenging and will remain so, the College is in a good position to shape it's future and that of the eye health training environment and workforce. We will continue to act to ensure RANZCO is on the front foot to advocate for investment, research and change that benefits our patients and the profession of ophthalmology.

It would be remiss of me not to thank immediate Past President, Dr Grant Raymond, for his role as President and Chair of our Board, which came to an end at the 2024 Congress. He was able to achieve much in his two years as President and in the face of rapid change.

Prof Peter McCluskey AO
President, RANZCO

Our Board

Prof Stephanie Watson
OAM FARVO, CHAIR

Clin A/Prof Paul Healey
TREASURER

Dr Jennifer Fan-Gaskin
SECRETARY

Dr William Glasson AO
RANZCO NOMINEE

Prof Alex Hewitt

Dr David Sousa

A/Prof Sam Fraser-Bell

Prof Stuart Graham

Prof Matthew Simunovic

Ms Payal Mahindroo
INDEPENDENT DIRECTOR

Ms Leann Meiers
INDEPENDENT DIRECTOR

Executive

Philip Cenere, CEO

Inaugural AVR Excellence Awards 2024

In 2024, Australian Vision Research proudly launched the inaugural AVR Excellence Awards, honouring individuals who have made significant contributions to ophthalmic research and the advancement of eye health in Australia.

These awards celebrate professional accomplishments across research, clinical innovation, leadership and service, recognising those who have driven meaningful impact for patients and the field of ophthalmology.

Award recipients were selected for their outstanding achievements, including advancing new treatments, improving patient outcomes, fostering collaboration, and demonstrating a sustained commitment to ethical practice and innovation in ophthalmic research. Their leadership and dedication continue to inspire progress and uphold the highest standards in the profession.

We are proud to recognise the following awardees:

Associate Professor Weng Chan
Emerging Ophthalmic Researcher Award

Professor Lyndell Lim

Women in Ophthalmic Research Award

Professor Paul Mitchell

Distinguished Service to Ophthalmic Research Award

Grants approved in 2024 for funding in 2025

Through a rigorous peer review process, we awarded twelve research initiatives that demonstrate excellence, innovation and the potential to reduce the burden of blindness.

Chief Investigator	Other Investigators	Research Project Title	Grant Name and Amount
Dr Jocelyn Drinkwater	A/Prof Angus Turner, Prof Pearse Keane, Dr Yukun Zhou, Dr Mark Chia, Ms Kerry Woods, Dr Qiang Li	Using RETFound in an Aboriginal Australian population	Perth Eye Foundation Grant $59,477
Prof Robert Casson	Dr Glyn Chidlow, A/Prof Riccardo Natoli, Dr Adrian Cioanca	Mapping the Cell-Specific Bioenergetic Profile of Human Retina	ANZSRS $56,500
Dr Flora Hui	Prof Keith Martin	ECOI on Tomorrow: Harnessing Vascular Changes for Early Glaucoma Progression Detection	AVR Grant $58,951
Dr Anna Yao Mei Wang	Prof Robyn Guymer	Investigating pericytes in the retina and choriocapillaris of healthy and AMD eCOI	AVR Grant $60,000
Dr Devaraj Basavarajappa	Dr Nitin Chitranshi, Dr Aparna Raniga, Dr Deepa Viswanathan	A Novel Peptide-Based Treatment for Glaucoma	AVR Grant $58,885
Dr Jianghui Wang	Dr Doron Hickey, Dr Anai Gonzalez Cordero	Visionary Engineering: Crafting an Advanced AAV Vector for Inherited Retinal Disease Gene Therapy	AVR Grant $60,000
Ms Lisa Lombardi	Dr Jonathan Yeoh, Dr Myra McGuinness	Validation of a new functional assessment tool -paving the way for innovative treatments and technologies in vision impairment.	AVR Grant $59,998
Dr Di Huang	A/Prof Fred K. Chen	Targeting ABCA4 Intronic Mutations: Characterizing Stargardt Disease-Causing Mutations for Splice Intervention Therapeutics	Perth Eye Foundation Grant $60,000
Dr Clare Fraser	Dr Jesse Gale	Novel trial outcomes for optic disc drusen	AVR Grant $51,070
Dr Stewart Lake	Dr Stewart Lake	Developing a test for retinal detachment	AVR Grant $59,923
Dr Michele Madigan	Prof Peter McCluskey	Unravelling melanocyte networks in the human choroid and suprachoroid	RANZCO NSW Grant $39,100
Dr Jeremy Tan	A/Prof Mitchell Lawlor	Real-world visual field outcomes of trabecular bypass minimally-invasive glaucoma surgery devices	AVR Priming Grant $55,360

Our Research Advisory Committee

We sincerely thank our panel of expert advisors for their invaluable contribution to the grant assessment process, ensuring rigorous review and thoughtful guidance in advancing vision research across Australia.

Prof Alex Hewitt (Chair)
A/Prof Samantha Fraser-Bell (Secretary)
A/Prof Vivek Gupta
A/Prof Graham Wilson
A/Prof Penelope Allen
A/Prof Raymond Wong
Dr Elisa Cornish
Dr Michele Madigan
Dr John Wood
Dr Thomas Campbell
Dr Kenneth Ooi
Dr Samantha Lee
Dr Livia Carvalho
Dr Danial Roshandel

Our External Reviewers

We also thank the external reviewers who generously contributed their time and expertise, helping to ensure a fair and robust grant review process.

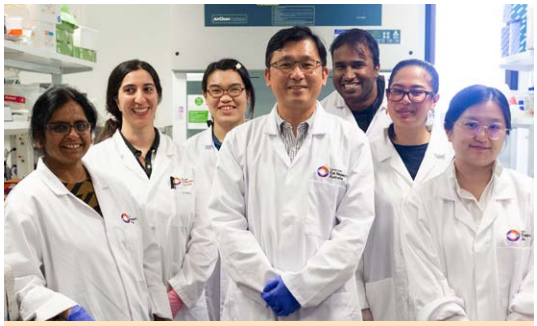
Prof Ronald Silverman
Prof Mark Gillies
Prof Stuart Graham
Prof Paul McMenamin
Prof Paul Thomas
Prof Fiona Stapleton
A/Prof Nicole Carnt
A/Prof James Elder
A/Prof Gerald Liew
A/Prof Rosie Dawkins
Mr Abadh Chaurasia
Dr Oliver Comyn
Dr Elizabeth Conner
Dr Ling Zhu
Dr Nitin Chitranshi
Dr Shiwani Sharma
Dr John Leaney
Dr Shaoxue Zeng
Dr Elsa Chan
Dr Alexis Ceecee Britten-Jones
Dr Fred Chen
Dr Jelena Kezic
Dr Joshua Barton
Dr Yvette Wooff
Dr Lisa Zhuoting Zhu
Dr Zahra Tajbakhsh
Dr Dania Qatarneh
Dr Samran Sheriff
Dr Alexander Newman
Dr William Yates
Dr Jereme Spiers
Dr Luis Alarcon-Martinez
Dr Roderick O'Day
Dr Geoffrey Chan
Dr Mohammad Soleimani
Dr Doron Hickey
Dr Dov Hersh
Dr Devaraj Basavarajappa
Dr Ushasree Pattamatta
Dr Rachael Niederer

Progress Reports from the grant cycle 2022 - 2023

Perth Eye Foundation Grant

RNA base editing for treatment of inherited retinal diseases

Chief Investigator: A/Prof Liu Guei-Sheung
Co-investigators: Dr Livia Carvalho, Prof Bang V. Bui, Dr Lewis Fry, Dr David Cordeiro Sousa



Aim
This project aims to demonstrate the feasibility of using a genetic technology known as "CRISPR RNA base editing" to correct genetic mutations and treat inherited retinal diseases.

Methods
RNA base editing is designed to correct single-base mutations in RNA transcripts. In this proof-of-concept study, we employ our in-house developed CRISPR-Cas13bt3 RNA base editor to – for the first time – directly correct single base mutations found in two IRDs (Leber congenital amaurosis and Usher syndrome type 2A).

Conclusion
Through this study, we have shown proof-of-concept for a novel gene editing treatment strategy that offers a widely applicable treatment option for IRDs, one that can adequately address the heterogeneous nature of the disease.

