



Centre for Eye Research Australia

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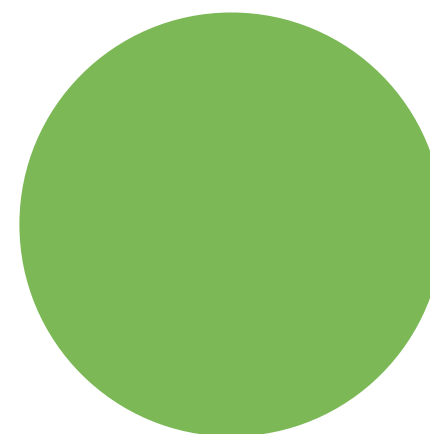
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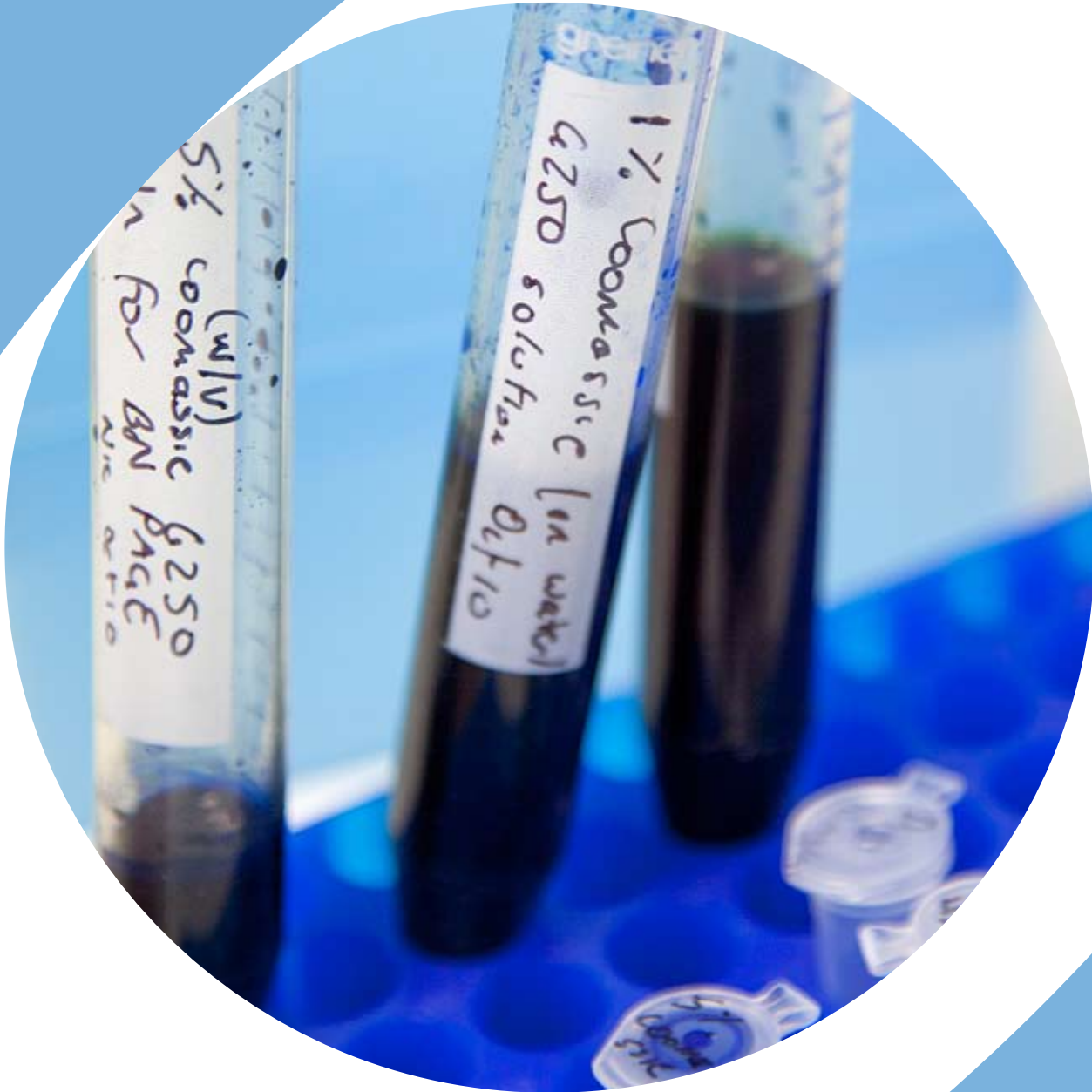
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For regular updates on CERA research
visit www.cera.org.au

Annual Report 2010





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Who we are

The Centre for Eye Research Australia (CERA) is Australia's leading eye research institute. Our close affiliation with the Royal Victorian Eye & Ear Hospital and the University of Melbourne makes us a leader in patient care, translational research and education.

Our mission

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

Our vision

To become a world-leading eye research institute, renowned for the discovery of the causes of eye diseases and our work in improving diagnosis, prevention, treatment and rehabilitation of eye disease, vision loss and blindness through our research, clinical work and teaching.

Our research

CERA's eight units conduct basic, clinical and population based research to understand disease processes, improve diagnosis and treatment of major eye diseases and ensure better health service delivery, eye health education and program evaluation. Beyond the eye, researchers are investigating the relationship between retinal vascular changes and systemic disease such as hypertension, stroke and heart disease.

Principal Investigators at CERA are among the world's leading ophthalmic scientists. Experts in a broad range of disciplines – from neuroscience to ophthalmology to molecular genetics – they're leaders in scientific discovery and clinical innovation.

We asked some of our researchers what drives them. Here's what they had to say...



1. **Dr Chi Luu**
Senior Research Fellow
Macular Research Unit
2. **Dr Paul Connell**
Gerard Crock Fellow
Retinal Vascular
Imaging Centre
"It's so important to look to the next generation of eye care providers and constantly improve on our body of knowledge."

3. **Professor Tien Wong**
Head, Retinal Vascular
Imaging Centre
4. **Professor Jill Keefe**
Head, Population Health Unit
"Knowing we have the tools to prevent blindness, in a world where so many people are affected by vision loss, drives us to develop improved health care services at home and abroad."

5. **Professor Jonathan Crowston**
Head, Glaucoma
Research Unit
CERA Managing Director
"The incidence of vision loss is a growing challenge and one CERA is committed to fighting head on. We are tackling the issue from all angles, from the cellular level to epidemiology studies to the development of new treatments."

6. **Dr Ryo Kawasaki**
Research Fellow
Retinal Vascular Imaging
"The eyes are a window to the rest of our body. Predicting the onset of diseases just by looking at the eye is truly remarkable."
7. **Associate Professor Paul Baird**
Head, Ocular Genetics Unit

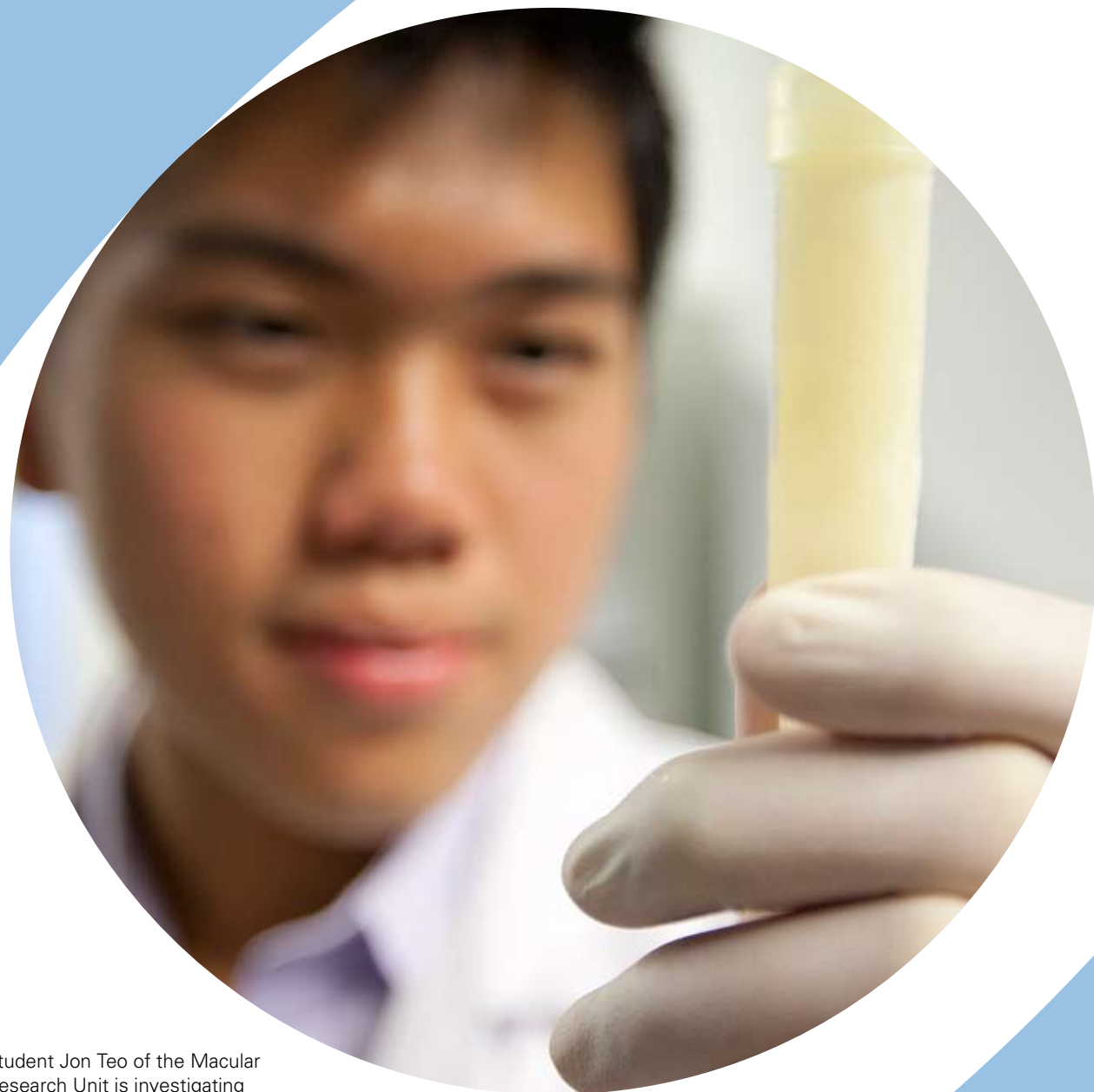


8. **Associate Professor Ecosse Lamoureux**
Head, Health Services Unit
"Understanding patients' behaviours and barriers to optimal treatment drives my research. We investigate clinical, behavioural and cost-effective treatment regimes."

