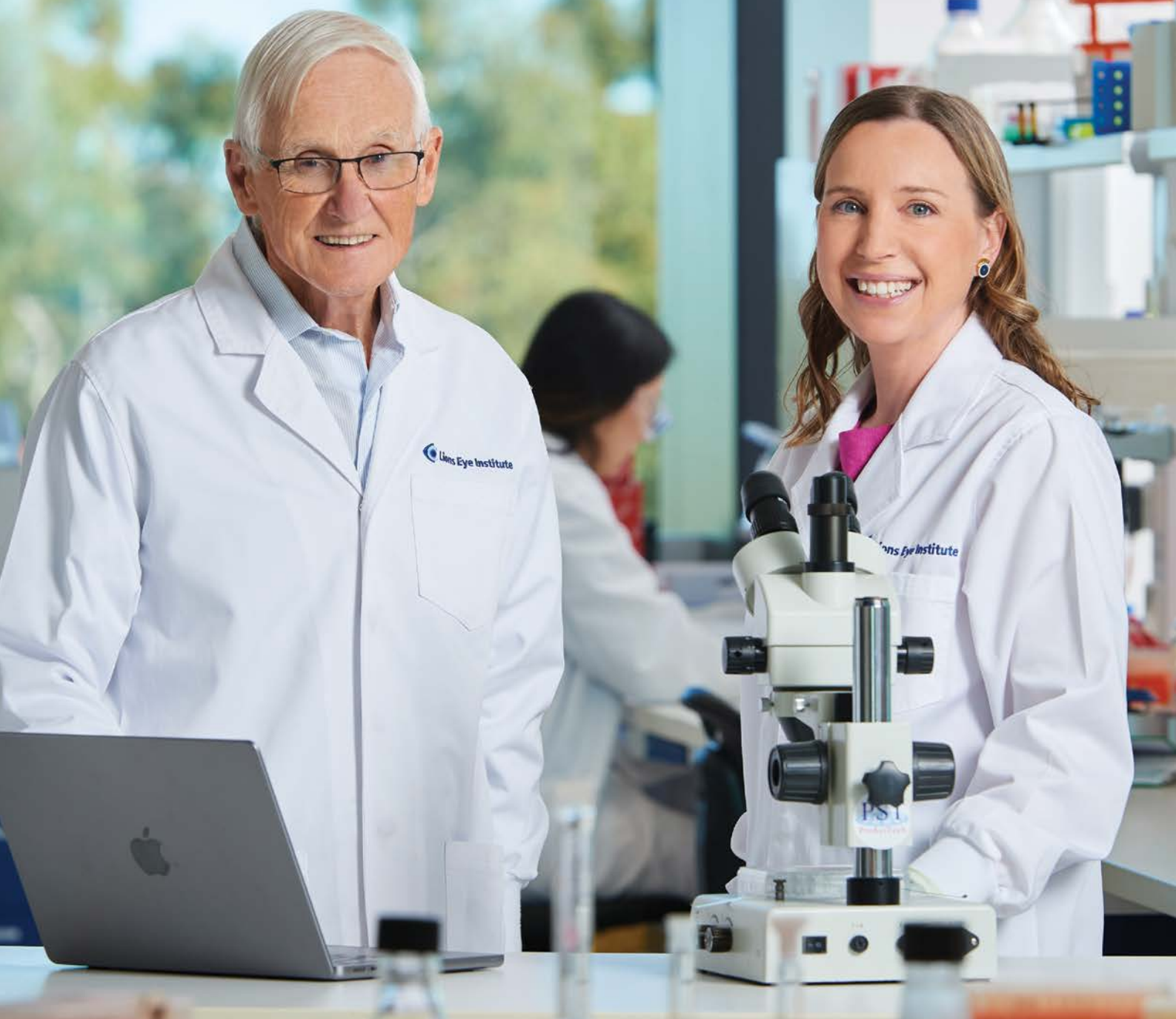




2025 Annual Review

**Professor Constable's 50 year legacy
continues through a new generation**



Our story

2025 marks 50 years since The University of Western Australia appointed Professor Ian Constable as its inaugural Professor of Ophthalmology and the fifth decade of the Lions Eye Institute saving sight and treating blinding eye conditions.

Since our commencement in 1983, we have grown into a world-leading eye clinic and research centre. This has been enabled by valuable philanthropic support and multiple long-term major research grants.

We undertake cutting-edge treatments and world-class research to achieve our mission of preventing blindness and curing eye disease.

With your support we can continue our progress towards accomplishing this goal through scientific breakthroughs, innovations and inventions that previously could only be dreamt about.

Supporting us is a team of dedicated, internationally renowned researchers and clinicians, state-of-the-art equipment and facilities, and an institute-wide commitment to excellence, innovation and best practice.

The first of its kind in Australia, the Lions Eye Institute was created as both a not-for-profit medical research institute and a clinical service.

Front cover image: Professor Ian Constable AO and Associate Professor Holly Chinnery in the Lions Eye Institute's laboratories

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Chair's message



Investing in the future of Western Australian eye care

In 2025, our commitment and progress towards advancing eye care research and world-class clinical practice remained unwavering.

This year, we honour the extraordinary legacy of our founder and patron, **Professor Ian Constable AO**, who marked 50 years since his appointment as the inaugural Professor of Ophthalmology at The University of Western Australia. His vision and leadership laid the foundations for the Institute's enduring impact, and continues to inspire our commitment to excellence, innovation and patient care.

Building on our strong foundations, we are investing in our future to ensure a sustained focus on excellence and innovation in both clinical practice and research. With the **redevelopment of our flagship facilities in Nedlands now well underway**, we are also investing in the future of Western Australia's eye health. This redevelopment, our largest infrastructure project since the building's opening in 1996, reflects our ongoing commitment to enhancing patient care and staying at the forefront of medical advancements.

In 2025, **Professor Chandra Balaratnasingam** was appointed Medical Director of the Lions Eye Institute to provide operational leadership of clinical service delivery, alongside **new Clinic Directors** drawn from among our current clinicians in each subspecialty area and service location.

Our purpose

Our vision remains clear: **Better vision for all**. As the global prevalence of blindness and vision impairment is predicted to double by 2050, our commitment to pioneering new treatments and technologies is more crucial than ever.

2025 in focus

The highlights of 2025 included:

- Our **Nedlands clinic redevelopment** is well underway, and we are building a masterplan to address further expansion of our clinic facilities in coming years.

- Our 19 consultant ophthalmologists delivered over 84,000 consultations, surgeries and minor procedures.
- Welcoming **Dr Benjamin Host** to our clinical team as a new consultant ophthalmologist, who brings vast experience in paediatric and general ophthalmology.
- Clinical trials run by the **Lions Vision Trials** group have led to:
 - **Roche's Port Delivery Platform** being approved in the USA and Europe and pending approval in Australia. The system offers a treatment for people with **neovascular age-related macular degeneration**, to maintain their vision with as few as two treatments per year.
 - Promising results from studies into **Belite Bio's Tnlarebant** as the **first potential treatment for Stargardt disease**. Tnlarebant aims to address progressive retinal degeneration, and it's the first time an oral treatment has been able to demonstrate clinically meaningful outcomes in retinal degenerative disease.

- Furthered our eye research into:
 - A world-first study exploring the **role of the corneal immune system in myopia**.
 - Global collaboration across more than 25 countries and 100 organisations to advance research into **inherited retinal diseases**.
 - Exploring **gene-independent approaches** to protect photo-receptor cells regardless of the underlying genetic cause.
 - Developing a **world-first single eye screening test** that can **detect multiple cancers in the body** using Optical Coherence Tomography.
 - Using data analytics to **better predict myopia prevalence** in the Western Australian community.

- **Lions Outback Vision** delivered over 19,000 occasions of service to rural and regional patients and received one of the highest honours in rural healthcare, being named **Health Team of the Year at the WA Rural Health Excellence Awards**.
- Following the success in the Pilbara Challenge, the Lions Eye Institute launched **Ninox Vision Pty Ltd** as a commercial spin-out, maintaining an equity stake in the venture to drive the wider adoption of AI-assisted retinopathy technology.

As we move forward, we are prioritising a patient-centred approach in every facet of our work. By engaging with the community and consumers early in the development of our research, we ensure that our discoveries meet real-world needs, improving access, affordability, and outcomes for all.

With new leadership in key roles, the Lions Eye Institute is poised to continue its legacy of excellence in both clinical care and scientific innovation.

We are so grateful to our supporters, whose generosity enables us to fulfil our mission of preventing and curing blindness. Together, we are shaping a future where sight-saving breakthroughs are available to all.

Board changes

2025 saw several Board changes at the Lions Eye Institute. We'd like to thank **Professor Grant Waterer** and **Professor Angus Turner**, who each stepped down from the Board, for their support and leadership.

One of our long-standing clinicians, **Professor Chandra Balaratnasingam** and our Lions Curtin Chair of Ophthalmic Data, **Professor Andrew Turpin**, joined the Board in 2025.

Special tribute

We'd also like to pay a special tribute to past Lions Eye Institute Board member, **Dr Erica Smyth AC**, who passed away this year. Dr Smyth was a pioneering geologist, respected company director and unwavering advocate for scientific and medical research. The Lions Eye Institute was privileged to have Dr Smyth serve on our Board until her retirement in early 2024.



Tony Joyner

Tony Joyner
Chair



Thanks to the generosity of our supporters, 2025 saw significant investment in vital research equipment, enhanced research programs, and innovative service delivery, expanding our ability to care for more patients



Our vision

Better vision for all.

Our purpose

To prevent and cure blindness and eye disease.

Our values



Integrity: we do what we say we're going to do, and are accountable, transparent and responsible in our actions.



Care: we consider and respect our patients, collaborators and each other.



Curiosity: we ask questions, are interested and never stop learning.



Impact: we make a positive difference to the lives of others and the communities in which we operate.

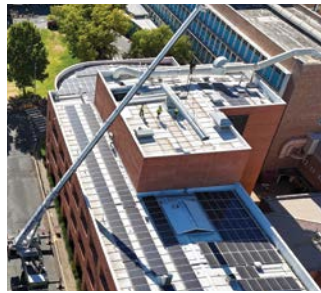


Unity: we support each other and work as one to achieve common goals.

Managing Director's message



The past year has been a fundamentally important one for the Lions Eye Institute. We are now orientated to growth, with an infrastructure plan that will create improved facilities to do the things we excel in; outstanding patient care and impactful and life-changing research.



Our **workforce increased by around six per cent** in 2025 in line with growth in income from service delivery. We are now also more **financially sustainable**, having achieved a second successive year of modest surplus generation. Our corporate costs as a proportion of income are also significantly reduced, demonstrating greater efficiency.

Operational and strategic governance has been enhanced this year in the clinic through the appointment of **Professor Chandra Balaratnasingam as Medical Director** of the Lions Eye Institute, reflective of the deepening engagement with our clinicians.

New appointments

Associate Professor Fred Chen has been appointed **Director of Research** along with **Associate Professor Holly Chinnery** as **Deputy Director of Research** with **Mary Vukmirovic** to serve as **Head of Research Services**. Alongside these appointments, we stepped up internal engagement with our research leads through a new operational-level Research Committee. In finance, **Melissa Harika** joins us as our new **Chief Financial Officer**, **Marie Claire Bennetts** has been confirmed as the **Director of Communications and Philanthropy**, and **Natalie Allen** is

confirmed as **Director of People and Culture** after a period of acting in that role. **Dr Jelena Kezic** is also our new **Manager of the Lions Eye Bank of WA**. I congratulate all new leaders on their respective appointments, which will ensure that we remain well positioned to manage all the diverse activities of the Institute.

Strategic planning and advocacy

In mid-2025, we excitingly **commenced strategic planning for the next five-year period 2026-2030**, which will review and consider our research and clinical service delivery, people and culture priorities, property and infrastructure developments, technology and governance.

We have also been very active in **advocacy on behalf of patients** this year, for **retention of hospital care for retinal injections** and for **researchers in relation to Western Australia's share of national competitive grant funding**.

We close a wonderful year of achievement, and I thank our patients and their families and carers, our staff, researchers and clinicians, and all our partner organisations.




Dr Glen Power
BSc (Hons), DPhil (Oxford)
Managing Director

Medical Director's message



In 2025, the Lions Eye Institute's subspecialty clinical model demonstrated its strength, integrating advanced surgical care, multidisciplinary expertise, clinical trials and scientific discovery to improve outcomes for patients with eye disease.



Clinical impact

The Lions Eye Institute's clinical mission was delivered by **19 consultant ophthalmologists**, supported by highly skilled teams across our clinics and day surgery unit. Together, these teams provided **over 84,000 consultations, surgeries and minor procedures**, reflecting both the scale of community need and the trust placed in the Institute by patients across Western Australia. Through **Lions Outback Vision**, the Institute continued to extend **specialist ophthalmic expertise beyond metropolitan Perth**, helping ensure that geography is not a barrier to timely assessment and treatment.

The Institute also continued to attract specialists with advanced subspecialty training, bringing new surgical and clinical expertise to Western Australia. In 2025, we were pleased to welcome **Dr Benjamin Host**, whose expertise further enhances our capacity to deliver **specialist paediatric ophthalmology** care.

A close relationship between clinical care and research

A defining feature of the Lions Eye Institute's clinical environment is the **close connection between patient care and scientific discovery**. As one of the largest specialist ophthalmic clinical trial centres in the southern hemisphere, the Institute enables

patients in Western Australia to access emerging therapies that may otherwise be unavailable locally.

Our involvement in the **Tinlarebant trial**, which may lead to a world-first breakthrough therapy for Stargardt disease, exemplifies our contribution to **clinical discovery** and our role in translating innovative treatments into patient care.

Beyond clinical trials, the Institute's **scientific programmes address major unmet needs in eye care**. Research in inherited retinal disease, diabetes and myopia continues to expand, reflecting our commitment to reducing childhood vision loss.

Complementary initiatives in photoreceptor protection, ocular imaging, glaucoma and optic nerve disorders, artificial intelligence-enabled screening and retinal biomarkers of systemic disease further demonstrate our commitment to earlier diagnosis, prevention and more precise disease stratification.

I thank our clinical, research and support teams, together with our patients and supporters, whose collective contribution keeps **clinical excellence and scientific innovation at the heart of our mission**.




Professor Chandra Balaratnasingam
MBBS, PhD, FRANZCO
Medical Director



Dr Benjamin Host
examining patient
Zoe's eyes

Our ophthalmologists

Thanks to our 19 dedicated ophthalmologists, who are all sub-specialty trained, we have conducted 79,565 consultations and 3,802 surgeries throughout the year. We've also played a leading role in training the next generation of ophthalmologists through the teaching they provide in Broome and at tertiary hospitals in Western Australia.

Our ophthalmologists



Dr Andrea Ang
Director of Cornea Unit
and Lions Laser Vision
MBBS (Hons), MPH
(Harvard), FRANZCO



**Professor Chandra
Balaratnasingam**
Medical Director and
Director of Retina and
Ocular Inflammation
MBBS (Hons), PhD
(Dist), FRANZCO



Dr Geoffrey Chan
Director of Surgery
MBBS (Hons), MMedSc,
PGCert Med Ed
(Cambridge), FRANZCO



**Associate Professor
Fred Chen**
Director of Research
MBBS (Hons), PhD
(London), FRANZCO



Dr Antony Clark
Director of Glaucoma,
Oculofacial and
Paediatrics MBBS
(Hons), PhD, FRANZCO



**Professor
Ian Constable AO**
MBBS, DMedSc, DSc
(Hons), FAHMS,
FRANZCO



Dr Jean-Louis deSousa
MBBS, MANZSOPS,
FRANZCO



Dr Adam Gajdatsy
MBChB, BSc (Hons), MRCP,
FANZSOPS, FRANZCO
(Left the Lions Eye
Institute in 2025)



Dr Antonio Giubilato
Director, Murdoch Clinic
MBBS (Hons),
FRANZCO



Dr Benjamin Host
MBBS (Hons),
FRANZCO



**Professor
David Mackey AO**
MBBS, MD, FRACS,
FAHMS, FARVO,
FRANZCO



**Professor
Ian McAllister**
MBBS, DM, FRACS,
FRANZCO



Dr Rhuju Mehta
MBBS (Hons),
FRANZCO



**Professor
Bill Morgan**
MBBS, PhD, FRANZCO



**Associate Professor
Hessom Razavi**
Director, Midland Clinic
MBBS, BSc, MSc (Hons),
FRCOphth, FRANZCO



**Associate Professor
Mei-Ling Tay-Kearney**
MBBS, FRANZCO



**Professor
Angus Turner**
MBBS (Hons), MSc
(Oxford), FRANZCO



**Associate Professor
Steven Wiffen**
MBBS, FRACS,
FRANZCO



Dr Evan Wong
MBBS, PhD, FRANZCO
(Left the Lions Eye
Institute in March 2026)

Clinical services update

The Lions Eye Institute remains dedicated to providing world class care and pioneering advancements in eye health. In 2025, our clinical services at Midland, Murdoch and Nedlands, have continued to expand in response to growing demand.



Visuals of the Nedlands theatre complex redevelopment (pre-operative area and reception)

Clinic

79,565 consultations

across our Midland, Murdoch and Nedlands clinics

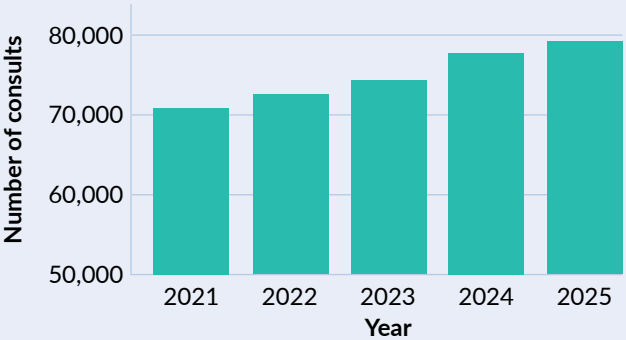


3,802
surgeries

94%
satisfaction with
clinic services

771
Lions Laser Vision procedures

Annual growth in consultations



A key highlight of the year has been the commencement of the redevelopment of our main theatre complex and associated consulting suites at our Nedlands site, a significant milestone that will position the Lions Eye Institute to deliver even more cutting-edge services to our community. Over the next two years, the Institute is orientated towards significant growth in the number of specialist ophthalmologists working across the organisation.

Consultations and surgeries

2025 has seen another year of growth in the number of consultations provided at the Lions Eye Institute. Our clinics delivered 79,565 outpatient consultations and intravitreal injections procedures across all of our sites and spanning corneal, retinal, glaucoma, oculofacial, paediatric and ocular immunology subspecialties. There were 3,802 surgical procedures, 6,778 intravitreal injection procedures and 771 refractive laser vision procedures delivered in the dedicated laser vision suite.

Together, we delivered 84,138 occasions of service in metropolitan Perth, which is up approximately two per cent year-on-year. This increase is reflective of our ongoing commitment to meeting the rising demand for eye health services. It also underscores the trust our patients place in the Lions Eye Institute to support their eye care needs.