Lay summary of outcomes
Inherited eye diseases are significant contributors to global blindness, and there is no cure to date. This project demonstrated that RNA gene editing technology allows precise correction of the underlying genetic mutations for gene therapies. This unprecedented approach would revolutionise current gene therapy approaches.

Key Results
In this project, we developed an adeno-associated virus (AAV)-compatible RNA base editor (dCas13bt3-ADAR2) to target a nonsense mutation found in Rpe65 gene, causative for Leber congenital amaurosis. To establish the potential of our RNA base editor, we investigated its capacity to correct the Rpe65 mutation efficiently and specifically against the only other established AAV-compatible RNA base editor, known as CRISPR-Cas-inspired RNA targeting system (CIRTS)-ADAR2. Firstly, we screened various guide (g)RNAs to identify the optimal gRNA for each system using a dual-luciferase assay. Both dCas13bt3-ADAR2 and CIRTS-ADAR2 were then delivered with their optimal gRNAs and a mutant Rpe65 gene into human retinal pigment epithelium cells. We have thereby shown that the dCas13bt3-ADAR2 proves far superior to CIRTS-ADAR in correcting the Rpe65 mutation. It can also achieve up to 36% editing in human cell lines, as well as recovery of Rpe65 protein in human retinal pigment epithelium cells.

We then further employed dCas13bt3-ADAR2 RNA base editor against a nonsense mutation found in Ush2a gene, causative for Usher syndrome type 2A. Our work demonstrated the feasibility of targeting Ush2aW3947X variants with dCas13bt3-ADAR2 base editor. Our screening revealed the 28th position mismatch (50-28) produced the most efficient editing with dCas13bt3-ADAR2. The 50-28 sgRNA also resulted in editing efficiencies of up to 70%.

Implications for Clinical Practice/Science and Future Research
In this project, we demonstrated the feasibility of using the CRISPR-Cas13bt3 RNA base editor to correct the genetic mutations to treat IRDs. The outcome of the project will help develop a better therapeutic approach. This study will also greatly impact the management of IRDs, as it will introduce a novel and versatile strategy for other genetic diseases. We are now expanding this study to investigate the feasibility of using this RNA base editor to correct the mutations in ex vivo (retinal organoids) and in vivo (IRD mouse) models of IRDs.

Presentations/Publications
Invited talk [Gene editing technique to save sight-CRISPR view on genetic eye disease]. The 39th Asia-Pacific Academy of Ophthalmology (APAO) Congress, Bali, Indonesia

Posters presentation [Harnessing CRISPR-Cas RNA base editing to treat inherited retinal disease]. The 2024 ARVO Annual Meeting, Seattle, USA

ANZSRS Grant

Engineering novel gene therapy and delivery system for correcting inherited retinal diseases

Chief Investigator: Dr Sandy Hung
Co-investigators: Dr Rajendra KC, Jon Ruddle, Leszek Lisowski, Andrew Deans

Aim
To develop an enhanced viral vector-based delivery system for CRISPR tools to correct inherited retinal disease patient-specific mutation.

Methods
Utilizing directed evolution technology to select for lentiviruses with improved transduction efficiency in retina cells.

Key Results
- We have established the human donor retinal explant culture and mouse systems for the experiments.
- Designed and generated non-binding lentivirus controls
- Established flow cytometry selection systems and downstream processing and verification protocols.

Conclusion
We are currently still in the process of screening for the improved evolved lentiviruses. With the identification of good lentivirus candidates, we will move on to test the candidates for their ability to package gene editors and its ability to edit clinically relevant mutations.

Implications for Clinical Practice/Science and Future Research
This project addresses a critical challenge in personalized gene therapy through the development of improved delivery systems to enable more efficient targeting and transduction into retinal cells. The project is part of a larger scheme where the improved delivery candidates will be further tested in clinically relevant disease mutation models for inherited retinal diseases. Utilizing patient specific iPSC and mouse disease models will allow for accelerated preclinical assessment of correction in clinically relevant cell types and to identify potential safety issues.

Establishment of the pipeline in this proposal will allow for the rapid generation and testing of gene editors and delivery vectors for not only genetic diseases of the retina but can be further extended to genetic diseases in other cell types and organs.

Lay summary of outcomes
We aimed to develop improved gene therapy delivery systems that can package larger cargo and deliver to the disease affected cells in the eye with higher efficiency than currently available systems.

Presentations/Publications
- Australian and New Zealand Society of Retinal Specialist (ANZSRS) Meeting (2023, Melbourne, Australia) invited talk.
- Hope in Sight Community Forum, World Sight Day (12th October 2023), presenter

NSW RANZCO and Priming Grant

FRB! 2.0: Linking imaging to clinical registry outcomes to improve understanding of progression of age-related macular degeneration

Chief Investigator: Dr Hehta Hemal
Co-investigators: Prof Adam Dunn, Vuong Nguyen

Aim
To compare how two different approaches to measure macula atrophy (MA) progression, total MA lesion size and distance of the foveal centre point (FCP) to the nearest MA lesion edge, predict future visual acuity (VA) decline.

Methods
Patients provided opt-in consent. A computer scientist assisted in the process of tagging retinal images with an FRB! identifier to allow linkage with the clinical data. Heidelberg Engineering optical-coherence tomography (OCT) images were assessed by two certified graders in a reading centre setting. MA lesion area was measured semi-automatically from fundus autofluorescence images using Region Finder software. The distance from the edge of the nearest MA lesion to the FCP was manually measured using in-built calipers. Each eye was assessed at two visits, at baseline and three years later, with VA data from the Fight Retinal Blindness! registry.

Conclusion
While there was statistically significant moderate negative predictive value in changes in distance in relation to VA loss, there was no correlation between any measure of area and VA over three years. Distance to the FCP may be a more useful clinical parameter than MA area in predicting VA loss. Larger scale studies are required to corroborate these findings.

Key Results
There were 19 eyes of the initial 70 that met inclusion criteria for this pilot study. Linear regression analysis identified a statistically significant relationship between distance change and VA loss (coefficient (95% CI) = -4.31 (-6.28, -2.35), $R2 = 0.56$, $p < 0.001$), however there was no statistically significant relationship found between area change and VA loss (coefficient (95% CI) = -3.50 (-12.8, 5.84), $R2 = 0.04$, $p > 0.1$). Similar findings were made with Pearson correlation calculations, with log transformed change in distance having a negative correlation with VA (Pearson $r = -0.746$, $p < 0.001$), and no correlation with area change using square-root transformation ($r = -0.189$, $p > 0.1$).

Implications for Clinical Practice/Science and Future Research
Change in area of geographic atrophy was used as the primary endpoint for phase 3 clinical trials of 2 intravitreal complement factor inhibitors that have been approved by the FDA in the USA. The European Medicines Agency has declined an application for pegcetacoplan in Europe because not enough evidence of functional benefit has been provided. It could be that the primary endpoint of clinical trials for therapies that slow GA needs to be modified.
We are currently increasing the sample size. The plan is to submit this data for publication once the sample size reaches 50 eyes. Once data is published, we will be looking towards applying for a NHMRC partnership grant to scale the project.

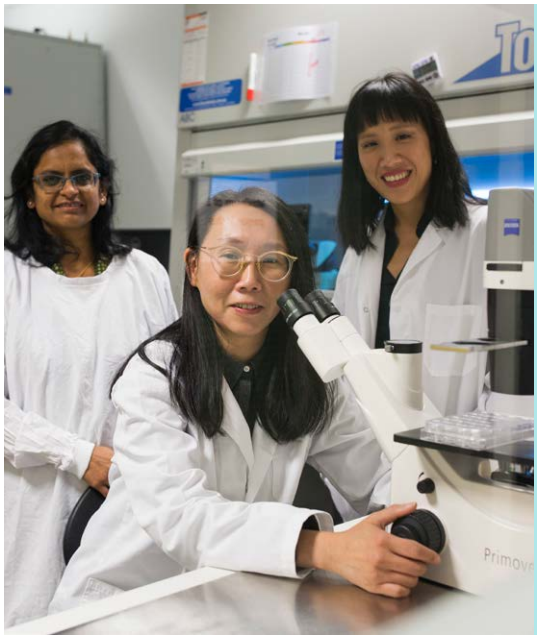
Lay summary of outcomes
There are treatments in development to slow down progression of the most common form of late-stage age-related macular degeneration, related to wear-and-tear of the central retina. This study suggests that the way we measure disease progression could better relate to patient function if we measured the distance of the nearest lesion to the centre of vision rather than the total area of lesions. This has implications for how we design clinical trials as well as select patients most likely to benefit from emerging treatments.