9. **Professor Robyn Guymer**
Head, Macular Research Unit
"Discovering how to slow the progression of early age-related macular degeneration would be a significant breakthrough to benefit millions of people worldwide who are at risk of losing their vision."
10. **Dr Jon Ruddle**
Research Fellow
Clinical Genetics Unit

11. **Dr Lyndell Lim**
Senior Research Fellow
Macular Research Unit
12. **Associate Professor Ian Troncone**
Principal Research Fellow
Glaucoma Research Unit
"The retinal nerve cells can reveal the first signs of deterioration as energy levels decline, making the eye the ideal model to study changes in cellular energy production caused by diseases like glaucoma and Alzheimer's."

13. **Dr Gwyn Rees**
Senior Research Fellow
Health Services Unit
14. **Professor Rasik Vajpayee**
Head, Surgical Research Unit



Student Jon Teo of the Macular Research Unit is investigating biomarkers to detect age-related macular degeneration.

CLINICAL GENETICS UNIT

Unit Head: **Professor David Mackey**

Decoding the genetics of eye disease can help us unravel its causes and discover new therapeutic targets. The Clinical Genetics Unit specialises in the genetic analysis of conditions including glaucoma, optic atrophy, strabismus, ptosis, congenital and familial cataracts, retinitis pigmentosa and retinal detachment.

The smaller things in life

Most people associate eye disease with older people. But for some children, vision loss is a reality they face from a very young age.

Paediatric ophthalmologist Dr Jon Ruddle knows all too well the devastating effect that eye disease can have on the young.

It's one of the reasons he chose to specialise in paediatric ophthalmology after returning from Fellowships at Moorfields Eye Hospital and Great Ormond Street Children's Hospital in London.

According to Dr Ruddle, the challenges of the role are far outweighed by the resilience of his little patients and the rewarding nature of his work.

"When you treat a child for vision problems you're potentially improving their vision for 80 years. It's work that has an important and long-lasting impact," he said.

As a Research Fellow within CERA's Clinical Genetics Unit, Dr Ruddle was part of the team that discovered *TUBB3* – a gene associated with a rare subtype of the common childhood eye disorder, strabismus.

Strabismus - the condition that causes 'turned' or 'crossed' eyes - affects one in 50 Australians.



"When you treat a child for vision problems you're potentially improving their vision for 80 years. It's work that has an important and long-lasting impact."

A collaborative effort with Harvard University, the project spanned more than 15 years and involved a large team of people.

"The discovery was important because it has helped build understanding of the development of the nerves that control the eye" Dr Ruddle said.

"We found that the *TUBB3* gene drives the development of the nerves that control the eye muscles. This rare form of strabismus occurs when mutations in this gene cause the abnormal development of these nerves," Dr Ruddle said.

"We also found that the mutations can interfere with the brain's ability to wire up properly which, in severe cases, can lead to intellectual, behavioural and social disabilities."

Dr Ruddle expects that CERA's genetic research capacity will greatly improve with the introduction of a vast bank of genetic information known as the Melbourne Biobank for Eye Disease or MBED.

"Through the Biobank, we'll collect blood and clinical information from people with eye disease and people with healthy eyes who'll be control participants," Dr Ruddle said.

"Over time, the bank will become a major repository of data for investigating the genetic and environmental causes of eye disease, and developing new treatments."

GLAUCOMA RESEARCH UNIT

Unit Head: **Professor Jonathan Crowston**

Understanding the ‘chicken or the egg’ relationship between mitochondrial decline and ageing drives the Glaucoma Research Unit, whose researchers are investigating the role of ageing in glaucoma. From analysing the disease at the cellular level to conducting clinical trials, the Unit strives to improve glaucoma diagnosis and treatment and translate new therapies into clinical practice.

Neurosciences rising star

If someone had told Vicki Chrysostomou ten years ago that she’d be training mice to swim in an effort to prevent glaucoma, she’d have raised her eyebrows.

Now this unusual pastime is part the neuroscientist’s daily routine as she seeks to discover if exercise helps to protect the optic nerve from the harmful effects of ageing.

Vicki’s fascination with the inner workings of the brain began during her Honours year in Medical Science where she studied neurodegenerative diseases such as Alzheimer’s and retinitis pigmentosa.

These days, Vicki works as a post-doctoral research fellow in CERA’s Glaucoma Unit, where she and her colleagues are investigating the role of ageing in glaucoma.

Glaucoma damages the optic nerve, the link between the eye and the brain that transfers visual information.

As we age, the function of our mitochondria, the part of the cells responsible for energy production, declines. CERA researchers believe that this decline makes the optic nerve vulnerable to injuries that lead to glaucoma.

Vicki’s study was inspired by the research of her colleagues who found that diet



“The brain is a curious organ. Understanding its architecture and how it influences the rest of the body can help us to solve the mysteries of brain-related diseases.”

restriction can dramatically improve mitochondrial function and the health of the optic nerve.

“While the results are exciting, dietary restriction has obvious limitations, so

our focus has been to find other ways to improve mitochondrial function,” Vicki said. According to Vicki, exercise could be the alternative.

“Exercise activates many of the same pathways as diet restriction, including improved mitochondrial function. It also protects against a range of diseases. The effect it has on eye health, however, is largely unknown,” she said.

To test the hypothesis, Vicki is putting middle-aged mice through a vigorous swimming regime. The mitochondrial function of the mice will be tested before and after they are exercised.

“Swimming is an ideal exercise for mice, they’re natural swimmers and usually don’t want to stop!” she said.

Vicki expects that the mitochondria in the exercised mice will stand up against the aging process better than those of the non-exercised mice.

“The implications of this study are huge. Doctors regularly prescribe exercise to guard against heart disease and hypertension. One day, they may give the same advice to protect against eye disease,” she said.

Vicki was recently awarded a grant by the Ophthalmic Research Institute of Australia and Glaucoma Australia Inc to continue her work.

HEALTH SERVICES UNIT

Unit Head: **Associate Professor Ecosse Lamoureux**

Who is at risk of developing eye disease? What are the barriers to good diabetes management? What is the most effective way to treat glaucoma? These are just some of the questions asked by the Health Services Research Unit, who seek to understand the behavioural issues in medication adherence, investigate the impact of vision impairment and evaluate new treatments.

Out of the blue

Senior Research Fellow Dr Gwyneth Rees has dedicated much of her career to investigating the link between vision loss and psychosocial issues.

“Loss of sight is one of the most feared health conditions and it’s one that triggers a strong psychological response,” Gwyn said.

“The rate of depression in people with vision loss is significantly higher than that of the general population, with around one-third of older visually impaired adults showing clinically significant depressive symptoms.”

“But despite the availability of effective treatments, the majority of depressed patients aren’t seeking treatment.”

It’s this gap between depressed patients and their treatment that Gwyn is committed to addressing.

“Depression in the visually impaired is an added source of disability. The dual existence of depression and low vision leads to a complex reciprocal relationship that can be difficult to escape,” Gwyn said.

“One study found that just 20 percent of visually impaired patients with depression are receiving treatment. It’s an unacceptable trend and one I’m dedicated to reversing.”

According to Gwyn, eye-care practitioners could be the much-needed conduit between patients and their treatment.

To facilitate this link, Gwyn developed a program to train eye-care practitioners and low vision rehabilitation staff to spot the signs of depression, broach the subject with patients and refer them for treatment.

“Practitioners who undertook the training reported increased competence and confidence in managing depressed patients. It also increased the likelihood of practitioners responding to depressive symptoms.”

The National Health and Medical Research Council has also responded to the issue, awarding CERA a substantial grant to build on Gwyn’s early intervention strategies.

Through the grant, low vision service staff will learn how to spot depressive symptoms, offer some psychological treatment and refer patients to appropriate services.

The treatment program will assist people with problem solving and reducing avoidant behaviours using the widely recognised cognitive behavioural therapy (CBT) approach to depression treatment.

“My aim is to get eye care practitioners and their patients identifying and talking about depression and being open to treatment. Ultimately, I’d like to see these early intervention strategies incorporated into clinical practice.”



