



Centre for Eye Research Australia

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ABN: 72 076 481 984

32 Gisborne Street
East Melbourne, Victoria 3002
Australia

T: +61 3 9929 8360
F: +61 3 9662 3858
E: cera-info@unimelb.edu.au

For regular updates on CERA
research visit:

www.cera.org.au

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More than half a million Australians over 40 live with some form of vision impairment. This number is expected to reach 800,000 by 2020 unless we are proactive about saving their sight.



With this 2012 CERA annual review we are introducing the use of “quick response” (QR) codes. These codes can be read by an imaging device, for instance from your smart phone or a tablet computer with a camera. Scanning the code will take you straight to the right place on our website where further information is available relevant to the item you were just reading. For instance, full lists of CERA scientific publications or of all staff in 2012 are no longer included in this review.

Scan the QR Code to access the digital version of this document.

Our Mission

To eliminate the major eye diseases that cause vision loss and blindness and reduce their impact in the community



The Centre for Eye Research Australia (CERA) is at the forefront of ophthalmic research in Australia.

We focus on the major blinding eye diseases – age-related macular degeneration, glaucoma and diabetic eye disease. Our work covers the full spectrum of medical research, from basic discovery to understand disease processes better, through clinical research to improve diagnosis and treatment, to translation and applied research including better health service delivery, eye health education and program evaluation.

CERA leads the clinical and surgical research program in the Bionic Vision Australia joint venture to develop an Australian bionic eye and has recently started a new research program in vision regeneration.

Our productivity in terms of output of peer-reviewed scientific papers and their quality puts us among the top five ophthalmology research organisations in the world.

CERA was established in 1996 as a not-for-profit company limited by guarantee. It has grown out of the research activities of the University of

Melbourne Department of Ophthalmology. The University Department and CERA are co-located at the Royal Victorian Eye and Ear Hospital and are closely affiliated with each other and the Hospital in a partnership that seamlessly integrates teaching, training and research with clinical service delivery. In this model, medical research is informed by patient needs and research findings can be quickly translated into clinical practice.

CERA is designated as a World Health Organization (WHO) Collaborating Centre for the Prevention of Blindness, the only such centre in Australia.



135

people engaged in eye research

17%

Increase in number of staff in 2012



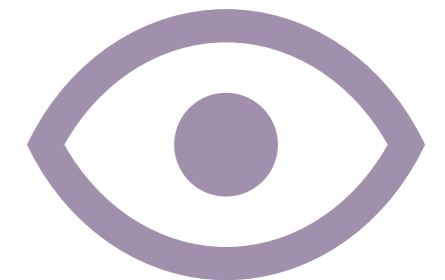
2,983 donations received by the Eye Research Australia Foundation



research publications

(includes books, book chapters, editorials and conference proceedings in addition to 208 scientific papers)

CERA FAST FACTS



More than 1,000 phone calls received from people volunteering for a new AMD treatment trial after November Herald Sun front page headline "Miracle in Sight".



1,537

friends on facebook (at the end of 2012)

364

364 corneal transplants completed from 206 donors' corneas supplied by the Lions Eye Donation Service



In 2012, CERA was home to 32 higher degree candidates. Some of these students chose to come to Melbourne from as far afield as Canada, Germany, India, Indonesia, Kenya, Pakistan, Singapore and Sri Lanka, adding to the diversity of our international community of researchers.

29%

grant success rate

541

media stories about CERA's work

Changing lives: reflecting on a year of growth and success

Chair and Managing Director's report

In 2012, the sight-saving work of the Centre for Eye Research Australia (CERA) achieved some important milestones.

Three patients received the first bionic eye implants under the skilful care of surgeon Dr Penny Allen as part of CERA's role as a core participant in the Bionic Vision Australia joint venture. The experience was potentially life changing for the patients involved, as Dianne Ashworth's story in the following pages shows.

Meanwhile, Professor Robyn Guymer and the Macular Research unit are making progress with their work on a new nanosecond laser treatment for Age-related Macular Degeneration (AMD), the world's first treatment for early stage AMD. After a pilot study in 2011 showed very promising results, Robyn was awarded National Health and Medical Research Council (NHMRC) funding for a larger trial that started in 2012. Media coverage about the project resulted in more than 1,000 phone calls to CERA from AMD patients wishing to volunteer for the trial; a sobering reminder of the huge numbers of Australians affected by AMD who are desperate for a cure or better treatment. Patricia Keith, a participant in this trial, generously shared her experience for this report. If this work proves successful, it is set to revolutionise how we deal with AMD in future, with enormous impact on the lives of patients and health service providers.

Stem cell scientist Dr Alice Pébay joined CERA at the beginning of the year. Alice is an NHMRC Research Fellow and also appointed to the University of Melbourne. She completed her PhD in neurosciences at the University of Paris and previously held appointments at Monash University and the O'Brien Institute. Alice's move into eye research significantly strengthens CERA's capabilities to extend its work into the exciting new field of vision regeneration.

Alice was one of 27 new arrivals on the CERA staff, most of them early career researchers, including members of Professor Greg Dusting's Cytoprotection Pharmacology research group. The number of staff at CERA was 17% higher at the end of the year than 12 months earlier, an unprecedented increase in a single year for the organisation.

To provide appropriate facilities for our growing basic science research groups and the emerging vision regeneration program, we developed with the assistance of some of our stakeholders a suite of new laboratories, doubling the lab space available at CERA. Victorian Innovation Minister Louise Asher officially opened the new laboratories in November on the same day that the State Government confirmed its commitment and funding for redevelopment of the Eye and Ear Hospital.



Mr Peter Nankivell



Prof Jonathan Crowston

In the redeveloped hospital, facilities for teaching, training and research are also going to be very much improved. We at CERA appreciate the opportunity this presents for the future of eye research and we look forward to working with the Hospital on the redevelopment project to deliver a world class campus that seamlessly integrates medical research, teaching and training with clinical services in a way that is now recognised as best practice.

In September, Tina McMeckan retired as a Director and as Chair of the Board after nine years of outstanding service. At a farewell function, directors past and present warmly thanked Tina and celebrated the success CERA has achieved during her chairmanship. Other Board retirements and new appointments in 2012 are detailed elsewhere in this report. We are indebted to the Board members for their hard work and wise counsel over what was a very busy year.

We also want to thank our staff, students, alumni, volunteers and supporters for making CERA what it is today: a vibrant, energetic place; professional and dedicated to excellence; innovative by nature; welcoming and inclusive of our diverse community of researchers and the patients we serve. It is a privilege to lead an organisation so rich with talent

that is engaged in fundamentally important work, held in high regard by its community both locally and internationally and at the cusp of major new opportunities.

A handwritten signature in black ink, appearing to read 'Peter Nankivell'.

Peter Nankivell
Chairman

A handwritten signature in black ink, appearing to read 'Jonathan Crowston'.

Jonathan Crowston
Managing Director

Governance

In 2012, there were a number of changes on the CERA Board. In September, long-serving Chair Ms Tina McMeckan retired and Deputy Chair Mr Peter Nankivell was appointed Chairman. Mr Tim O'Leary completed his term as a director nominated by the Royal Victorian Eye and Ear Hospital on 30 June. The Hospital nominated Dr Malcolm Brown as his successor in this role; Dr Brown was appointed in October. Ms Glenda Alexander resigned as a director nominated by the Members of the Company. Mr Peter Larsen was appointed as a new independent director on 1 November.