Conference abstracts:
- RANZCO Annual Congress 2023 – AVR Symposium.
- Australian Registries Symposium 2023.
- RANZCO Annual Congress 2024 – 2 x abstracts submitted.
- 2 x FRB! 2.0 manuscripts in progress. Submission planned by end of 2024.

AVR Grant

Preventing glaucoma blindness – a new drug to control postoperative scarring

Chief Investigator: Dr Jen Fan Gaskin
Co-investigators: Dr Elsa Chan



Aim
To compare the efficacy of DiOHF eye drops against MMC in preventing inflammation and scarring in a preclinical rabbit model of Glaucoma Filtration Surgery (GFS).

Methods
GFS was performed in New Zealand white rabbits receiving 1) 3-times daily eye drops of DiOHF, 2) vehicle eye drops after surgery, or 3) a single intraoperative treatment of MMC. Blebs were imaged immediately following surgery and on days 7, 15, 21 and 28 for clinical examination. On day 28 eyes were harvested to assess collagen deposition, expression of α-SMA, oxidative stress, angiogenesis, fibroblast activity and inflammation in the conjunctiva/Tenon's layer.

Conclusion
Treatment with DiOHF reduced conjunctival scarring and angiogenesis in rabbits with GFS that was comparable to MMC. Oxidative stress levels did not vary between the treatment groups. DiOHF may be a safer and more effective wound modulating agent than conventional antifibrotic therapy in GFS.

Key Results
At 7-days and 28-days post-GFS, MMC-treated blebs were more ischaemic than DiOHF- or Vehicle-treated blebs. At day 28, DiOHF treatment significantly suppressed collagen accumulation, CD31 expression (angiogenesis), Vimentin expression (fibroblast activity) and CD45 expression (inflammation) compared to vehicle control. No difference was observed in 3-Nitrotyrosine (oxidative stress) or α-SMA expression (myofibroblast activation) between treatment groups.

Implications for Clinical Practice/Science and Future Research
The results of this study provide compelling evidence that DiOHF is an effective wound modulating agent for GFS. We are exploring the efficacy of DiOHF in other forms of preclinical GFS models such as conjunctival minimally- invasive glaucoma surgery to strengthen the validity of our data. We are also exploring different drug preparations to optimise delivery of DiOHF in preparation for a clinical trial.

Lay summary of outcomes
Scarring is the commonest cause of failure of glaucoma filtration surgery. In our study, novel antioxidant DiOHF reduces inflammation and scarring in this operation to a similar degree to conventional treatment and causes less cell death, indicating it may be a safer and more effective solution to glaucoma surgery scarring.

Presentations/Publications
- Fan Gaskin JC, Pasvanis Z, Kong RCK, Shah M, Edgley A, Chan EC. Preventing Glaucoma Blindness – a new drug to control postoperative scarring, Australian Vision Research Plenary Session. RANZCO Annual Scientific Congress, November 2023
- Pasvanis Z, Fan Gaskin JC, Kong RCK, et al. Inhibitory effects of 3',4'-dihydroxyflavonol in a rabbit model of glaucoma filtration surgery. ANZGS Annual Meeting, Feb 2024
- Fan Gaskin JC, Pasvanis Z, Kong RCK, et al. Inhibitory effects of 3',4'-dihydroxyflavonol in a rabbit model of glaucoma filtration surgery. ARVO Annual Scientific Meeting, May 2023
- Pasvanis Z, Kong RCK, Shah M, Edgley A, Chan EC, Fan Gaskin JC. Inhibitory effects of 3',4'-dihydroxyflavonol in a rabbit model of glaucoma filtration surgery. In submission to International Journal of Molecular Science, July 2024

AVR Grant

Precisely Mapping Choroidal Tumour Margins

Chief Investigator: Dr Roderick O'Day
Co-investigators: Dr Xavier Hadoux, Prof Peter van Wijngaarden

Aim
To assess the accuracy of choroidal tumour margin delineation by standard imaging techniques (colour fundus photography, scanning laser ophthalmoscopy, and optical coherence tomography) and examine the potential application of hyperspectral retinal imaging in this setting.

Methods
Participants with a choroidal naevus or melanoma were imaged standard imaging techniques and hyperspectral retinal imaging during a single visit. Images across multiple technologies were precisely aligned to enable comparison. Margins were delineated by two ocular oncologists. The accuracy of each of the techniques and hyperspectral retinal imaging was examined.

Conclusion
Choroidal tumour margin assessment can be inaccurate when using conventional imaging technologies, particularly in patients with non-pigmented choroidal tumours. A multimodal imaging approach reduces these inaccuracies and hyperspectral retinal imaging shows promise in assessment of choroidal tumour margins.

Key Results
84 choroidal tumours were imaged. Multimodal imaging (in particular the addition of optical coherence tomography) was more accurate than unimodal imaging at assessing tumour margins. Tumours with low pigmentation were poorly assessed by colour fundus photography and better by scanning laser ophthalmoscopy. Hyperspectral retinal imaging was as accurate at assessing tumour margins as the best available imaging technologies.

Implications for Clinical Practice/Science and Future Research
A follow-on study has commenced to confirm and expand on our findings. Future studies will assess whether hyperspectral retinal imaging can identify the imaging predictors of choroidal naevi growth.

Lay summary of outcomes
Ophthalmic imaging technology has transformed the management of patients with benign and malignant eye tumours over the past 20 years. This study used Australian-developed software to better image the hard to identify tumours and a novel technology (hyperspectral retinal imaging) shows excellent promise in being able to assess choroidal tumours.

Presentations/Publications
- O'Day R. Australian Vision Research 2023 Grants Presentation. RANZCO Annual Congress. October 2023, Perth, Australia.
- O'Day R, Hadoux X, Dang D, van Wijngaarden P. Precisely mapping choroidal tumour margins. ARVO Annual Conference. May 2023, New Orleans, USA.

AVR Grant

Engineering a native cornea from spare-parts

Chief Investigator: Prof Nick Di Girolamo
Co-investigators: Mijeong Park, John Males

Aim
A cornea fabricated from tissue removed after laser surgery.

Methods
Lenticule acquisition throughout the year. Microscopy assessments and overlap with physiological and functional readouts.

Conclusion
We made major inroads into addressing the aims of our proposal to investigate its biological, structural, and optical properties in vitro including populating it with relevant corneal epithelial and endothelial cells and modifying its shape and size. Thus, we are poised to conduct ex vivo transplantation investigations in organ-culture then test different constructs as grafts in preclinical animal models.

Lay summary of outcomes
There is a global shortage of suitable donor tissue, with only 1 cornea available for every 70 individuals in need. This demand/supply imbalance has placed enormous pressure on finding replacement tissues. Tissue engineering has played a big part in identifying biocompatible, synthetic, native and blended biomaterials that can be used to fabricate cornea equivalents.

We identified a human cornea-derived tissue which bypasses many adversities that plague medical devices, synthetic analogues, and animal products. This tissue is essentially normal, derived from young, otherwise healthy individuals, and is a waste product from a common laser refractive surgery called Small Incisional Lenticule Extraction.
Through this grant, we have used this tissue as the fundamental building material from which to bioengineer a 'cornea-in-a-dish'.

Presentations
- A native scaffold for corneal epithelial regeneration. XXV Biennial Meeting of the International Society for Eye Research (ISER). February 2023
- A native scaffold for corneal epithelial regeneration. School of Biomedical Sciences seminar series. March 2023
- A cornea-derived scaffold for regenerating corneal epithelia in limbal stem cell deficiency. Association for Research in Vision and Ophthalmology (ARVO). May 2023.