“Loss of sight is one of the most feared health conditions and its one that triggers a strong psychological response.”

MACULAR RESEARCH UNIT

Unit Head: **Professor Robyn Guymer**

Age-related macular degeneration (AMD) is Australia's leading cause of vision loss and blindness, affecting around one in seven people over the age of 50. The Macular Research Unit is working to improve the lives of those affected with AMD through research into new treatments and ways to prevent the disease. Their comprehensive research program includes genetic studies, clinical trials and investigations into biomarkers and risk factors of AMD. The Unit also leads clinical and surgical research program in the bionic eye project in which CERA is a core collaborator.

Technology to shape the future

Imagine being able to restore sight to the blind. Senior Research Fellow Dr Chi Luu is one of the scientists behind the iconic bionic eye project which aims to do just that.

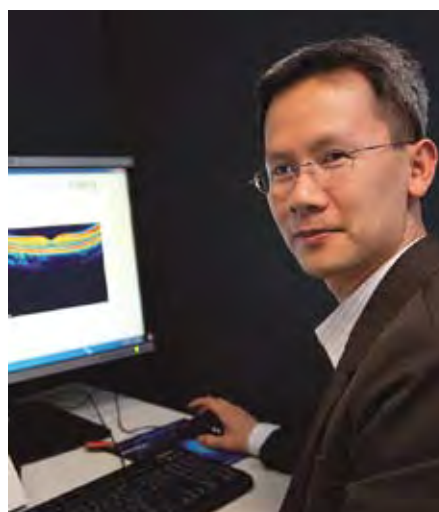
As a core partner in Bionic Vision Australia (BVA), CERA leads the surgical and clinical research programs involved in the bionic eye's development.

"Initially, the bionic vision technology will target patients with late stage retinitis pigmentosa. In the future, we hope the technology will help patients with other vision impairment conditions, like age-related macular degeneration" Dr Luu said.

Dr Luu's CV is impressive. An orthoptist with a PhD in visual neuroscience, he has completed a post-doctoral research fellowship in neurophysiology and a two-year graduate diploma in epidemiology and statistics at the University of Melbourne.

Dr Luu's intimate knowledge of the eye and its interaction with the brain and his experience in patient care makes him the ideal candidate for the role.

"Day to day my role varies significantly. I might see patients, conduct an experiment, take retinal images, conduct



"The bionic vision technology aims to restore the sense of vision to people living with blindness."

electrophysiology recording, perform surgery, or test the retina's response to stimulation," he said.

"Through the surgical program, we're developing new surgical procedures and equipment for a safe implantation of the device and preparing for the first patient tests."

"The team provides surgical support for the safety and efficacy studies. We also carry out clinical assessments of eye health following trial implants"

Dr Luu said the clinical program will become more active in coming months as the team works towards performing the first human implant in 2013.

"The clinical team is working to establish clinical tests for patient selection and assess and monitor the eye health, visual performance and vision-related quality of life both pre- and post-implantation."

"One of our key roles is to develop a database of patients with various degrees of retinitis pigmentosa, AMD other retinal degenerations. These patients will participate in visual function studies which will inform the selection protocol for the first retinal implant patient tests."

"We're also developing and validating tests for assessing visual function, daily living tasks and vision-related quality of life in patients."

Professor Robyn Guymer is the project's principal investigator. Bionic Vision Australia (BVA) is a consortium of world-leading Australian researchers, collaborating to develop an advanced bionic eye.

For more information visit www.bionicvision.org.au

OCULAR GENETICS UNIT

Unit Head: **Associate Professor Paul Baird**

Many eye diseases run in families. The Ocular Genetics Unit is working to unlock the genes involved in hereditary diseases such as age-related macular degeneration and refractive error and translate their findings into therapies to slow or prevent their development.

Sights set on a cure

Research Optometrist Srujana Sahebjada has her sights set firmly on changing the lives of patients with vision loss.

The ambitious PhD student is conducting a world-first study to investigate whether myopia (short-sightedness) and keratoconus share a common genetic basis. She hopes her research will one day contribute to a cure for the diseases.

"I've always been interested in myopia, primarily because it runs in my family, but also because of its prevalence and the severity of some forms of the disease," Srujana said.

Myopia is a serious public health issue, affecting around one in four Australians over forty. Around two billion people world-wide are myopic and by 2020, it's estimated that more than one-third of the world's population will have the condition.

Research shows that the children of myopic parents are at least four times more likely to develop the condition.

Keratoconus is a degenerative eye condition that causes a thinning of the central zone of the cornea, the front surface of the eye.



"Recently, a patient of mine underwent a corneal transplant. One of her first visions since having her sight restored was of her young son eating noodles - it was the first time she'd seen him feed himself! She was ecstatic. It's the small things that encourage me."

Despite the increasing prevalence of myopia and keratoconus, little is known about their causes or how to prevent or slow their progression.

"Research suggests there could be a link between the two conditions. We believe that either myopia predisposes keratoconus or vice versa," Srujana said.

"I'm looking for similar characteristics between the two and undertaking genetic linkage studies to identify whether the same genes are involved in both diseases," she said.

"By better understanding this relationship, we aim to develop early diagnostic and treatment options to slow and prevent the conditions."

For Srujana, working at CERA allows her to experience the best of both worlds - clinical and research.

"Genetic research is fascinating. And it's so different from the work optometrists typically do. I also love the patient interaction and seeing them benefit from treatment," she said.

POPULATION HEALTH UNIT

Unit Head: **Professor Jill Keeffe**

A desire to prevent blindness and improve eye care delivery in the Asia-Pacific region drives the Population Health Unit who conducts research into the prevalence, causes and impact of vision loss, population-based surveys on low vision and evaluation of eye care delivery and low vision support.

Global vision

After realising lab work wasn't her calling, science graduate Anna-Lena Arnold set her sights on a Masters in Public Health at the University of Melbourne.

"I wanted to work in a field that would allow me to conduct grass-roots research to directly benefit disadvantaged communities," Anna-Lena said.

Inspired by a volunteer stint at an aid and development organisation, Anna-Lena landed the role of Research Assistant within CERA's Population Health Unit. She hasn't looked back.

The role has taken Anna-Lena to disadvantaged communities at home and abroad, from remote Indigenous communities in the Australian Outback to the jungles of Cambodia and Vietnam.

During her first year at CERA she helped coordinate the National Indigenous Eye Health Survey, a national study into the impact of eye disease in Indigenous communities. The survey's results will inform Government policy on the introduction and development of eye care services in these communities.

"It was a fantastic experience. The survey took me to some of Australia's most remote Indigenous communities to



"People living in remote or disadvantaged communities often don't seek treatment for eye problems because it's too costly or inaccessible. That's why we're bring eye care to the people."

conduct vision testing and introduced me to some of our most admired champions of Indigenous health," Anna-Lena said.

Anna-Lena coordinated CERA's contribution to the Australian Government's Avoidable Blindness Initiative, a project aimed at eliminating avoidable blindness in the Asia Pacific region by 2020.

She visited poverty-stricken villages of Vietnam and Cambodia to assess the rate of blindness and attitudes to eye health.

"Sadly, I saw many people who'd gone blind from treatable diseases like cataract or minor accidents like cuts to the cornea," Anna-Lena said.

Anna-Lena says that while the location and communities she works with vary immensely, the central mission remains the same – to reduce vision loss and blindness in disadvantaged communities.

"Healthy vision is so important to a person's quality of life. Knowing that I'm helping to make a practical difference in someone's life – that's the most rewarding aspect of my work."

RETINAL VASCULAR UNIT

Unit Head: **Professor Tien Wong**

Imagine being able to predict the onset of vascular diseases such as high-blood pressure, stroke and heart disease, just by looking deep into the eyes. For clinician-scientist Professor Tien Wong, a 'eureka moment,' made this vision a reality. The Retinal Vascular Unit is working to transform this breakthrough into a clinical practice tool to screen, detect and monitor vascular diseases in Australia. Other research focuses on new drug delivery techniques for conditions such as bacterial endophthalmitis and age-related macular degeneration.

Blind ambition

For clinician-scientist Dr Paul Connell, research is about improving the lives of patients.

It was this enthusiasm for continuous development that led the Irish-born and educated ophthalmologist to Australia, where he was awarded the prestigious Gerard Crock Fellowship at CERA.

In between consulting at the Royal Victorian Eye and Ear Hospital, Dr Connell is investigating new drug delivery techniques for conditions that affect the back of the eye.

One technique is a world-first treatment for bacterial endophthalmitis which Dr Connell hopes will one day be modified to treat other eye diseases requiring regular therapy such as AMD and glaucoma.

Endophthalmitis is a sight-threatening complication of some eye operations. It occurs when bacteria enters the eye and causes infection.

Late diagnosis of the disease is common. Because of this, multiple treatments such as drops, injections and surgery are often required to treat the disease.

The complexity of available treatments can lead to patients failing to comply with treatment advice.

The potential solution, says Paul, is a small implant containing antibiotic that can be inserted into the eye during or after surgery.

"The implant delivers the antibiotic continuously over a set time period, removing the need for other post-operative treatments and eliminating much of the burden for patients," Dr Connell said.

"It can be comfortably fitted into the eye and is designed to degrade and disappear over time," he said.

Dr Connell believes the implant, which is due to undergo human trials at the Eye and Ear Hospital as early as 2011, could revolutionise the treatment of eye disease.