Finance and Risk Committee

Provides oversight for CERA's financial planning and management, financial reporting and compliance, and oversees risk management and commercialisation activities

Mr James Joughin (Chair)
Ms Tina McMeckan (until September)
Mr Peter Nankivell
Professor Jonathan Crowston

Nominations and Appointments Committee

Reviews and advises on succession planning and new appointments to the Board, senior researchers and executive

Ms Tina McMeckan (Chair – until September)
Mr Peter Nankivell (Chair – from September)
Ms Glenda Alexander (until September)
Mr James Joughin
Professor Terry Nolan
Professor Jonathan Crowston

Research Advisory Committee

Reviews and advises on CERA research plans and evaluation of research results

Professor Robert Williamson AO (Chair)
Professor Mark Cook
Professor Jonathan Crowston
Dr Mirella Dottori
Professor John Hopper AM
Professor Terry Nolan
Professor Ravi Savarirayan
Dr Ehud Zamir

CERA Members' Forum

The role of the Members' Forum is to foster active engagement of the Company's Members in the life and work of CERA. The Forum was established under the most recent update of the CERA Constitution; it met for the first time in 2012. At that time, the CERA Members participating in the Forum were:

- The Kathleen and Lloyd Ansell Ophthalmology Foundation
- CBM Australia
- Royal Australian and New Zealand College of Ophthalmologists (RANZCO) – Victorian Branch
- The Victorian Lions Foundation
- Vision Australia

CERA Directors



Dr Malcolm Brown



Prof Jonathan Crowston



Dr Cathy Green



Mr Alf Hawken



Mr James Joughin



Mr Peter Larsen



Mr Peter Nankivell
(Chair since Sept 2012)



Prof Terry Nolan



Prof Robert Williamson AO

Directors who retired in 2012



Ms Glenda Alexander



Ms Tina McMeckan
(Chair, 2003 – Sept 2012)



Mr Tim O'Leary

New laboratories opened



Chair Mr Peter Nankivell, Managing Director Professor Jonathan Crowston and the Hon Louise Asher, Minister for Innovation.

CERA doubled its basic science research capacity in 2012 with the construction of a new suite of labs that include a stem cell laboratory.

“Research is a people business, but scientists working at the molecular level need specialist facilities,” said CERA Managing Director Professor Jonathan Crowston. “We knew for some time that our basic science program needed to be stronger as a foundation for the clinical and applied research for which CERA is best known. Recruitment of top scientists has been a strategic priority for us. Building these new labs was an essential component of implementing that strategy.”

The promise of the new labs helped attract Dr Alice Pébay, a rising star in stem cell research who joined CERA at the start of 2012, and Professor Greg Dusting, a distinguished pharmacology and tissue regeneration scientist who started the previous year. Their expertise added to CERA's other research strengths and together with the new facility, provide the platform for a new research program in vision regeneration, the first of its kind in Australia (highlighted elsewhere in this publication).

The Neuroregeneration unit under Dr Pébay's leadership and Professor Dusting's Cytoprotection

Pharmacology unit have joined the Clinical Genetics and Glaucoma Research units on Level 7 of the Eye and Ear Hospital's Smorgon Family Wing. Some 40 researchers, including a number of students and doctoral candidates, are now working in close proximity to each other on that site. The labs are a hive of activity; the energy and a sense of excitement and purpose on the floor are almost palpable.

Associate Professor Ian Trounce, an expert in mitochondrial research from the Glaucoma Research unit, explains that the labs are a joy to work in. “Everything works really well. We spent a lot of time planning this to make sure we got it right and fitting our needs to a tight budget. And the effort has paid off; it's even better than I had imagined.”

While the new labs were being built, CERA staff usually based on the Level 7 site relocated temporarily to the O'Brien Institute on the other side of Victoria Parade, only a few minutes' walk away.

Victorian Minister for Innovation, the Honourable Louise Asher, officially opened the new laboratories at CERA on 23 November 2012. Coincidentally, on the same day the Victorian Government reconfirmed its election promise to redevelop the Eye and Ear Hospital with a public announcement that the project would be fully funded and will proceed from 2013.

CERA doubled its basic science research capacity in 2012 with the construction of a new suite of labs that include a stem cell laboratory.



Top: Dr Alice Pébay and Minister Asher
Middle: CERA directors at the opening
Bottom (L-R): Minister with Professor Greg Dusting and Associate Professor Ian Trounce

While some parts of CERA will move to newly refurbished, purpose-built accommodation in the course of the redevelopment, the new laboratories will remain in place. “It has been absolutely worth investing in this facility now,” confirmed CERA Chairman Peter Nankivell, who also chairs CERA's fundraising arm, the Eye Research Australia Foundation. “We are really fortunate that CERA can draw on the generosity of benefactors to assist with such business development projects.” Income from the estate of the late Miss Cecilia Hudson, who left a generous bequest to CERA in 2009, made a significant contribution to the vision regeneration laboratories.

Australian bionic eye prototype a success

In a cramped, dark room, Dianne Ashworth sits patiently with her beloved guide dog curled up at her feet. Next door, scientists from CERA, partner in the Bionic Vision Australia (BVA) consortium, are observing via video link; holding their breaths and waiting to see if years of work are about to pay off.

As the first Australian patient to have a bionic eye prototype implanted, Ms Ashworth knew that there were no guarantees the device would work when it was finally switched on in July 2012.

“I didn’t know what to expect, but all of a sudden, I could see a little flash... it was amazing. Every time there was stimulation, there was a different shape that appeared in front of my eye,” said Ms Ashworth.

The first of three patients to receive the implant, Ms Dianne Ashworth has profound vision loss due to retinitis pigmentosa, an inherited condition. She has now received what she calls a ‘pre-bionic eye’ implant that enables her to experience some vision when the device is electrically stimulated in the laboratory.

Dr Penny Allen, a specialist surgeon at CERA, led a surgical team to implant the prototype at the Royal Victorian Eye and Ear Hospital.

“This is a world first - we implanted a device in this position behind the retina, demonstrating the viability of our approach. Every stage of the procedure was planned and tested, so I felt very confident going into theatre,” Dr Allen said.

CERA is one of the core partners in Bionic Vision Australia with Professor Robyn Guymer leading the clinical research program of this multi-faceted research collaboration.

News about the successful implant attracted global attention and was our biggest media story in 2012.

According to Professor Anthony Burkitt, Director of Bionic Vision Australia, the strong outcome achieved demonstrates what a multi-disciplinary research team focused on a shared goal can achieve. Funding from the Australian Government has been critical in reaching this important milestone. Future support from government and private supporters will be essential to build on what has already been achieved and help fulfil the potential of the bionic eye.



Dr Penny Allen (left) with Dianne Ashworth and her beloved guide dog. *Photo: David Mirabella*

How the bionic eye works

The early prototype consists of a retinal implant with 24 electrodes. A small lead wire extends from the back of the eye to a connector behind the ear. An external system is connected to this unit in the laboratory, allowing researchers to stimulate the implant in a controlled manner in order to study the flashes of light. Feedback from Ms Ashworth will allow researchers to develop a vision processor so that images can be built using flashes of light. This early prototype does not incorporate an external camera – yet. This is planned for the next stage of development and testing.

Researchers continue development and testing of the wide-view implant with 98 electrodes and the high acuity implant with 1024 electrodes. Patient tests are planned for these devices in due course.



A video summary of some of the media highlights is available from the BVA web site. Visit www.bionicvision.org.au/eye or scan the code to take you there directly.