AVR Grant

Trabecular Meshwork Cell-Specific Mapping of Intraocular Pressure Associated Gene Networks

Chief Investigator: Prof Alex Hewitt
Co-investigators: Prof Joseph Powell, Dr Seyhan Yazar

Aim
The specific aims of this work were to undertake single cell RNA-seq profiling of trabecular meshwork cells without and without exposure to dexamethasone, and then fine map IOP associated loci.

Methods
We performed single cell expression quantitative trait loci (eQTL) mapping in TMW cells collected from 74 people (45 males, 29 females) donors. Following isolation and culture with or without dexamethosone, a total of 316,799 singlet cells were captured and underwent RNA sequencing.

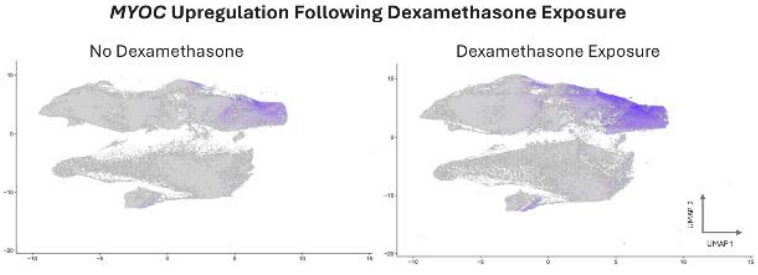
Key Results
Differential gene expression analysis revealed 63 upregulated (log2 fold change >3) and 17 downregulated (log2 fold change >3) genes following dexamethasone exposure. A total of 164,378 cis acting eSNPs and 6,178 eGenes were identified. The causal variants at several IOP and glaucoma-associated loci were definitively mapped using colocalization.

Conclusion
Understanding the genetic underpinnings of IOP regulation through an improved understanding of the molecular pathways involved in TMW homeostasis will facilitate novel therapeutic development.

Implications for Clinical Practice/Science and Future Research
This research provided crucial new insights into how genetic variants in trabecular meshwork cells influence intraocular pressure regulation, and uncovered molecular pathways involved in steroid exposure. Current work is now investigating the effects of these genes in steroid responsive glaucoma and future research will be directed at the direct perturbation of these pathways in the exploration of new therapeutic interventions, offering more effective and tailored treatments for glaucoma.

Lay summary of outcomes
High eye pressure (IOP) is the sole modifiable risk factor for glaucoma, a leading cause of blindness. We studied eye drainage cells, identifying genetic variants and genes affected by steroids that regulate IOP, offering insights into new glaucoma treatments.

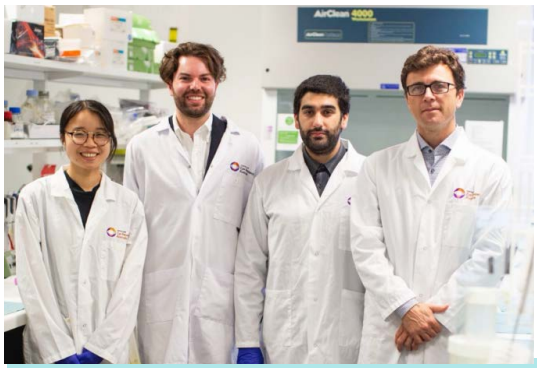
Presentations/Publications
This work was presented at the 2024 Annual Scientific meeting of Australian and New Zealand Glaucoma Society (Thomas Guinan, Helena Liang, Sandy Hung, Rajendra KC, Alexander Barnett, Primrose Mandalawatta, Kirsten Fairfax, David A Mackey, Stuart MacGregor, Jamie E Craig, Alex W Hewitt. Dissecting the Genetic Determinants of Intraocular Pressure.) and is currently under review.



AVR Grant

Visualising the axovascular response in glaucoma: a revolutionary new method to measure single axonal and capillary function in the living optic nerve.

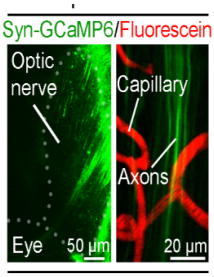
Chief Investigator: Dr Luis Alarcon Martinez
Co-investigators: Prof Keith Martin



Aim
Visualize and correlate interactions between capillaries and neurons of the optic nerve, including axonal functional responses.

Methods
Two-photon laser Scanning Microscopy in live mice expressing genetically encoded calcium indicators to visualize axons and capillaries while presenting relevant visual stimuli.

Conclusion
Optic nerve visualization and functional assessment with Two-Photon Laser Scanning Microscopy is possible in living mice.



In vivo TPLSM

Fig. 1. In vivo imaging of the optic nerve with two-photon laser scanning microscopy (TPLSM). Axons expressed GCaMP6 (green), and vessels were labeled with fluorescein (red).

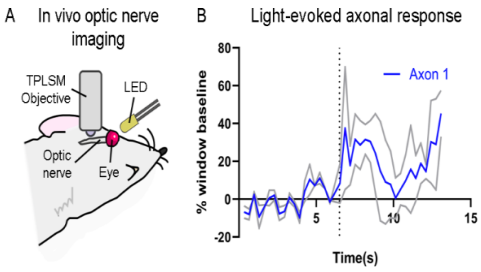


Fig. 2. A) Setup to record light-evoked axonal responses in living mice with two-photon laser scanning microscopy (TPLSM). B) Light-evoked axonal response measured in the optic nerve of animals expressing the genetically encoded calcium indicator GCaMP6f. Grey traces are individual responses. Blue line is the average response.

Key Results
We have developed the **first method for the imaging of the optic nerve in living animals with Two-Photon Laser Scanning Microscopy**. This method allows the simultaneous visualization of single axons and capillaries in the optic nerve of living mice (figure 1). We can perform functional assessment, obtaining that axons show spontaneous and light-evoked responses (figure 2).

Implications for Clinical Practice/Science and Future Research
Our results allow us to record single-axon function and axon-capillary interaction in the optic nerve, including the recently discovered inter-pericyte tunneling nanotubes (IPTNTs), which will be very valuable in the study of optic nerve-related pathologies such as glaucoma. Accordingly, we have started in vivo axonal and vascular assessment in animals with glaucoma.

Lay summary of outcomes
The Visual Neurovascular Unit at CERA has developed for the first time a method to visualize the optic nerve, which carries the visual information from the eye to the brain. This method will be essential in the study of eye diseases such as glaucoma, where the optic nerve is damaged.

Presentations/Publications
1.Alarcon-Martinez L, Shiga Y, Villafranca-Baughman D, Cueva Vargas JL, Vidal Paredes IA, Quintero H, Fortune B, Danesh-Meyer H, Di Polo A. Neurovascular dysfunction in glaucoma. Prog Retin Eye Res. 2023 Nov;97:101217. doi: 10.1016/j.preteyeres.2023.101217. Epub 2023 Sep 30. PMID: 37778617.
2. Hannah McDonald, Jesse Gardner-Russell, Luis Alarcon-Martinez. Orchestrating Blood Flow in the Retina: Interpericyte Tunnelling Nanotube Communication. Book chapter in "Intercellular and Interorganellar Transfer and Communication in Biology and Medicine". DOI : 10.1007/978-3-031-62036-2. (Accepted).
3. Hannah McDonald, Jesse Gardner-Russell, Peter van Wijngaarden, Keith Martin, Luis Alarcon Martinez. The Royal Australian and New Zealand College of Ophthalmologists International Meeting (RANZCO) (Perth, Australia). October 2023. Interpericyte tunneling nanotube complexity in the retina. *AUSTRALIAN VISION RESEARCH BEST PAPER & CERA TRAVEL AWARD.
4.- Gardner-Russell, Jesse, Chang, Hojin, Wimmer, Verena, Rogers, Kelly, Bui, Bang V, van Wijngaarden, Peter, Martin, Keith R, Alarcon-Martinez, Luis. The Association for Research in Vision and Ophthalmology "ARVO" (Seattle, WA). May 2024. Interpericyte tunneling nanotubes regrow after transient ischemia. *ARVO TRAVEL GRANT & MEMBER-IN-TRAINING (MIT) WINNER.

AVR Grant

Myopia in children – a result of inadequate melatonin production and circadian rhythm dysfunction?