The project is a collaboration between CERA, the CSIRO, the Bionic Ear Institute and PolyActiva. The development of the treatment is funded by the National Health and Medical Research Institute.



"The implant delivers the antibiotic continuously over a set time period, removing the need for other post-operative treatments and eliminating much of the burden for patients."

SURGICAL RESEARCH UNIT

Unit Head: Professor Rasik Vajpayee

The Surgical Research Unit strives to improve the surgical techniques used to treat corneal diseases, cataract and refractive disorders. The Unit also conducts research into stem-cell derived alternatives to donor cornea transplantation.

Fixing broken windows

PhD student Karl Brown has always found himself riding the wave of new scientific developments.

"I first enrolled in 1995, the year that the world's interest in stem cells exploded. It was a very exciting time," Karl said.

After completing a bachelor's degree in biotechnology, Karl became interested in molecular biology, particularly stem cells and their potential to repair damaged tissue following disease and trauma.

Following his bachelor's degree, Karl completed an honours degree in medical science before enrolling in a masters by research at the Australian National University in Canberra.

The course provided him with a deep understanding of the processes that regulate cell differentiation and tissue development.

"A lot was happening in DNA research at the time, I had a sense that the discoveries being made would change the field of medicine forever," Karl said.

These days, Karl channels his passion for scientific enquiry into developing bioengineered corneal tissues to replace the damaged tissue in corneal transplant patients.

Corneal transplantation is a surgical procedure that replaces a damaged or



diseased cornea with donated human corneal tissue. Donor corneas are removed from a recently deceased person before being stored in an eye bank for up to four weeks before being transplanted into a patient during surgery.

Karl and his colleagues aim to revolutionise this 100-year-old technique by 'growing' corneas in the lab using a patient's own stem cells.

"Using a patient's stem cells, we aim to grow the outer layer of cornea known as corneal epithelium," Karl said.

"Engineered tissues will help to reduce waiting times, remove the need for anti-rejection drugs and will have the potential to treat a wider range of eye disease."

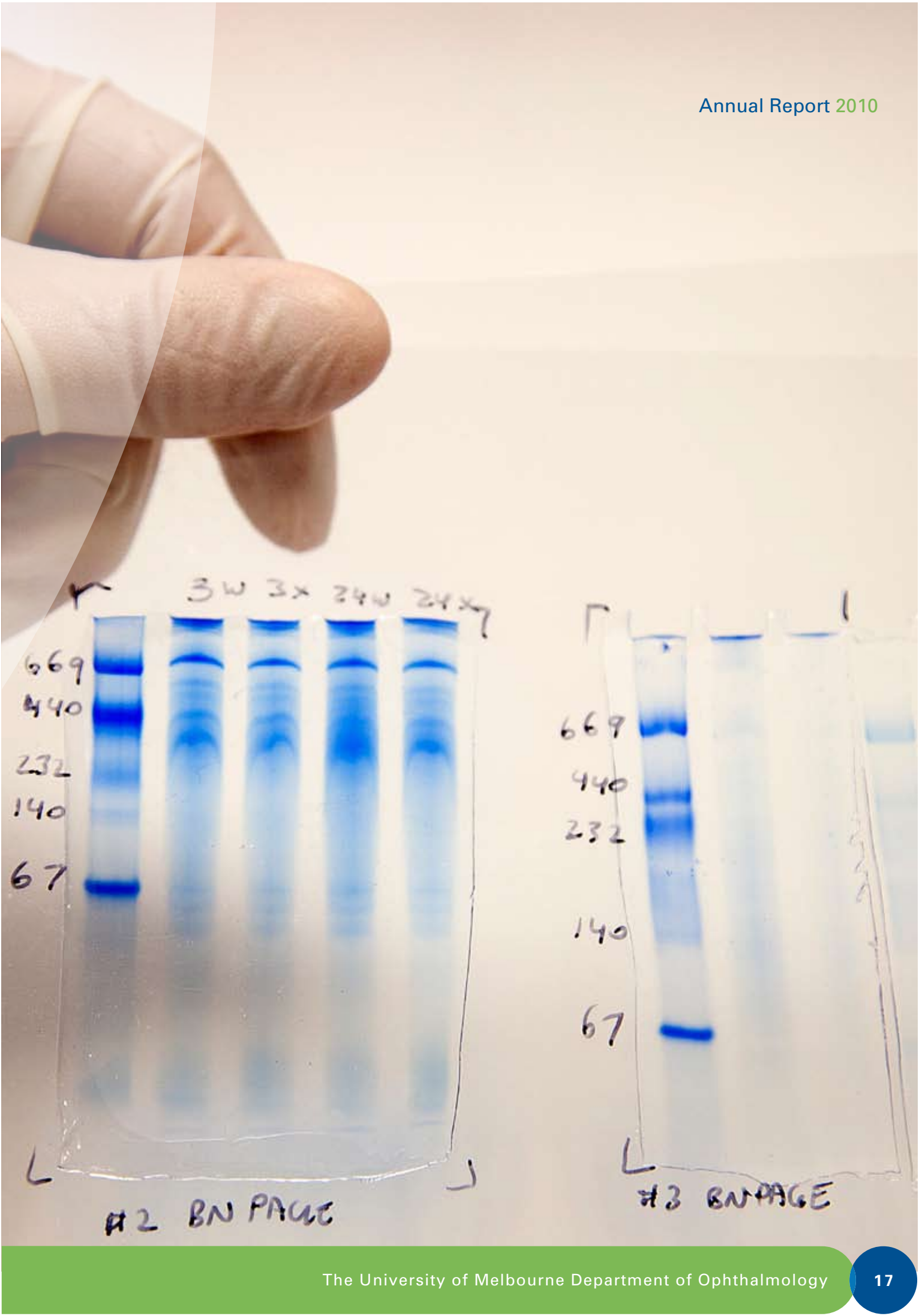
"In order for the cells to be functional we have to ensure that the lab grown cells maintain the traits of the original cells," he said.

"The cells are then attached to a contact lens which is placed over a patient's cornea. It's expected that the cells from the lens will attach themselves to the patient's eye and replace the damaged cells."

Karl expects that the technique, which could be introduced as early as 2012, will reap benefits for patients, ophthalmologists and healthcare systems alike.

"Engineered tissues will help to reduce waiting times, remove the need for anti-rejection drugs and will have the potential to treat a wider range of eye disease."

In Australia, approximately 1700 corneal transplants are performed each year. Karl Brown's research is supported by grants from the Federal Government and the Ophthalmic Research Institute of Australia.



In 2010, the Board, management and researchers at the Centre for Eye Research Australia (CERA) worked together to ensure the Centre's future growth and sustainability by consolidating CERA's position as Australia's leading ophthalmic research institute.

As the saying goes, 'nothing succeeds like success'. Our researchers' scientific advances, contribution to knowledge through publications and presentations and grant successes demonstrate that CERA continues its journey on the virtuous cycle of growth and towards the goal of eliminating the major eye diseases responsible for vision loss and blindness.

An essential enabler for growth is the availability of expansion space. We were greatly encouraged by then Opposition leader Ted Baillieu's Shadow Health Minister David Davis' public commitment of support for the Eye & Ear Hospital's redevelopment during November's election campaign. The election of the Baillieu government has now given renewed impetus to this project that is so vital for securing continuous improvements in eye and ear health. CERA looks forward to working with the Hospital, the Departments of Health and of Business and Innovation and other partners to plan facilities that will allow improved delivery of clinical services and the expansion of our world-leading research programs.

The prospect of seeing the Eye & Ear Hospital redevelopment become reality within the foreseeable future is very exciting. It is central to CERA's strategic plan for 2010-2012 to focus on securing additional resources for our research. In this context, we are grateful that Eye and Ear Hospital management has allocated additional space for CERA's growing Macular Research Unit that is leading the clinical studies for the bionic eye project.

CERA research highlights throughout the year included the start of a new nano-second laser treatment for early stage AMD, work on a bioengineered cornea; investigating new diabetic retinopathy screening modalities; new surgical techniques for corneal disease; epidemiological studies to investigate the links between genetics and risk factors for eye disease; Vision CRC activities in indigenous communities; and CERA's contribution to the Avoidable Blindness Initiative in the Asia Pacific.

As a Centre for Clinical Research Excellence in Major Eye Diseases, CERA continues to work on translational solutions to tackle the major eye conditions that are responsible for the majority of vision loss in Australia - AMD, diabetic retinopathy, corneal disease, cataract and glaucoma. This report includes further details about our work in these areas.

As a core partner in the Bionic Vision Australia consortium working on the bionic eye, CERA was involved in the official launch of the collaboration marked by the unveiling of its bionic eye prototype which researchers aim to implant into its first recipient by 2013. The bionic eye project was also the subject of Professor Robyn Guymer's presentation at the Gerard Crook public lecture in June.

In July, the inaugural CERA Scientific Exchange provided our early career researchers with an opportunity to present the breadth, depth and diversity of their work to a community audience. The Exchange was very successful and will become an annual event. It also included presentation of the CERA Awards, a program developed to recognise excellence and achievement above and beyond normal expectations among CERA staff and students.

CERA's success in national competitive grant schemes in 2010 included award of three new project grants, one development grant, two fellowships and one scholarship from the National Health & Medical Research Council (NHMRC). In addition, our researchers secured three new grants from the Ophthalmology Research Institute of Australia (ORIA).