Redevelopment of the Nedlands theatre complex

The commencement of the redevelopment of our main theatre complex in Nedlands marks the biggest investment in our surgical facilities since the 1990s.

This major project will significantly enhance our surgical facilities, integrating the latest technology to improve surgical precision and patient outcomes. The expanded theatre complex will also increase our capacity to treat more patients in a state-of-the-art environment, while enhancing operational efficiency for our clinical teams.

Alongside the theatre redevelopment, the redevelopment of our consulting suites will further strengthen the Lions Eye Institute's ability to provide high-quality, accessible care to the community. This component of our redevelopment plan is expected to be completed in 2026 and will provide a more modern, comfortable setting for patients and staff alike. It will accommodate patients to our glaucoma, paediatric and oculoplastic services.

The redevelopment project is a testament to the Lions Eye Institute's commitment to growth and innovation in its delivery of world-class eye care. It represents a forward-looking and exciting response to meeting the growing demand for eye health services, and will maintain our position as a leader in the field.

Clinician changes

In 2025, the Lions Eye Institute farewelled Dr Adam Gajdatsy, thanking him for his valued contribution and dedication to patient care. We warmly welcomed Dr Benjamin Host to the clinical team and look forward to the expertise and experience he brings to the Lions Eye Institute in general and paediatric ophthalmology.

Award highlights in 2025

In 2025, clinicians, researchers and staff members from the Lions Eye Institute were recognised through several prestigious awards, designations and appointments that reflect the depth and impact of our work across clinical care, education, research, and community outreach.



Professor Ian Constable AO was made an Honorary Doctor of Science by The University of Western Australia. The designation recognises his significant contribution to the field of ophthalmology as a clinician, researcher and educator.



Associate Professor Fred Chen was welcomed as a new representative for the Western Australian Chapter Committee of the Association of Australian Medical Research Institutes.



Associate Professor Fred Chen, Dr Livia Carvalho and Dr Samuel McLaren were joint recipients of a **Curtin Innovation Award** under the Health Sciences category for supporting the development of **RetiDrop**, a new treatment delivery system developed by Dr Bozica Kovacevic and Dr Hani Al-Salami from Curtin University.



Associate Professor Holly Chinnery was appointed to the Association for Research in Vision and Ophthalmology's (ARVO) Annual Meeting Program Committee.



Dr Jocelyn Drinkwater and her team received the **Helen Smith Award** to support their research, which will involve testing and adapting RETFound, an artificial intelligence model that detects diabetic eye disease and assesses heart disease risk from eye photos.



Dr Di Huang and her team were awarded the **Helen Smith Award** to advance their research, which will aim to find a treatment for Stargardt disease by studying the specific genetic changes that lead to the disease.



Dr Gareth Lingham was awarded the International Orthoptic Association (IOA) Research Award for his presentation and work on "Biometry equivalent refraction" as a screening tool for refractive error in children. He delivered the presentation at the 2025 IOA Congress.



Lions Outback Vision was awarded Health Team of the Year at the Western Australian Rural Health Excellence Awards.



Professor David Mackey AO, as part of the Australian Leber Hereditary Optic Neuropathy Research Team, was shortlisted for Patients Australia's **Outstanding Patient Research Award**. He was also re-elected as Vice-President of the Asia-Pacific Academy of Ophthalmology for the 2025-2027 term.



Professor Allison McKendrick received The University of Western Australia's **Vice-Chancellor's Senior Research Award**. The award recognises the significant local and global impact of her work.



Dr Glen Power was appointed to the board of the Bethanie Group Limited, one of Western Australia's largest aged care providers, and to an Adjunct Clinical Associate Professorship at Curtin University Medical School.



Harry Regan and Sebastian Baird were jointly awarded the prize for best student presentation at the Lions Eye Institute. Both received First Class Honours for their research on early-onset high myopia using a zebrafish model, conducted under the supervision of Dr Jessica Mountford.



Dr Danuta Sampson was awarded the Australian and New Zealand Optical Society Mid-Career Prize for her work in biomedical optics and vision science.



Professor Angus Turner was appointed to the Future Health Research and Innovation Fund Advisory Council, recognising his impact in eye health and outreach care.



Professor Andrew Turpin was honoured as a Silver Fellow of ARVO. This designation recognises his outstanding contributions to vision research.



Celebrating half a century of sight-saving science

Professor Ian Constable AO's legacy and Associate Professor Holly Chinnery's appointment as the inaugural Constable Professorial Fellow

2025 marks 50 years since our Lions Eye Institute patron and founder, Professor Ian Constable took up his appointment as the inaugural Lions Chair of Ophthalmology at The University of Western Australia (UWA) in 1975.

It's also the year that he was made an Honorary Doctor of Science by the very same university, recognising his significant contribution to the field of ophthalmology as a clinician, researcher and educator.

"It seems like just yesterday," reflects Professor Ian Constable AO, reminiscing about his arrival at UWA. As possibly UWA's longest-serving full professor, the internationally renowned specialist's 50-year journey has transformed eye health research and care not just in Western Australia, but globally.

After graduating in medicine from the University of Sydney and working as a Resident Medical Officer at Royal Prince Alfred Hospital, the young ophthalmologist's path led him to Harvard in Boston, USA. He spent five years engaged in retinal research as a Fellow at the Massachusetts Eye and Ear Infirmary and later as a consultant surgeon and lecturer at Harvard University.

"I had five years of lab work at Harvard, so I was used to setting things up and I was used to talking to scientists," Professor Constable explains. This experience proved invaluable as he began building his team, recruiting promising UWA postgraduates in cell biology, physiology and polymer chemistry. His approach was revolutionary for its time.

"From the very beginning we used our ability to see and treat patients to generate funding – we would take an eye problem and apply science to it rather than just clinical work, which was a great training and career opportunity for our young scientists," he explains. This philosophy led to remarkable breakthroughs, including the world's first virus-transmitted DNA treatment in adult humans with macular degeneration – research that began in Perth and eventually led to a \$400 million listing on the New York Stock Exchange.

The journey wasn't without its challenges. As his research team expanded beyond Royal Perth Hospital's capacity, then-Premier Sir Charles Court offered space at the old Sir Charles Gairdner Hospital. This move in 1985 marked the beginning of what would become the Lions Eye Institute.

Throughout his career, Professor Constable maintained a deep connection with UWA. "I was helped extensively by Professor Bob Whelan in the 1970s, Robert Street in the 1980s, and then by the then-VC Alan Robson in setting up UWA's Centre for Ophthalmology and Visual Science in the 1990s. We've been able to appoint people from outside onto the University staff and use the facilities and infrastructure, it's been a terrific relationship."

Professor Constable's commitment to Indigenous eye health has been particularly significant, culminating in the establishment of the comprehensive Lions Outback Vision service in Broome by UWA Professor Angus Turner.

Even after 50 years, his passion for innovation remains undimmed. He continues to collaborate on cutting-edge RNA therapy in Perth and collaborates internationally on glaucoma research through the Snow Family Medical Foundation and retinal disease through the Lowy Family Medical Research Institute.

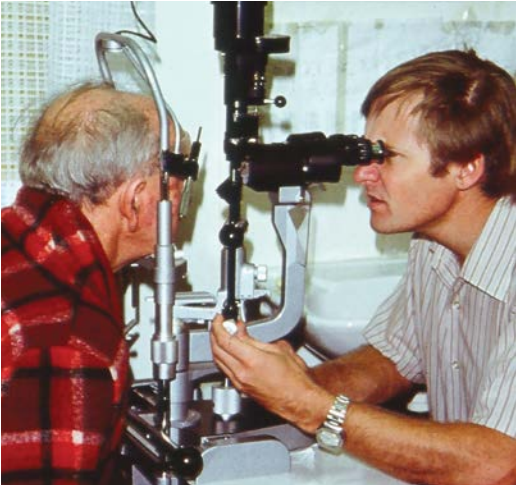
As he looks back on his legacy, his hopes remain focused on service. "I just hope that in Western Australia we continue to have a first-class, international service and good research and good teaching," he reflects.

From 1975 to today, Professor Constable's dedication to excellence has transformed how we understand and treat eye disease. He has trained generations of specialists and created a legacy that will have a lasting impact on lives for generations to come.

Professor Constable's legacy continues to grow at the Lions Eye Institute, with the 2024 appointment of Associate Professor Holly Chinnery as the inaugural Constable Professorial Fellow. She brings a wealth of new research experience in cornea and ocular surface immunology to the Institute.

Associate Professor Chinnery has a tremendous track record of delivering world-class research, and I'm confident she'll continue to make significant strides in the field at the Lions Eye Institute. I'd like to personally thank the supporters of the Ian Constable Chair. Your contributions have been extraordinary, and I'm deeply moved by the support of the Western Australian community, as well as interstate and international colleagues.

Professor Ian Constable AO



Professor Ian Constable AO examining a patient at Royal Perth Hospital, 1975 (top)
Professor Ian Constable AO was made an Honorary Doctor of Science by The University of Western Australia (bottom).
Photo credit: The University of Western Australia

Honouring 30 years of shared vision and lasting impact



Over the past three decades, the special partnership between the McCusker family and the Lions Eye Institute has been grounded in a shared purpose, enduring trust and a steadfast commitment to improving the lives of Western Australians.



Professor Dao-Yi Yu AM, Professor Bill Morgan, Carolyn McCusker, The Hon Malcolm McCusker AC KC CVO, Tonya McCusker AM and Mark Bellini (L-R) photographed in 2017 during a tour of the McCusker Glaucoma Centre at the Lions Eye Institute

In 2025, this partnership reached an incredible milestone – **30 years of visionary philanthropy** supporting world-class eye research, clinical care and innovation. The Lions Eye Institute is deeply privileged to continue benefiting from the leadership and generosity of the McCusker Charitable Foundation, a family foundation whose commitment to medical research has delivered lasting impact for patients, families, and communities.

The McCusker family's long-term commitment has provided critical momentum, empowering the Lions Eye Institute to pursue ambitious research priorities, invest in critical infrastructure and attract world-class clinician-scientists to Western Australia.

In doing so, it has helped build enduring capability not just for today's patients, but for generations to come.

As we celebrate this milestone, we acknowledge not only the financial support provided, but the partnership and shared vision that have underpinned it. Together, we have advanced discovery, improved patient outcomes and strengthened our capacity to prevent blindness.

Improving patient lives

For patients, the impact of the McCusker family's support is profound. **A diagnosis of glaucoma in 2025 is no longer as daunting as it once was, with access to leading clinicians, advanced non-invasive screening and new surgical inventions.**

For people in regional Western Australia, it means **earlier local screening** and **trusted ophthalmology care closer to home**, improving access and reducing delays in diagnosis.

At the same time, **accelerated research into inherited retinal diseases** is improving understanding of rare conditions and fast-tracking the development of future treatments. This offers renewed hope for patients and families affected by vision loss.



Sincere thanks

We extend our **deepest gratitude** to the McCusker family and look forward to continuing this journey together, building on a proud legacy and striving towards a future where sight loss is prevented, treatments are more precise and hope is within reach for every patient we serve.

Sir James McCusker and the Hon Malcolm McCusker AC KC CVO ➤



Three hallmarks of foresight and visionary support

McCusker Glaucoma Centre

Glaucoma is one of the leading causes of irreversible blindness in the world, estimated to affect 80 million people worldwide and some 300,000 Australians.



In the early 1990s, Sir James McCusker and the Hon Malcolm McCusker AC KC CVO provided considerable seed funding to establish the **McCusker Glaucoma Centre** at the Lions Eye Institute, bringing together a highly respected team of researchers, clinicians, and scientists led by **Professor Dao-Yi Yu AM**. This funding originally supported around six highly promising projects, three of which have been successful in advancing glaucoma research and improving treatments and outcomes for patients at home and abroad: an impressive success ratio.

Professor Yu and Professor Bill Morgan co-invented the revolutionary **XEN® Gel Stent**, a novel surgery

to implant tiny, bioengineered drainage tubes to relieve the pressure in the eye that causes gradual loss of sight in glaucoma. This procedure to treat glaucoma patients is now in routine clinical use around the world and is considered the best surgical treatment compared to other techniques.

The Foundation's generosity and faith in the team's abilities to translate original scientific ideas and high precision techniques into clinical practice has directly and indirectly impacted over 200,000 patients globally by supporting the development of new therapeutics and diagnostics for glaucoma.

Accelerating research into inherited retinal diseases

Associate Professor Fred Chen's vision is to establish an **Australian Centre for Excellence in inherited retinal disease research and treatment**. To help advance this vision, the McCusker Charitable Foundation continues to fund crucial elements of his research. The process of drug discovery is long-term and can't be achieved with widely available short-term grants. By showing the foresight of a **multi-year investment approach**, the Foundation's support enables researchers to undertake comprehensive studies critical to the drug development process.



Associate Professor Fred Chen examining patient Eamon's eyes

Lions Outback Vision

Support from the McCusker Charitable Foundation has been pivotal in **advancing equitable eye care across regional and remote Western Australia**, consistently demonstrating foresight in advancing innovative models of care. Since 2010, the Foundation has supported the McCusker Director position, providing sustained leadership and strategic direction for Lions Outback Vision. In addition, targeted investment has enabled key initiatives, including seed funding for:



The North West Hub in Broome

The Pilbara Challenge, including funding for the Sprinter vehicle

Shared care Kalgoorlie/ Goldfields Eye Clinic



Professor Angus Turner, McCusker Director of Lions Outback Vision, examining a young patient's eyes in Broome

These **visionary investments** have expanded access to essential eye health services in some of the most remote communities in Western Australia and have **enabled Lions Outback Vision to test and build new models of care** at critical early stages, when the **need was clear, but broader recognition and support had yet to emerge**.

Spotlight on leadership: A conversation with the Lions Eye Institute's leaders



Professor Chandra Balaratnasingam, Medical Director

1 How do you see the evolving role of clinical care in advancing our mission?

Clinical care is central to the Lions Eye Institute's mission. Through patient care, we identify where the need is greatest and where outcomes can be improved.

I see our role evolving through **continued investment in advanced surgical technologies and cutting-edge diagnostic platforms**, allowing us to detect diseases earlier and manage them more precisely.

The challenge is meeting growing demand while preserving excellence and accessibility, and I'm confident in the Institute's strategic direction to meet this need.

2 How do you ensure collaboration between clinical teams and researchers?

The Institute's core strength lies in the close collaboration between clinicians and researchers.

As Medical Director, I strive to foster an environment that encourages **cross-disciplinary collaboration, shared priorities and investment in technologies**.

This creates a culture where clinical challenges drive meaningful research, shortening the path from discovery to clinical application. It ensures that new knowledge directly improves patient care and provides personalised treatment options.



Associate Professor Fred Chen, Director of Research

1 What's your vision for the future of research at the Lions Eye Institute?

I see research at the Lions Eye Institute remaining high-quality, focused and impactful, to address the most common causes of blindness while not overlooking rare diseases.

We aim to build teams led by internationally recognised experts, working closely with global partners, and secure large-scale funding so our scientists can focus more on discovery and less on grant writing.

Equally important is **strong collaboration between clinicians and laboratory researchers** to tackle unmet clinical needs and accelerate meaningful breakthroughs.

Looking ahead, we see the Institute becoming a **preferred clinical trial site** across Australia and South-East Asia, expanding access to novel therapies.

2 What is the biggest challenge facing vision science, and how is the Institute addressing it?

One of the biggest challenges is funding. Like many research organisations, we rely on competitive government grants, which can be limiting. To address this, our philanthropic, research, and finance teams are working together to secure more sustainable funding that supports the Institute as a whole.

In this special feature, we sit down with three key members of our leadership team, **Professor Chandra Balaratnasingam**, Medical Director; **Associate Professor Fred Chen**, Director of Research; and **Associate Professor Holly Chinnery**, Deputy Director of Research to hear their perspectives on the evolving landscape of eye care and research at the Lions Eye Institute.

Another challenge is **supporting early and mid-career researchers**. We're formalising mentorship programs to help develop the next generation of scientists.

It's also crucial that our research leads to real-world impact. **Knowledge must translate into meaningful change for patients**, starting with a deep understanding of unmet clinical needs.

We encourage strong partnerships between clinicians and lab researchers to ensure discoveries are driven by real patient experiences, and we support community involvement to keep our work focused on what matters most to patients and their families.

3 How do you stay motivated and inspire your team?

What motivates me is seeing patients every day who are gradually losing their vision, often from conditions we still don't fully understand or can't yet treat. That's a powerful reminder of why this work matters.

I try to inspire my team by focusing on the **potential impact of our discoveries**, which can change the lives of thousands of families. Even small advances in understanding a disease can bring hope and keep us driven through the challenges of research.



Associate Professor Holly Chinnery, Deputy Director of Research

1 What excites you most about the current direction of research at the Institute?

What excites me most is how what we could only dream about five years ago is now becoming a reality. New avenues of scientific pursuit in vision science and ophthalmology are opening up, particularly in areas like ocular surface immunology, gene therapy and advanced intravitreal imaging.

These innovations are evolving rapidly, and we are at the forefront of harnessing them to improve patient outcomes. **The potential to revolutionise how we diagnose, treat, and prevent eye diseases is enormous, and it's thrilling to be part of that transformation.**

2 What do you believe is the next big breakthrough in eye research?

With our understanding of ophthalmology evolving so rapidly, it's difficult to pinpoint exactly where the next big breakthrough will occur.

The ability to visualise individual cells in living human eyes is a huge opportunity, that really can't be overstated. Enabling the investigation of how the immune system contributes to eye disease, or using imaging to closely monitor a patient's response to treatment at the single-cell level, is a unique aspect of ophthalmology and optometry.

It also offers an opportunity for biologists from different disciplines to use the **eye as a gateway to understanding the cellular mechanisms of the body**, making this an exciting space to work as a research scientist.

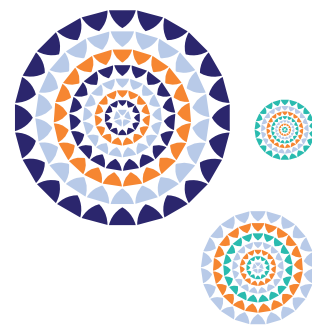
Whether it's in precision therapy, regenerative medicine or next generation imaging tools, we are doing everything necessary to ensure that when the next breakthrough comes, we'll be ready to lead the way.

A unified vision for the future

At the Lions Eye Institute, our leaders are dedicated to **advancing the frontiers of ophthalmology and vision science** as well as other disciplines that impact eye health, such as immunology and neuroscience.

With a shared commitment to innovation, collaboration and excellence, our teams are ensuring that we continue to lead the way in both clinical care and research. Together, we are shaping the future of vision care, advancing life-changing treatments and making a profound impact on the lives of patients worldwide.