Chief Investigator: A/Prof Ranjay Chakraborty
Co-investigators: A/Prof Richard Mills, E/Prof Leon Lack, Dr Hannah Scott, Prof Nicola Anstice, Dr Deepa A. Taranath

Aim
To examine the differences in circadian rhythm timing, systemic melatonin production, sleep patterns, and habitual day-and-night-time light exposure between myopic and non-myopic children, aged 8–15 years.

Methods
Refractive error and ocular parameters were examined using standard clinical instruments. Circadian rhythm timing was assessed by measuring the dim light melatonin onset (DLMO) under dim lighting (<10 lux) in a sleep lab. 6-sulphatoxymelatonin (aMT.6S), a major melatonin metabolite in urine, was analyzed to assess total melatonin production from overnight urine samples. Sleep patterns and habitual light exposure were tracked using wrist-worn actigraphy monitors.

Key Results
This study showed for the first time that young myopic children have significantly delayed circadian timing and reduced overnight melatonin production compared with non-myopic children. Myopic children also had delayed sleep onset, delayed wake-up time, shorter sleep duration and poorer sleep quality compared to non-myopic children.

Conclusion
Our results suggest a potential link between circadian rhythm dysfunction and myopia development in children.

Implications for Clinical Practice/Science and Future Research
Clinicians should take a holistic approach to understanding and managing myopia, considering sleep and circadian disruptions in children with or developing myopia. These results highlight the need to evaluate sleeping habits and nighttime light exposure in children to ensure normal eye growth regulation and prevent myopia. Based on our findings, morning bright light therapy and/or early evening melatonin administration could normalize sleep patterns and circadian timing, potentially mitigating myopia development and progression in children.

We have recently completed 12-month longitudinal assessments of refractive error and circadian function in these children to determine whether differences in total melatonin output, melatonin circadian timing, and sleep quality are associated with greater eye elongation and faster myopia progression. Data from the AVR grant has been used to apply for another Channel 7 Children's Research Foundation grant in 2024, which is currently under review. This data will also support our application for an NHMRC Clinical Trials and Cohort Studies Grant in 2025.

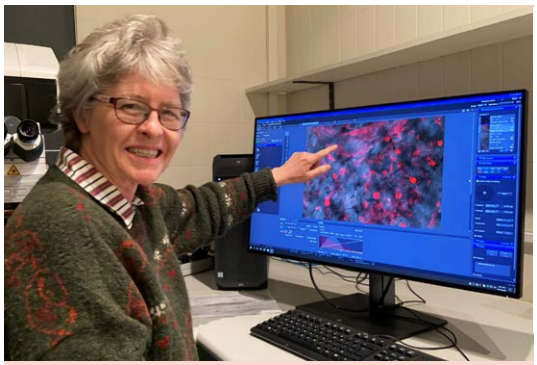
Lay summary of outcomes
Children with myopia have significantly delayed circadian timing, reduced overnight melatonin production, delayed and shorter sleep, and poorer sleep quality compared to normal-sighted children. These findings support further investigation of circadian dysregulation as a novel risk factor for childhood myopia.

Presentations/Publications
Chakraborty R, Seby C, Scott H, Tang V, Kemps E, Anstice N, Juers E, Lovato N, Taranath DA, Mills RA, Lack LC. Delayed melatonin circadian timing, lower melatonin output, and sleep disruptions in myopic, or short-sighted, children. Sleep. 2024 Jan 11;47(1):zsad265. doi: 10.1093/sleep/zsad265.

AVR Grant

Expression of novel opsins in the human choroid?

Chief Investigator: A/Prof Michele Madigan
Co-investigators: Prof Peter McCluskey



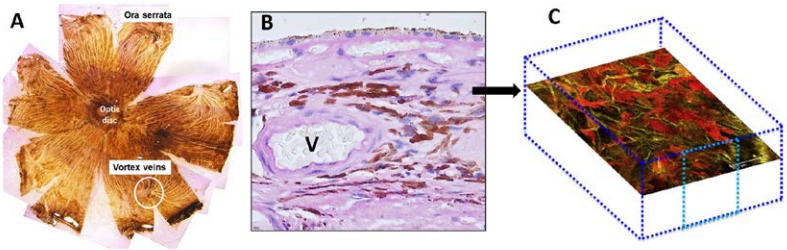


Figure 1. (A) Human choroid flatmount showing vessels (white 'lines') surrounded by melanocytes. (B) Choroid cross section showing melanocytes surrounding a large choroid vessel (V). In (C) a Z-stack image from choroid mid-stroma (2-photon microscopy), showing melanocytes (red) and extracellular matrix fibres (collagens, elastin (yellow).

Aim

Our study aimed to establish if human choroid cells (especially pigmented cells - melanocytes) express novel photopigments or opsins (Opsin3, OPN3) and if these cells can respond to blue light stimulation, noting that blue light is 'sensed' by OPN3.

Methods

To identify cells expressing OPN3, human donor eye tissues and cultured human eye choroid cells, were studied with immunolabelling and confocal microscopy. We also established a tissue culture system to explore blue light exposure effects on OPN3+ choroid cells, including melanocytes. We assessed blue light effects on cell growth and protein regulation, melanin production, plus undertook transcriptomic and gene pathway analyses.

Key Results

Human choroid showed populations of OPN3+ cells, notably melanocytes, fibroblasts and some blood vessel endothelial cells. Blue light decreased melanocyte metabolism without cell death but increased intracellular melanin, especially around cell nuclei. Transcriptomics indicated that blue light induced gene pathways that can protect melanocytes against oxidative stress and 'dampen' immunity/inflammation.

Conclusion

Adult human choroid contains populations of OPN3+ melanocytes, and unexpectedly, OPN3+ fibroblasts and vascular endothelial cells. Choroid melanocytes exposed to blue light showed melanin collected around the nuclei (perinuclear accumulation) akin to photoprotective responses seen in UV-exposed skin melanocytes. Gene pathway analysis post-blue light indicated regulation of oxidative stress and inflammation pathways in choroid melanocytes. The function(s) of OPN3+ choroid cells is complex, and how light influences choroid cell-mediated responses is being explored.

Implications for Clinical Practice/Science and Future Research

Clinically, human choroid responses to inflammation, oxidative stress, and blood flow are increasingly recognized to directly impact retinal health and function. Choroid cells that express novel light-sensing molecules that may affect tissue oxidative stress or regulate blood flow has implications for conditions such as myopia, melanoma or posterior eye inflammation.

Lay summary of outcomes

We showed that the human eye choroid contains populations of pigment cells and blood vessel cells that express a novel blue light 'sensing' molecule (OPN3). A (blue) light-sensitive choroid is intriguing and suggests new roles for choroid cells in eye conditions such as myopia or melanoma.

Presentations/Publications

Wu C-L, Zhu L, Chen Y, Conway RM, Madigan MC. The effects of visible and blue light exposure on growth and melanogenesis of ocular melanoma cell lines. Acta Ophthalmol. 100: S267, 2022. (Talk)

Madigan MC. Emerging from the darkness: cells in the choroid that detect light? RANZCO Congress Australian Vision Research Plenary Session, Perth October 2023. (Invited talk)

Madigan MC, Wu C-L, Cioanca VA, Conway RM. Insights into human choroid melanocytes and stromal cells. Acta Ophthalmol. 102: S279, 2024. (Talk and poster)

Madigan MC. Human Choroidal melanocytes, Opsin3, and the effects of blue light exposure. European Society for Pigment Cell Research Meeting Marseilles France October 15th, 2024. (Talk and poster)

Directors' Report

Directors' Report
31 December 2024

The directors present their report on The Ophthalmic Research Institute of Australia operating as Australian Vision Research for the financial year from 1 January 2023 to 31 December 2024.

1. General information

Directors

The names of the directors in office at any time during, or since the end of, the period are:

Names	Position
Prof Stephanie Watson, NSW Chair	Chair
Dr Jennifer Fan Gaskin, Vic	Secretary
A/Prof Paul Healey, NSW	Treasurer
A/Prof Sam Fraser Bell, NSW	Board Member
Prof Stuart Graham, NSW	Board Member
Prof Alex Hewitt, TAS	Board Member
A/Prof Peter Van Wijngaarden,Vic (retired 2/11/2024)	Board Member
Dr William (Bill) Glasson AO, QLD	RANZCO Nominee
Dr Matthew Simunovic, NSW	Board Member
Dr David Sousa, Vic (appointed 28/09/2024)	Board Member
Ms Payal Mahindroo, Independent non-executive director (appointed 15/06/2024)	Independent Director
Ms Leann Meiers, Independent non-executive director (appointed 12/06/2024)	Independent Director

Directors have been in office since the start of the financial period to the date of this report unless otherwise stated.