CERA is also expanding its commercialisation activities. We are now participants in two companies which are developing new drug delivery technologies. Further opportunities present themselves regularly and we appreciate the ability to test ideas, obtain expert advice and access investment through our membership of the Medical Research Commercialisation Fund.

Federal and State Government grants to support the indirect costs of research through the Independent Research Institutes Infrastructure Support Scheme (IRIIS) and the Operational Infrastructure Support (OIS) scheme, respectively, provide essential funding for research administration, maintaining and equipping laboratories, IT facilities and core services like health and safety, risk management and staff, student and financial administration without which research would not be possible. CERA is receiving increasing income from these programs for which we are very grateful.

The growth and success of CERA has been guided by our dedicated Board. We want to thank all our fellow Directors for their work and wisdom. Changes on the Board in 2010 included the appointment of Professor Terry Nolan as the Director nominated by the University of Melbourne. Dr Peter Henderson who joined the Board in 2006 as the Royal Australian and New Zealand College of Ophthalmologists' representative resigned mid-year and Dr Cathy Green was appointed as his successor. The Hon Michael MacKellar AM completed his term as a Director on 31 December 2010 and did not seek reappointment. We greatly appreciated their contribution to CERA while they served as Directors and look forward to continuing our relationship with them.

Ultimately, the purpose of eye research is to improve people's lives. Support for CERA's work from you, our community of private donors and from trusts and foundations, is invaluable. Not only because it provides much-needed resources but also because it is a measure of your confidence in our ability to make a difference. We thank you for that trust and for the practical expression it finds through your gifts and bequests. With help from your investment, competitive grants and other public and private support, our researchers are making progress in eye research. We thank you sincerely for your interest in and support for CERA's work.

Tina McMeckan

Tina McMeckan
Chair

Jonathan Crowston

Jonathan Crowston
Managing Director



The CERA board brings together seven directors nominated by the member organisations and up to eight independent directors. The Chair and Treasurer are appointed from among the independent directors. The Board meets quarterly and holds an annual planning day.



1. Professor Jonathan Crowston

BSc, MBBS, PhD, FRCOphth, FRANZCO

Professor Jonathan Crowston is Managing Director of CERA and the Ringland Anderson Professor of Ophthalmology at the University of Melbourne. A practising ophthalmologist and a clinician-scientist specialising in glaucoma, Professor Crowston heads the Glaucoma Clinic at the Royal Victorian Eye & Ear Hospital.

2. Dr Catherine Green

MBChB, FRANZCO, MmedSc

Dr Catherine Green, an ophthalmologist with a subspecialty interest in glaucoma, consults at the Royal Victorian Eye and Ear Hospital and in private practice in Melbourne. An active member of the Royal Australian and New Zealand College of Ophthalmologists, Dr Green serves on several committees including the Victorian State Branch Committee and College Council and is the Chair of the RANZCO Ophthalmic Sciences Court of Examiners. In 2009, she was appointed Deputy Chief Medical Executive of Invivo.

3. Mr Alfred Hawken

Mr Hawken has been nominated by the Victorian Lions Foundation to serve on the CERA board. He has extensive experience in the community and volunteer sector.

4. Mr John Jeffries

BBus, MAICD

Mr Jeffries is the National Director of Christian Blind Mission Australia. He also holds directorships at Vision 2020 Australia, Servants in Hawthorn and Christian Blind Mission International, USA. He is a member of the Australian Institute of Company Directors.

5. The Hon Dr Barry Jones AO

MA, LL.D, DLitt, DSc, DUniv, FAA, FAHA, FTSE, FASSA, FACE, FRSA, FRSV, FAIM

Former MP and Science Minister, Barry Jones, is a Professorial Fellow at the University of Melbourne. Dr Jones is a director of a number of medical research and community organisations including CARE Australia, the Burnet Institute for Medical Research and Public Health, and the Australian Stem Cell Centre. He is also chair of Vision 2020 Australia.

6. Mr James Joughin (Treasurer)

BBus, CPA GIDA

Mr Joughin is a partner in the Mergers & Acquisitions Division at Ernst & Young. He has 25 years corporate finance experience and has advised publicly listed, multi-national and private companies. He chairs the CERA Finance and Audit Committee.

7. The Hon Michael MacKellar AM

BScAgr (Syd), MA (Oxon), MAICD

Mr MacKellar is an agricultural scientist and a former Commonwealth Minister for Health. He works with a number of medical research institutes and is chair of the National Ageing Research Institute.

8. Ms Tina McMeckan (Chair)

BSc, MBA (Melb), FAICD

Ms McMeckan has 20 years experience in corporate governance, enterprise development, equity investment and industry reform as a company director and senior executive. Her specific skills are in science and technology commercialisation.

9. Mr Gerard Menses

BA(Hons), MA, MAICD, FAIM, MAPsS

Mr Menses has headed some of Australia's largest not-for-profit organisations and advised government on social policy issues. He is the CEO of Vision Australia, chair of Corporate Social Responsibility Australia and a director of both Vision 2020 Australia and the International AMD Alliance.

10. Mr Peter Nankivell

BComm, LLB (Melb), LLM (London) (Deputy Chair)

Mr Nankivell is a partner in the Corporate and Finance Division at Herbert Geer Lawyers. He has been involved with CERA in a number of different capacities since 2001 and is currently chair of the Eye Research Australia Foundation and the Ansell Ophthalmology Foundation.

11. Professor Terry Nolan

MBBS, BMedSc, PhD

Professor Terry Nolan is Foundation Head of the Melbourne School of Population Health at The University of Melbourne, and Associate Dean of the Faculty of Medicine, Dentistry and Health Sciences. He is Head of the Vaccine and Immunisation Research Group, a joint initiative of the Melbourne School of Population Health and Murdoch Children's Research Institute, and Director of the NHMRC Centre for Clinical Research Excellence in Child and Adolescent Immunisation.

He undertook fellowships at Westmead Hospital, NSW and the University California San Diego, where he was later appointed to the faculty before moving to Melbourne in 2006.

12. Mr Tim O'Leary MBA

Mr O'Leary is a member of the board of the Royal Victorian Eye & Ear

Hospital and is the Hospital's nominated representative on the CERA board. He has been a CEO and senior manager in psychiatric services, acute hospitals, community health services, local government, aged care and migrant services.

13. Professor Robert Williamson AO

PhD, FRCPath, HonMD, MRCP, FRS, FAA

Professor Williamson is a key figure in the global medical research community and one of Australia's preeminent geneticists.

A former director of the Murdoch Children's Research Institute and professor of medical genetics, Professor Williamson is now an Honorary Senior Principal Fellow (Professor) of the Murdoch Institute, the University of Melbourne and Monash University.

14. The Hon Dr Michael Wooldridge

BSc, MBBS, MBA, FAMA, HonFRACMA, HonAFPHM, HonLID, HonD.Sc

Dr Wooldridge is a former Commonwealth Minister for Health. He is a professor in the Faculty of Medicine, Nursing and Health Sciences at Monash University and an associate professor in the Faculty of Medicine at the University of Melbourne.

Dr Wooldridge is a former chair of UNAIDS (Geneva) and the World Health Organisation East Asia/Western Pacific Region. He is a director of Neurosciences Australia and Research Australia and chairs a number of public and private companies including the Ministerial Advisory Committee on AIDS, Sexual Health and Hepatitis and the Dental CRC.

The Finance and Audit Committee

MEMBERS:

- Professor Jonathan Crowston
- Mr James Joughin, Treasurer (Chair)
- Ms Tina McMeckan
- Mr Peter Nankivell

The Eye Research Australia Foundation and the Ansell Ophthalmology Foundation

TRUSTEES:

- Professor Jonathan Crowston
- Ms Tina McMeckan
- Mr Gerard Menses
- Mr Peter Nankivell (Chair)
- Professor Tien Wong

The Research Advisory Committee, chaired by Professor Bob Williamson AO, is a group of eminent scientists who advise CERA on research strategy and planning and review research performance.

Professor Jonathan Crowston

BSc, MBBS, PhD, FRCOphth, FRANZCO

Professor Crowston is Managing Director of CERA and the Ringland Anderson Professor of Ophthalmology at the University of Melbourne. A practising ophthalmologist and a clinician-scientist specialising in glaucoma, Professor Crowston heads the Glaucoma Clinic at the Royal Victorian Eye & Ear Hospital.

He gained fellowships at Westmead Hospital, NSW and the University California San Diego, where he was later appointed to the faculty. In 2006, Professor Crowston was appointed professor of glaucoma at the University of Melbourne.

Professor John Hopper AM

BA, BSc, MSc, PhD

Professor Hopper is one of nine inaugural Australia Fellows awarded by NHMRC in 2007. He is a professorial fellow with a PhD in mathematical statistics, and is currently director (research) of the Centre for Molecular, Environmental, Genetic and Analytic Epidemiology in the Department of Public Health at the University of Melbourne.

Dr Mirella Dottori

BSc(Hons), PhD

Dr Dottori completed a Bachelor of Science (Hons) at the University of Melbourne and PhD studies at the Walter and Eliza Hall Institute. She also completed a fellowship at the Salk Institute for Biological Studies in the USA. She has established her own Stem Cell Laboratory within the Neural Regeneration group at the Centre for Neuroscience, University of Melbourne.