New access to life-saving treatment for retinoblastoma in Western Australia



Dr Benjamin Host gently screening baby Zoe's eyes, with her family by her side

Retinoblastoma, the most common childhood eye cancer, can be life-threatening if untreated. With early detection and advanced care, the outlook for children diagnosed with this condition has improved significantly, and families in Western Australia can now access cutting-edge treatment locally.

For the first time, children in Western Australia diagnosed with retinoblastoma can receive **intra-arterial chemotherapy (IAC)**, a treatment delivered directly to the eye via the ophthalmic artery. This technique significantly enhances the chemotherapy dose to the tumour while reducing systemic side effects, compared to traditional chemotherapy.

Importantly, families no longer need to travel interstate for months of treatment, offering both hope and convenience.

Dr Benjamin Host, paediatric ophthalmologist at the Lions Eye Institute, has been instrumental in introducing this new service in collaboration with a multidisciplinary team at **Perth Children's Hospital**. Through IAC, these medical professionals aim to

save both life and vision for children diagnosed with this rare cancer.

"IAC provides a way to treat the eye directly, increasing the treatment's effectiveness and reducing the impact on the child's overall health," Dr Host explained.

"This service improves accessibility and allows for better visual outcomes while minimising the side effects typically associated with systemic chemotherapy."

Previously, families in Western Australia had to make the difficult decision to take multiple trips to Melbourne or Sydney for treatment, a logistical burden that often resulted in the heartbreaking choice to have a child's eye removed. Thanks to the new service, families can now access this treatment close to home.

Alongside Dr Host, the team leading the initiative includes **Dr Geoff Lam**, paediatric ophthalmologist, **Dr Timothy Phillips**, neurointerventional radiologist, **Dr Hetal Dholaria**, paediatric oncologist, and **Dr Jessica Gillett**, paediatric anaesthetist.

A family's story of hope and recovery

For one Perth family, during pregnancy, genetic screening revealed that their baby carried a mutation in the RB1 gene, placing her at high risk for retinoblastoma. Dr Host detected Zoe's tumour, which was smaller than 1mm in size, when she was just four weeks old. Thanks to early detection and the immediate availability of treatment, Zoe's tumour was treated with laser therapy, and she is now in remission and thriving.

Her mother, Sue Yin, shared her experience:

"When we heard the word 'retinoblastoma' during pregnancy, **the room felt instantly cold**. Even before Zoe was born, the possibility of cancer weighed so heavily on us," she said. "When the tumour was detected, within hours she was in theatre. **That urgency and speed was astonishing**. She was back to her happy self within days. Seeing her resilience, and the team's confidence, **gave us immense hope**."

"Hearing the words 'in remission' was surreal, I just held Zoe so tight, and for the first time since her birth, I let myself breathe again."

Without access to Dr Benjamin Host's expertise in Western Australia, Sue Yin believes their journey would have been far more difficult. **"We might have faced more invasive treatments or even the loss of Zoe's eyesight. Instead, she is a happy, curious child, a living testament to the power of early detection and the right care."**

About retinoblastoma

Retinoblastoma affects approximately 1 in 15,000 live births, with three to four new cases diagnosed each year in Western Australia. With early detection, the survival rate exceeds 95 per cent. Parents should be vigilant for signs such as a white reflex in the pupil (leukocoria) or a turn of the eye (strabismus). The Lions Eye Institute urges families to seek immediate specialist advice if they notice any concerning signs.



Thanks to early detection, baby Zoe's retinoblastoma was treated at just four weeks old

Photo credits: Lim Sue Yin

Lead researchers



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MBBS (Hons), PhD (Dist), FRANZCO



Professor Mariapia Degli-Esposti
BSc (Hons), PhD (Dist), FAA, FAHMS



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Dr Danial Roshandel
MD, PhD



Dr Danuta Sampson
BSc, MSc, PhD (Dist), DipEd



109
publications



9
patent families



74
researchers



25
HDR students



53
active grants

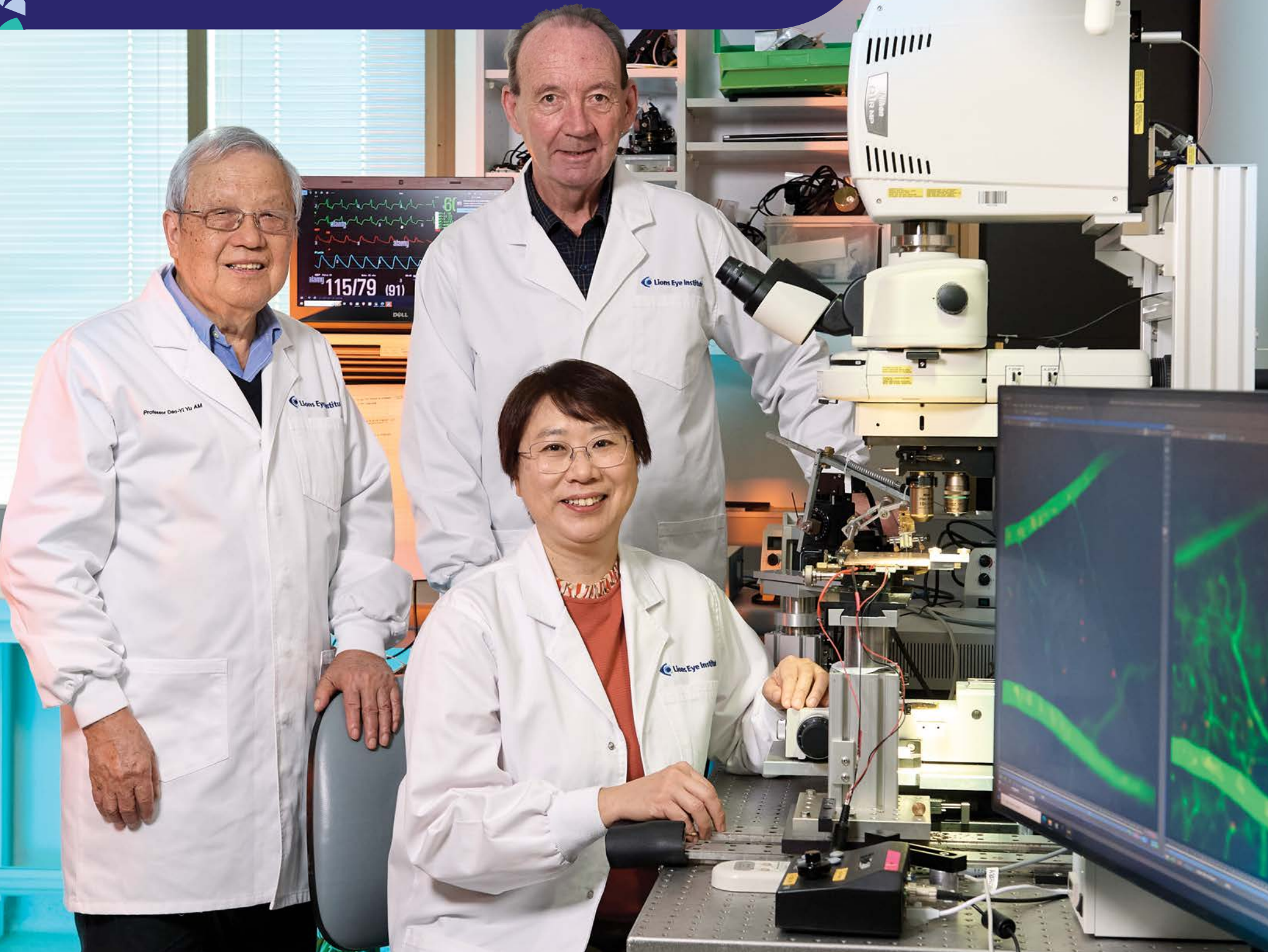
Research

Research

In 2025, the Lions Eye Institute continues to be at the forefront of groundbreaking ophthalmic research, making significant strides towards our vision of a world without vision impairment or blindness.



Associate Professor
Fred Chen
Director of Research



Professor Dao-Yi Yu AM, Professor Steve Cringle and Associate Professor Paula Yu from the Lions Eye Institute's Physiology and Pharmacology research team

From pioneering discoveries in the lab to cutting-edge advancements in clinical care, our researchers remain dedicated to transforming lives by improving sight and shaping the future of eye health.



In 2025, our six key pillars of translational research continued to guide us:

- Cornea, ocular surface and ocular immunology
- Diabetic and vascular retinopathies
- Genetic eye diseases, gene therapies and macular degeneration
- Glaucoma
- Indigenous and community eye research
- Myopia

2025 research highlights

The Institute is advancing with new research expertise and state-of-the-art technology, positioning itself at the cutting edge of discovery and clinical innovation to combat blindness.

Our scientists have secured funding for forward-thinking research projects that are driving new discoveries in eye care. Some of the exciting initiatives underway include:

- **The power of collaboration in vision research**, driving progress through partnerships at international, interstate and local levels.
- **More personalised and precise methods for glaucoma vision testing, surgery and at-home monitoring**, improving patient care and outcomes.
- **A world-first study exploring the role of the eye's immune system in myopia**, aiming to uncover new pathways for treatment.
- **Cancer diagnosis through non-invasive eye screening**, offering a revolutionary approach to early detection.
- **New research on visual snow syndrome**, advancing understanding and treatment for this often-overlooked condition.
- **Turning data into better vision for Western Australia**, harnessing the power of data to assist with the next wave of research breakthroughs.
- **Advancing new treatment pathways for inherited retinal diseases**, including breakthroughs in gene therapies, drug screening and identifying novel drug candidates.

The power of collaboration in vision research

Advancing the frontiers of medical research has always relied on more than individual expertise, it depends on connection, collaboration and shared vision.



“International collaboration is essential to delivering meaningful advances for patients with retinal disease, and the Lions Eye Institute is proud to play a leading role in these global efforts.”

Associate Professor Fred Chen

◀ Associate Professor Fred Chen examining an eye image of a patient with Stargardt disease

At the Lions Eye Institute, collaboration is not simply a feature of research, it is **the foundation that enables discovery, accelerates innovation and ultimately improves patient outcomes.**

Research without borders

Nowhere is this more evident than in the work of **Associate Professor Fred Chen and his team**, whose 2025 research portfolio demonstrates the extraordinary impact of national and international partnerships in tackling complex eye diseases.

Across 24 publications in 2025, the team's work spans inherited retinal diseases, gene therapy, advanced imaging, artificial intelligence and clinical outcomes research. These studies, including **investigations into Usher syndrome, retinitis pigmentosa, CTNNA1-associated retinal dystrophy and macular degeneration**, reflect a research program that is both deeply specialised and broadly connected. From laboratory-based stem cell models to real-world clinical data, each project is strengthened by the expertise and infrastructure of collaborating institutions.

A global network for sight

What sets this body of work apart is **not only its scientific depth, but its global reach**. The Lions Eye Institute and its partners collaborated with **more than 100 institutions across approximately 25 countries in 2025**. These collaborations span Australia, New Zealand, the United States, the United Kingdom, France, Germany, Italy, the Netherlands, Canada, China, Japan, South Korea, India, Israel, Brazil, South Africa and beyond, creating a truly international network dedicated to preserving sight.

Strength at home

At a national level, **strong partnerships within Australia** provide a critical backbone for research translation. Collaborations with **The University of Western Australia, Sir Charles Gairdner Hospital, Royal Perth Hospital and Perth Children's Hospital** ensure close integration between research and clinical care. Meanwhile, partnerships with institutions such as **The University of Melbourne, Centre for Eye Research Australia**,

University of Sydney, Curtin University and the Walter and Eliza Hall Institute expand access to complementary expertise in genetics, immunology, epidemiology and public health.

By pooling data across centres, researchers can identify trends that would be invisible within a single institution, ultimately informing better care for patients across the country.

Driving discovery together

Internationally, collaboration enables the Lions Eye Institute to contribute to, and benefit from, global advances in ophthalmology. Large-scale studies draw on **diverse patient populations and clinical practices**. This diversity strengthens the evidence base, ensuring that findings are robust, generalisable and relevant to patients worldwide.

Similarly, cutting-edge research into gene therapies and inherited retinal diseases relies on access to specialised technologies and expertise distributed across the globe. Projects exploring induced pluripotent stem cell lines, genetic risk factors and novel disease mechanisms bring together clinicians, geneticists, bioinformaticians, and laboratory scientists from multiple disciplines. The result is a **powerful multidisciplinary approach that accelerates the path from discovery to therapy**.

Technology and teamwork

The **integration of emerging technologies** further highlights the importance of collaboration. The team's **review of artificial intelligence in inherited retinal diseases**, along with studies using advanced imaging techniques such as optical coherence tomography, demonstrate how partnerships with data scientists, engineers, and international clinical centres are **shaping the future of diagnosis and monitoring**. These collaborations allow researchers to harness large datasets and sophisticated analytical tools that would be difficult to access in isolation.

Importantly, collaboration is not only about scale, it is about perspective. By working across health systems, cultures and scientific disciplines, researchers gain new ways of understanding disease. This is particularly valuable in rare and inherited conditions, where **global collaboration is often essential to recruit sufficient patient numbers and uncover meaningful insights**. Studies on conditions

such as Usher syndrome, ROSAH syndrome and rare genetic mutations illustrate how shared knowledge can unlock answers for patients who might otherwise be left without options.

Looking ahead

For patients, the impact of this collaborative approach is profound. It means faster progress towards treatments, more accurate diagnoses, and **access to clinical trials informed by the latest global evidence**. It also ensures that Western Australian patients are connected to a worldwide network of expertise, bringing the benefits of international research directly into local care.

As the Lions Eye Institute continues to expand its research footprint, collaboration will remain central to its mission. In vision research, no single organisation can solve the most complex challenges alone. But together, through shared knowledge, resources and ambition, we can move closer to a future where **preventable blindness is eliminated, and sight is preserved for all**.



Formal and organic research collaboration

Research networks can grow **organically** through inter-institutional collaboration, where researchers visit each other or meet up at conferences and decide to collaborate. It can also happen more **formally**, within defined international study groups. In this case, experts, like Associate Professor Fred Chen, are invited to join select groups and contribute to more structured research efforts.



2025 Global research network linked with Associate Professor Fred Chen



Australia

- 5 Cities
- 8 Hospitals
- 7 Universities
- 4 Research Institutes

Belgium

- 1 University

Brazil

- 1 University

Canada

- 3 Cities
- 1 Hospital
- 1 Research Institute

China

- 1 Hospital

France

- 5 Cities
- 1 Hospital
- 5 Universities
- 5 University Hospitals

Germany

- 4 Cities
- 3 Universities
- 1 University Hospital

Greece

- 1 University Hospital

India

- 1 Hospital

Ireland

- 1 Hospital

Israel

- 1 Hospital
- 1 University

Italy

- 6 Cities
- 1 Hospital
- 2 Research Institutes
- 4 Universities

Japan

- 1 University
- 1 University Hospital

Lebanon

- 1 University

New Zealand

- 1 University

Palestine

- 1 Hospital

Poland

- 1 University

Singapore

- 1 Hospital
- 1 University

South Africa

- 1 University

South Korea

- 1 University Hospital

Switzerland

- 2 Research Institutes
- 1 University

Taiwan

- 1 University

Thailand

- 1 Hospital
- 1 University

The Netherlands

- 6 Cities
- 1 Research Institute
- 5 University Medical Centres

United Kingdom

- 7 Cities
- 3 Hospitals
- 7 Universities
- 2 University Hospitals

United States of America

- 18 Cities
- 1 Hospital
- 11 Research Institutes
- 11 Universities
- 1 University Hospital

Associate Professor Fred Chen's 2025 research collaboration network extends to more than 100 institutions locally, interstate and internationally. These institutions span across approximately 25 countries.

Stem cell robot delivers research impact

Dr Samuel McLenachan, senior laboratory research scientist at the Lions Eye Institute, with the stem cell robot

In 2025, the stem cell robot at the Lions Eye Institute continued to unlock new discoveries about inherited retinal diseases (IRDs).



Acquired in 2023, thanks to support from the **Channel 7 Telethon Trust** and **Mrs Rhonda Wyllie**, the robot has proven invaluable to the research of the Ocular Tissue Engineering Laboratory (OTEL) here at the Institute, which is overseen by Associate Professor Fred Chen, retinal specialist and Director of Research at the Institute.

The stem cell robot has made it possible to **automate the process of reprogramming patient cells to become stem cells**, which involves carefully controlling the cells' environment and culture conditions. In doing so, the robot delivers a level of precision and stability that would otherwise be incredibly labour-intensive.

As a result, Dr Samuel McLenachan, senior laboratory research scientist at the Lions Eye Institute, and his team have been able

to successfully reprogram cells from patients with Usher syndrome and Stargardt disease into stem cells. By doing so, the OTEL team can gain a deeper understanding of the cell mutations that contribute to these IRDs.

Additionally, the **SPARK Cyto 600 multimodal imager**, which the Institute acquired at the end of 2025 thanks to the generosity of our supporters, **John and Lee Saleeba**, has greatly improved the process by which stem cells are assessed and validated after reprogramming. By working alongside the stem cell robot, **the SPARK Cyto's automated imaging enables the routine monitoring of cell cultures and a wide range of cellular and**

molecular tests. These tests are essential for the OTEL's high-throughput stem cell production and drug screening activities.

The system is already yielding results, with a screening of **277 antioxidant drugs** identifying three promising candidates for further testing as potential treatments for RCBTB1-associated retinopathy, a rare IRD that causes the retina to gradually stop working.

Finding a treatment could mean slowing or even stopping the progression of vision loss caused by the disease.



The Perron Paediatric Retinopathy Initiative

One child, one scan, many opportunities for earlier care

For children living with diabetes, the greatest risk is not only what the disease may do today, but what it may silently cause over a lifetime. Diabetes can injure the eyes, kidneys, nerves, heart and blood vessels long before symptoms appear. By the time conventional tests detect established complications, some tissue damage may already be difficult to reverse.



Professor Chandra Balaratnasingam examines the eye of patient Finn, using advanced optical coherence tomography (OCT) equipment

The Perron Paediatric Retinopathy Initiative at the Lions Eye Institute was created to change this trajectory. Established in 2021 through the generous support of the **Stan Perron Charitable Foundation**, the programme is developing safer, earlier and more child-friendly ways to detect diabetes-related complications before permanent harm occurs.

Led by **Professor Chandra Balaratnasingam** and **Professor Dao-Yi Yu AM**, the Initiative brings together paediatric eye screening, advanced retinal imaging, laboratory discovery and collaborations with specialists in childhood diabetes, kidney disease and biomedical image analysis. This year, the programme enters an important new phase – **moving beyond the detection of diabetic eye disease alone towards the earlier identification of multi-system complications in children.**

Turning an eye test into a whole-child health signal

Children with diabetes already undergo eye screening to detect diabetic retinopathy. The **Perron Paediatric Retinopathy Initiative** is building on this familiar clinical pathway by asking whether more detailed retinal imaging can reveal earlier signs of injury across the body.

