

About us

In 1975 the Lions Save-Sight Foundation (LSSF) established the Lions Chair in Ophthalmology at The University of Western Australia. Professor Ian Constable AO was appointed to this position and subsequently established the Lions Eye Institute (LEI) in 1984.

The LEI employs 170 scientists, clinicians and support staff. It conducts first class scientific research into blindness and incorporates one of Australia's largest ophthalmic practices. The Institute also houses the Lions Eye Bank and the LSSF.

The LEI's longevity and internationally recognised reputation is testament to the excellence of its research and clinical capabilities. Research groups at the LEI are involved in both national and international collaborative programs.

The Institute actively participates in numerous clinical trials which enable scientists, ophthalmologists and pharmaceutical companies to develop new treatments for eye diseases.

Governance

In meeting its obligations to the community the Institute adheres to high standards of corporate governance as a limited liability company with not-for-profit and Tax Exempt Gift Recipient status.

Audit governance

The Institute engages Grant Thornton Audit Pty Ltd as an external audit team to independently review its financial reports and uphold the integrity of the reporting process.

Executive committee

Our Executive Committee consisting of senior management personnel meet monthly to discuss key budgetary, operational and strategic activities.



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Highlights



Lions Eye Bank celebrates 25 years of the gift of sight

July 1 marked the 25th anniversary of the Lions Eye Bank of Western Australia.

25 years ago, transplants involved the entire cornea. Today, the surgery is more complex and only the diseased layers are replaced with donor tissue. Over 3700 transplants have been performed in WA since 1986.

The Lions Eye Bank is supported by each individual who chooses to register as an eye donor and whose families support this choice by giving their consent.



\$3 million bequest to establish Paediatric Ophthalmology Fellowship

The legacy of a great Western Australian philanthropist is being preserved with the creation of a \$3 million fund for the prevention of eye injury in children.

The Joyce Henderson Trust has gifted \$3 million to the Lions Eye Institute to establish the Joyce Henderson Paediatric Ophthalmology Fellowship.



Dr Robert Linton Library

Dr Robert Linton was a highly-respected ophthalmologist in Western Australia during the second half of last century and a founding member of the City of Perth Lions Club.

The Linton family generously contributed funds for the specific purpose of developing a library to meet the needs of our researchers, clinicians and students. The ophthalmic scientific journals, books and historical documents housed in the library now go back as far as 1925.



Building the Vision

The official launch of the LEI's capital fundraising campaign, *Building the Vision*, marked the Institute's call for funding to outfit their research facilities within the new research hub currently being constructed at the QEII medical centre.

Much progress has already been made in securing the necessary funding, with significant pledges from several corporate bodies, and the invaluable support of campaign patrons, His Excellency Malcolm McCusker AO QC and Mrs Tonya McCusker, and Mr Stan Perron AM and Mrs Jean Perron.

Ian Constable Lecture

The 2011 Ian Constable lecture was held on October 17 at the UWA Octagon theatre. The guest speaker was internationally renowned researcher Professor Ian Frazer, CEO of the Translational Research Institute in Brisbane and co-creator of the technology for cervical cancer vaccines.

Managing Director's Report

In keeping with the Lions Eye Institute's mission statement to achieve excellence in scientific research, our researchers were highly successful in winning 12 nationally competitive grants in 2011 worth more than \$6.5 million.

Winning competitive research grants is a key measure of how our research is regarded nationally and internationally. The Centre for Ophthalmology and Visual Science was the most successful research centre at The University of Western Australia, with 10 National Health and Medical Research Council (NHMRC) grants. Fewer than 20 per cent of NHMRC grant applications are funded, so clearly the Lions Eye Institute research proposals are highly regarded.

The 12 grants – among them a \$2.5 million allocation to establish a Centre of Research Excellence in Genetic Eye Health – will get underway in 2012.

Funding bodies stress the need for translation of medical research. However the time required to take an idea from a hypothesis on paper to testing in the lab to actual treatment for a disease may be decades.

At the LEI, for example, we have spent two decades researching gene therapy for retinal disease and are now undertaking Phase 1 clinical trials.

This pioneering treatment has reversed age-related macular degeneration in animals and research is now underway involving people suffering from the most serious cause of this condition – wet age-related macular degeneration.

There are other key performance indicators for medical research – namely scientific publications – and the number of times these publications are cited by other researchers. LEI researchers have excelled in this regard, with their work published in high impact scientific journals during 2011.

Of course, the ultimate aim is the translation of our research into routine treatment, not only in our clinics, but all over the world.

Here, the LEI has also excelled, with the development of a retinal vein bypass treatment for retinal vein blockages and development of the world's first artificial cornea – just two examples of the difference the LEI has made in reducing the global burden of blinding eye disease.