Professor Mark Cook

MBBS, FRACP, MD

A neurologist specialising in the treatment of epilepsy, Professor Cook is a professor and director of Neurology at St Vincent's Hospital. He is an editor of *Epilepsia*, a director of the Bernard O'Brien Institute of Microsurgery, serves on several advisory boards and chairs the Neurosciences Victoria Scientific Review Committee.

Associate Professor Ravi Savarirayan

MBBS, MD, FRACP, HGSA, ARCPA

Associate Professor Savarirayan is a clinical geneticist and head of the Royal Children's Hospital Clinical Genetics Service in Melbourne. His special area of expertise is in the inherited disorders of the skeleton that cause short stature, arthritis and osteoporosis in both children and adults. He is the foundation director of the Southern Cross Bone Dysplasia Centre and an elected member of the International Skeletal Dysplasia Society.

Dr Ehud Zamir

MBBS, MD, FRANZCO

Dr Zamir is a fellowship-trained specialist ophthalmologist. He completed his medical training at the Hebrew University-Hadassah Medical School, Jerusalem followed by a clinical fellowship in Uveitis and Ocular Pathology at the Doheny Eye Institute, Los Angeles, California.

He is a fellow of the Royal Australian and New Zealand College of Ophthalmologists and director of training for RANZCO for the state of Victoria. He currently holds the position of director of clinical training at the Royal Victorian Eye and Ear Hospital.

Professor Terry Nolan

MBBS, BMedSc, PhD

Professor Nolan is foundation head of the Melbourne School of Population Health at the University of Melbourne and Associate Dean of the Faculty of Medicine, Dentistry and Health Services.

He was a member of the NHMRC's Research Committee and the deputy chair in the last triennium. He serves as head of the Vaccine and Immunisation Research Group and is a director of the NHMRC Centre for Clinical Research Excellence (CCRE) in Child and Adolescent Immunisation.

Professor Robert Williamson AO

PhD, FRCPath, HonMD, MRCP, FRS, FAA

Professor Williamson is a key figure in the global medical research community and one of Australia's preeminent geneticists.

A former director of the Murdoch Children's Research Institute and Professor of Medical Genetics, Professor Williamson is now an Honorary Senior Principal Fellow (Professor) of the Murdoch Institute, the University of Melbourne and Monash University.

CERA held a number of events, welcomed special visitors and launched new channels of communication in 2010.

February >



The CERA eNews and Facebook page was launched.



March >

Bionic Vision Australia (BVA) unveiled its prototype for a bionic eye at the consortium's official launch at the University of Melbourne.



A team of CERA scientists and Herbert Geer lawyers pedalled more than 520 kilometres in 24 hours to raise money for eye research in the 2010 Murray to Moyn.



June >
At the Gerard Crock Lecture, Professor Robyn Guymer reflected on the research challenges of developing a bionic eye and the promise it holds for restoring sight.



July >
The inaugural CERA Scientific Exchange gave CERA's early career researchers an opportunity to present their work. At the event, exceptional CERA staff and students were recognised with the 2010 CERA Awards.



< October
CERA marked World Sight Day by celebrating the donation of 10,000 corneas to its Lions Eye Donation Service. Then Victorian Health Minister Daniel Andrews joined transplant recipients and specialists to celebrate the milestone.



< November
Then Opposition leader Ted Baillieu and Shadow Health Minister David Davis pledge their support for the redevelopment of the Eye & Ear Hospital.



<
Eye research supporters, Henry and Miriam Greenfield visited the Glaucoma Research Unit. They are pictured here with Managing Director Professor Jonathan Crowston.

ABRIDGED AUDITED FINANCIAL STATEMENT

Annual Report 2010

Statement of comprehensive income	2010	2009
<i>Revenue</i>		
Federal Government	3,821,345	3,520,890
State Government	1,090,041	809,939
Charitable Contributions & Other Income	6,969,922	6,083,100
Total Revenue from operating activities	11,881,308	10,413,929
Less Expenditure on operating activities	11,252,821	9,588,016
Surplus / (Deficit) on operating activities	\$628,487	\$825,913
Net Financial income	369,266	495,191
Capital Grants		2,214,841
Net Surplus / (Deficit)*	\$997,753	\$3,535,945
 <i>Statement of financial position</i>		
Current Assets	8,714,831	7,995,097
Non-Current Assets	1,111,787	1,164,696
Total Assets	9,826,618	9,159,793
 <i>Current Liabilities</i>		
Payables	530,876	995,514
Provisions	660,468	539,252
Other	817,948	839,058
Total Current Liabilities	2,009,292	2,373,824
Non-Current Liabilities	160,643	127,039
Total Liabilities	2,169,935	2,500,863
 Net Assets	7,656,683	6,658,930
Asset Replacement Reserve	5,000,000	5,000,000
Accumulated funds	2,656,683	1,658,930
Total Equity	7,656,683	6,658,930

CERA receives Operational Infrastructure Support funding from the Victorian Government.
* The Centre for Eye Research Australia Limited operates 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.





Publications	29
Staff and students	38
Conference presentations	41

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Mrs Valma Scaf

Executive Assistant to
Managing Director

Research Fellow Dr Danny Cheung discovered a non-invasive method of detecting 'silent' brain damage by looking deep into the eyes.

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Mr Nazim Uddin
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Ms Annie McAuley

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Mr Sanjeewa Perera
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Mr David Sumner
IT Manager

Ms Nicole Tindill (from August 2010)
Database Manager

Ms Monica Zhang
Finance Support Officer
(from August 2010)

CONFERENCE PRESENTATIONS

January: International Symposium on Diabetic Retinopathy, Madurai, India

Wong T.Y., 'Epidemiology of Diabetic Retinopathy in Asia'

Wong T.Y., 'Early Retinopathy Signs and Their Relationship to
Diabetes'

Wong T.Y., 'What Retinal Vessels tell about Systemic Disease'

Wong T.Y., 'Central Retinal Vein Occlusion: Evidence-Based
Management'

January: 33rd Annual Meeting of Japanese Society of Ophthalmic Surgeons, Tokyo, Japan

Kawasaki R., 'Essential Knowledge of Epidemiology in Ocular
Surgery'

January: Asahikawa Medical College Research Meeting, Asahikawa, Japan

Kawasaki R., 'Major Findings from the Funagata Study and Novel
Retinal Imaging Techniques'

January: Kansai Gan-Shikkan Kenkyu-Kai, Kyoto, Japan

Kawasaki R., 'Major Findings from the Funagata Study and
Perspectives in Ocular Epidemiology'

February: ANZGIG Annual Meeting, New Zealand

Crowston J.G., 'Mitochondria in Glaucoma'

February: RVEEH Alumni Meeting, Melbourne

Guymier R.H., 'RVEEH Putting Research into Practice'

March: Opening of SAILOR & 2nd Asia-Pacific Ocular Imaging Symposium, Singapore

Kawasaki R., 'Epidemiology of Retinal Diseases in Asia'

March: 27th Annual Cornea and Eye Bank Meeting, Melbourne

Vajpayee R.B., 'Lamellar Keratoplasty – a great revival'

April: GRS Meeting, Kyoto, Japan

Crowston J.G., 'Basic Mechanisms of Glaucoma Damage'

April: 13th Annual Vision Research Conference, Ft Lauderdale, USA

Crowston J.G., 'Real-Time Monitoring of Retinal Ganglion Cells'

April: RVEEH Conference, Ballarat

Guymier R.H., 'Clinical Presentation – Bionic Eye Program'

April: World Cornea Congress, Boston, USA

Vajpayee R.B., 'Global Impact of Corneal Blindness'

April: Annual Meeting of Delhi Ophthalmology Society, New Delhi, India

Vajpayee R.B., 'Revival of Lamellar Keratoplasty'

May : World Glaucoma Association Annual Meeting, Ft Lauderdale, Florida USA

Crowston J.G., 'Neuroprotection in Glaucoma'

Annual Report 2010

May: ARVO Annual Meeting, Ft Lauderdale, Florida USA

Adams M.K., Robman L., Simpson J.A., Aung K.Z., Makeyeva
G.A., Giles G.G., English D.R., Guymier R.H., Baird P.N., 'Abdominal
Obesity - Not BMI - Increases Risk of Late AMD in Men'

Baird P.N., Islam F.M.A., Richardson A.J., Guymier R.H., 'A Tag SNP
Approach Defines a Minimal Risk Associated Region on the CFH
Gene in Individuals with AMD'

Bhuiyan A., Wong T.Y., Kawasaki R., Lamoureux E.L.,
Ramamohanarao K., 'Retinal Vessel Caliber Measurement: A Semi-
Automatic Approach'

Chong X., Aung T., Friedman D., Rees G., Wong W., Lamoureux
E.L., 'A Comparative Study Between Singapore and the USA: The
Magnitude and Determinants of Intentional and Unintentional Non-
Adherence to Glaucoma Medication'

Cornes B.K., Tai E., Tay W., Sim X., Seielstad M., Wang J.J.,
Mitchell P., Lamoureux E.L., Saw S., Wong T.Y., 'Genome-Wide
Association Study (GWAS) of Age-Related Macular Degeneration
(AMD) in Asian Malays: The Singapore Malay Eye Study (SiMES)'

Crowston J.G., 'Molecular Pathways in Glaucoma'

Dimitrov P.N., Vingrys A.J., Robman L.D., Makeyeva G., Aung K.Z.,
Varsamidis M., Guymier R.H., 'Monitoring Progression of AMD
Through Visual Function Loss'