Using advanced optical coherence tomography (OCT) and optical coherence tomography angiography (OCTA) equipment, the Lions Eye Institute team can examine retinal nerve layers and microscopic blood-flow patterns in a matter of seconds. A major focus is the **inner plexiform layer**, a region of the retina with high energy demand that appears especially vulnerable to the metabolic stress of diabetes. The team is investigating whether subtle changes in this layer, together with alterations in blood flow and oxygen supply to the retina, can identify children at increased risk before diabetic retinopathy becomes visible on standard photographs.



Perron Paediatric Retinopathy Initiative researchers at the Lions Eye Institute are moving beyond the detection of diabetic eye disease alone towards the earlier identification of multi-system complications in children

New technology for a new era of screening

A major milestone this year has been the arrival of the **BMizar 400 kHz OCT/OCTA** scanner at the Institute. This is the first system of its kind in Australia. Made possible through the continued generosity of the **Stan Perron Charitable Foundation**, this technology represents an important advance for both patient care and research.

The BMizar can capture up to 400,000 scans per second, producing **highly detailed three-dimensional images of the eye**. It allows clinicians and researchers to visualise structures at the front and back of the eye, and to assess retinal blood flow without invasive dye or contrast injections. For children, this means scans that are rapid, painless and often possible without dilating drops.

For the Perron Paediatric Retinopathy Initiative, the significance is profound. Higher-quality imaging will allow the team to detect smaller and earlier changes in retinal structure and blood flow. It will **strengthen screening, improve research precision, and help accelerate the development of retinal biomarkers** that may predict broader diabetes complications before they become clinically apparent.

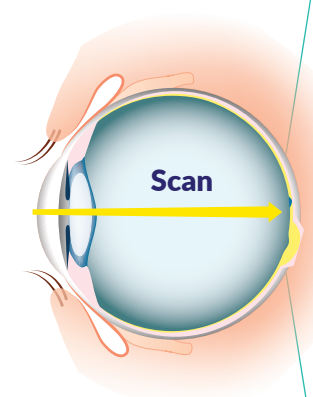
Detecting complications before they become lifelong problems

Current diabetes care often requires separate investigations for different organs, such as eye checks, urine tests, blood tests, kidney assessments and specialist reviews. For children and families, this can mean repeated appointments, missed school, travel, discomfort and anxiety.

The Perron Paediatric Retinopathy Initiative is working towards a more integrated model. By linking retinal imaging with the **Western Australian Children's Diabetes Database**, researchers can compare eye scan findings with detailed information on blood glucose control, blood pressure, kidney function, lipid profile and other **markers of systemic health**. The aim is to determine whether retinal changes can act as an early biological signal of broader diabetic injury.

If successful, this approach could help clinicians identify which children need closer monitoring, earlier intervention or more personalised care. It may also reduce unnecessary referrals and invasive testing for children at lower risk. For families in regional and remote Western Australia, **a rapid, non-invasive scan that helps guide multi-organ risk assessment could make specialist care more accessible and less disruptive.**

Retinal-imaging based oculomics



Diabetic complications

Eye: Diabetic retinopathy

Damage to blood vessels in the eyes, early onset of blurred vision and decreased vision

Kidney: Diabetic nephropathy

Kidney dysfunction, clinical symptoms including excessive proteinuria, hypertension and oedema

Foot: Diabetic foot

Ulcers, infections and deep tissue damage related to peripheral vascular disease, in severe cases, can affect muscles and bones, leading to tissue necrosis and even amputation

Brain: Cerebrovascular disease

Atherosclerosis can lead to cerebral infarction and cerebral haemorrhage

Heart: Cardiovascular disease

Cardiovascular stenosis can endanger the heart, leading to angina and myocardial infarction

Nervous system: Diabetic peripheral neuropathy

Bilateral limb pain, numbness and sensory abnormalities

Designed with families, not just for families

Families have played an important role in shaping the direction of the Initiative. Through consumer consultation, parents and carers described the burden of repeated testing, the emotional weight of long-term uncertainty and the fear of complications such as blindness and kidney failure.

Their priorities are clear – earlier answers, fewer invasive tests, less disruption, and care that reflects the realities of childhood and family life. This feedback has helped guide the next phase of the programme, including the **emphasis on a single, child-friendly retinal imaging test** that could provide information relevant to multiple organs.

From early detection to prevention

The long-term vision of the Perron Paediatric Retinopathy Initiative is to **shift diabetes care from reacting to complications after they appear to identifying risk early enough to prevent them.**

This work also connects the Lions Eye Institute to a broader international effort to prevent diabetes-related vision loss. Professor Balaratnasingam is an investigator in the **Moonshot Initiative** which is an international collaboration involving **Breakthrough T1D** and the **Mary Tyler Moore Vision Initiative**, aimed at developing paradigm-shifting strategies to prevent diabetic vision loss.

For children, the ultimate goal is fewer complications, fewer invasive tests, better targeted care and healthier lives. For Western Australia, the programme offers a scalable model that could improve diabetes care in metropolitan, regional and remote settings.

Expanding the team for the next phase

The clinical strength of the Perron Paediatric Retinopathy Initiative continues to grow. **Professor Balaratnasingam** (pictured top) and **Dr Antony Clark** (pictured middle) have led the paediatric diabetic retinopathy screening programme at the Lions Eye Institute since its establishment. This year, **Dr Benjamin Host** (pictured bottom) joins the Initiative as a new ophthalmologist in the programme, adding further paediatric ophthalmology expertise at a critical stage of expansion.

Dr Host will contribute to **participant recruitment, clinical assessment and the care of children undergoing screening.** His involvement strengthens the programme's capacity as it broadens from eye screening alone into a research platform designed to improve long-term health outcomes for children with diabetes.



Finn and his Mum Oonline. Finn was diagnosed with Type 1 diabetes at three years of age

The Lions Eye Institute extends its sincere gratitude to the Stan Perron Charitable Foundation for its support of the Perron Paediatric Retinopathy Initiative.

We also acknowledge support from Roche Pharmaceuticals, Bayer Pharmaceuticals, Perth Eye Foundation, the Department of Health in Western Australia and the WA Child Research Fund, funded by the Western Australian Government and the Channel 7 Telethon Trust towards this program of research.

Their generosity is enabling a programme that combines advanced science, compassionate care, world-class imaging technology and family partnership with the shared goal of protecting the sight, health and future of children living with diabetes.

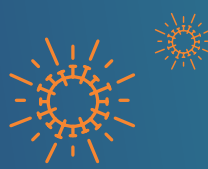


STAN PERRON
CHARITABLE
FOUNDATION



A new vision for earlier cancer detection

Exemplifying our commitment to world-leading translational research, the Lions Eye Institute is using advanced retinal imaging to develop a novel, non-invasive test for detecting solid organ cancers.



The central concept is simple but potentially transformative. The eye provides a **direct optical window into the body's microcirculation** and subtle cancer-related vascular changes may be detectable in the retina before they are clinically apparent elsewhere.

The work is led by **Professor Chandra Balaratnasingam**, **Associate Professor Paula Yu** and **Dr Brendan Luu**, in collaboration with Associate Professor Tarek Meniawy from **Sir Charles Gairdner Hospital**. It is also supported by **Professor Mariapia Degli-Esposti** and Dr Iona Schuster at **Monash University**, reflecting a cross-disciplinary approach to discovery.

The urgent need to find cancer earlier

Cancer remains one of the major causes of death in Australia and worldwide. Early detection is one of the most powerful ways to improve survival rates.

Current screening pathways, however, remain fragmented and organ-specific. In Australia, established population-based screening programmes are available for breast, cervical and bowel cancer, with a risk-based lung cancer programme being introduced. **Many other cancers, including ovarian and pancreatic cancer, still lack effective screening tests** and diagnostic pathways may be invasive, expensive or inaccessible.

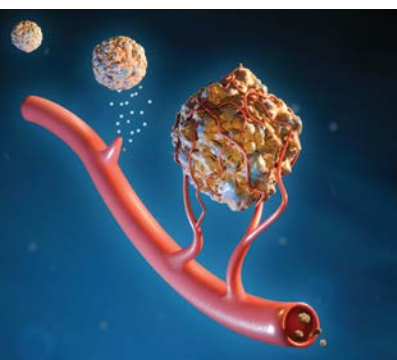
Rather than developing a separate test for each cancer type, the Lions Eye Institute's research team is investigating whether a **single retinal scan can detect a shared biological signature of cancer**: angiogenesis, the growth of new blood vessels driven by tumour-related growth factors.

How the eye could reveal cancer elsewhere in the body

Many solid organ cancers release elevated levels of **growth factors** into the blood and surrounding tissues. These molecules are central to **tumour angiogenesis**, allowing cancers to attract new blood vessels, grow and spread. The **retina** is especially **sensitive to changes in growth factor signalling** because it has a dense microcirculation and high expression of growth factor receptors, making it a unique biological sensor of systemic vascular change.

Associate Professor Paula Yu has generated preliminary evidence from human donor eyes showing that solid organ cancers may induce a **distinct pattern of retinal angiogenesis**. These changes appear to differ from patterns seen in retinal vascular diseases such as diabetic retinopathy. The team's working hypothesis is that cancer-induced retinal angiogenesis can be characterised, quantified and ultimately used as a **biomarker of systemic cancer activity**.

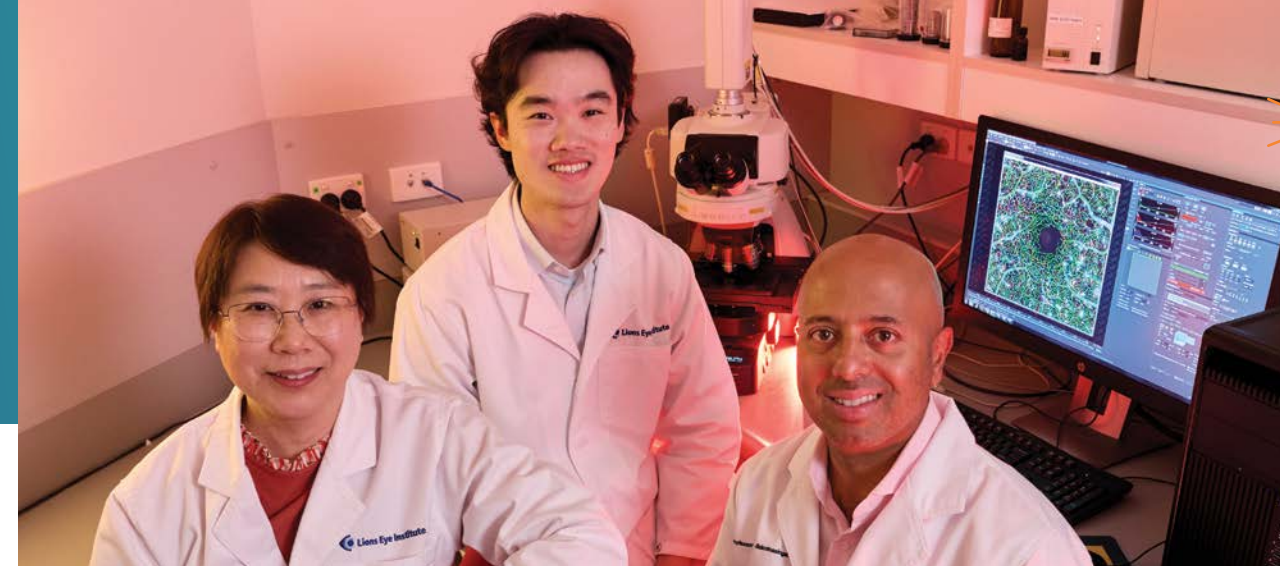
The programme has two complementary arms. First, the **laboratory team** is using human donor eyes obtained through the Lions Eye Bank to **define the structural and cellular features of cancer-induced retinal vascular change**. This includes high-resolution immunolabelling and confocal microscopy to examine the retinal microcirculation in exceptional detail. In partnership with Monash University, the team is also studying cancer-related vascular effects in mouse models, strengthening the biological foundation of the work.



What is Angiogenesis?

Angiogenesis is the process your body uses to grow new blood vessels. It's a normal and important part of healing and growth. But in cancer, tumours can use angiogenesis to feed themselves and grow. That's why some treatments focus on stopping this process – to help slow or stop the cancer.

◀ Image illustrating tumour angiogenesis, including growth factors (blue dots) that stimulate angiogenesis



Associate Professor Paula Yu, Dr Brendan Luu and Professor Chandra Balaratnasingam are using advanced retinal imaging to develop a novel, non-invasive test for detecting solid organ cancers

Second, the **clinical team is validating these findings** in living patients using optical coherence tomography angiography (OCTA). OCTA is a rapid, dye-free and non-invasive imaging technology that can visualise the microscopic blood vessels of the retina in real time.

The Institute's team has spent more than a decade refining OCTA methods that quantify both retinal microvascular structure and blood-flow behaviour. A key strength is that these OCTA methods have been validated against human retinal histology, providing a rigorous foundation for clinical interpretation.

Building a bridge between laboratory discovery and clinical impact

Through **collaboration with Associate Professor Meniawy** and the **Department of Medical Oncology at Sir Charles Gairdner Hospital**, the Lions Eye Institute has begun recruiting patients with newly diagnosed solid organ cancers into the clinical arm of the study. Imaging is performed before cancer treatment wherever possible, allowing the team to study cancer-related retinal vascular changes without the confounding effects of therapy.

The study will compare retinal imaging findings in cancer patients with those of healthy control participants and examine whether retinal vascular changes correlate with cancer type and stage.

If successful, this work could establish a new clinical biomarker for cancer-induced angiogenesis and provide a platform for earlier detection, risk stratification and monitoring of response to anti-angiogenic cancer therapies.

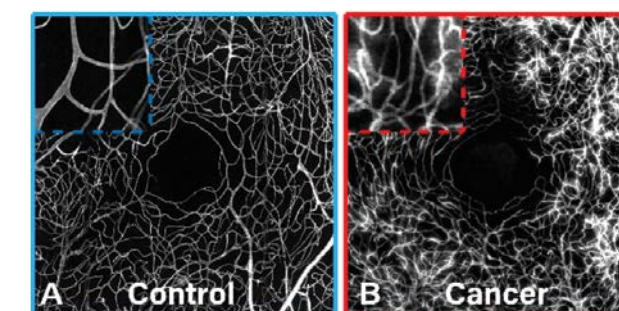
A future where one eye scan could help detect cancer

The long-term vision is to create a **rapid, affordable and scalable cancer detection platform that could be integrated into existing ophthalmic and optometric workflows**. Because OCT and OCTA technologies are already widely used in eye care, this approach has a practical pathway to broad implementation without the need for entirely new clinical infrastructure.

Beyond cancer screening, the programme may open new avenues for understanding how systemic disease is reflected in the eye. It also positions the Lions Eye Institute at the **forefront of a new field linking retinal imaging, vascular biology and oncology**.

Thank you for helping make this possible

We gratefully acknowledge the **Perth Eye Foundation**, the **Charlies Foundation for Research** and **our supporters** for their visionary investment in this work. Their support is enabling our researchers to pursue a bold idea with the potential to change how cancer is detected, monitored and understood – bringing hope to patients and families in Western Australia and beyond.



OCTA images showing retinal vascular density and permeability are significantly increased in cancer patients

Myopia research in focus: Three groundbreaking approaches



The Andor BC43 Benchtop Confocal microscope is producing stunning, high-resolution images of zebrafish embryos in real time

Combatting the rising rates of childhood myopia is an urgent public health challenge, with projections suggesting that half of the world's population could be affected by 2050. Early detection and intervention are crucial to preventing long-term vision loss and related complications.



At the Lions Eye Institute, three of our leading researchers are investigating different ways to identify the causes, early interventions and treatments to help prevent severe myopia.

Vital equipment gifts propel Dr Jessica Mountford's early-onset myopia research

Dr Jessica Mountford and the Functional Molecular Vision team are investigating the genetic and environmental factors driving myopia, with a focus on early-onset high myopia. Using zebrafish screening and genome-wide association studies in Western Australian school children, the team aims to discover new treatment strategies for myopia progression.



Thanks to two vital equipment gifts, the research has made significant advancements. A generous bequest from patient **Sandra**, funded the acquisition of the **Bioptigen OCT system**, a cutting-edge imaging tool that allows detailed eye examination. This system is critical not only for myopia research but also for conditions like glaucoma and macular degeneration. **"Sandra's gift has had an immediate impact,"** says Dr Mountford. **"It's supporting research that could ultimately change lives for people with various eye conditions."**

The second milestone came with the installation of the **Andor BC43 Benchtop Confocal Microscope**, the first of its kind in Western Australia. Funded by a donor's contribution at the **Leeuwin Lunch for the Channel 7 Telethon Trust**, this equipment revolutionises the zebrafish ocular genetics platform, allowing live observation of eye development and tracking retinal cells. **"This microscope opens new possibilities in myopia research,"** Dr Mountford explains.

The new technology provides insights that could lead to strategies for slowing or even preventing myopia, particularly in children. Other milestones include establishing a **Consumer and Community Involvement group** to support Dr Mountford's research and organising the **Australian and New Zealand Zebrafish Meeting** in Perth, 2027, which will bring together key researchers from the Asia-Pacific region to present their work.

Tracking eye growth to prevent childhood myopia

Building on the Raine Study Generation 3 and ORIGINS studies, **Professor David Mackey AO**, **Dr Samantha Lee** and **Dr Gareth Lingham** are conducting eye examinations in children to map eye growth and track the early signs of myopia. By linking eye development with lifestyle factors such as outdoor activity and sports participation, the team aims to identify children at risk of developing myopia and develop simple, practical interventions. These include walking or riding to school or engaging in outdoor sports, particularly over the winter months or even just having family meals outside.

"We're focusing on early intervention," says Professor David Mackey AO. **"By understanding the relationship between eye growth and lifestyle, we can help protect vision, promote healthy habits and improve lifelong eye health."**

Professor David Mackey AO > and his team are mapping eye growth in children and tracking the early signs of myopia



The team's research aims to provide valuable insights into how myopia develops in childhood and how to mitigate its progression through targeted lifestyle changes that increase time outdoors safely. The goal is not just to slow down the onset of myopia but to prevent it starting, helping children maintain healthy vision as they grow.

With myopia rapidly becoming one of the most common vision problems worldwide, Professor Mackey's work has the potential to significantly influence myopia management and prevention strategies, making an impactful contribution to global eye health.

Exploring the immune system's role in myopia

A world-first global study at the Lions Eye Institute is revealing new insights into myopia. Led by **Associate Professor Holly Chinnery**, this pioneering research is shifting the focus from traditional genetic and structural views to the **potential role of the immune system in myopia's development**.

Myopia occurs when the eye grows too long. Recent evidence suggests inflammation and immune activity in the front of the eye, and systemically throughout the blood circulation, may also play a key role. **"This opens up entirely new treatment possibilities,"** Associate Professor Holly Chinnery explains. If immune signals or pathways are identified, researchers could potentially slow or prevent myopia progression in children, even before symptoms appear.