Miracle in sight



Patricia Keith
AMD patient and clinical trial
participant at CERA

Nanosecond laser trial gives hope to thousands

Local and international media dubbed it a “miracle in sight” – a new nanosecond laser therapy that could potentially slow or even reverse the progression of Australia’s leading cause of blindness, macular degeneration.

Over a thousand people from all over Australia and overseas put up their hands to be part of this world-first clinical trial, led by CERA’s Professor Robyn Guymer. One of those volunteers was Patricia Keith, a 73 year-old retired ophthalmic nurse from Melbourne.

“When I was first diagnosed with the early stages of Age-related Macular Degeneration (AMD), I felt hopeless and a bit depressed,” said Patricia. “I used to worry constantly if my vision was getting worse and would check every day for any signs of progression.”

Since being accepted into the trial, Patricia feels like she has finally regained some control of her life. “Sight is so precious and I treasure my independence so anything I could do to preserve this was worth a shot. Why sit back and do nothing?”

AMD is the leading cause of central vision loss in people over the age of 50 in Australia, with one in seven Australians over 50 showing signs of the disease. Unfortunately, vision loss often does not occur until the disease is advanced so most people don’t realise they have AMD until it’s too late.

CERA researchers are attempting to halt the progression of AMD in its early stage, before it progresses to the vision-threatening stage, using an Australian designed and built ‘nanosecond laser’.

The laser, created by Ellex Medical Lasers Ltd, emits a tiny pulse of energy into the back of the eye, to remove the deposits that build up with age and contribute to AMD. Mr Malcolm Plunkett, Executive Director of Ellex, explains that this nanosecond laser is part of a new wave of lasers that can treat areas of the eye previously considered too delicate for laser treatment.

“If you imagine that the energy emitted by the nanosecond laser is equivalent to the height of an average adult, then a standard photocoagulation laser (such as that used to treat diabetic retinopathy) would be four times the height of the Empire State building. We’re talking about a minuscule amount of energy here but the results so far have been very promising,” said Mr Plunkett.

“I used to worry constantly if my vision was getting worse and would check every day for any signs of progression.”

Around 500,000 Australians live with AMD – a degenerative eye disease. Almost 100,000 of them have significant vision loss.

Reading a book or driving the car become impossible. As sight deteriorates, patients experience a loss of independence way before their time.

At CERA, we are committed to finding a cure for AMD. In 2012, over 170 patients participated in our clinical trials. This year, we want to increase that number.

Lead investigator Professor Robyn Guymer conducted a pilot study of the nanosecond laser in 2010-12 with the support of the Victorian Government. “The results were encouraging so we have decided to conduct a much larger proof of principle, randomised trial. Patients reported that the laser treatment was completely painless. A few even wondered when the treatment was going to start, when it was actually already over,” said Professor Guymer.

The commencement of the trial received significant media coverage in 2012, including on the front cover of Melbourne’s Herald Sun newspaper and in New Scientist magazine. In response, our researchers were overwhelmed with volunteers wanting to participate in this world-first trial.

The trial is supported by funding from the National Health and Medical Research Council (NHMRC) and in partnership with Bupa Health Foundation.

The next frontier: restoring sight

Complementing its well-established research that aims to prevent people from going blind, CERA has now initiated Australia's first Vision Regeneration program to give hope and develop new options for people who have already lost their sight. Our successful work as a core partner on the Australian bionic eye project is already a step in that direction.

Orthoptist Fleur O'Hare sees patients every day who have lost their vision. "It's always the ones you can't help that stick in your mind," she says. Fleur is an early career researcher at CERA and recently completed a Masters degree.

Many common causes of blindness, like glaucoma or macular degeneration or diabetic eye disease, are difficult to diagnose early. Once the disease progresses, treatment options are limited and there is little hope of a cure.

The number of people in Australia living with blindness is growing steadily and is expected to exceed 100,000 by 2020. People with visual impairment are at increased risk of falls, hip fractures, motor vehicle accidents, depression and often require nursing home care at an earlier stage of their life.

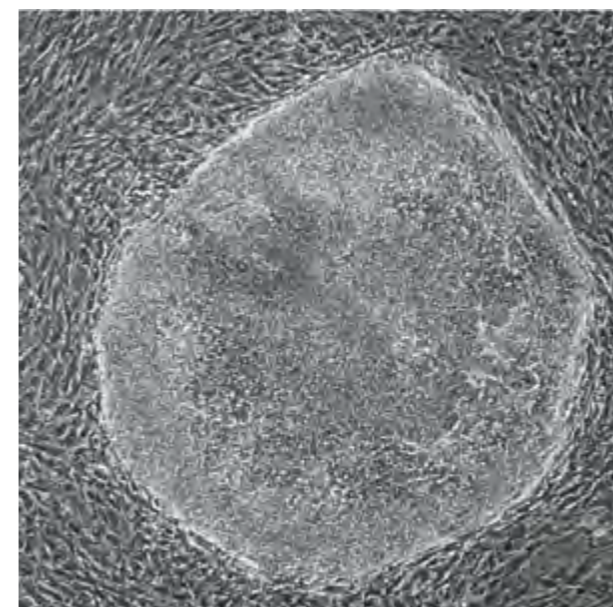
It's a bleak thought, but there is hope on the horizon. What if there was a way to restore sight to some of those 100,000 people?

The Vision Regeneration program aims to restore neurological function to reverse loss of vision through new drugs and techniques to repair or replace damaged cells. The multi-disciplinary team working on regeneration brings together clinicians, stem cell

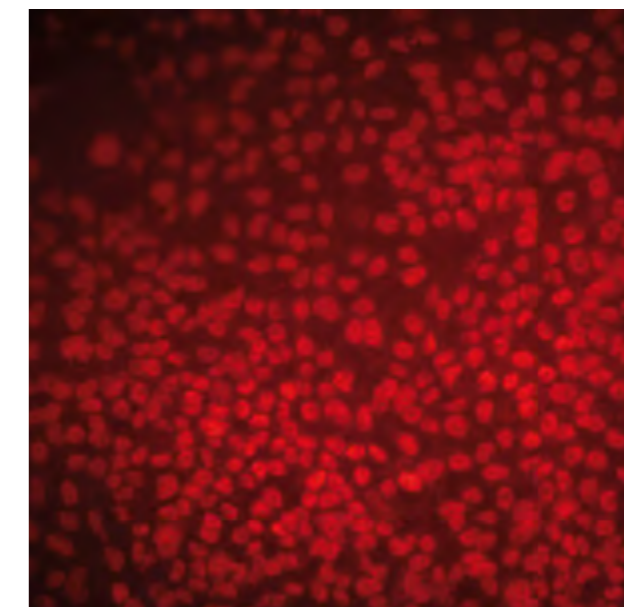
researchers, geneticists, pharmacologists and other scientists who share their specialist expertise to work towards a common goal: to find new solutions for dealing with blindness. A new suite of laboratories was completed in 2012 to accommodate these research teams.

The CERA Vision Regeneration program focuses on the major causes of irreversible vision loss:

- Age-related macular degeneration (AMD) is a complex disease characterised by clinical changes in the central retina (the macular) causing loss of central vision. Affected individuals are unable to read or recognise faces. AMD is the leading cause of irreversible blindness in developed countries, accounting for almost half of all blindness.
- Glaucoma affects approximately 60 million people worldwide and leads to degeneration of the optic nerve with loss of peripheral then central vision, limiting mobility and the ability to drive.
- Diabetic retinopathy causes vision loss from leaky blood vessels in the retina. Diabetes rates are increasing in particular in our Indigenous communities.