Dirani M., Fenwick E., Mcauley A.K., Larizza M., Rees G., Wong
T.Y., Lamoureux E.L., 'Recruitment and Testing Protocol of the
Diabetes Management Project (DMP) – Identifying Barriers to
Optimal Care in People with Diabetic Retinopathy'

Guymier R.H., Brassington K., Dimitrov P.N., Vingrys A.J., Plunkett
M.J., 'Novel Nanosecond Laser Treatment to Prevent Vision Loss
From Age-Related Macular Degeneration'

Haymes S.A., LeBlanc R.P., Nicoleta M.T., Chauhan B.C., 'Reliability
and Validity of the Useful Field of View Test'

Hodgson L.A.B., Sasongko M.B., Kawasaki R., Wang J.J., Wong
T.Y., 'Correlation and Reproducibility of Semi-Automated Retinal
Vascular Geometric Measurements Within Paired Stereoscopic
Images'

Kawasaki R., Wang J.J., Islam F.M.A., Rohtchina E., Aung T.,
Saw S.M., Mitchell P., Wong T.Y., 'Are Asians With Age-Related
Macular Degeneration Less Likely To Have Bilateral Involvement
Than Caucasians? The Singapore Malay Eye Study and The Blue
Mountains Eye Study'

Kearns L.S., Hewitt A.W., Bigault O., Ruddle J.B., Staffieri S.E.,
Sanfilippo P.G., Martin N.G., Hammond C.J., Young T.L., Mackey
D.A., 'Up to What Age is a Cyclopleged Refraction Required?
Results From the Twins Eye Study Tasmania (TEST)'

Keefe J.E., Francis K.L., Luu C.D., Barnes N., Lamoureux E.L.,
Guymier R.H., 'Expectations of a Visual Prosthesis: Perspectives
from People with Impaired Vision'

Lim L.S., Tai E., Mitchell P., Wang J.J., Tay W., Lamoureux E.L.,
Wong T.Y., 'Body Mass Index, C-Reactive Protein and Diabetic
Retinopathy'

Lim L.L., Robman L.D., Dimitrov P.N., Varsamidis M., Guymier R.H.,
'The Effect of Statins On Hscrp and Cholesterol Levels in Subjects
With High Risk Early AMD – The ARMSS Study'

Mackey D.A., Sanfilippo P.G., Hewitt A.W., Hammond
C.J., 'Heritability – A Review of Twin and Family Studies in
Ophthalmology'

Marella M., Lamoureux E.L., Keeffe J.E., ‘Evaluation Framework for Vision Related Community Based Rehabilitation Services’

Maxwell R.A., Dirani M., Marella M., Lamoureux E.L., Guymer R.H., ‘The Longitudinal Impact of Macular Telangiectasia Type 2 on The Vision-Related Quality of Life: The Mactel Study’

O’Connor P.M., Fotis K., Keeffe J.E., ‘Patient decision-making in eye care service selection: Lessons from a new model of community-based eye care delivery’

Okada M., Wong T.Y., Kawasaki R., Baharuddin N.B., Colville D., Buchanan R.R., Savige J., ‘Retinal Venular Caliber is Increased in Patients with Autoimmune Rheumatic Diseases’

Perera C.M., Jhanji V., Constantinou M., Lamoureux E.L., Pollock G., Favilla I., Vajpayee R.B., ‘Comparison of Early and Late Corneal Graft Rejection’

Pesudovs K., Gothwal V.K., Wright T.A., Lamoureux E.L., ‘Item Banking for the Measurement of Visual Disability, Symptoms and Quality of Life’

Powner M.B., Gillies M.C., Tretiach M., Scott A., Guymer R.H., Hageman G.S., Fruttiger M., ‘Muller Cells in Macular Pathology’

Quek D.T., Ong G.T., Lamoureux E.L., Aung T., ‘Persistence of Patients Commenced on Topical Glaucoma Monotherapy in a Singapore Hospital’

Robman L.D., Adams M.K., Simpson J.A., Aung K.Z., Makeyeva G.A., Giles G.G., English D.R., Baird P.N., Guymer R.H., ‘Is AMD Equally Prevalent in Australians of Southern-European and Anglo-Celtic Origin?’

Sanfilippo P.G., Cardini A., Sigal I.A., Ruddle J.B., Chua B., Hewitt A.W., Mackey D.A., ‘A Geometric Morphometric Assessment of the Optic Cup in Glaucoma’

Staffieri S.E., Ruddle J.B., MacGregor S., Kearns L.S., Sanfilippo P.G., Martin N.G., Hammond C.J., Young T.L., Hewitt A.W., Mackey D.A., ‘Genome-wide Analysis Identifies Putative Loci Associated with Interpupillary Distance’

Tay S., Charumathi S., Lamoureux E.L., Liu E., Tai E.S., Wong T.Y., ‘Relationship of Retinal Vascular Fractal and Diabetes Mellitus in a Multi-Ethnic Asian Population in Singapore’

Wang J.J., Rochtchina E., Kaushik S., Kifley A., Wong T.Y., Mitchell P., ‘Long-Term Incidence of Isolated Retinopathy in Older Persons Without Diabetes: The Blue Mountains Eye Study’

Wong T.Y., ‘Next Stage – Lessons from Building International Consortiums for GWAS for Eye Diseases’

Yanagi M., Kawasaki R., Maple-Brown L., McAuley A.K., Mcintosh R.L., Lamoureux E.L., Harper A., Wong T.Y., Tatipata S., Dunbar T., O’Dea K., Cunningham J., ‘Retinal Vascular Fractals and Diabetic Retinopathy: The Diabetes and Related Conditions in Urban Indigenous People in The Darwin Region (DRUID) Study’

Zheng Y., Wong W.L., Lamoureux E.L., Aung T., Cheung N., Wang J.J., Mitchell P., Young T.L., Saw S.M., Wong T.Y., ‘The Prevalence and Causes of Visual Impairment in an Urban Indian Population in Asia: The Singapore Indian Eye (SINDI) Study’

May: Pfizer “ARVO 2010: Post Meeting Insights”, Melbourne

Guymer R.H., ‘ARVO 2010: Post Meeting Insights’

Lim L.L., Robman L.D., Dimitrov P.N., Varsamidis M., Guymer R.H., ‘The Effect of Statins on Hscrp and Cholesterol Levels in Subjects with High Risk Early AMD – The ARMSS Study’

May: Australian and New Zealand Scoiety of Retinal Specialists Medical Retina Symposium, Sydney

Guymer R.H., ‘Application of Genetics in Wet AMD’

Guymer R.H., ‘Treatment of Non-AMD CNV with Ranibizumab’

June: 13th International Congress on Twin Studies, Seoul, South Korea

Baird P.N., ‘Gene-Environment Interactions in Complex Ocular Diseases and the Search of Endophenotypes’

Baird P.N., ‘Eye Diseases and Twin Studies’

June: Gerard Crock Lecture, Centre for Eye Research Australia, University of Melbourne

Guymer R.H., ‘Seeing is Believing’

June: World Ophthalmology Congress, Berlin, Germany

Wong T.Y., ‘Retinal and Choridal Manifestations of Systemic Diseases’

Wong T.Y., ‘Age-Related Macular Degeneration and Polypoidal Choroidal Vasculopathy in Asia-Pacific Region’

Keeffe J.E., ‘What are the Sources of Data that we use to Establish Costs?’

Chong X.L., Aung T., Rees G., Wong W.L., Lamoureux E.L., ‘The Magnitude and Determinants of Intentional and Non-Intentional Adherence to Glaucoma Medication’

June: Annual Orthoptic Conference, Melbourne

Nicolaou T.E., Dirani M., Rees G., Lamoureux E.L., ‘The Diabetes Management Project’

July: 12th National Congress & 35th Annual Scientific Meeting of Indonesian Ophthalmologist Association, Semarang, Indonesia

Keeffe J.E., ‘Role of V2020 Task Force Asia-Pacific (LCIF) in East Indonesia’

July: Melbourne Ophthalmic Alumni Meeting

Ruddle J.B., ‘X-Linked RP Due to RPGR Mutations: Phenotype and Genotype’

July: International Society for Eye Research XIX Biennial Scientific Meeting, Montreal, Canada

Trounce I.A., Kong Y., Van Bergen N., Lee S., Crowston J.G., ‘Mitochondria and Glaucoma’

July: Joint Clinical meeting of Artemis Health Institute and Gurgaon Ophthalmic Society, Haryana, India

Vajpayee R.B., ‘Lamellar Corneal Transplantation: A great revival’

Vajpayee R.B., ‘Management of Dry Eye: Current Scenario’

July: Sydney Eye Hospital Alumni Meeting

Guymer R.H., ‘Medical Retinal Teaching Session’

Guymer R.H., Donaldson Memorial Lecture, ‘Towards Preventing AMD’

Guymer R.H., ‘The Bionic Eye’

July: 41st Singapore Medical Association National Medical Convention, Singapore

Wong T.Y., The Singapore Eye Foundation Lecture: ‘What Is Macular Degeneration and How Do We Treat It?’