Principal activities

The principal activity of The Ophthalmic Research Institute of Australia during the financial period was to provide funds for ophthalmic research.

No significant changes in the nature of the Company's activity occurred during the financial period

Members' guarantee

The Ophthalmic Research Institute of Australia is a company limited by guarantee. In the event of, and for the purpose of winding up of the company, the amount capable of being called up from each member and any person or association who ceased to be a member in the period prior to the winding up, is limited to $ 10 for members that are corporations and $ 10 for all other members, subject to the provisions of the company's constitution.

Operating results and review of operations for the year

Operating result

The surplus of the Company for the financial period after accounting for other comprehensive income was $1,188,913 (2023: $ 1,962,229 surplus).

Directors' Report
31 December 2024

Meetings of directors

During the financial year, 3 meetings of directors (including committees of directors) were held. Attendances by each director during the year were as follows:

	Directors' Meetings	
	Number eligible to attend	Number attended
Prof Stephanie Watson, NSW Chair	3	3
Dr Jennifer Fan Gaskin. Vic	3	2
A/Prof Paul Healey, NSW	3	3
A/Prof Sam Fraser Bell, NSW	3	2
Prof Stuart Graham, NSW	3	3
Prof Alex Hewitt, TAS	3	3
A/Prof Peter Van Wijngaarden,Vic (retired 2/11/2024)	3	2
Dr William (Bill) Glasson AO, QLD	3	2
Dr Matthew Simunovic, NSW	3	1
Dr David Sousa, Vic (appointed 28/09/2024)	1	1
Ms Payal Mahindroo, Independent non-executive director (appointed 15/06/2024)	2	2
Ms Leann Meiers, Independent non-executive director (appointed 12/06/2024)	2	1

Indemnification and insurance of officers and auditors

No indemnities have been given or insurance premiums paid, during or since the end of the financial year, for any person who is or has been an officer or auditor of The Ophthalmic Research Institute of Australia.

Directors' Report
31 December 2024

2. Other items

Events after the reporting date

No matters or circumstances have arisen since the end of the financial period which significantly affected or may significantly affect the operations of the Company, the results of those operations or the state of affairs of the Company in future financial years.

Future developments and results

Likely developments in the operations of the Company and the expected results of those operations in future financial years have not been included in this report as the inclusion of such information is likely to result in unreasonable prejudice to the Company.

Benefits received directly or indirectly by directors

No director of the company has since the end of the previous financial year received or become entitled to receive a benefit not disclosed in the accounts as directors' emoluments by reason of a contract made by the company or a related corporation with the directors, or with a firm in which he or she has a substantial financial interest.

Auditor's independence declaration

The lead auditor's independence declaration in accordance with section 307C of the *Corporations Act 2001*, for the period ended 31 December 2024 has been received and can be found on page 4 of the financial report.

Signed in accordance with a resolution of the Board of Directors:

Director: DocuSigned by: Stephanie Watson 9E87860497994E2...
Prof Stephanie Watson, NSW Chair

Director: DocuSigned by: Paul Healey A80CD1D6E0D149E...
A/Prof Paul Healey, NSW

Dated 30 June 2025

The Ophthalmic Research Institute of Australia

ABN 37 008 393 146

Auditor's Independence Declaration under Section 307C of the Corporations Act 2001 to the Directors of The Ophthalmic Research Institute of Australia

I declare that, to the best of my knowledge and belief, during the period ended 31 December 2024, there have been:

(i) no contraventions of the auditor independence requirements as set out in the *Corporations Act 2001* in relation to the audit; and

(ii) no contraventions of any applicable code of professional conduct in relation to the audit.

Signed by:
Andrew Fisher
AAF6D20261524AE...

Andrew Fisher FCA, Partner (auditor registration number 306364) on behalf of
BG Assurance Pty Ltd, Chartered Accountants
Authorised audit company registration number 294178 (ACN 115 749 598)

30 June 2025

Melbourne, Australia.

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Locked Bag 50, Hawthorn VIC 3122
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Statement of Profit or Loss and Other Comprehensive Income

For the Year Ended 31 December 2024

	2024	2023
	$	$
Investment Income	**1,683,682**	727,818
Trust Distribution Income	**-**	31,612
RANZCO Fee Income	**120,000**	103,000
Donation Income	**163,832**	170,850
Bequest	**291,152**	1,291,901
Membership fee	**189,250**	193,055
Other Income	**146,721**	127,228
Total Income	**2,594,637**	2,645,464
Grants awarded	**(679,264)**	(586,095)
Employee Expenses	**(175,588)**	(159,337)
Administration expenses	**(346,785)**	(253,226)
Director of Research VIC	**(219,138)**	(154,569)
Surplus for the year	**1,173,862**	1,492,237
Net fair value movements for available-for-sale financial assets	**(54,961)**	469,992
Other comprehensive income for the year, net of tax	**(54,961)**	469,992
Total comprehensive Surplus for the year	**1,118,901**	1,962,229

Statement of Financial Position
As At 31 December 2024

	Note	2024 $	2023 $
ASSETS			
CURRENT ASSETS			
Cash and cash equivalents	4	**1,569,303**	2,102,647
Trade and other receivables	5	**340,286**	345,346
Investments	6	**15,720,299**	13,589,034
TOTAL CURRENT ASSETS		**17,629,888**	16,037,027
NON-CURRENT ASSETS			
Property, plant and equipment		**1,603**	2,777
TOTAL NON-CURRENT ASSETS		**1,603**	2,777
TOTAL ASSETS		**17,631,491**	16,039,804
LIABILITIES			
CURRENT LIABILITIES			
Other liabilities	7	**1,989,973**	1,596,831
Provisions	8	**55,319**	35,675
Income received in advance	9	**60,000**	-
TOTAL CURRENT LIABILITIES		**2,105,292**	1,632,506
NON-CURRENT LIABILITIES			
TOTAL LIABILITIES		**2,105,292**	1,632,506
NET ASSETS		**15,526,199**	14,407,298
EQUITY			
Research Fund	10	**4,221,308**	3,930,156
Settled Funds	11	**472,556**	472,556
Financial Asset Revaluation Reserve	12	**1,336,274**	1,391,235
Capitalised Profit on re-arrangement of investments, capital distribution & transfers		**7,426,618**	7,426,618
Retained Surplus		**2,069,443**	1,186,733
TOTAL EQUITY		**15,526,199**	14,407,298

Statement of Changes in Equity

For the Financial Year Ended 31 December 2024

December 2024

	Reserves and Research Fund	Settled Funds	Realised Profits on Capital Distributions and Transfers	Financial Assets reserve	Retained earnings	Total
	$	$	$	$	$	$
Balance at 1 January 2024	**3,930,156**	**472,556**	**7,426,618**	**1,391,235**	**1,186,733**	**14,407,298**
Surplus for the period	**-**	**-**	**-**	**-**	**1,173,862**	**1,173,862**
Unrealised movement in investments	**-**	**-**	**-**	**(54,961)**	**-**	**(54,961)**
Transfer to / (from) Reserves	**291,152**	**-**	**-**	**-**	**(291,152)**	**-**
Balance at 31 December 2024	**4,221,308**	**472,556**	**7,426,618**	**1,336,274**	**2,069,443**	**15,526,199**

December 2023

	Research Fund	Settled Funds	Realised Profits on Capital Distributions and Transfers	Financial Assets reserve	Retained earnings	Total
	$	$	$	$	$	$
Balance at 1 January 2023	2,638,254	472,556	7,426,618	921,243	986,397	12,445,068
Surplus for the period	-	-	-	-	1,492,238	1,492,238
Unrealised movement in investments	-	-	-	469,992	-	469,992
Transfer to / (from) Reserves	1,291,902	-	-	-	(1,291,902)	-
Balance at 31 December 2023	3,930,156	472,556	7,426,618	1,391,235	1,186,733	14,407,298