Colony of undifferentiated human pluripotent stem cells grown on a feeder layer of fibroblasts.



Expression of the transcription factor OCT-4 in human pluripotent stem cells observed by immunofluorescence.

- Inherited eye diseases including Retinitis Pigmentosa, and diseases of the optic nerve such as Leber's Hereditary Optic Neuropathy which are the most common causes of vision loss in children and young adults.

Work in progress in the Vision Regeneration program includes investigation of new therapies that stimulate retinal and optic nerve cells to regrow; implantation of stem cells (derived from cells in the lining of blood vessels, from bone marrow or fat) to replace defective retinal and optic nerve cells; and building on knowledge gained through the Bionic Vision Australia project to boost neuroregeneration via an implanted electronic chip to improve retinal signals and aid in medium-term recovery of vision.

"Being able to make the blind see is an age-old dream of human kind," comments Professor Jonathan Crowston, Managing Director of CERA.

"All major cultures have myths and stories about that. We are fortunate to be living at a time when that dream is within our grasp. I believe that vision regeneration will be one of the most significant medical advances of our era and CERA is at the forefront of this development.

As a glaucoma specialist, I see patients in the clinic every week whose vision is irreparably compromised and there is very little help we can offer them. We need better solutions for blinding eye diseases. This drives my passion for research, and it's why CERA exists."

"What if there was a way to restore sight to some of those 100,000 people?"

Early detection key to saving sight for diabetics

A major study led by Professor Tien Wong has confirmed that more than a third of people with diabetes will develop some form of diabetic eye disease (retinopathy) in their lifetime. Published in 2012, this study provided the first global estimate of prevalence of this condition.

Diabetic retinopathy is a complication of diabetes that damages blood vessels inside the retina at the back of the eye. It commonly affects both eyes and can lead to vision loss if it is not treated.

The study found that in 2010, an estimated 93 million people worldwide had some form of diabetic retinopathy, and 28 million people are at risk of losing their sight because of the condition.

Diabetic retinopathy rates increased with diabetes duration, blood sugar levels, blood pressure and cholesterol. Individuals with diabetes for 20 years or more were more than three times more likely to have diabetic retinopathy, as were people with Type 1 compared to Type 2 diabetes.

Professor Wong said the study should help guide public health education programs and help optimise screening programs and clinical management of diabetes.

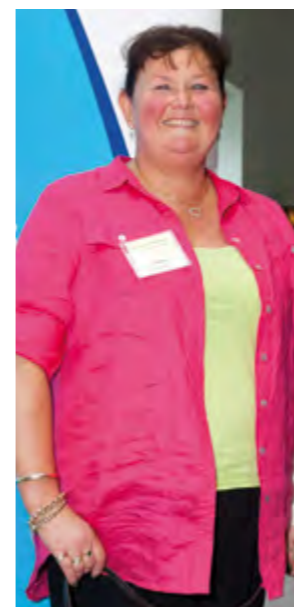
The Health Services research program at CERA has taken a significant step forward in this respect with the introduction of a new screening service for diabetic retinopathy.

Tania Withers has type 1 diabetes and started to lose her sight due to diabetic retinopathy at the age of 23. "I didn't get my eyes checked until it was too late," she says. "If we had detected the small changes earlier, it might have prevented the big changes later on."

Unfortunately, Tania's story is common. Almost half of people with diabetes develop diabetic eye disease. Early detection maximises treatment options and success. It is recommended that people with diabetes have a comprehensive eye examination at least once every two years. However, research suggests that between 30 and 50 per cent of people with diabetes do not have regular eye checks; among Indigenous Australians with diabetes up to 80 per cent may not be getting the required examination.

Thanks to a new diabetic retinopathy screening service designed by CERA's Head of Health Services Research Associate Professor Ecosse Lamoureux, people with diabetes in some parts of Victoria now have access to free screening for diabetic retinopathy to help detect early changes in their eyes and prevent vision loss later in life.

Funded by the National Health and Medical Research Council and supported by Melbourne Pathology and Diabetes Australia – Vic, the 'RetPath' screening



Diabetic retinopathy patient Tania Withers. Image courtesy of Vision 2020 Australia. Photo: ID Photo

model offers people with diabetes a simple and painless review of their eye health consisting of a general questionnaire, a vision test and retinal photography that is undertaken as part of their regular visit to a pathology centre.

The program was first piloted in 2011. Uptake of the new service was very high with almost 94 per cent of patients agreeing to diabetic retinopathy screening at pathology centres. The results of the pilot program were published in the Medical Journal of Australia.

Based on the success of the pilot, the RetPath program was rolled out to five Melbourne metropolitan centres in 2012; in 2013 there are plans to expand the program to regional areas in Victoria.

As someone who has lost her vision to the disease, Ms Withers believes that the proposed service could fill a long-time gap in diabetes care. "It's a brilliant idea and has been needed for a long time."

"I wish I'd had the opportunity when I was younger to have access to a service like this; it may have helped prevent me from losing my vision."

"I wish I'd had the opportunity when I was younger to have access to a service like this; it may have helped prevent me from losing my vision."

Rising stars of eye research

Early career researchers, typically defined as researchers who completed their doctorate less than five years ago, are the life blood of any research institute. Some outstandingly talented young researchers at CERA are beginning to make their mark as tomorrow's leaders in eye research.



Dr Lauren Ayton

Research Fellow, Macular Research Unit, Bionic Vision Australia project

- Ian Potter Foundation Travel Grant
- William Angliss Charitable Foundation Grant
- CERA Excellence in Research Award
- Fellowship, Australian College of Optometry



Dr Vicki Chrysostomou

Research Fellow, Glaucoma Research Unit

- ORIA research grant
- CASS Foundation Travel Grant
- Invited speaker, 'Optic Nerve Degeneration and Aging' scientific meeting, Obergurgl (Austria)



Dr Alex Hewitt

Research Fellow and Principal Investigator, Clinical Genetics Unit

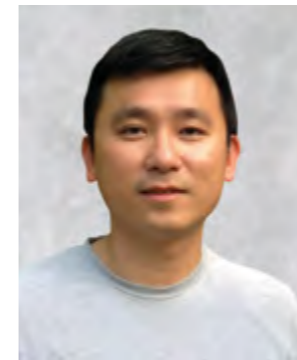
- NHMRC Early Career Fellowship (2012-2015)
- Ophthalmic Research Institute of Australia (ORIA) research grant
- Bright Focus Foundation (formerly AHAF) research grant
- Alcon Research Institute Young Investigator Award
- Sayer Lecture Travel Award, National Institutes of Health / National Eye Institute (USA)
- Top published scientific author among CERA early career researchers in 2012 with 22 published papers



Dr Ryo Kawasaki

Research Fellow and Grading Manager, Retinal Vascular Imaging; Health Services and Ocular Epidemiology Research Unit

- NHMRC Early Career Fellowship (2011-2012)
- Prime Minister's Japanese Education Assistance Program: Grant to assist in tsunami-affected areas of Japan
- Second highest scientific publications output among CERA early career researchers in 2012: 16 published papers



Dr Rick (Guei-Sheung) Liu

Research Fellow, Cytoprotection Pharmacology Unit

- University of Melbourne Early Career Researcher Award
- ORIA research grant
- Young Investigator Prize, 2nd International Symposium Of Materials in Regenerative Medicine, Taiwan



Dr Hitesh Peshavariya

Research Fellow, Cytoprotection Pharmacology Unit

- ORIA grant awarded in 2012 round
- Young Investigator's Prize, International Society for Free Radical Research, USA
- Invited conference session Co-chair, Gordon Conference Research Seminars, USA
- CASS Foundation Travel Grant
- Heart Foundation Travel Grant and Fellowship
- Harold Mitchell Foundation Postdoctoral Travel Fellowship



Dr Nicole Van Bergen

Research Fellow, Glaucoma Research Unit

- University of Melbourne Early Career Researcher Award
- ORIA research grant
- Ian Potter Foundation Travel Grant

Global indicators for blindness prevention

Avoidable blindness refers to blindness caused by conditions that could be either treated or prevented by known, cost-effective means. The global initiative to eliminate avoidable blindness 'VISION 2020: The Right to Sight' has, through advocacy and service delivery by member organisations, reduced the burden of vision loss over the past decade. Yet the actual impact has not been measured as previous action plans for eye health programs did not include a clear framework for data collection, monitoring or evaluation to measure impact.