July: Department Of Paediatrics, National University Health System, Singapore

Wong T.Y., ‘Early Retinal Vessel Changes in Children and Implications for Future Cardio-Metabolic Disease’

July: ARVO Summer Eye Research Conferences, Maryland USA

Lamoureux E.L., Pesudovs K., Rees G., Dirani M., Kawasaki R., Wong T.Y., Fenwick E.K., ‘From Generic to Disease-Specific Scales: Understanding the Impact of Diabetic Retinopathy on Quality of Life’

July: RVEEH Seminar, Melbourne

Dirani M., Rees G., Lamoureux E.L., ‘Breaking Down the Barriers: Diabetes and Eye Disease’

August: Tasmania’s Lifestyle Congress VI – Optometrists Association Australia (Tasmania Division)

Luu C.D., ‘The Bionic Eye’

August: The Australian Centre For Behavioural Research In Diabetes (Symposium)

Dirani M., Rees G., Lamoureux E.L., ‘The Complications of Diabetes’

September: European Glaucoma Society 9th Congress, Madrid, Spain

Crowston J.G., ‘Glaucoma and Ocular Comorbidity – More Than Meets the Eye’

September: World Congress on Refractive Error, Durban, South Africa

Keeffe J.E., ‘Key Challenges in Qualitative Research in Refractive Error’

September: Asia Pacific Academy of Ophthalmology Congress, Beijing, China

Jhanji V., Vajpayee R.B., ‘Double Bubble Deep Anterior Lamellar Keratoplasty’

Kawasaki R., ‘Epidemiology of Retinal Vein Occlusions in Asia’

Kawasaki R., ‘The Asian Eye: How do the Epidemiology and Mechanism of Eye Disease Differ between Asia and the West?’

Wang J.J., ‘Age-Related Macular Degeneration Asians: Modifiable Risk Factors and Therapeutic Potential’

Wong T.Y., ‘Hypertensive Retinopathy’

Wong T.Y., De Ocampo Lecture: ‘An Eye Examination Can Save Your Life’

Wong T.Y., ‘Medical Associations with Diabetic Retinopathy and Their Implications for Management’

Wong T.Y., ‘Diabetic Retinopathy in Asia – New Insights for Key Public Health Messages’

September: Excitable Cells Annual Scientific Meeting, Melbourne

Kong G.Y., Bui B., Vingrys A., Crowston J.G., Trounce I.A., ‘Mitochondrial Dysfunction Modulates the Optic Nerve Response to Injury’

October: Pfizer CERA Update, Melbourne

Guymer R.H., ‘CERA Update’

October: Optometrists Association Australia General Meeting

Guymer R.H., ‘Update on the Bionic Eye’

October: 2010 Form & Function in Ocular Disease Symposium, Halifax, Canada

Wong T.Y., ‘Eye and Systemic Disease: The Common Soil Theory’

October: 1st Annual Meet of Indian Association of Community Ophthalmology and International Symposium on Community Ophthalmology, Kolkata, India

Keeffe J.E., ‘Planning Eye Care Services to Address the Social Determinants of Health’

October: Instruction Course, The 64th Congress Of Japan Clinical Ophthalmology, Kobe, Japan

Kawasaki R., ‘Study Design in Ophthalmologic Study: How to Report Study Results’

October: NOIDA Ophthalmological Society annual conference, NOIDA, India

Vajpayee R.B., ‘Revival of Lamellar Keratoplasty’

October: Annual meeting of Eye bank Association of America, Chicago

Vajpayee R.B., ‘“Tuck In” Lamellar Keratoplasty (TILK) for Post-Keratoplasty Corneal Ectasia involving the Corneal periphery’

October: Annual meeting of American Academy of Ophthalmology, Chicago

Vajpayee R.B., ‘“Double Bubble” Deep Anterior Lamellar Keratoplasty’

Vajpayee R.B., Instruction Course: ‘Step by Step DALK using the Big Bubble Technique’

October: Paediatric Ophthalmology Seminar, RCH, Melbourne

Ruddle J.B., ‘Paediatric Glaucoma and Ophthalmic Genetics’

November: 7th Indo-Australia Biotechnology Conference, Brisbane

Baird P.N., ‘Towards a Risk Chip for the Eye Disease AMD’

November: Royal Australian and New Zealand College of Ophthalmologists 42nd Annual Scientific Congress, Adelaide

Adams M., Robman L., Aung K.Z., Makeyeva G., Guymer R.H., Baird P.N., ‘Changing Genetic Associations with Age-Apo E and Age-Related Macular Degeneration’

Allen P., McCombe M., Villalobos J., Shivdasani M., Suaning G., Lovell N., Williams C., Shepherd R., Guymer R.H., ‘Chronic Implantation of a Suprachoroidal Electrode Array in a Feline Model’

Cassidy D., Beltz J., Jhanji V., Vajpayee R.B., 'Indications and outcomes for DSAEK Triple Surgery during the learning curve at a tertiary referral eye hospital'

Chen C., Fabiniyi D., Connell P.P., Allen P., 'Audit of Endophthalmitis Post Vitrectomy at Royal Victorian Eye and Ear Hospital 1997 – 2010'

Dimitrov P., Vingrys A., Robman L., Aung K.Z., Makeyeva G., Varsamidis M., Guymer R.H., 'Three Year Change in Visual Function in People with AMD'

Lim L., 'Management of Acute Uveitis – Instruction Course'

Lim L., 'RANZSRS Case Studies'

Lim L., 'Uveitis Case Presentations'

Luu C.D., Shivdasani M., Cicione R., John S., Allen P., Fallon J., Mccombe M., Freemantle A., Morley J., Shepherd R., Guymer R.H., Williams C., 'Optimising Electrical Stimulation Parameters for a Bionic Eye'

Makeyeva G., Adams M., Aung K.Z., Busija L., Baird P.N., Guymer R.H., Robman L., 'Prevalence of Retinal Vascular Pathology in Older Australians of Mediterranean or Anglo-Celtic Origin'

Fabiniyi D., Chen C., Allen P., Connell P.P., 'Endophthalmitis after Intravitreal Injection'

Goh R., Wong C., Busija L., Cipriani T., Guymer R.H., Lim L.L., 'Can Systemic Markers of Inflammation Predict Subtypes of Age-Related Macular Degeneration?'

Guymer R.H., 'Dietary and Genetics Risk Factors in AMD'

Guymer R.H., Brassington K., Dimitrov P., Varsamidis M., Makeyeva G., Aung K.Z., Chauhan D., Vingrys A., Plunkett M., 'Novel Nanosecond Laser Treatment to Prevent Vision Loss from AMD'

Ramakrishnan T., Constantinou M., Jhanji V., Vajpayee R.B., 'Study of profile of cases presenting with metallic corneal foreign body in an eye emergency department'

Robman L., Aung K.Z., Makeyeva G., Adams M., Baird P.N., Guymer R.H., 'Non-Mydriatic Digital Retinal Photography as a Good Screening Test for Undiagnosed Retinal Pathology'

Staffieri S.E., Ruddle J.B., Kearns L.S., Barbour J.M., Edwards T.L., Paul P., Mackey D.A., 'A Telemedicine Model to Prevent Blindness from Familial Glaucoma'

Tao W., Langham R., Liew D., Ischenko O., Robman L., Guymer R.H., 'Urinary Biomarker for Age-Related Macular Degeneration'

November 2010: Australian and New Zealand Society of Retinal Specialists Meeting (ANZSRS), Adelaide

Connell P.P., 'Epiretinal Membrane Surgery – Updates and Optimisation of Outcome'

Connell P.P., Fabiniyi D., Campbell W., 'Location, Location, Location. Management of Posterior Suprachoroidal Foreign Body'

November: Australasian Ophthalmic and Visual Sciences Meeting, Adelaide

Wong T.Y., Fred Hollows Lecture 'Diabetic Retinopathy – New Understanding, New Questions'

Baird P.N., 'Association Studies and Myopia'

November: 5th International Congress on Glaucoma Surgery, New Delhi, India

Crowston J.G., Plenary Session, Wound Healing: The Eye under Control; 'Prospective Wound Healing – The Key to Successful Trabeculectomy'

November: Symala Bhaskaran Lecture, Hyderabad, India

Wong T.Y., 'The Diabetes Epidemic in Asia'

November: General Practitioner Conference and Exhibition (GPCE), Melbourne

Lim L., 'Retinopathies and Blindness – Macular Degeneration, Diabetic Retinopathy and Retinal Vein Occlusion: Diagnosis and Management'

November: NHG-NUHS's 1st Singapore Health and Biomedical Congress, Singapore

Wong T.Y., 'Diabetic Retinopathy'

November: Asia Pacific Vitreo-Retinal Society Meeting, Singapore

Wong T.Y., 'Epidemiology and Natural of Retinal Vein Occlusion'

Wong T.Y., 'An Update of VEGF Trap – EYE: Development in other Indications – MCV, CRVO and PCV'

November: Retina 2010/16th Annual Meeting of the Japanese Society of Ophthalmic Diabetology, Osaka, Japan

Kawasaki R., 'Diabetic Retinopathy and Risk of Cardiovascular Disease'

December: APJGC, Taipei, Taiwan

Crowston J.G., Course 3: Rescuing the Failing Bleb; 'Failing Blebs: Future Therapies'

Kong G.Y., Van Bergen N., Chrysostomou V., Lee S., Crowston J.G., Troncone I.A., 'Role of Mitochondria in Optic Nerve Degeneration'

December: Biomarker Discovery Conference, Shoal Bay, NSW

Wang J.J., Rochtchina E., 'Age-Related Macular Degeneration: The Interplay of Nature and Nurture'