"For the first time, we can watch immune cells moving inside the human eye," says Associate Professor Chinnery, describing the cutting-edge imaging technology that makes this possible. The study also explores how atropine eye drops, commonly used to slow myopia, might influence the immune system, potentially reshaping myopia management. Beyond vision, the imaging technology could also help detect or monitor immune responses to therapies in people with other eye conditions like dry eye disease, or age-related macular degeneration.

This research study, which is currently in the recruitment phase, has the potential to protect future generations from vision loss and unlock critical insights into overall health.



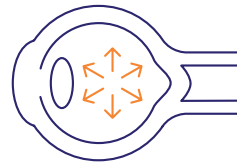
"We have the equipment, the expertise, and the excitement to push this forward. The Lions Eye Institute has a strong history of doing high-class, internationally recognised research into the cause and prevention of childhood myopia. What we need now is support to scale up and transform how we understand myopia, using novel, innovative techniques."

Associate Professor Holly Chinnery is pioneering research into possible links between the immune system and myopia

Shaping the future of glaucoma care

Innovating treatment, diagnosis and patient outcomes in glaucoma management

Glaucoma is the second leading cause of blindness worldwide, affecting millions of people. At the Lions Eye Institute, we are continually advancing the frontiers of glaucoma research, diagnosis and treatment, striving to improve the lives of those affected by this debilitating condition.



At the Lions Eye Institute, our work in glaucoma is driven by one clear goal: **protecting people's sight and quality of life**. Every day, our researchers and clinicians work to better understand this life changing disease, finding earlier signs of glaucoma, testing new treatments, and tailoring care to each individual. By combining knowledge from clinical care with world class science and technology, we are helping people living with glaucoma maintain their independence and vision – making a real difference for patients and families across Western Australia and beyond.

2025 highlights

- ★ **A more personalised approach to vision testing**
- ★ **Enhancing success in glaucoma surgery**
- ★ **Collaborative glaucoma care in Midland**
- ★ **Testing intra-ocular pressure at home**

We are now two years into our world-leading three-year longitudinal study of new methods of measuring visual fields: The Individualised Perimetry Progression Observations in Glaucoma Study (IPPOGS). This study is exploring new, more **personalised ways to test vision and detect progressing glaucoma-related damage earlier**. Instead of using a one size fits all vision test, researchers are tailoring tests to each person's unique pattern of vision, aiming to help doctors spot changes sooner and make treatment decisions earlier to better protect sight.

The study also combines these customised vision tests with highly detailed imaging of the retina to look at **both the structure and blood flow of the eye**.

By using advanced computer analysis and expert data science, researchers aim to improve how glaucoma is monitored over time. Ultimately, this work is designed to lead towards better, more personalised care and improved outcomes for people living with glaucoma. Preliminary results will be presented at leading international conferences in the USA and Europe in 2026 by **Professor Allison McKendrick and Professor Andrew Turpin**, ensuring global reach.

Enhancing success in glaucoma surgery

Glaucoma filtration surgery is essential for lowering intra-ocular pressure and protecting vision, but its success is often limited by inflammation and scarring within the drainage pathways. Our research focuses on a potential contributor to this problem – the conjunctival lymphatic system – exploring whether impaired lymphatic drainage reduces the eye's ability to clear aqueous fluid after surgery.

With support from the **McCusker Charitable Foundation**, we have developed and patented a novel, non-invasive Optical Coherence Tomography Lymphangiography platform that can **visualise the lymphatic vessel network in the human eye**. This technology allows us to evaluate lymphatic function before and after surgery, link lymphatic health to surgical outcomes and refine techniques.



Professor Andrew Turpin and Professor Allison McKendrick

Around 300,000 Australians and more than 80 million people worldwide are affected by glaucoma.

Source:
glaucoma.org.au

For example, positioning drainage devices in regions with more robust lymphatic networks to improve success rates and minimise the need for postoperative interventions.

Ultimately, this work aims to **reshape glaucoma surgery by incorporating lymphatic imaging into preoperative planning, reducing complications and delivering better long-term outcomes** for patients.

Ensuring timely glaucoma care through collaboration

In 2025, the Lions Eye Institute, in partnership with **The University of Western Australia (UWA) and Royal Perth Hospital (RPH)**, developed comprehensive patient referral protocols and tele-ophthalmology flow pathways to ensure the safe and efficient management of RPH public glaucoma patients through a pilot collaborative care model. The necessary equipment was also established to facilitate patient reviews.

Funded by the **WA Government's Future Health Research and Innovation Fund**, this initiative incorporates UWA's Doctor of Optometry students into the Midland clinic, where they support patient care under expert supervision. This innovative care model seeks to manage stable glaucoma locally, alleviating pressure on hospital services and ensuring timely, high-quality care for those who need it most.

A key goal of this initiative is to reduce the current waiting list of approximately 800 RPH patients who

are overdue for their recommended follow-up visits at RPH. We are excited to have laid the groundwork for the clinic's operation and look forward to welcoming our first patients in 2026, ultimately **easing the burden on public hospitals and enabling patients to be seen sooner**.

Testing intra-ocular pressure at home

Since 2024, the Lions Eye Institute has been helping people with glaucoma monitor their eye health from the comfort of home. Through a new device loan program, **patients can now measure their eye pressure themselves**, rather than relying only on clinic visits.

In 2025, this home eye pressure monitoring was expanded as part of a major research study, with industry partner support. Each person is collecting eye pressure readings multiple times a day over a four week period. Using this data, **researchers can better understand how eye pressure changes over time**, which is not possible with sporadic in-clinic measurements. The detailed eye-pressure information will be combined with detailed vision tests and high resolution eye scans to build a clearer picture of how glaucoma progresses.

By giving people the tools to track their eye health at home, this work aims to **detect changes earlier, prevent avoidable vision loss, and make glaucoma care more responsive to each person's needs**.

Decoding visual snow syndrome



Visual snow syndrome is a neurological condition that affects how people see. Those with visual snow syndrome experience constant tiny flickering dots across their vision, a bit like watching the world through static. Many people also notice other unusual visual symptoms.



An illustration of how people with visual snow syndrome experience vision. Typical vision is depicted on the left, while the right illustrates some key visual symptoms of visual snow syndrome. These include visual snow (dots throughout the image), persistent afterimages (e.g. a shadowy copy of a dead tree), trailing of images behind moving objects (e.g. a swan in flight) and prominent floaters (dots and squiggles, most noticeable against bright backgrounds like the sky).

Over the past ten years, visual snow syndrome has gained greater recognition and research interest, leading to its formal inclusion in the International Classification of Diseases (ICD 11) in 2025. Despite this progress, many health professionals are still unfamiliar with the condition, which can make it hard for people with visual snow syndrome to get timely and appropriate care.

In 2025, the team has begun dedicated visual snow research at the Lions Eye Institute. **Professor Allison McKendrick** was joined by Dr Cassandra Brooks, her former PhD student from the University of Melbourne, whose doctoral research focused on visual snow syndrome.

Working with colleagues at the University of Melbourne, the team is aiming to **improve awareness and understanding of visual snow syndrome among optometrists across Australia** and conduct research into the brain mechanisms involved in the condition.

In 2025, the team has contributed to the field by writing an invited review on the current state of visual snow research for the prestigious, invitation only journal **Annual Reviews of Vision Science**.



Professor Allison McKendrick, Lions Eye Institute UWA Chair in Optometry Research

Turning data into better vision for Western Australians



At the Lions Eye Institute, data is more than numbers on a screen, it is a powerful tool for understanding how eye disease develops, how it can be detected earlier and how care can be improved for patients across Western Australia.

Over the past year, **Professor Andrew Turpin**, Lions Curtin Chair of Ophthalmic Data at the Lions Eye Institute, and the data analytics research team he leads has brought this vision to life, transforming vast amounts of clinical information into insights that are already shaping the future of eye health in Perth.

One of the group's most significant achievements has been a **large-scale analysis of myopia, or short-sightedness, across the Perth community**. Drawing on clinical data from more than 180,000 eyes, the team has mapped how rapidly the prevalence of myopia is increasing in the community. These findings are critical, as rising rates of myopia are closely linked to modern lifestyle factors and can lead to more serious eye conditions later in life. By identifying these trends, the Lions Eye Institute is helping to inform prevention strategies and guide public health responses aimed at protecting vision for future generations.

The team has also made important advances in understanding how vision loss is detected. Through the analysis of 250,000 visual field tests, which are used to monitor conditions such as glaucoma, they found that newer, faster testing methods may overlook small but clinically meaningful areas of damage that traditional tests can detect. This insight is already prompting careful consideration of how best to balance efficiency with diagnostic accuracy, ensuring that patients receive the most reliable assessments possible.

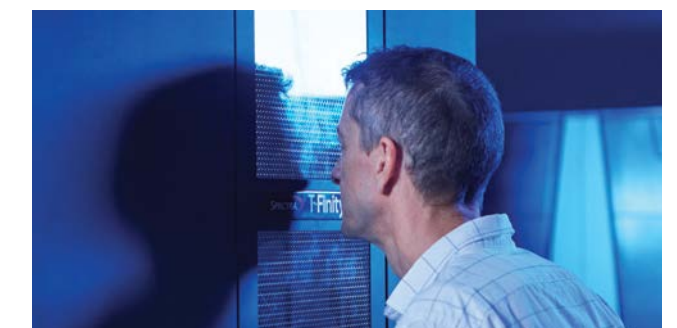
A smarter data future

Behind these breakthroughs is a major step forward in how data is managed and used. The launch of the **Lions Eye Institute Data Lakehouse** initiative marks a significant milestone towards the goal of converting all clinical data into a format that is easy for researchers to use.

Guided by a robust Information Management Policy and supported by strong governance frameworks, all projects are conducted with a clear commitment to ethical standards, patient privacy and research integrity **in partnership with The University of Western Australia and Curtin University**. By transforming complex clinical data into a secure, accessible format, the initiative enables researchers to work more efficiently and collaboratively.

For Professor Turpin, the impact of this work is both immediate and far-reaching. **"We are only just beginning to see what is possible when you bring together high-quality clinical data and advanced analytics,"** he said. **"Every dataset represents thousands of patient journeys. By learning from them, we can improve how we detect disease, how we monitor it and ultimately how we care for people."**

As the Lions Eye Institute continues to harness the power of data, our Data Analytics Group is **ensuring that Perth remains at the forefront of eye health research**. Our work is not only enhancing today's clinical care but also building a foundation for tomorrow's discoveries – where smarter use of data leads to earlier interventions, better treatments, and improved vision outcomes for all.



Drawing on clinical data from more than 180,000 eyes, Professor Andrew Turpin is conducting large-scale analysis of clinical data to map how rapidly the prevalence of myopia is increasing in the Perth community

Fostering international collaboration to advance regenerative treatments for corneal blindness

The Lions Eye Institute is at the forefront of advancing regenerative treatments for corneal blindness, a critical area of ophthalmic research with the potential to transform patient outcomes globally.



Under the leadership of **early-career clinician-scientist Dr Danial Roshandel**, our research program is committed to developing innovative solutions that restore sight to individuals affected by corneal diseases.

In 2025, Dr Roshandel undertook an invitational professional visit to Spain, enhancing his expertise through **collaboration with leading international researchers and clinicians in the field**. This visit, facilitated by a longstanding collaboration with **Associate Professor Michael Edel**, was pivotal in strengthening the Institute's global partnerships and advancing our regenerative medicine research.

A central component of the visit was a four-week observership at the prestigious **Barraquer Ophthalmology Centre in Barcelona**.



Presentation at the Barraquer Ophthalmology Centre clinical session. Professor Rafael Barraquer, Corneal Surgeon and Medical Director, Dr Danial Roshandel, and Associate Professor Michael Edel, Principal Scientist at the University of Barcelona and The University of Western Australia (left to right).

This hands-on experience provided Dr Roshandel with valuable insights into advanced corneal and ocular surface management techniques. It also included opportunities to engage with high-volume, specialised care models and contemporary surgical approaches, reinforcing the Institute's commitment to integrating international best practices into our clinical and research efforts.

Dr Roshandel's visit extended to several leading institutions in Spain, including the **Banc de Sang i Teixits** and the **Hospital Clínic de Barcelona**, as well as the **IOBA Applied Ophthalmology Institute** in Valladolid and **IdiPAZ** in Madrid. At these institutions, he delivered an invited presentation, participated in clinical and laboratory tours and engaged in discussions on collaborative opportunities in regenerative medicine. These interactions are **setting the stage for future joint research initiatives**, advancing the global understanding of ocular surface disorders and regenerative therapies.

A key highlight of the visit was Dr Roshandel's engagement with **Professor Jorge Alió** at Vissum in Alicante, a renowned leader in corneal and refractive surgery. This meeting offered valuable exposure to an integrated clinical-research model and the latest advances in corneal regeneration, further expanding the scope of Dr Roshandel's research.

The experience has been instrumental in identifying emerging technologies and trends in ocular surface research, while also **strengthening collaborative networks** that will support the Institute's long-term goals. Dr Roshandel's ability to benchmark against global leaders in the field has already enhanced his clinical and research capabilities, with direct applications to ongoing work at the Lions Eye Institute.

Dr Danial Roshandel with Professor Jorge Alió, Professor and Chairman of Ophthalmology, Miguel Hernández University and President, Vissum Corporation, Alicante (left to right)



In 2025, Dr Roshandel's efforts were further recognised through the successful acquisition of two state government research grants. His research contributions continue to make an impact, as evidenced by multiple presentations at international conferences and contributions to high-impact peer-reviewed publications. The outcomes of these collaborations will continue to shape the **translational research portfolio** at the Lions Eye Institute, positioning us as a global leader in regenerative treatments for corneal blindness.

Consumer and community engagement in research

At the Lions Eye Institute, research excellence is not just about groundbreaking scientific discovery, but also about ensuring that research is relevant, meaningful, and beneficial to the communities it aims to serve.

One of the ways we achieve this is through **active Consumer and Community Involvement (CCI)**. This commitment ensures our research remains grounded in real-world needs and priorities.

A cornerstone of this approach is the **involvement of individuals with lived experience of eye conditions and vision loss**. Their insights shape everything from research priorities to study design, ensuring that the outcomes of research reflect the needs of the people it aims to help.

Currently, the Lions Eye Institute supports approximately 18 CCI groups and activities. Some research programs have multiple groups tailored to specific areas of study, such as inherited retinal

diseases or myopia. This flexible, project-based model allows researchers to engage directly with the communities that are most affected by their work, ensuring research aligns with patient-driven goals.

Through this approach, the Lions Eye Institute demonstrates its ongoing commitment to not only advancing science but also fostering a research environment that **listens, engages, and responds** to the needs of those who matter most, our patients.

Getting involved

Are you a consumer that would like to be involved in a research CCI group? Register your interest by filling in a form available here:



Dr Danuta Sampson leads a consumer and community involvement (CCI) group for her research into precision mapping of retinal microvasculature and early detection of diabetic eye disease. One of the community participants in this group, Tim, said he wanted to get involved as he hopes the research will improve the early detection of diabetic retinopathy. **"I am inspired by the dedication of Dr Sampson and the team of researchers and I hope my involvement can help make a difference to prevent people going blind from diabetic retinopathy,"** Tim said.



Advancing new treatment pathways for inherited retinal disease

Inherited retinal diseases (IRDs) are a group of genetic disorders that affect the retina, which is the light-sensitive layer at the back of the eye responsible for vision. Collectively, these conditions affect around one in 2,000 people worldwide and are the leading cause of blindness in working-aged adults and one of the leading causes for childhood blindness in industrialised countries. In Australia alone, an estimated 19,000 people live with an inherited retinal disease.



STAN PERRON
CHARITABLE
FOUNDATION

Dr Annie Miller, Kate Gilbert, Dr Livia Carvalho, Rebekah James, Miya Sandesh, Dr Alicia Brunet (left to right) from the Retinal Genomics and Therapy Laboratory

Despite their impact, treatment options remain extremely limited. More than 500 genes have been linked to IRDs and currently there is only one approved therapy (Luxturna) for patients affected by defects in only one of the genes. This highlights the urgent need to develop new treatments that can benefit a wider group of patients.

At the Lions Eye Institute, the **Retinal Genomics and Therapy Laboratory**, led by **Dr Livia Carvalho**, is working to better understand the mechanisms that drive these diseases and to develop new therapeutic strategies to slow or prevent vision loss. Supported by the **Stan Perron Charitable Foundation**, the team focuses on IRD conditions such as retinitis pigmentosa, Usher syndrome, achromatopsia, Leber congenital amaurosis and KCNV2-retinopathy (a rare form of IRD).

These diseases are primarily characterised by the loss or dysfunction of photoreceptors; the specialised light-sensing cells in the retina that enable vision. As these cells degenerate, patients experience progressive visual impairment that can eventually lead to blindness.

One promising avenue of research being explored by the laboratory is the development of gene-independent therapies.

Dr Carvalho said “**Inherited retinal diseases are genetically complex, but our research is identifying many shared common pathways of degeneration that we can target therapeutically.**”

Unlike traditional gene therapies that target a specific mutation or gene, **gene-independent approaches** aim to **protect photoreceptor cells regardless of the underlying genetic cause**. These strategies focus on common biological pathways shared across the different types of IRDs, including activating cellular survival pathways and inhibiting those that lead to cell death. By targeting shared disease mechanisms, these treatments have the potential to benefit a much broader group of patients living with inherited retinal diseases.

Progress in 2025

Recently, the team has identified key molecular targets linked to cellular metabolism within degenerating photoreceptors.

These findings are particularly significant because **photoreceptors are among the most metabolically active cells in the human body, and disruptions to their energy pathways are increasingly recognised as a major contributor to retinal degeneration.**

Furthermore, in 2025 the research team published a study that has identified important biological differences between autosomal dominant and autosomal recessive forms of retinitis pigmentosa, providing insights that may help guide the development of more efficient treatments.

Building on these discoveries, the laboratory has also begun **testing commercially available**

What is a gene-independent therapy?