The 'global indicators' project therefore aimed to provide a simple set of globally relevant measures of progress towards eliminating avoidable blindness. It was also intended to help identify specific areas or countries where additional resources are required to address this issue.

Following a competitive call for proposals, CERA was selected to develop this set of global indicators. The project was funded by The Fred Hollows Foundation and ORBIS International, with the support of the International Agency for the Prevention of Blindness (IAPB). Professor Jill Keeffe OAM, Head of Population Health and Director of the World Health Organization (WHO) Collaborating Centre for Prevention of Blindness at CERA, said the engagement to undertake this important work was testament to CERA's international reputation in this field.

The final suite of indicators include prevalence and causes of vision loss, coverage of eye care services, each country's health workforce, access to medical products and technology, health information systems, and governance. These indicators have since been included in the WHO Action plan for the prevention of avoidable blindness and visual impairment 2014-2019. This was endorsed by the WHO Executive Board in January 2013; implementation will commence after the World Health Assembly in May 2013.



Hope for spinal cord injury patients

The CERA Neuroregeneration unit has demonstrated that a new antibody can reverse damage caused by trauma to the central nervous system. After a neurotrauma event, such as a spinal cord injury, the body produces an inflammatory response. This response often leads to scarring and permanent nerve damage, for which there are currently no treatments.

A new antibody created by US company Lpath blocks the effects of lysophosphatidic acid (LPA), a molecule released in response to injury that promotes inflammation and nerve cell death.

The CERA research team showed that by administering this antibody soon after an injury occurred, it was possible to preserve nerve cells and limit the amount of scarring, while substantially reducing loss in motor function.

Dr Alice Pébay, Head of the Neuroregeneration unit and one of the lead investigators in this work, said that this study offers great hope for a future treatment for spinal cord injuries in humans. "Our findings reinforced earlier research on the role of LPA after an injury. By blocking the effects of LPA, we can help nerve cells survive a traumatic injury leading to better outcomes for patients in the future," she said. "Perhaps one day we will have a drug that can be administered in the back of an ambulance, as the patient is being transported to hospital."

The work has been funded by the Transport Accident Commission (TAC) and the National Health and Medical Research Council (NHMRC).

CEO Janet Dore said that each year the TAC accepts on average 25 new claims for people with spinal cord injuries, both quadriplegia and paraplegia, who will need rehabilitation and medical support across their lifetime. "Research like this gives us hope that traumatic spinal injuries could be more effectively treated in the future."

The spinal cord is a good model for the optic nerve and researchers expect that this work can eventually be translated to the area of vision regeneration.

Collaborators in the study included scientists at the O'Brien Institute, Lpath Inc and Monash University.

Helping vision impaired people beat the blues

Depression is a common problem among people with vision impairment. Yet agencies providing low vision support services are often not well equipped to diagnose it and provide psychological support services.

CERA Health Services researcher Dr Gwyneth Rees is working with Vision Australia to develop a new integrated model of care to improve the quality of life for people with vision impairment. The new model will be available to low vision clients recruited from Vision Australia centres across Victoria, New South Wales, Queensland, Australian Capital Territory and Northern Territory.

Twenty rehabilitation staff from Vision Australia are being trained to deliver problem-solving techniques to adults who screen positive for depressive symptoms. Problem-solving therapy is an evidence-based treatment for depression.

"This project aims to create a new and accessible service for clients. Its implementation will place Australia at the forefront of low vision care," said Dr Rees. "It is also a model of innovative service delivery that can translate to other health areas, such as diabetes, heart disease and cancer care."

An economic analysis in Australia found the excess costs of depression to be \$1.93 billion per annum. Depression has been found to increase morbidity and mortality in older adults and can double an individual's health care costs.

Dr Rees said part of the problem is that psychological services are delivered separately from physical health in Australia. "This project will integrate problem-solving therapy into low vision rehabilitation services," she said.

This project is supported under the Australian Research Council's Linkage Projects funding scheme, with partner contributions from Vision Australia and beyondblue. Dr Gwyneth Rees holds an NHMRC 'Translating Research Into Practice' (TRIP) Fellowship.



Eyes: a window for discovery

The eye provides a unique platform for looking at diseases that affect the eye and the brain as the retina and optic nerve are the only part of the brain that can be easily imaged. A common theme uniting the major eye and brain diseases is the close link between risk of disease and older age.

The Glaucoma Research group at CERA is developing a unique research niche by using the eye as a model to understand not only glaucoma but also degenerative diseases of the wider central nervous system, especially Parkinson's and Alzheimer's disease.

Mitochondria, the power generators of all the cells in the body, become less efficient as we age. When mitochondria are defective some cells of the brain – and eye – become susceptible to degeneration and death. Our researchers are exploring the consequences of mitochondrial defects on the health of retinal ganglion cells that form the optic nerve. These are perhaps the most sensitive of all cells to mitochondrial defects.

Collaborating with researchers specialising in Alzheimer's and Parkinson's disease, CERA scientists are closely investigating these retinal ganglion cells to develop a new drug testing platform. As the health of the optic nerve can be readily measured, measuring the effects of potential new drugs on the nerve will provide a way of assessing effectiveness of treatments for slowing degeneration.

To validate the drug testing platform, the team is initially using drugs known to help maintain nerve health in Alzheimer's disease and Parkinson's disease. Associate Professor Ian Trounce, a world leading expert on mitochondria and one of the principal investigators for this work, received a grant from the Michael J Fox Foundation for Parkinson's Research to establish whether a model he developed will enable testing of therapies that may slow progression of Parkinson's disease, using optic nerve measures to short-cut screening for drug effectiveness.

In due course, this is expected to lead to human trials for new treatments that protect the eye and brain from the negative impact of ageing and reduce the risk of degenerative disease of the central nervous system for millions of people. "As the world's population gets older, the opportunity from this is significant, including for potential commercial collaboration", says Professor Jonathan Crowston, Head of Glaucoma Research.

Publications

Medical researchers share their findings through publication of their work so that everyone working in the field can benefit from advances in knowledge. Peer review of papers ensures scientific rigour.