Statement of Cash Flows

For the Financial Year Ended 31 December 2024

	Note	December 2024 $	December 2023 $
CASH FLOWS FROM OPERATING ACTIVITIES:			
Dividends Received		**1,747,251**	1,890,236
Trust Distributions		**550,499**	212,773
Other Revenue		**230,570**	323,664
RANZCO - Reimbursement of membership fees		**120,000**	103,000
Commissions		**(89,574)**	(79,207)
Research Grants Paid		**93,169**	74,932
Payments to suppliers and employees		**(999,031)**	(925,824)
		1,652,884	1,599,574
Net cash provided by/(used in) operating activities	18	**1,652,884**	1,599,574
CASH FLOWS FROM INVESTING ACTIVITIES:			
Acquisition of Investments		**(2,186,228)**	(3,728,864)
Net cash provided by/(used in) investing activities		**(2,186,228)**	(3,728,864)
CASH FLOWS FROM FINANCING ACTIVITIES:			
Net increase in cash and cash equivalents held		**(533,344)**	(2,129,290)
Cash and cash equivalents at beginning of period / year		**2,102,647**	4,231,937
Cash and cash equivalents at end of financial period/ year	4	**1,569,303**	2,102,647

Notes to the Financial Statements
For the Period Ended 31 December 2024

The financial report covers The Ophthalmic Research Institute of Australia as an individual entity. The Ophthalmic Research Institute of Australia is a not-for-profit Company limited by guarantee, incorporated and domiciled in Australia.

The functional and presentation currency of The Ophthalmic Research Institute of Australia is Australian dollars.

Comparatives are consistent with prior years, unless otherwise stated.

1 Basis of Preparation

The financial statements are general purpose financial statements that have been prepared in accordance with the Australian Accounting Standards and the *Corporations Act 2001.*

The financial statements have been prepared on an accruals basis and are based on historical costs modified, where applicable, by the measurement at fair value of selected non-current assets, financial assets and financial liabilities.

Material accounting policies adopted in the preparation of these financial statements are presented below and are consistent with prior reporting periods unless otherwise stated.

2 Summary of Material Accounting Policies

2.1. Revenue and other income

Revenue from contracts with customers

The core principle of AASB 15 is that revenue is recognised on a basis that reflects the transfer of promised goods or services to customers at an amount that reflects the consideration the Company expects to receive in exchange for those goods or services. Revenue is recognised by applying a five-step model as follows:

1. Identify the contract with the customer

2. Identify the performance obligations

3. Determine the transaction price

4. Allocate the transaction price to the performance obligations

5. Recognise revenue as and when control of the performance obligations is transferred

Generally the timing of the payment for sale of goods and rendering of services corresponds closely to the timing of satisfaction of the performance obligations, however where there is a difference, it will result in the recognition of a receivable, contract asset or contract liability.

None of the revenue streams of the Company have any significant financing terms.

2 Summary of Material Accounting Policies

2.1. Revenue and other income

Specific revenue streams

The revenue recognition policies for the principal revenue streams of the Company are:

Investment and Trust Distribution Income

Revenue is recognised upon receipt of the dividend and trust distribution statement is received by the investment manager.

Membership Income

Is recognised when the Company becomes entitled to it.

2.2. Income Tax

The Company is exempt from income tax under Division 50 of the *Income Tax Assessment Act 1997*.

2.3. Goods and services tax (GST)

Revenue, expenses and assets are recognised net of the amount of goods and services tax (GST), except where the amount of GST incurred is not recoverable from the Australian Taxation Office (ATO).

Receivables and payable are stated inclusive of GST.

Cash flows in the statement of cash flows are included on a gross basis and the GST component of cash flows arising from investing and financing activities which is recoverable from, or payable to, the taxation authority is classified as operating cash flows.

2.4. Financial instruments

Financial instruments are recognised initially on the date that the Company becomes party to the contractual provisions of the instrument.

On initial recognition, all financial instruments are measured at fair value plus transaction costs (except for instruments measured at fair value through profit or loss where transaction costs are expensed as incurred).

2 Summary of Material Accounting Policies

2.4. Financial instruments

Financial assets

All recognised financial assets are subsequently measured in their entirety at either amortised cost or fair value, depending on the classification of the financial assets.

Classification

On initial recognition, the Company classifies its financial assets into the following categories, those measured at:

- fair value through other comprehensive income - equity instrument (FVOCI - equity)

Financial assets are not reclassified subsequent to their initial recognition unless the Company changes its business model for managing financial assets.

Interest income, foreign exchange gains or losses and impairment are recognised in profit or loss. Gain or loss on derecognition is recognised in profit or loss.

Fair value through other comprehensive income

Equity instruments

The Company has a number of strategic investments in listed and unlisted entities over which are they do not have significant influence nor control. The Company has made an irrevocable election to classify these equity investments as fair value through other comprehensive income as they are not held for trading purposes.

These investments are carried at fair value with changes in fair value recognised in other comprehensive income (financial asset reserve). On disposal any balance in the financial asset reserve is transferred to retained earnings and is not reclassified to profit or loss.

Dividends are recognised as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognised in OCI.

Impairment of financial assets

Impairment of financial assets is recognised on an expected credit loss (ECL) basis for the following assets:

- financial assets measured at amortised cost
- investments measured at FVOCI

When determining whether the credit risk of a financial assets has increased significant since initial recognition and when estimating ECL, the Company considers reasonable and supportable information that is relevant and available without undue cost or effort. This includes both quantitative and qualitative information and analysis based on the Company's historical experience and informed credit assessment and including forward looking information.

2 Summary of Material Accounting Policies

2.4. Financial instruments

Financial assets

The Company uses the presumption that an asset which is more than 30 days past due has seen a significant increase in credit risk.

The Company uses the presumption that a financial asset is in default when:

- the other party is unlikely to pay its credit obligations to the Company in full, without recourse to the Company to actions such as realising security (if any is held); or
- the financial assets is more than 90 days past due.

Credit losses are measured as the present value of the difference between the cash flows due to the Company in accordance with the contract and the cash flows expected to be received. This is applied using a probability weighted approach.

Trade receivables

Impairment of trade receivables has been determined using the simplified approach in AASB 9 which uses an estimation of lifetime expected credit losses. The Company has determined the probability of non-payment of the receivable and multiplied this by the amount of the expected loss arising from default.

2.5. Cash and cash equivalents

Cash and cash equivalents comprises cash on hand, demand deposits and short-term investments which are readily convertible to known amounts of cash and which are subject to an insignificant risk of change in value.

3 Critical Accounting Estimates and Judgments

The directors make estimates and judgements during the preparation of these financial statements regarding assumptions about current and future events affecting transactions and balances.

These estimates and judgements are based on the best information available at the time of preparing the financial statements, however as additional information is known then the actual results may differ from the estimates.

The significant estimates and judgements made have been described below.

Key estimates - fair value of financial instruments

The Company has certain financial assets and liabilities which are measured at fair value. Where fair value has not able to be determined based on quoted price, a valuation model has been used. The inputs to these models are observable, where possible, however these techniques involve significant estimates and therefore fair value of the instruments could be affected by changes in these assumptions and inputs.

3 Critical Accounting Estimates and Judgments

Key estimates - receivables

The receivables at reporting date have been reviewed to determine whether there is any objective evidence that any of the receivables are impaired. An impairment provision is included for any receivable where the entire balance is not considered collectible. The impairment provision is based on the best information at the reporting date.

4 Cash and Cash Equivalents

	2024	2023
	$	$
Cash at bank and in hand	**1,569,303**	2,102,647
	1,569,303	2,102,647

5 Trade and Other Receivables

	2024	2023
	$	$
CURRENT		
Trade receivables	**180,550**	-
Franking credit receivable	**83,906**	288,693
Other receivables	**75,830**	56,653
Total current trade and other receivables	**340,286**	345,346

The carrying value of trade receivables is considered a reasonable approximation of fair value due to the short-term nature of the balances.