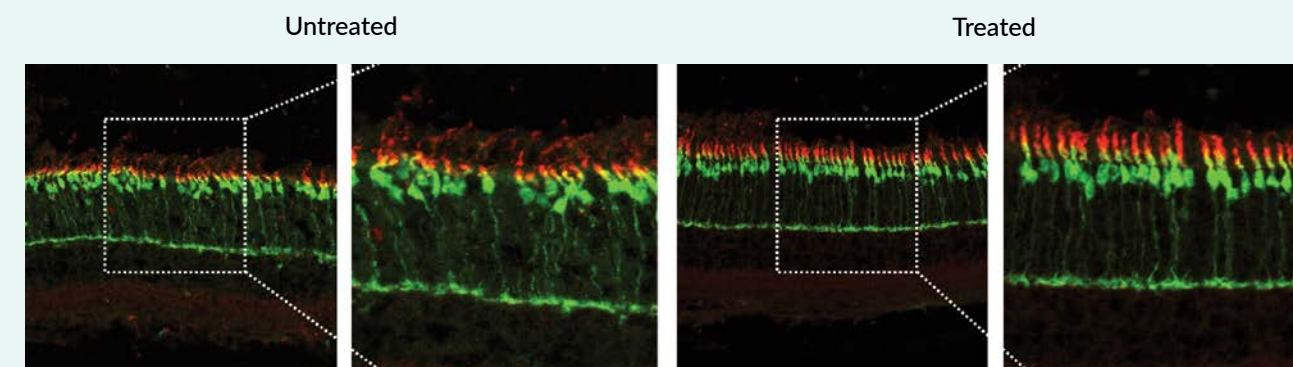
Unlike traditional gene therapies that target a single faulty gene, gene-independent treatments aim to protect retinal cells by targeting common disease pathways. This approach could benefit many patients regardless of the genetic cause of their disease.

neuroprotective drugs for conditions such as retinitis pigmentosa and achromatopsia. Because these drugs have already been developed and characterised, they offer an opportunity to **accelerate the pathway from laboratory research to clinical trials for patients with inherited retinal diseases.**

Alongside the work on gene-independent approaches, the laboratory is also advancing **gene-replacement therapies for specific conditions**. Recent efforts have focused on developing gene therapies for PDE6C-associated achromatopsia and KCNV2-retinopathy, two rare inherited retinal diseases that significantly impact vision.

In the case of KCNV2-retinopathy, **the gene therapy treatment was able to restore visual function** in disease models and is currently moving ahead with safety evaluations, which is the final stage before clinical trials can commence.

Together, these advances are helping to build a deeper understanding of inherited retinal diseases and opening new possibilities for treatments that could preserve vision for thousands of people affected by these conditions.



Fluorescence microscopy images of cone photoreceptor cells from IRD mouse retinas that were untreated (left) or treated (right). Treated retinas display healthier looking cone cells
Photo credit: Dr Annie Miller



Ethics in research

at the Lions Eye Institute

Complementing our approach to community involvement is the Institute's commitment to openness and ethical responsibility in all aspects of research.



The zebrafish facility is enabling vital research into early-onset myopia

As a signatory to the **Openness Agreement on Animal Research and Teaching** in Australia, the Lions Eye Institute is part of a national effort to promote transparency, public understanding, and accountability in animal-based research.

One important aspect of our ethical approach is the use of animal models in research. Animal models, such as mice and zebrafish, are essential for advancing our understanding of complex eye diseases like inherited retinal disease and myopia. These models allow us to study disease mechanisms and test new therapies, with the goal of preserving or restoring vision.

However, we recognise the significant responsibility that comes with conducting animal research. That's why we adhere to strict ethical oversight, governed by the Animal Ethics Committees of The University of Western Australia and the Harry Perkins Institute of Medical Research. Additionally, we follow the Australian Code for the Care and Use of Animals for Scientific Purposes, set out by the National Health and Medical Research Council.

We also apply the **3Rs principles**; internationally recognised guidelines that help ensure animal research is conducted with the utmost care and respect:

Replacement:

Using alternate research methods without the use of animals where possible.

Reduction:

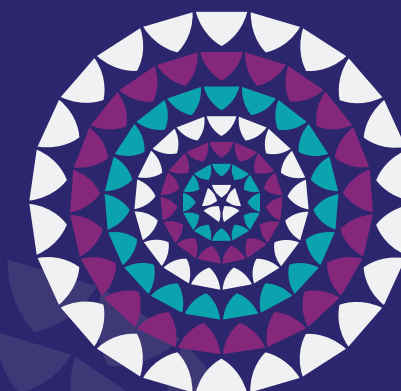
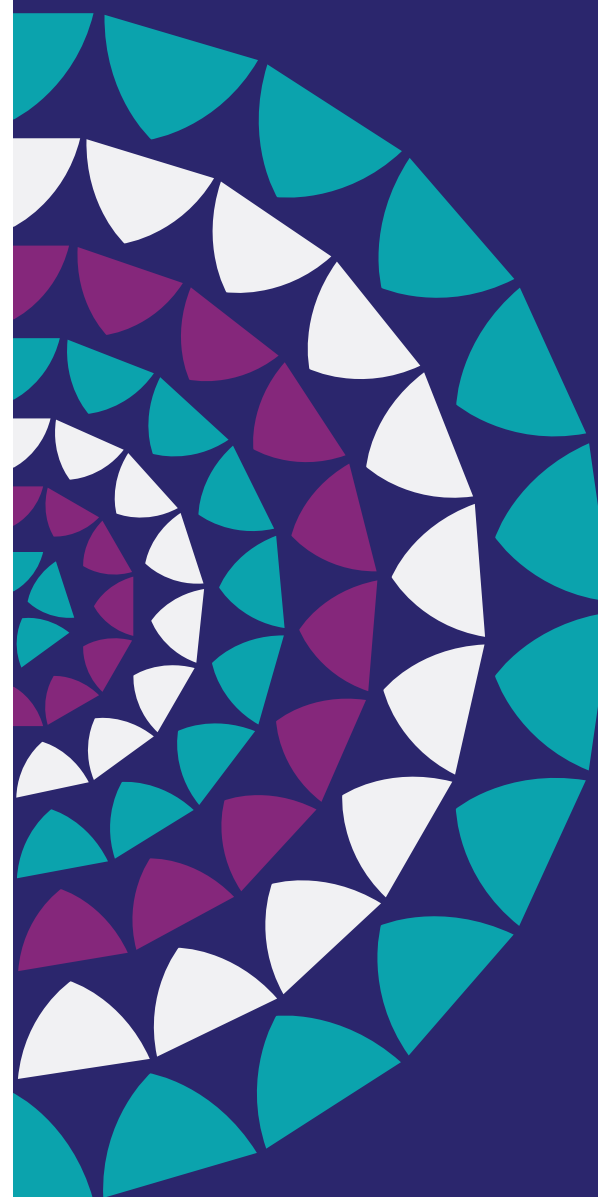
Minimising the number of animals used in research.

Refinement: Continuously improving procedures to minimise harm and enhance animal welfare.

By being transparent about our animal research practices and the ethical safeguards in place, we aim to build public understanding and trust.

Through transparency and ethical responsibility, the Lions Eye Institute continues to drive research that makes a real difference, in both the lab and the lives of those living with vision conditions.

Clinical Trials





The Lions Vision Trials team advancing sight-saving therapies

The Lions Vision Trials team, along with our world-class ophthalmologists, plays a pivotal role in advancing the field of ophthalmic research. By conducting a wide range of clinical trials, the Lions Vision Trials team is dedicated to developing innovative treatments that not only aim to prevent and treat blindness but also offer patients access to groundbreaking therapies before they are made widely available.



A clinical trial led by Professor Ian McAllister enabled Gaye to receive a specialised laser treatment that restored her sight by creating a bypass for her blood to travel through

Sponsored and investigator-initiated trials

The Lions Vision Trials team is at the forefront of conducting both sponsored and investigator-initiated trials. Sponsored trials typically involve pharmaceutical or biopharmaceutical companies testing new treatments, while investigator-initiated trials are driven by the clinical curiosity and expertise of researchers within the Lions Eye Institute. Both types of trials are integral in ensuring that the most advanced treatments are brought to patients in need.

The L-CVBS Extension study by Professor McAllister

A notable **investigator-initiated** trial that recently concluded at the Lions Eye Institute is the **L-Central Vein Bypass Extension Study (L-CVBS Extension)**, led by **Professor Ian McAllister**.

Professor McAllister, has been refining the treatment for **central retinal vein occlusion (CRVO)** for over two decades. His work has evolved from early studies in the 2000s (CVBS Study) that demonstrated that laser bypass treatment could improve vision outcomes for patients with CRVO, to the groundbreaking L-CVBS study, which showed that a **combination of laser bypass treatment and Lucentis injections** could reduce the number of injections required for patients, while improving their vision.

The L-CVBS Extension Study built on this previous research and investigated the benefits of combining laser treatment with Lucentis injections for patients with **macular swelling caused by CRVO** within the clinical setting. The study data shows that the combination therapy, developed at the Lions Eye Institute, can provide more effective vision improvements and reduce the need for frequent eye injections, thus, making this approach potentially more efficient and cost-effective for managing CRVO.

Professor McAllister's **long-term dedication** to improving treatments for CRVO highlights the importance of investigator-led research at the Lions Eye Institute. His focus on patient care and thorough research plays a key role in advancing eye care, both locally and globally.

The Nacuity Pharmaceuticals NPI-001 study

On the sponsored side, the **Nacuity Pharmaceuticals NPI-001 Study** is a prime example of how the Lions Vision Trials team collaborates with industry partners to bring new treatments to patients. Nacuity, a biotechnology company, is investigating the use of NPI-001, an **oral treatment for**

retinitis pigmentosa associated with Usher syndrome, a condition that leads to progressive vision loss and hearing impairment.

The trial, conducted across multiple sites, including the Lions Eye Institute, has yielded encouraging results. NPI-001 was well tolerated by participants and the trial demonstrated a significant reduction in photoreceptor loss, with the treatment **slowing photoreceptor degradation by more than 50 per cent over two years**. This marks an important step forward in treating a condition for which there are currently limited therapeutic options.

Though retinal sensitivity did not show statistically significant improvement over the 24-month study period, **participants treated with NPI-001 experienced a nearly 30 per cent slower loss of visual function compared to those receiving a placebo**. These results are considered a proof of concept for NPI-001 as a potential treatment for retinitis pigmentosa and Usher Syndrome, and Nacuity plans to launch a confirmatory study in 2026.

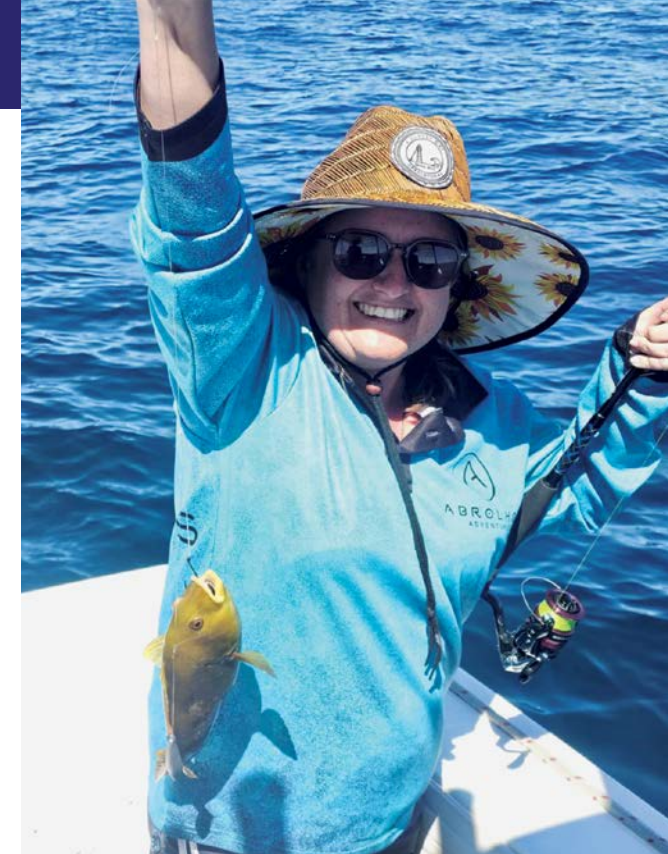
The collaboration between Nacuity Pharmaceuticals, Associate Professor Fred Chen and the Lions Vision Trials team is a prime example of how sponsored trials can contribute to the development of therapies that address urgent unmet needs in ophthalmology. The promising results of NPI-001 bring hope to the retinitis pigmentosa and Usher syndrome communities, showing potential for a new, accessible oral treatment to slow the progression of these devastating conditions.

The value of the Lions Vision Trials team

The Lions Vision Trials team serves as a **bridge between laboratory discoveries and real-world patient care**. Their commitment to both investigator-initiated and sponsored clinical trials ensures that the Lions Eye Institute remains at the cutting edge of ophthalmic research. By fostering collaborations with leading pharmaceutical companies and supporting local researchers like Professor McAllister, the Lions Vision Trials team not only advances scientific understanding but also plays a crucial role in delivering new therapies to patients in need.

The team's dedication to high-quality, patient-centric research continues to bring hope to those affected by blinding eye diseases, creating **new possibilities for sight-saving treatments that will benefit communities worldwide**.

The trials run by the Lions Vision Trials team exemplify the importance of rigorous scientific investigation and the pursuit of new therapies that improve lives.



Shelley on a fishing adventure

“Being part of the Nacuity trial has been incredibly meaningful. I love helping research by giving my time and usable data from eye scans and tests. The Lions Vision Trials team have guided me with care and compassion, helping me understand my vision journey and to live life to the fullest.”

Shelley

Shelley, a busy mum of four, has been part of the Lions Eye Institute community since 2020 and a participant in the Nacuity clinical trial. Despite living with Usher syndrome and significant vision loss, she continues to embrace life fully, balancing work, family and outdoor adventures. Shelley credits the support and expertise of Associate Professor Fred Chen and the Lions Eye Institute team for helping her understand her condition, maintain independence and navigate daily challenges with confidence and resilience.

Igniting hope: A new frontier for patients with severe vision loss



At the Lions Eye Institute, we remain at the forefront of research into vision restoration.



< Dr Randolph Dobson, Mioceвич Fellow and sub-investigator for the trial and Victoria Mendis, clinical trial coordinator, demonstrate the room light direction test and the object identification test, which evaluate functional vision for people with very low vision.

One of the clinical trials we are fortunate to be participating in, the **Abacus-2 Study**, is offering hope to individuals suffering from the most advanced stages of **retinitis pigmentosa**, a condition that leads to severe visual impairment and, in many cases, complete blindness.

About the Abacus-2 study

The **Abacus-2 Study** is a clinical trial sponsored by **Kiora**, a pharmaceutical company headquartered in California, USA, with operations in Vienna, Austria and Melbourne, Australia. This study aims to evaluate the effectiveness of **KIO-301**, an innovative **photoswitch molecule**, in individuals who are in the advanced stages of retinitis pigmentosa and have **substantial vision impairment**.

Retinitis pigmentosa is a genetic disorder that causes the gradual degeneration of photoreceptor cells in the retina, primarily **rods** and **cones**, which are responsible for vision. As these cells deteriorate, individuals lose their ability to see. **KIO-301** is a **gene mutation-agnostic treatment** designed to **convert retinal ganglion cells into light-perceiving cells**. The goal is to stimulate light perception by generating an electrical response within these cells in response to light, offering a potential new pathway for restoring vision.

The treatment protocol

The Abacus-2 Study is a randomised, placebo-controlled, double-masked clinical trial. This means participants are randomly assigned at a 2:1 ratio to receive either KIO-301 or a placebo, respectively, and neither the participants nor the study team know which treatment each person receives.

Patients assigned to the placebo group will have an opportunity to take the experimental therapy after the initial stage of the study as part of an open-label extension (OLE). This study design helps Kiora Pharmaceuticals evaluate the effects of KIO-301 in a more rigorous and reliable way.

Over the course of the trial, participants receive **three injections of KIO-301 or the placebo into both eyes**, spaced six weeks apart, and are monitored with follow-up visits every **three weeks**. Each participant is part of the study for about **six months**, during which researchers assess both the **safety** and **efficacy** of the treatment, excluding any involvement in the OLE.

Phase 1 results, which were recently published in the internationally-respected medical journal **Nature Medicine**, demonstrated no safety concerns, and the study is now actively enrolling the **Phase 2 clinical trial**, where safety and efficacy are being actively tested in **real-world conditions**.

Evaluating vision

One of the challenges in testing vision in patients with advanced retinitis pigmentosa is that traditional vision tests, such as reading an eye chart, are not possible due to the severe degree of vision loss. Therefore, the study employs two **innovative tests** conducted under very strict and controlled settings to measure **light perception/direction** and **object identification**:

- 1 Room light direction test:** Participants sit in an office chair and lights are turned on at various **controlled levels of brightness**. The participant is then asked to point in the direction of the light. This test assesses the participant's ability to detect light and respond to its direction.
- 2 Object identification test:** Participants are shown **common household objects** on a white table and asked to identify a specific object among them, again at various **controlled light levels**. The goal is to evaluate the participant's functional vision.

These tests are vital for assessing improvements in vision and provide valuable insight into how well the treatment is working.

Current progress and participant stories

To date, **two participants** have undergone treatment at the Lions Eye Institute, and approximately **six participants** in total are to be treated at the Lions Eye Institute in this mid-phase of the study. Overall, approximately **36 participants may take part in Kiora's overall study** across five sites in Australia (Adelaide, Brisbane, Melbourne, Perth and Sydney) with expansion to Auckland, New Zealand planned.

Looking ahead

As the trial continues to unfold, the Lions Eye Institute and Kiora are hopeful that the **KIO-301** treatment will lead to a **new era of vision restoration** for individuals suffering from advanced retinitis pigmentosa. With no safety issues in Phase 1 and promising early signs of efficacy, the team looks forward to expanding the study and potentially offering life-changing treatments to those with the most severe visual impairments.

The team behind the study

The Abacus-2 Study in Western Australia is led by **Associate Professor Fred Chen**, Principal Investigator at the Lions Eye Institute. His extensive experience and dedication to advancing vision restoration research are at the heart of the study's progress.

Supporting him in the clinical trial is a **large multi-disciplinary team** including **Fellows, retinal specialists, study coordinators and orthoptists from the Lions Vision Trials team**. Together, this team is overseeing the clinical protocol and ensuring the trial progresses smoothly, with patient safety as a primary concern.



Bob's story

The first patient to participate in the trial was Bob, who was diagnosed with retinitis pigmentosa at the age of 31. Now 70 years of age, he has been a patient of the Lions Eye Institute for almost 40 years. An avid Dockers supporter and football fan, Bob enjoys sport, music and playing guitar. A panel beater by trade, Bob was busy running a business, driving and taking care of his young family in his early thirties.

However, his world changed dramatically when he was diagnosed with retinitis pigmentosa. "It was like 20 semi-trailers hit me all at once," Bob recalls. There was no cure or treatment at the time, and Bob was told that he would start losing his vision in his 40s. "I knew what was waiting for me" he says. His vision progressively worsened, until he reached a point where he could only distinguish between day and night. Before the trial, his vision had no colour and it was like looking through a fog.

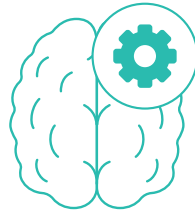
Bob's story isn't just about his own journey, it's about the future he hopes to help create for others. **"My main wish is that young people don't have to go through what I did. I'm lucky to have a loving family, but losing your vision takes so much away from you; the ability to work, to drive and do the things you love. I just hope that someone has the brains, resources and investment so that future generations of people with retinitis pigmentosa won't have to go through what I did."**

While Bob won't know whether he received the placebo or the KIO-301 injections until the trial concludes (and to preserve the integrity of the study, we are limited in what we can share), his experience participating in the study has been very positive.