A total of 208* papers were published in 2012 by CERA and University of Melbourne Department of Ophthalmology researchers in the following scientific journals:

Acta Ophthalmologica (2)	Current Opinion In Ophthalmology
American Journal Of Clinical Nutrition	Deutsches Ärzteblatt International
American Journal Of Epidemiology (2)	Diabetes
American Journal Of Human Genetics	Diabetes Care (3)
American Journal Of Ophthalmology (7)	Diabetes Research And Clinical Practice
American Journal Of Pathology	Diabetologia
Amyloid-Journal Of Protein Folding Disorders	European Journal Of Human Genetics (3)
Annals Of Epidemiology	Expert Opinion On Biological Therapy
Archives Of Environmental and Occupational Health	Eye (7)
Archives Of Ophthalmology (6)	Eye and Contact Lens-Science And Clinical Practice (3)
Arthritis Research and Therapy	Free Radical Biology And Medicine
Biochemical And Biophysical Research	Graefes Archive For Clinical And Experimental
Communications (2)	Ophthalmology (3)
Biomaterials	Health And Quality Of Life Outcomes
BMC Musculoskeletal Disorders	Human Genetics
BMC Neurology	Human Molecular Genetics (3)
BMC Public Health	Hypertension
British Journal Of Ophthalmology (9)	Indian Journal Of Ophthalmology (2)
Canadian Journal Of Ophthalmology-Journal	International Journal Of Audiology
Canadien D'ophthalmologie	International Review Of Cell And Molecular Biology
Cell Reports	Investigative Ophthalmology and Visual Science (24)
Circulation	Journal Of AAPOS
Clinical And Experimental Ophthalmology (28)	Journal Of Glaucoma (2)
Clinical And Experimental Optometry (4)	Journal Of Human Hypertension (3)
Cornea (5)	Journal Of Medical Systems
Current Eye Research	Journal Of Neural Engineering
Current Hypertension Reports	Journal Of Neurology



The full list of our 2012 research publications is available from our website <http://www.cera.org.au/publications>

Nature Genetics

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Diabetes

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Ophthalmology

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Human Molecular Genetics

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Journal Of Neuropathology And Experimental Neurology
 Journal Of Paediatric Ophthalmology and Strabismus
 Journal Of Refractive Surgery
 Kidney and Blood Pressure Research (2)
 Materials World
 Medical Journal Of Australia (2)
 Microcirculation
 Molecular Vision (3)
 Nature Genetics (3)
 Neurobiology Of Aging
 Nucleic Acids Research
 Obstetrics And Gynaecology
 Ocular Immunology And Inflammation
 Ophthalmic Epidemiology (6)
 Ophthalmic Research
 Ophthalmologie
 Ophthalmology (12)
 PLOS Genetics (2)
 PLOS One (6)
 Postgraduate Medical Journal
 Proceedings Of The National Academy Of Sciences Of The United States Of America
 Quality Of Life Research
 Singapore Medical Journal
 Stem Cells And Development
 Stroke

Survey Of Ophthalmology
 Tissue Engineering Part A (2)
 Transactions Of The Royal Society Of Tropical Medicine And Hygiene
 Twin Research And Human Genetics

Notes:

- Journals that published more than one of our papers are identified in the list above with the number of CERA papers published in brackets after the journal title; no number means only one paper appeared in a given journal during the year.
 - Twenty-eight journals published more than one CERA co-authored paper; the three journals that published more than 10 each jointly account for 30% of CERA year's publications for the year: Clinical and Experimental Ophthalmology (28); Investigative Ophthalmology and Visual Science (24); and the world's top ranked eye journal Ophthalmology (12).
 - Almost a quarter (23%) of CERA's research output is now published in high-ranking journals outside the field of ophthalmology, such as Nature Genetics; Proceedings of the National Academy of Sciences of the United States of America; or Diabetes.
 - Publications benchmarking data, also available from www.cera.org.au shows that CERA leads ophthalmology research in Australia and is among the top five eye institutes in the world.
- *According to Web of Science. Not all journals are included in this database so actual figure including all research papers, reviews, book chapters, editorials and letters is 236.

Hugh Taylor portrait



A portrait of CERA founder Professor Hugh Taylor AC was unveiled in February 2012 and is now on display in the main CERA meeting room. The painting by award-winning portrait artist Evert Ploeg was commissioned to celebrate Hugh Taylor's enormous contribution to ophthalmology and to CERA.

Professor Taylor was also recognised in November with a lifetime achievement award by Research Australia for his contribution to eye health in Australia.

Community fundraising



The CERA logo was in evidence on cycling and running gear at a number of community fundraising events, including the Murray-to-Moyne cycling relay, the Lions Ride for Sight, Run Melbourne and the Melbourne Marathon. More than \$60,000 was raised for eye research, while runners and cyclists enjoyed the team spirit and health and fitness benefits. CERA greatly appreciates the support these events generate and the time and effort participants invest.

The Run Melbourne team won the 2012 "CERA Community Engagement and Knowledge Transfer Award" for raising awareness in the community about CERA and its work.

Board Chair Tina McMeckan retired



Ms Tina McMeckan retired as Chair of the CERA Board in September after nine years of outstanding service. Managing Director Professor Jonathan Crowston paid tribute to her leadership, noting that "Tina has been a driving force for innovation and a source of stability during a period of enormous growth and change at CERA over the past decade. Her dedication, tireless work and passion for our research have been paramount to our success."

Mr Peter Nankivell, Chair of Partners at Herbert Geer Lawyers succeeded Ms McMeckan as CERA Chairman.

Gerard Crock lecture



In May, Professor Tien Wong delivered the 2012 Gerard Crock lecture entitled "The Eye is a Window to Your Health", explaining how an image of the blood vessels at the back of the eye provides a snapshot of a person's overall health. Professor Wong is a multiple-award winning researcher, Director of the Singapore Eye Research Institute and a Professorial Fellow at the University of Melbourne and CERA.

Professor James Angus AO, Dean of Medicine, Dentistry and Health Sciences at the University of Melbourne, introduced Professor Wong as "one of the best and brightest of his generation in medical science and research."

Lions Eye Donation Service turns 21



The Lions Eye Donation Service provides donor corneas to patients who have sight-threatening conditions and require a corneal transplant. Established in 1991, the Melbourne service has developed to a level of maturity that allows it to take a leadership role in our region and beyond. Dr Graeme Pollock, who has been director of LEDES since its inception, is also Chair of the Eye Bank Association of Australia and New Zealand (EBAANZ) and the first Australian who has been appointed to the Medical Advisory Board of the Eye Bank Association of America.

Since 2001, LEDES has been involved with more than 2000 generous donors and their families and successfully transplanted more than 3,600 corneas. That's a lot of people whose lives have been changed through this sight-restoring operation.

Congratulations, and thanks to everyone involved for giving the gift of sight.

The Victorian Lions Foundation continues its generous financial support for the enterprise.

Ophthalmologist Dr Ian Robertson who was a driving force behind the establishment of the Lions Eye Donation Service, was awarded an Order of Australia Medal for his services to ophthalmology and the Lions Eye Donation Service in the 2012 Australia Day Honours list. Dr Pollock commented: "I don't think I've met a more deserving person in all of ophthalmology. We are absolutely thrilled that he received this award."

CERA community

Eye health awareness raising



CERA makes its expertise available to the interested public through regular events. In 2012, free community information sessions about AMD, glaucoma and diabetic eye disease attracted capacity audiences who engaged in lively question-and-answer exchanges with the researchers. The CERA Scientific Exchange is another opportunity for our friends and supporters to find out about the latest breakthroughs in eye research and meet the researchers who make it happen. In November, as part of the AusBiotech conference, CERA hosted a public forum on stem cell research and technology as possible options for restoring sight in the future.