6 Investments

	2024	2023
	$	$
CURRENT		
Listed shares	**15,720,299**	13,589,034
	15,720,299	13,589,034

7 Trade and Other Payables

	2024	2023
	$	$
CURRENT		
Other payables	**1,989,973**	1,596,831

Notes to the Financial Statements
For the Period Ended 31 December 2024

8 Provisions

	2024 $	2023 $
Current liabilities		
Provision for audit fee	**12,000**	12,000
Provision for employee benefits	**43,319**	23,675
	55,319	35,675

9 Income received in advance

	2024 $	2023 $
CURRENT		
Income received in advance	**60,000**	-

10 Research Capital Fund

	2024 $	2023 $
General		
Opening balance	**2,316,899**	2,316,897
Closing balance	**2,316,899**	2,316,897
Anselmi Estate		
Opening balance	**290,979**	290,979
Closing balance	**290,979**	290,979
Ivy May Stephenson Estate		
Opening balance	**30,376**	30,376
Closing balance	**30,376**	30,376
Oliver Mary Robinson Estate		
Funding received	**1,583,053**	1,291,901
Closing Balance	**1,583,053**	1,291,901
Total	**4,221,307**	3,930,153

Notes to the Financial Statements
For the Period Ended 31 December 2024

11 Settled Funds

	2024	2023
	$	$
D.W Research Funds	**200,000**	200,000
Esme Anderson	**124,326**	124,326
G.J Williams	**25,500**	25,500
B. Mitchell	**26,023**	26,023
Dame Ida Mann	**56,707**	56,707
Ronald & Lois Lowe	**40,000**	40,000
Total	**472,556**	472,556

12 Financial Assets Reserve

	2024	2023
	$	$
CURRENT		
Opening balance 1 January	**1,391,235**	921,243
Revaluation (decrement)/ increment	**15,051**	469,992
Balance as at 31 December	**1,406,286**	1,391,235

13 Members' Guarantee

The Company is incorporated under the *Corporations Act 2001* and is a Company limited by guarantee. If the Company is wound up, the constitution states that each member is required to contribute a maximum of $ 10 each towards meeting any outstanding obligations of the Company. At 31 December 2024 the number of members was 6 (2023: 10).

Notes to the Financial Statements
For the Period Ended 31 December 2024

14 Grants Allocated/ Made During the Year

	2024 $	2023 $
A/Prof Liu Guei-Sheung	-	60,000
Dr Jocelyn Drinkwater	**59,477**	-
Prof Robert Casson	**56,500**	-
Dr Flora Hui	**58,951**	-
Dr Anna Yao Mei Wang	**60,000**	-
Dr Devaraj Basavarajappa	**58,885**	-
Dr Jianghui Wang	**60,000**	-
Ms Lisa Lombard	**59,998**	-
Dr Di Huang	**60,000**	-
Dr Clare Fraser	**51,070**	-
Dr Stewart Lake	**59,923**	-
Dr Lay Khoon Too	-	60,000
Prof Robyn Jamieson	-	60,000
Dr John Wood	-	59,807
Dr Carla Abbott	-	60,000
Dr Jessica Tong	-	60,000
Dr Vivek Gupta	-	58,732
Dr Elsa Chan	-	59,996
Dr Ting Zhang	-	59,892
Dr Samantha Lee	-	47,668
Dr Michele madigan	**39,100**	-
Dr Jeremy Tan	**55,360**	-
Total	**679,264**	586,095

15 Key Management Personnel Remuneration

The remuneration paid to key management personnel of The Ophthalmic Research Institute of Australia during the year is as follows:

	2024 $	2023 $
Short-term employee benefits	**155,945**	145,845
Long-term benefits	**19,643**	13,492
	175,588	159,337

16 Auditors' Remuneration

	2023 $	2022 $
Remuneration of the auditor BG Assurance Pty Ltd , for:		
- auditing or reviewing the financial statements	**12,000**	12,000
Total	**12,000**	12,000

17 Contingencies

In the opinion of the Directors, the Company did not have any contingencies at 31 December 2024 (31 December 2023:None).

18 Cash Flow Information

Reconciliation of result for the year to cashflows from operating activities

	2024	2023
	$	$
Net surplus	**1,188,914**	1,962,230
Cash flows excluded from profit attributable to operating activities		
Non-cash flows in profit:		
- depreciation	**1,174**	1,170
- fair value movements on investments	**(15,051)**	(469,992)
Changes in assets and liabilities:		
- increase/decrease in trade and other receivables	**65,061**	(135,219)
- increase/ decrease in trade and other payables	**287,974**	152,961
- increase/decrease in grants payable	**93,169**	74,932
- increase/(decrease) in employee benefits	**31,643**	13,492
Cashflows from operations	**1,652,884**	1,599,574

19 Events after the end of the Reporting Period

No matters or circumstances have arisen since the end of the financial year which significantly affected or may significantly affect the operations of the Company, the results of those operations or the state of affairs of the Company in future financial years.

20 Statutory Information

The principal place of business of the company is:
The Ophthalmic Research Institute of Australia
94-98 Chalmers St
Surrey Hills NSW 2010

Directors' Declaration

The directors of the entity declare that:

1. The financial statements and notes, as set out on pages 5 to 17, are in accordance with the *Corporations Act 2001* and:

   (a) comply with Australian Accounting Standards; and

   (b) give a true and fair view of the financial position as at 31 December 2024 and of the performance for the year ended on that date of the entity.

2. In the directors' opinion, there are reasonable grounds to believe that the entity will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

DocuSigned by:
Director ..... Stephanie Watson .....
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Prof Stephanie Watson, NSW Chair

DocuSigned by:
Director ..... Paul Healey .....
A60CD1D5E0D149E...
A/Prof Paul Healey, NSW

Dated 30 June 2025

Independent Audit Report to the members of The Ophthalmic Research Institute of Australia

Report on the Audit of the Financial Report

Opinion

We have audited the financial report of The Ophthalmic Research Institute of Australia (the Company), which comprises the statement of financial position as at 31 December 2024, the statement of profit or loss and other comprehensive income, the statement of changes in equity and the statement of cash flows for the period then ended, and notes to the financial statements, including a summary of material accounting policies, and the directors' declaration.

In our opinion, the accompanying financial report of the Company is in accordance with the *Corporations Act 2001*, including:

(i) giving a true and fair view of the Company's financial position as at 31 December 2024 and of its financial performance for the period ended; and

(ii) complying with Australian Accounting Standards and the *Corporations Regulations 2001*.

Basis for Opinion

We conducted our audit in accordance with Australian Auditing Standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Report* section of our report. We are independent of the Company in accordance with the auditor independence requirements of the *Corporations Act 2001* and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants (including Independence Standards)* (the Code) that are relevant to our audit of the financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code.

We confirm that the independence declaration required by the *Corporations Act 2001*, which has been given to the directors of the Company, would be in the same terms if given to the directors as at the time of this auditor's report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Responsibilities of Directors for the Financial Report

The directors of the Company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards and the *Corporations Act 2001* and for such internal control as the directors determine is necessary to enable the preparation of the financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In preparing the financial report, the directors are responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless the directors either intend to liquidate the Company or to cease operations, or have no realistic alternative but to do so.

Auditor's Responsibilities for the Audit of the Financial Report

Our objectives are to obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial report.

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Independent Audit Report to the members of The Ophthalmic Research Institute of Australia

As part of an audit in accordance with the Australian Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

- Identify and assess the risks of material misstatement of the financial report, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.

- Conclude on the appropriateness of the directors' use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial report or, if such disclosures are inadequate, to modify our opinion. Our conclusions are based on the audit evidence obtained up to the date of our auditor's report. However, future events or conditions may cause the Company to cease to continue as a going concern.

- Evaluate the overall presentation, structure and content of the financial report, including the disclosures, and whether the financial report represents the underlying transactions and events in a manner that achieves fair presentation.

We communicate with the directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

We also provide the directors with a statement that we have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on our independence, and where applicable, actions taken to eliminate threats or safeguards applied.

BG Assurance Pty Ltd

BG Assurance Pty Ltd, Chartered Accountants
Authorised audit company number 294178 (ACN 115 749 598)

Signed by:
Andrew Fisher
AAF6D20261524AE...

Andrew Fisher FCA, Partner
Registration number 306364

Melbourne, Australia

Date: 30 June 2025

AUSTRALIAN
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