Reflecting on his experience with the Lions Eye Institute, Bob shared, **"I can't speak highly enough of everyone there. They make everything worthwhile. If I feel a bit down, they keep me going. The team has been incredible."**



OcuLinx™ trial explores non-invasive way to monitor brain pressure for hydrocephalus and other conditions



Monitoring pressure around the brain (known as intracranial pressure or ICP) is essential for managing a range of neurological conditions.

Traditionally, the 'gold standard' for measuring ICP requires invasive methods like lumbar punctures or neuro-surgical implantation of a sensor into the brain, which can cause discomfort, infection and trauma, particularly for patients who need regular monitoring. Consequently, clinicians often face a 'detection gap,' where subtle neurological changes often go unnoticed because the risks of invasive testing are deemed too high.

To address this issue, the Lions Eye Institute has developed **OcuLinx™**, a groundbreaking non-invasive device that measures ICP through a simple eye scan. By analysing the tiny pulsations in retinal blood vessels, OcuLinx™ provides a 'window into the brain,' enabling doctors to monitor brain pressure without needles or surgery. Previously, with the support of the **WA Government's Future Health Research and Innovation Fund**, the technology was advanced from a benchtop system to a portable prototype.

This advancement could significantly reduce the need for invasive procedures, improving the quality of life for patients with chronic conditions.

A year of progress

In 2025, the OcuLinx™ technology reached significant milestones, including:

- **Clinical trial of a portable prototype:** The portable OcuLinx™ prototype is being tested in a proof of concept clinical trial with a growing number of participants.
- **Paediatric research:** With support from the **Channel 7 Telethon Trust**, a dedicated paediatric arm of the trial was launched, offering a safer, less traumatic option for young patients. For children who need regular ICP monitoring, this non-invasive scan could be a life-changer, reducing the stress and discomfort associated with traditional methods.



Masters research student Jasmin Quin-Conroy and Professor Bill Morgan are both developing the OcuLinx™ technology, which has applications both on Earth and in Space. Photo credit: West Australian Newspapers Limited

Bridging Earth and Space

While OcuLinx™ has shown immense potential in diagnosing and monitoring neurological conditions on Earth, the technology also has exciting applications in space. Astronauts are prone to a condition known as **spaceflight-associated neuro-ocular syndrome (SANS)**, sometimes called 'astronaut blindness,' which is thought to be due to increased ICP in zero gravity. This condition can lead to vision alteration and swelling, which may take months to resolve once astronauts return to Earth.

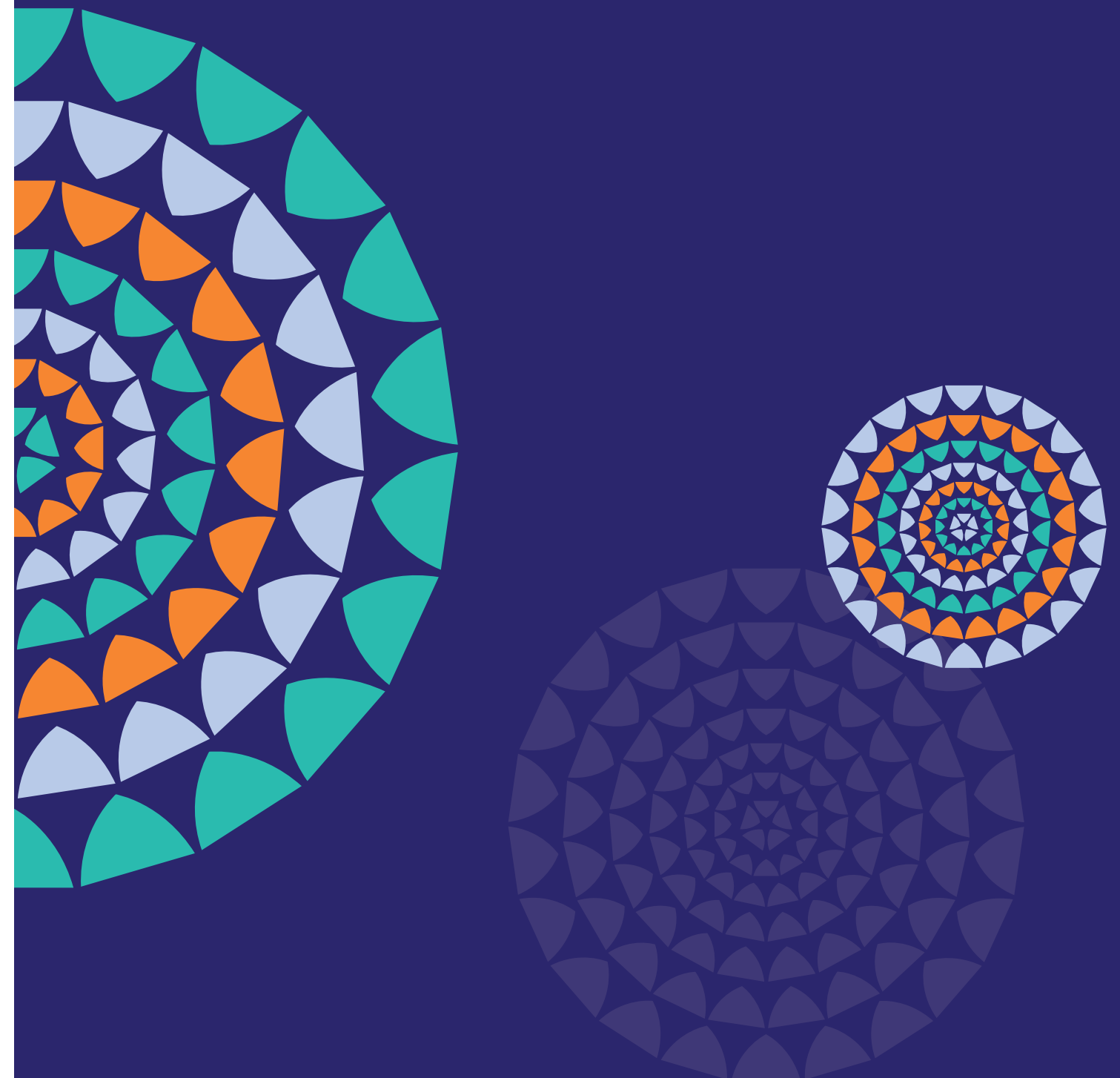
Professor Bill Morgan, a key researcher at the Institute, emphasised the dual benefits of this technology, saying, **"Building a device that works in space ensures that it is robust and clinically accurate on Earth."**

This important clinical device has been developed because of 20 years of extensive research in the Physiology and Pharmacology Group at the Lions Eye Institute.

Future development

As OcuLinx™ continues to progress through clinical trials, the future for this non-invasive ICP monitoring system looks bright. With the potential to improve the care of patients who may have one of several neurological conditions, OcuLinx™ could revolutionise the way we monitor intracranial pressure, offering a less invasive, more accessible option for patients around the world.

Community impact



Recognising Lions Outback Vision's impact in regional and remote Western Australia

In 2025, the Lions Eye Institute's outreach service, Lions Outback Vision, received one of the highest honours in rural healthcare, being named **Health Team of the Year** at the **WA Rural Health Excellence Awards**.



Allison Steer, Kerry Woods, Dr Jocelyn Drinkwater, Helen Wright, Professor Angus Turner and Margie O'Neill accepting the Rural Health West Health Team of the Year Award for Lions Outback Vision

This recognition highlights the team's unwavering commitment to improving eye health and access to care for people living in some of the most remote and underserved communities across Western Australia. Delivering a statewide service from bases in Perth and the Kimberley, Lions Outback Vision continues to bridge vast geographic distances.

The awards, hosted by Rural Health West and the WA Country Health Service, celebrate excellence, innovation and dedication across rural healthcare. In 2025, more than 30 individuals and teams were recognised across 12 categories, representing nearly every region of country Western Australia and underscoring the depth of talent and commitment across the sector.

A statewide impact

Lions Outback Vision's recognition as **Health Team of the Year** reflects a model of care that is both innovative and deeply connected to community needs. Through **outreach clinics, partnerships with local providers and the integration of telehealth services**, the team delivers specialist eye care to patients who might otherwise face significant barriers to treatment.

Lions Outback Vision's work spans a wide spectrum; from sight-saving surgeries and chronic disease management to culturally appropriate care for Aboriginal communities.

Celebrating rural health leadership

Since their inception in 2008 (formerly the WA Country Doctors Awards), the WA Rural Health Excellence Awards have become a cornerstone event of the WA Rural Health Weekend, bringing together healthcare professionals, families and communities to celebrate achievements that often go unseen outside regional areas.

The 2025 awards recognised outstanding contributors across disciplines, including general practice, nursing, allied health and community care.

A shared achievement

This recognition belongs not only to the Lions Outback Vision team, but also to the many partners and communities who make their work possible. Collaboration remains central to the program's success, enabling sustainable, high-quality care delivery across vast and challenging environments.

The Lions Eye Institute extends its sincere thanks to **Rural Health West** and the **WA Country Health Service** for their leadership in hosting these awards, and to the **Royal Flying Doctor Service WA** for its ongoing support of rural healthcare excellence.



Professor Angus Turner, McCusker Director of Lions Outback Vision, at the WA Rural Health Excellence Awards

 Congratulations to all the category winners, finalists, nominees and healthcare heroes who continue to make rural health a priority. You are all making a lasting difference to the lives of those who need it most!



Introducing the Lions Eye Bank team

The Lions Eye Bank has entered an exciting new chapter with the formal appointment of its new manager, Dr Jelena Kezic in 2025. Her appointment reflects strong leadership, deep technical expertise and a clear commitment to advancing transplantation, education and research.



The Lions Eye Bank team pictured left to right: Dr Jelena Kezic, Abigail Harvey, Abigail Elezovich, Andrew Pomfret and Katrina Elliott

The Lions Eye Bank of Western Australia continues to deliver outstanding transplant outcomes, having **distributed 403 corneal grafts, supporting 335 local surgeries and 68 interstate procedures, along with 191 scleral tissue grafts in 2025.**

The team's impact also extends beyond Western Australia during times of national need. Following a fire that disrupted operations at the Queensland Tissue Bank in early 2025, the Lions Eye Bank processed some of the donor tissue on their behalf and supplied corneal grafts to patients in Queensland, a powerful example of **collaboration across Australia's eye and tissue banking network.**

Quality and compliance remain central to the Lions Eye Bank's operations, with the laboratories successfully completing an inspection by the **Therapeutic Goods Administration.** The team has also grown, welcoming two transplant coordinators, which brings the Lions Eye Bank team to five and



strengthens our capacity in donor coordination and tissue preparation.

Education and sector engagement remain key priorities. The team delivers education sessions to nurses at various local hospitals, including Royal Perth Hospital and Fiona Stanley Hospital, as well as to donor coordinators at DonateLife WA. They are also active members of the Eye Bank Association of Australia and New Zealand, contributing to lectures and seminars throughout the year. During DonateLife Week, the Lions Eye Bank promotes organ and tissue donation through staff engagement activities and participation in the Walk for Life, honouring donors and their families.

Looking ahead, the Lions Eye Bank is recruiting a research fellow/transplant coordinator to continue a **research program** focused on **optimising donor corneal preparation to improve transplant longevity.** As surgical techniques evolve, (particularly with endothelial grafts that replace the delicate inner cell layer of the cornea), protecting these vital cells during preparation is critical. The research will examine factors influencing endothelial cell loss both during graft preparation and after transplantation, with the aim of improving long-term graft survival.

Through strong leadership, collaboration and a clear research focus, the Lions Eye Bank team remains committed to delivering excellence in service of donors, clinicians and patients.

Our supporters

Grants

We are deeply grateful for the grant funding that makes it possible for the Lions Eye Institute to continue life-changing medical research, reach communities in need and promote better eye health for all.

12-year-old Lincoln is a bright and curious chess playing, music loving master of the Rubik's cube.

He is also one of millions of children whose vision is at risk because of a growing epidemic. At age six, Lincoln was showing **early signs of myopia**, often thought of simply as short-sightedness. But myopia is much more than just needing glasses. It's a condition where the eye grows too long, increasing the risk of serious, lifelong eye diseases that can lead to permanent vision loss or even blindness. The earlier myopia begins, the greater the risk of these complications over time.

Myopia research at the Lions Eye Institute aims to uncover why myopia develops in the first place and what drives it to worsen over time. Ultimately, our research has the potential to lay the foundation for new, targeted treatments that could slow, stop, or even prevent myopia in children altogether.

The funding we receive through grants is crucial in ensuring that our medical research and community programs can continue without interruption.



Researcher Chief Investigator	Funding body	Field
Federal competitive publicly funded grants		
Chinnery, H	National Health and Medical Research Council	Biomarkers for head trauma
Lingham, G	Medical Research Future Fund	Myopia
Mackey, D	Medical Research Future Fund	Myopia
McLenachan, S	Medical Research Future Fund	Usher syndrome
State competitive publicly funded grants		
Mackey, D	Future Health Research and Innovation Fund	Glaucoma
Sampson, D	Future Health Research and Innovation Fund	Software innovation
Lee, S	WA Department of Health Near Miss Award	Myopia
Mountford, J	WA Department of Health Near Miss Award	Myopia
Roshandel, D	WA Department of Health Near Miss Award	Corneal regeneration
Roshandel, D	WA Department of Health Near Miss Award	Stem cell technology
Other publicly funded grants		
Lions Outback Vision	WA Department of Health	Outreach services
Lions Outback Vision	WA Country Health Service	Outreach services

Researcher Chief Investigator	Funding body	Field
Competitive philanthropic grants		
Drinkwater, J	Australian Vision Research/Perth Eye Foundation	Artificial intelligence/Service innovation
Huang, D	Australian Vision Research/Perth Eye Foundation	Stargardt disease
Razavi, H	Australia and New Zealand Eye Foundation	Community
Balaratnasingam, C	Channel 7 Telethon Trust	Childhood diabetic retinopathy
Mackey, D	Channel 7 Telethon Trust	Myopia
Morgan, W	Channel 7 Telethon Trust	Intracranial pressure assessment
Mountford, J	Channel 7 Telethon Trust	Myopia equipment
Turner, A	Channel 7 Telethon Trust	Service innovation
Turner, A	Fred Hollows Foundation	Service innovation
Mackey, D	Glaucoma Australia	Glaucoma
Balaratnasingam, C	Macular Disease Foundation Australia	Diabetic retinopathy
McLenachan, S	Macular Disease Foundation Australia	Inherited retinal disease
Sampson, D	Macular Disease Foundation Australia	Macular disease/Software innovation
Carvalho, L	National Foundation for Medical Research and Innovation	Gene therapy
Sampson, D	Perpetual IMPACT Philanthropic Funding	Diabetic retinopathy
Balaratnasingam, C	Perth Eye Foundation	Multi-cancer detection test
Chinnery, H	Perth Eye Foundation	Myopia
Leigh, J	Perth Eye Foundation	Indigenous patient education
Li, Q	Perth Eye Foundation	Eye injuries
Morgan, W	Perth Eye Foundation	International fellowship
Huang, D	Retina Australia	Stargardt disease
Turner, A	Rural Health West	Service innovation
Carvalho, L	Stan Perron Charitable Foundation	Inherited retinal disease
Mackey, D	Stan Perron Charitable Foundation	Myopia
Yu, D	Stan Perron Charitable Foundation	Diabetic retinopathy

Other philanthropic grants

Lions Outback Vision	Rural Health West	Outreach services
Lions Outback Vision, Broome	RANZCO	Training
Mountford, J	Lions Save-Sight Foundation	Brian King Fellow
Roshandel, D	Lions Save-Sight Foundation	Corneal regeneration
Turpin, A	Lions Save-Sight Foundation	Lions Curtin Chair
Chen, F	McCusker Charitable Foundation	Inherited retinal disease
Turner, A	McCusker Charitable Foundation	Service innovation
Yu, D and Morgan, W	McCusker Charitable Foundation	Glaucoma
Institute wide	Stan Perron Charitable Foundation	Community

Contracted expertise

Carvalho, L	Artema Therapeutics	Gene therapy
Balaratnasingam, C	Bayer Australia	Diabetic retinopathy
Turpin, A	CenterVue	Vision science
McKendrick, A	Johnson & Johnson	Vision science
Turpin, A	Johnson & Johnson	Vision science
Balaratnasingam, C	Roche	Diabetic retinopathy
Turpin, A	Topcon	Vision science

Grants
active or
awarded in
2025

Our supporters

We are indebted to our supporters who consistently provide us with the means to continue our sight saving medical research and outreach services.

Corporate partners

BHP WA Iron Ore
Broome International Airport
Donnybrook Accounting
Hawaiian
HBF Run for a Reason
Karratha International Airport
Oxford Compounding
SafeStyle
TechnipFMC
Woodside Energy

Lions Clubs

Lions Club of Boddington
Lions Club of Boyanup District Inc
Lions Club of Busselton
Lions Club of Cunderdin Inc
Lions Club of Dardanup Inc
Lions Club of Dunsborough Inc
Lions Club of Kalgoorlie WA
Lions Club of Mooloolaba
Wellington NSW Lions Club

Bequests

Estate of the Late Eileen Bogart
Estate of the Late Odna Borlaug
Estate of the Late Frederick Cronin
Estate of the Late Darlene Fox
Estate of the Late Sandra Gray
Estate of the Late Charles Irving
Harry and Margaret Kerman Trust Fund
The Denzil & Shirley McManus Charitable Trust

Foundations, trusts and not-for-profit

Australia and New Zealand Eye Foundation
Burrows Family Foundation
Channel 7 Telethon Trust
Constantine Family Foundation
Harry Cohnery Charitable Foundation
Jimfan Foundation
Joyce Henderson Fund
Judy Glover Foundation
Lions Save-Sight Foundation
Mandurah Murray Mayday
McCusker Charitable Foundation
Mostyn Family Foundation
National Foundation for Medical Research and Innovation
Perpetual Foundation – Philip Owen Endowment
Perth Eye Foundation
R E & F J Ledger Charitable Foundation
Retina Australia
Stan Perron Charitable Foundation
The Fred Hollows Foundation
The Lindsay and Heather Payne Medical Research Charitable Foundation
Wagin Care and Share
Wen Giving

This contributes to the exceptional level of treatment and care we provide to patients in our clinics.