To find out about events at CERA and register your interest to attend visit cera.org.au

CERA awards



These annual awards recognise excellence among CERA staff and students above and beyond normal performance expectations. The 2012 winners were:

- Excellence in Research Award: Dr Lauren Ayton
- Teaching and Training Award: Dr Amirul Islam
- Community Engagement and Knowledge Transfer: CERA Run Melbourne Team
- Outstanding Contribution of a Student: Dr Jefitha Karimurio
- The CERA Award (for enhancing CERA as an organisation: Mr Sanj Perera, IT Officer

Visiting professors



Each year, CERA hosts a number of international leaders in eye research as visiting professors. The invited guest speakers deliver two public lectures during their visit, held at the Eye and Ear Hospital. The Visiting Professors program has been attracting growing audiences from among CERA and University of Melbourne research staff as well as medical staff and allied health professionals of the Hospital; Registrars; and researchers from other departments and institutes around the Eastern Hill precinct.

In 2012, the visiting lectures were: Professor Debra Goldstein of the University of Illinois in Chicago; Professor David Mackey of the Lions Eye Institute in Perth; and Associate Professor Jamie Craig (pictured above) from Flinders University in South Australia.

The Visiting Professors program is generously sponsored by Alcon.

CERA abroad

CERA researchers honoured by Harbin Medical University, China



Professor Jonathan Crowston, Managing Director of CERA and Ringland Anderson Professor of Ophthalmology at the University of Melbourne, was awarded an honorary professorship at Harbin Medical University. Head of CERA's Surgical Research unit, Associate Professor Mark Daniell was named an honorary professor of the Eye Hospital of Harbin Medical University.

Professor Crowston and Associate Professor Daniell travelled to China in June along with Head of CERA's Drug Delivery Unit, Dr Hong Zhang, to accept the professorships conferred by Professor Yang Baofeng, President of Harbin Medical University. Both said the honorary professorships were a great honour. "We look forward to closer ties developing between our academic research teams". The visit was a valuable opportunity for the CERA team to discuss strengthening research collaboration with the Harbin Medical University and hospital.

Professor Crowston also presented a key note address at the 10th Annual Scientific Congress of the First Affiliated Hospital of Harbin Medical University on "Challenges of the ageing eye".

International presentation highlights



Our researchers regularly present their work at scientific meetings around the world. A small sample from the many speaking engagements in 2012 includes:

Professor Robyn Guymmer: invited speaker, Distinctive Voices public lecture series of the National Academy of Science at The Beckman Center, USA and Euretina Congress 2012, the European Society of Retinal Specialists in Milan, Italy.

Professor Jonathan Crowston: invited keynote speaker at the 116th Annual Meeting of the Japanese Ophthalmological Society and at the 2012 Philippines Glaucoma Society Meeting.

Associate Professor Michael Coote (pictured): awarded best scientific paper for a presentation at the International Congress on Glaucoma Surgery in Glasgow, Scotland.

Associate Professor Paul Baird: symposium speaker at 2012 Asia-Pacific Academy of Ophthalmology, South Korea; invited speaker at the inaugural meeting of the International Myopia Genetics Consortium, in Rotterdam, the Netherlands.

Dr Alice Pébay: invited to present at the Texas Heart Institute, USA.

Dr Vicki Chrysostomou: invited to present at the Optic Nerve Degeneration and Ageing meeting in Obergurgl, Austria.

Research teaching and training

CERA hosts a growing number of research students and provides them with hands-on research training and supervision for their work towards a higher degree. Five of them graduated in 2012. We congratulate:



Dr Jefitha Karimurio, PhD

Thesis Title: The segment knockout survey method for large trachoma-endemic districts

Jefitha Karimurio investigated new ways to effectively measure the prevalence of trachoma in high-risk Kenyan communities. His PhD thesis findings have since been adopted by the World Health Organization (WHO) for trachoma surveillance in Africa. Jefitha Karimurio is the first PhD qualified ophthalmologist in his home country.



Dr Alan McNab, DMedSci

Thesis Title: Pathology of the lacrimal system and its treatment

Alan McNab's project focussed on the tear duct system which is essential to maintaining a healthy ocular surface and optimal visual function.



Dr Paul Sanfilippo, DMedSci

Thesis Title: The heritability of optic disc shape

Paul Sanfilippo used a classic twin study to quantitatively determine the role of genetic factors (heritability) in optic disc shape. The findings of his study will add to the understanding of how optic disc shape is related to glaucoma and other hereditary optic nerve head diseases.



Dr Muhammad Bayu Sasongko, PhD

Thesis Title: Novel retinal vascular geometric measures in diabetic retinopathy

Bayu Sasongko's thesis studied the associations between traditional diabetic risk factors, retinal vascular geometry and diabetic retinopathy for his PhD project.



Dr Nicole Van Bergen, PhD

Thesis Title: Mitochondrial dysfunction in the retina contributes to vision loss

Nicole Van Bergen's thesis looked at the molecular mechanisms behind the failure of mitochondria (the energy producers) in cells, and how these defects predispose cells to stress. By understanding mitochondrial failure in glaucoma, she hopes to identify pathways for therapeutic intervention.

Organisation structure

Research at CERA is organised into ten research units each led by a Principal Investigator or unit head. Research units and their leaders are listed below.

The CERA Corporate Services team provides management support for the organisation and delivers professional services in finance, human resources, IT, research administration, commercialisation and external relations. The General Manager is Ms Gerlinde Scholz.



Clinical Genetics
Professor David Mackey



Cytoprotection Pharmacology
Professor Greg Dusting



Drug Delivery Research
Dr Hong Zhang



Glaucoma Research (Managing Director)
Professor Jonathan Crowston



Glaucoma Research
Associate Professor Ian Trounce



Health Services and Ocular Epidemiology
Associate Professor Ecosse Lamoureux



Macular Research
Professor Robyn Guymer



Neuroregeneration
Dr Alice Pébay



Ocular Genetics
Associate Professor Paul Baird



Population Health
Professor Jill Keefe OAM



Surgical Research
Associate Professor Mark Daniell

A full list of staff at CERA in 2012 is available from www.cera.org.au/about-us



Research support

CERA's success rate in securing new grants from applications submitted in the course of 2012 was close to one third which is above the national average.

New grants awarded in 2012

Significant new grants awarded include:

National Health and Medical Research Council (NHMRC) – new grants starting in 2013

Project grant 1046689: "Improving vision and quality of life: An innovative and comprehensive eye care model for individuals in residential care facilities". CIA Associate Professor Ecosse Lamoureux; \$861,581

Project grant 1047603: "Nanoparticle-based anti-VEGF treatment for Ocular Neovascularization". CIA Dr Hong Zhang; \$855,393

Research Fellowship awarded to Associate Professor Ecosse Lamoureux; \$652,765 over 5 years

Postgraduate Scholarships awarded to: Duncan Crombie; Edith Holloway and Melanie Larizza

Heart Foundation

Grant-in-Aid to Professor Greg Dusting; \$130,000

Ophthalmic Research Institute of Australia (ORIA)

Six new research grants awarded to the following CERA researchers:

- Dr Vicki Chrysostomou
- Dr Alex Hewitt
- Dr Rick Liu
- Dr Alice Pébay
- Dr Hitesh Peshavariya
- Dr Nicole Van Bergen

Friedreich Ataxia Research Association (FARA)

\$260,000 in research funding for Dr Alice Pébay

Bright Focus Foundation (formerly AHAF)

Two research project grants for:

"Improved characterization of early AMD phenotype by combining novel imaging, physiological markers and genotypes". Principal Investigators: Dr Chi Luu; Professor Robyn Guymer; \$120,000

"Refinement of an induced pluripotent stem cell model for retinal ganglion cell apoptosis". Principal Investigators: Dr Alex Hewitt; Dr Alice Pébay; \$99,488

We acknowledge with appreciation the following funding agencies, foundations, collaborators and corporations who contributed to CERA's income for the year:



Professor Robyn Guymer accepts a cheque from The Trust Company on behalf of the MR and RA Brownless Charitable Trust

Funding received in 2012

Abbott Australasia
Alcon Australia
Allergan Australia
American Health Assistance Foundation
Baker IDI Heart and Diabetes Institute
Bayer Australia Limited
beyondblue
BUPA Australia Health
CBM Australia
Clinical Network Services
Department of Business and Innovation (Victorian Government)
Eye Research Australia Foundation
Ellex R&D Pty Ltd
Equity Trustees
Estate of Cecilia Hudson
Friedreich Ataxia Research Association (FARA)
Florey Neuroscience Institutes
Fred Hollows Foundation
Glaxo Smith Kline

Harold Mitchell Foundation
Heart Foundation
Ian Potter Foundation
International Agency for the Prevention of Blindness (IAPB)
International Centre for Eyecare Education
JBWere
John Curtin School of Medical Research
Lions Eye Health Program (LEHP) Australia
Lions Eye Bank of WA
Lions Ride for Sight
Lowy Medical Research Institute
Macular Degeneration Foundation
Marsden Eye Research Pty Limited
Mesoblast Limited
Monash University
National Health and Medical Research Council (NHMRC)
Nossal Institute for Global Health
Novartis Pharmaceuticals
Novotech
Organ and Tissue Authority

Ophthalmic Research Institute of Australia (ORIA)
Parexel International
Peggy and Leslie Cranbourne Foundation
Perpetual Trustees
Pfizer Australia
RANZCO Eye Foundation
Retina Australia
Royal Victorian Eye and Ear Hospital
Save Sight Institute
The Angior Family Foundation
The CASS Foundation Limited
The Trust Company
Timor-Leste National Eye Health
University of Melbourne
University of Michigan
University of Sydney
University of Technology Sydney
University of Western Australia
Victorian Lions Foundation
Vision CRC
Vision Retinal Institute
William Angliss Charitable Foundation

Abridged audited financial statement

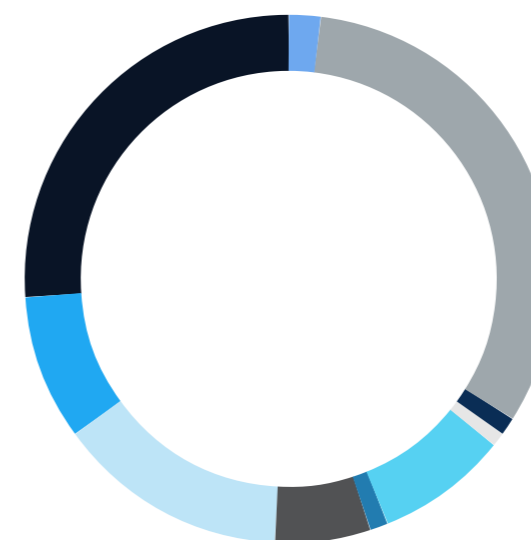
The Centre for Eye Research Australia (ABN: 72 076 481 984)
For the year ended 31 December 2012

Statement of Comprehensive Income	2012	2011
Revenue		
Federal Government	4,642,853	4,163,351
State Government	1,244,409	1,158,312
Charitable Contributions and Other Income	7,062,813	6,196,730
Total Revenue from operating activities	12,950,075	11,518,393
Less Expenditure on operating activities	14,077,430	11,377,009
(Deficit) / Surplus on operating activities	(\$1,127,355)	\$141,384
Net Financial income	628,706	43,624
Capital Grants	-	-
(Deficit) / Net Surplus *	(\$498,649)	\$185,008
Statement of Financial Position		
Current Assets	8,291,837	8,261,313
Non-Current Assets	2,208,042	1,595,443
Total Assets	10,499,879	9,856,756
Current Liabilities		
Trade and other payables	962,644	582,931
Employee benefits	981,095	763,460
Other	954,709	452,245
Total Current Liabilities	2,898,448	1,798,636
Non-Current Liabilities	258,381	216,421
Total Liabilities	3,156,829	2,015,057
Net Assets	7,343,050	7,841,699
Asset Replacement Reserve	5,000,000	5,000,000
Accumulated funds	2,343,050	2,841,699
Total Equity	7,343,050	7,841,699

CERA receives Operational Infrastructure Support funding from the Victorian Government.

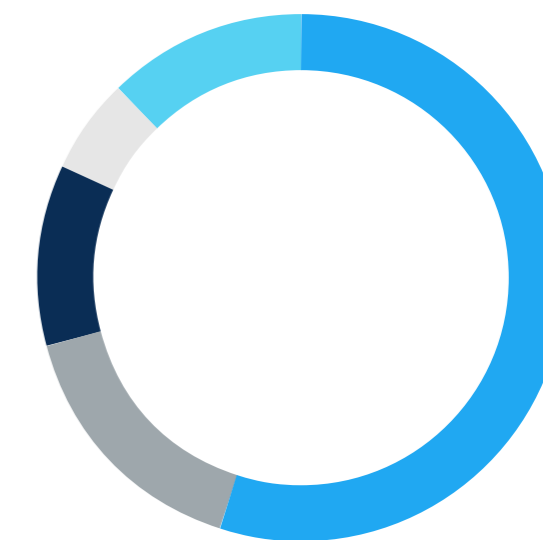
* The Centre for Eye Research Australia Limited is operated as a not for profit organisation. Accordingly, accumulated surpluses are held in the form of working capital and fixed assets to support committed and planned research projects.

Income 2012



Federal Government Vision CRC	2%
Federal Government NHMRC	32%
Federal Government Dept of Industry, Innovation, Science, Research and Tertiary Education	1%
Federal Government AusAID	1%
State Government Operational Infrastructure Support	8%
State Government Victoria's Science Agenda	1%
Clinical Trials	6%
Donations/Sponsorship	14%
Research Foundations	9%
Other Income	26%
Total	100%

Expenses 2012



Research Salaries	55%
Other Research Costs	16%
Administration Salaries	11%
Other Support costs	6%
Building and Facilities costs	12%
Total	100%
Research Costs	
Research Salaries	55%
Research Collaborations	6%
Research Travel	4%
Research Laboratory and consumable costs	6%
Administration Costs	
Administration Salaries	11%
Other Support costs	6%
Building Costs	
Depreciation	4%
Other building and equipment costs	8%
Total	100%



In 2013 we mark the 50th anniversary of ophthalmology at Melbourne.

Gerard Crock started as the foundation Ringland Anderson Professor at the University of Melbourne on 1 May 1963 and created Australia's first specialist ophthalmology department.

His successor Hugh Taylor established the Centre for Eye Research Australia (CERA) in the 1990s to complement and build on the Department's research strengths.

Together, the University of Melbourne Department of Ophthalmology and CERA have grown into a powerhouse for ophthalmology teaching, scholarship, innovation in patient care and into one of the top five eye research groups in the world today.



We invite the CERA community – supporters, stakeholders, patients, alumni, staff and students – to celebrate with us. A calendar of events is available at <http://www.cera.org.au/news-events/events>