Individuals

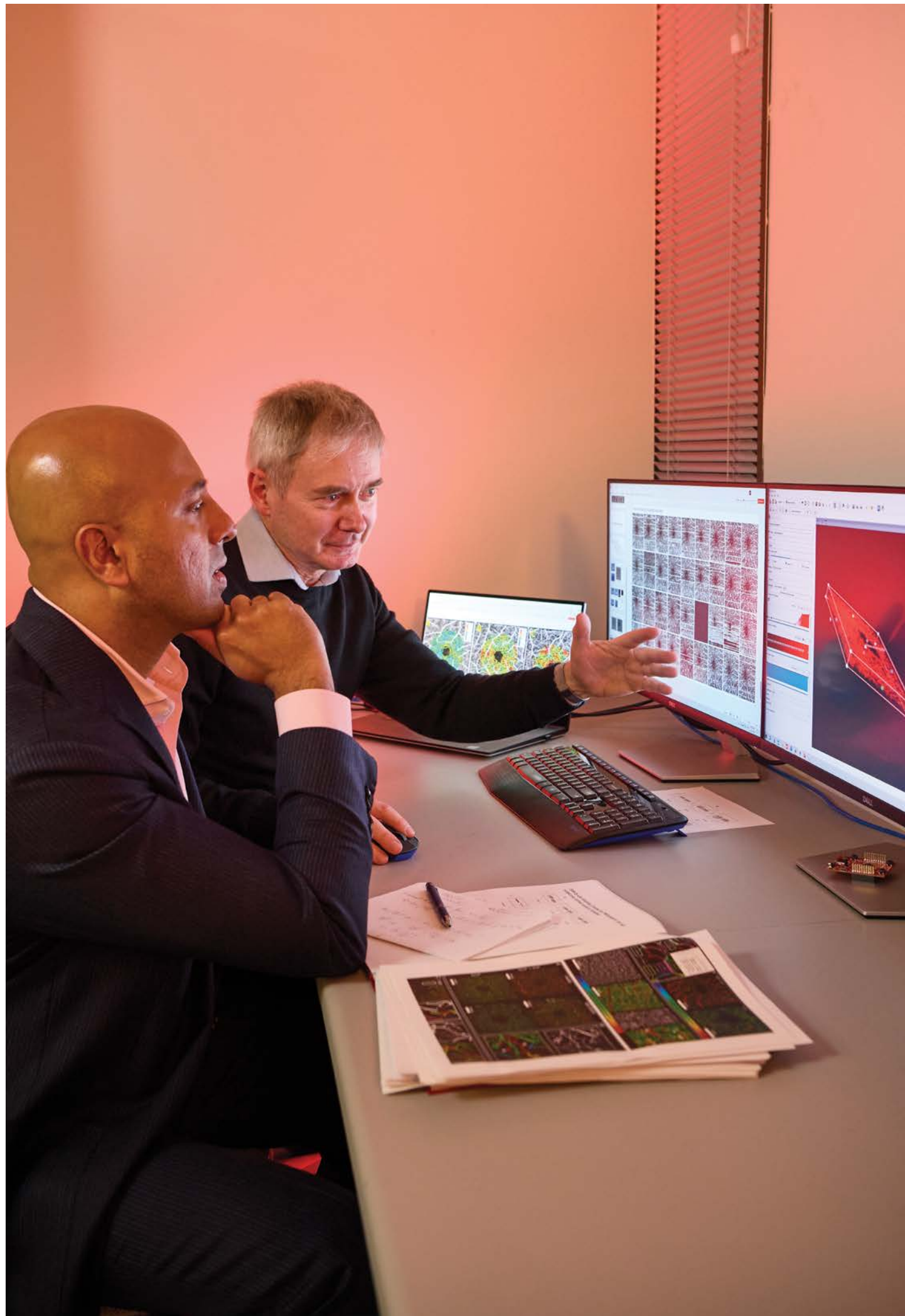
Mr Richard Alder
Mr Neil Archibald
Mrs Ann Ashbrook
Mr Wayne Bailey
Mr David Bailey
Mr John Barnett
Mr Murray Black
Mr Barry Blanch
Robert and Gay Branchi
Dr W F Brogan
Mr Hamish Campbell
Dr Glenda Campbell-Evans
Dr Paul Chee
Mr Donald Chipper
Ms Katrina Chisholm
Professor Ken Clements
Mr Alan Cox
The Honourable June Craig
Mrs Patricia Della Vedova
Mr and Mrs Paul and Wilma Depiazzi
Dr Andrew Dowse AO
Mr William Edwards
Mr Ian Fiegert
Mr Brian Fitzgerald
Mr and Mrs Vernon and Anne Fountain
Mr Charles Franz
Mr Iain Gerrard
Mr John Giles
Dr Ross Glancy
Mrs Patricia Golding
Mr Mark Hector

Captain Richard Hodge
Mr Christopher Hodge
Mr and Mrs Norman and Freda Hogg
Mr Charles Irving
Dr Peter James
Ms Nancy Kennedy
Mr Graham Kluck
Mr Ian Laurance AM
Mr and Mrs Peter and Janfrey Leaman
Mr and Mrs Oliver and Sophie Mark
Mr Timothy McGovern
Mr Russell McKay
Mr Kevin McMenemy
Mr and Mrs Milenko and Frances Mihaljevich
Mr Walter Millstead
Mr Jonathan Milne-Fowler
Brad and Carolyn Mioceovich
Mr Paul Naughton
Mr and Mrs Andrew and Allison Nolan
Mrs Cynthia Noonan
Mr and Mrs Gregory and Joan Pix
Mrs Jill Porter
Ms Penelope Price
Jim Piercy
Mr Peter Raynor
Mrs Kathleen Reading
John and Lee Saleeba
Mrs Shirley Savell

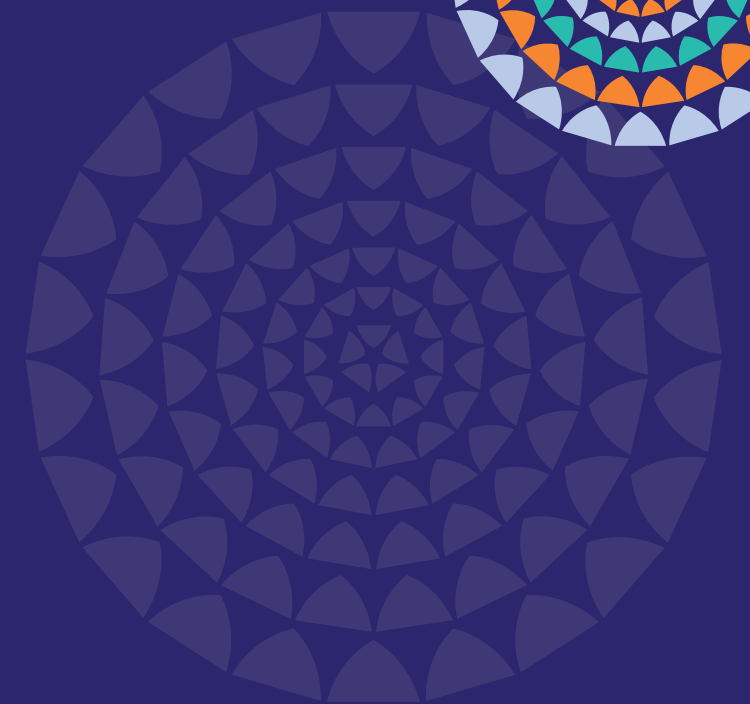
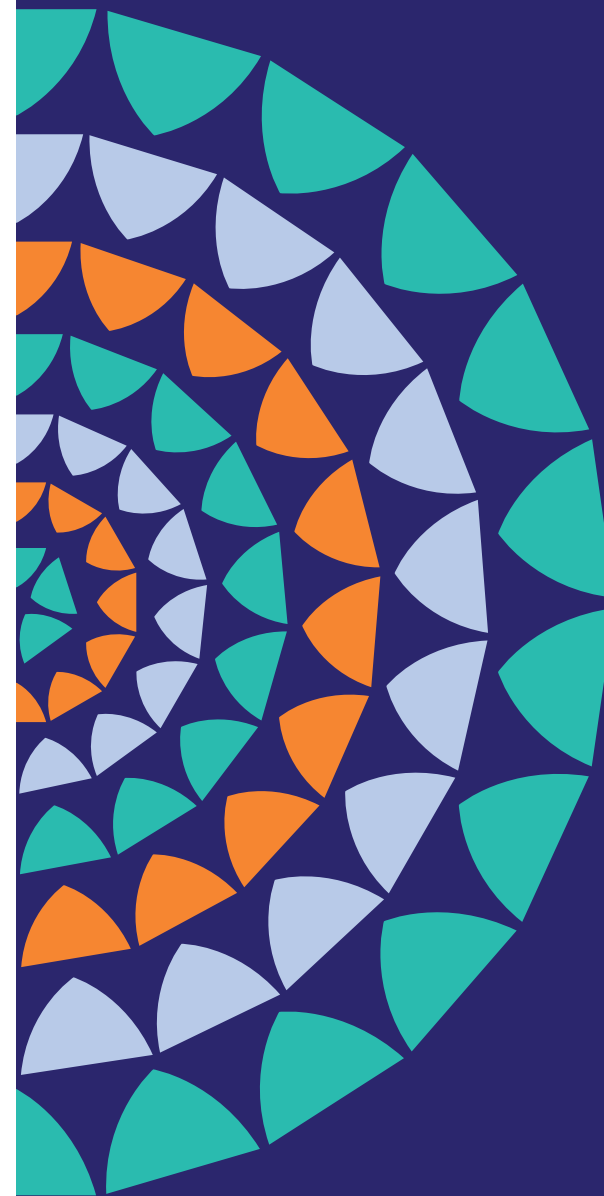
James and Elinor Shaw
Mr Keith Spence
Dr Paul Sprague and Mrs Beverley Sprague
Mr and Mrs Francis and Beverley Stone
Mr and Mrs Joe & Helen Sweet
Mrs Marisa Thackray
Mr Richard Turpin
Mr and Mrs Rosston and Helen Vince
Dr Helen Vu
Mr and Mrs Richard and Brenda Webster
Mrs Audrey Whiteside
Mrs Cheryll Williams
Mrs Mimi Wong
Mr David Wright
Mrs Olga Zampedri

Support
received in the
2025 calendar
year





Our organisation



Our Board

The Lions Eye Institute extends our appreciation to our Board members who provide strategic direction and governance by giving us their time and expertise.



Tony Joyner
Chair
BJuris (Hons), LLB



Professor Jane den Hollander AO
Deputy Chair
BSc (Hons), MSc, PhD



Dr Glen Power
Managing Director
BSc (Hons), DPhil (Oxford)



Dr Antony Clark
MBBS (Hons), PhD,
FRANZCO



Amanda Williams
BCom, CAANZ

2025 incoming Board members

Welcome to our newest Board members.
We look forward to your contributions.



Professor Chandra Balaratnasingam
MBBS (Hons), PhD (Dist),
FRANZCO



Professor Andrew Turpin
BCom, BSc (Hons),
PhD, FARVO



Professor Angus Turner
MBBS (Hons), MSc
(Oxford), FRANZCO



Professor Grant Waterer
MBBS, PhD, MBA,
FRACP, FCCP



Financials

Statement of comprehensive income

Income	
Revenue from ordinary activities	\$40,572,433
Other income	\$2,062,953
Total	\$42,635,386
Net fair value gain/loss on investments	
	\$764,704
Gain on loss of control of subsidiary	\$253,010
Expenses	
Clinical expenses	\$21,110,495
Community initiatives	\$7,364,798
Corporate services	\$6,102,346
Medical and scientific research	\$8,652,772
Total	\$43,230,411
Share of loss of associate	
	\$79,762

Net surplus	\$342,927
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Statement of financial position

Assets	
Cash and cash equivalents	\$6,854,080
Financial assets	\$37,881,289
All other assets	\$31,673,059
Total	\$76,408,428
Liabilities	
Trade and other payables	\$8,502,891
Provisions	\$3,996,841
All other liabilities	\$961,842
Borrowings	\$2,007,184
Total	\$15,468,758
Net assets	\$60,939,670

To access our audited financial reports, please visit lei.org.au/publications

Clinic

79,565 consultations
across our Midland, Murdoch and Nedlands clinics
3,802 surgeries **771** Lions Laser Vision
94% satisfaction with clinic services



Lions Optics
940 eye examinations
1,432 lenses sold
462 frames sold

Philanthropy and grants

Gifts received
\$5.4M
53 grants



Investments
\$764,704
return on investments in 2025

Community impact

Lions InReach Vision
834 appointments
429 ophthalmology
405 optometry

153 injection appointments
15 laser appointments
91 surgeries: **85** cataracts **6** pterygiums

573 patients
173 Indigenous
385 refugees
15 others

Lions Eye Bank
403 corneal transplants
204 sclera transplants
91 pieces of ocular tissue for research and training

Lions Outback Vision
15,512 total patients treated
6,776 outreach patients
3,002 Vision Van patients
2,544 visiting optometry patients
1,170 Hub optometry clinic patients
3,714 total optometry patients
35% Indigenous patients
1,652 eye surgeries

Staffing

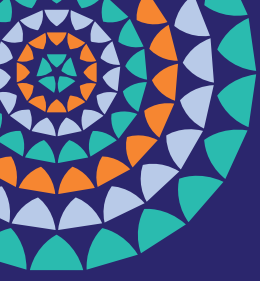
295 employees
19 highly experienced clinicians
74 dedicated researchers
58 students

Research

109 research papers published
53 grants
9 patent families

Lions Vision Trials

90 active clinical trials
61 external
25 sponsored
4 investigator initiated
26 new trials activated
700 clinical trial patient visits



25 years of the Ian Constable Lecture

In 2025, the Ian Constable Lecture celebrated its 25th anniversary as a premier scientific event in Perth.



Launched in 2000, the lecture series has become a key fixture in the Lions Eye Institute's calendar and a tribute to Professor Ian Constable AO as well as a celebration of the values of the Institute.

Over the years, the lecture has brought together leading scientists from around the world, including three Nobel Laureates, to share groundbreaking insights. Topics have spanned diverse fields, from tissue engineering and genomics to space exploration and medical evolution. Notable speakers have included:

2000

Professor Joseph Vacanti who gave the inaugural lecture on tissue engineering.

2006

Professor Barry Marshall, Nobel Laureate, on the 'Ulcer Bug.'

2015

Professor Elizabeth Blackburn, Nobel Laureate, on telomere maintenance and ageing.

2021

Professor Danail Obreschkow on the nature of space and time.



Professor Danail Obreschkow

The event, **hosted annually at The University of Western Australia**, has fostered collaboration and scientific dialogue, furthering Perth's reputation as an innovation hub.

As we mark 25 years, the lecture series continues to honour Professor Constable's legacy by inspiring future generations of researchers, healthcare professionals, and the public. Looking ahead, the Ian Constable Lecture will remain a vital platform for scientific discovery and collaboration.

Innovating for global health

MedTech innovation was the focus of the Ian Constable Lecture in February 2025, delivered by guest lecturer Professor Ian Meredith AM, a renowned cardiologist and researcher.

Professor Meredith's presentation **Global health challenges: How and why innovative MedTech solutions will make a difference**, focused on the critical role of medical technology in addressing the evolving health challenges faced by communities worldwide and how Australia can lead the global effort.

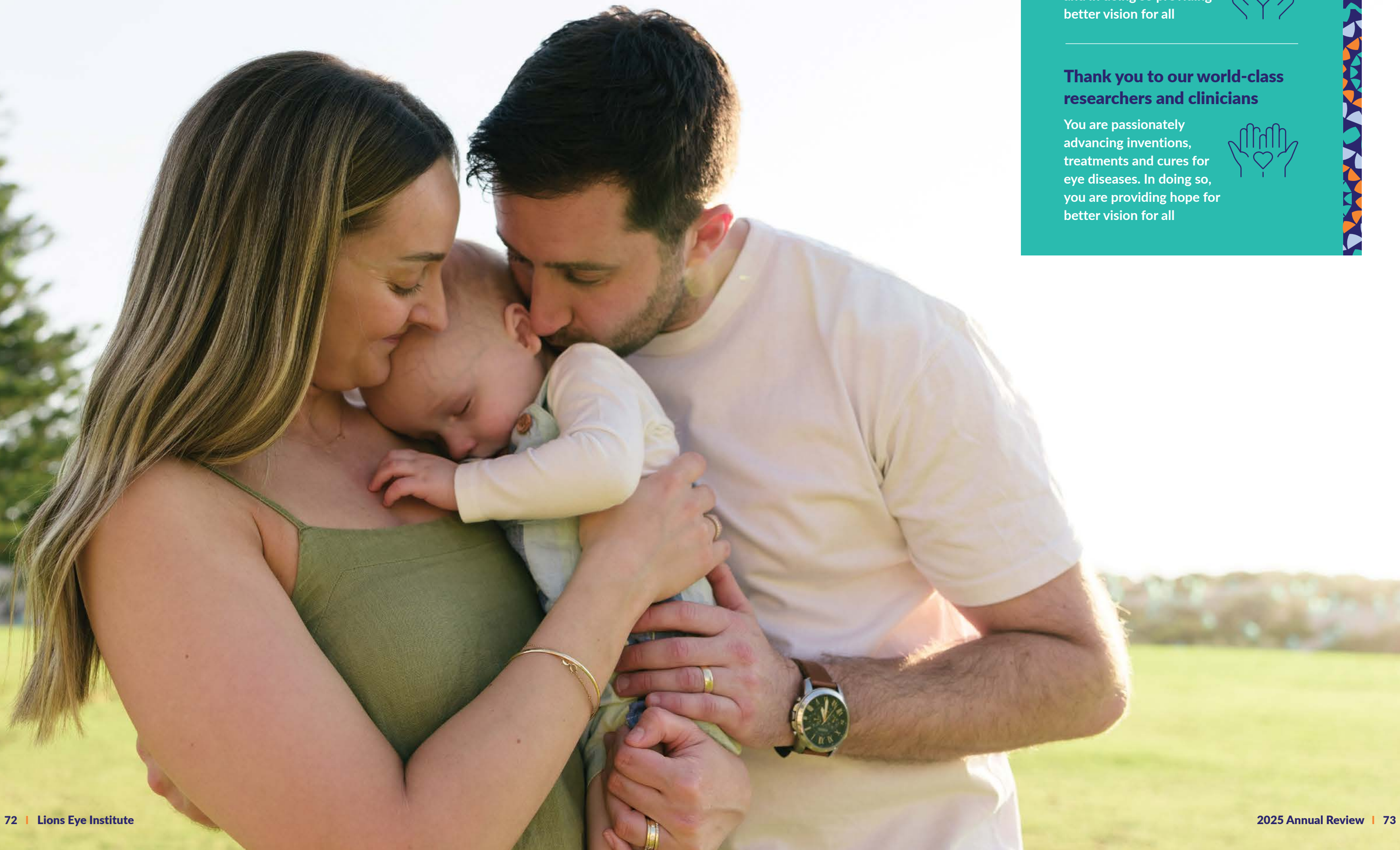


◀ Professor Ian Meredith AM

At the 2015 Ian Constable Lecture, Nobel Laureate Professor Elizabeth H Blackburn talked about telomeres. She is pictured here with Professor David Mackey AO, Nobel Laureate Professor Barry Marshall and Professor Ian Constable AO (L-R)



Born with Norrie Disease, a rare genetic condition that causes blindness, little Cooper is helping drive research into inherited eye disease. He is pictured with his dad, Ally, and mum, Claire.



Thank you to our donors

You are accelerating scientific discoveries, and in doing so providing better vision for all



Thank you to our world-class researchers and clinicians

You are passionately advancing inventions, treatments and cures for eye diseases. In doing so, you are providing hope for better vision for all