LEI was also fortunate to receive continuing generous community support for our research from many individual benefactors and organisations in 2011, including a \$3 million bequest by Perth philanthropist Joyce Henderson to create a new paediatric ophthalmology fellowship to research prevention of eye injury in children.

We also gratefully acknowledge the continued generous support of our Capital Fundraising Campaign Patrons, Stan and Jean Perron and the Governor of Western Australia Malcolm McCusker and Tonya McCusker. Malcolm McCusker, who donates a portion of his Governor's salary to the Institute, and his wife Tonya opened the grounds of their new home at Government House to host the Raine Cohort 21st birthday party in November.

We were pleased to welcome well-known Lion Ambrose Depiazzi who took over as Chair of the Lions Save-Sight Foundation in 2011.

The creation of the LEI is one of the Foundation's greatest achievements and our partnership – with its core aims to create programs that educate, prevent and cure eye disease across the globe – remains as strong as ever.



Professor David Mackey
Managing Director



“

...the ultimate aim is the translation of our research into routine treatment, not only in our clinics, but all over the world.

Chairman's Report

“

The LEI achieved its best ever NHMRC research grant performance in 2011 - winning 10 grants - and is recognised as the leading UWA research institute.

The construction of the new \$100 million WA Institutes for Health facility began early in the year and the project is on schedule for completion in 2013.

This new facility at the QEII medical campus is next door to the current Lions Eye Institute building and will enhance the LEI's unique "bench to bedside" approach to integrating the work of researchers and clinicians.

We expect the new research facility will assist in attracting leading researchers and clinicians to Perth – a benefit to the entire WA community.

LEI has been allocated an entire floor in the new building and we are responsible for meeting the \$4 million cost to fit out and equip the allocated floor.

The Institute has launched a campaign to raise the capital funds under a chairmanship of Bill Bloking.

At the end of 2011 we had raised 60 per cent of the target funds through generous donations from Wesfarmers, Lotterywest and many others. This program will continue into 2012 until the target is achieved. Bill has been ably supported by his taskforce chairs Jason Ricketts, Phil Byrne and Chris Brown.

Once the research teams have been relocated to the new building in 2013, it will be necessary to upgrade the clinical facilities in the existing building.

The Institute's financial performance in 2011 was acceptable, with a breakeven net profit result. The published net profit of \$3.744 million has been achieved with the inclusion of the Joyce Henderson Bequest of \$3 million and funds from the Capital Fundraising campaign of \$0.75 million.

The total revenue received from operations was \$18.2 million with 55 per cent generated from clinical services and 29 per cent generated from bequests and donations. The Institute holds \$24.7 million in net assets of which \$7.1 million is in plant, property and equipment.

LEI achieved its best ever NHMRC research grant performance in 2011 – winning 10 grants – and is recognised as the leading UWA research institute.

This year's Ian Constable Lecture was held in October at the Octagon Theatre at UWA and was presented by Professor Ian Frazer. The topic, *Now, free, and perfect? How to live a long and healthy life in the 21st century* was very well received by an interested audience. Professor Frazer is currently collaborating with the LEI's Immunology research team investigating immunological therapies for cancer, chronic infection and autoimmunity.

A member of the original 2003 Board retired at the AGM in April. Michele Dolin was chair of the Investment Committee and provided great wisdom to the Board. On behalf of the Board and the Institute, I sincerely thank Michele for her eight years service as a Director.

There will be further changes to membership early in 2012 as the Board continues to refresh itself in preparation for the challenges involved in taking the LEI to the next level of performance.

I should also note the retirement of Professor Alan Robson as Vice-Chancellor of The University of WA. Alan had a strong interest in the research work undertaken at the LEI and that interest resulted in a great partnership between UWA and the LEI. We wish him well with his future endeavours.

The LEI has a unique business model that brings medical research and clinical operations together – I previously mentioned the "bench to bedside" approach.

This model has allowed the Institute to operate with financial independence whilst providing funds for some research and the ongoing need for equipment replacement. The Board has stressed the need for the Institute to continue to operate as a sustainable business. While it is sometimes difficult to communicate this message, it is essential for the LEI's future.

This is the last report I will write as I plan to step down as Chairman at the AGM. It has been a pleasure and an honour to be part of the LEI family since 2003 and I thank my fellow directors and the LEI staff for the support and guidance I have received.

I am sure the Institute will continue to prosper and grow in the future.



David Eiszele
Chairman

Board of Directors

Our Board of Directors provides strategic guidance to Lions Eye Institute management to ensure the quality, efficiency and longevity of our research, clinical, teaching and community activities.

The Board and Institute management continued their ongoing implementation and subsequent annual review of the strategic plan introduced to formalise the future direction of the Institute. This plan will assist us in achieving our principle objective of eliminating avoidable blinding eye disease.

An Investment Committee and an Audit & Risk Committee operate to help the Board fulfil its obligations.



David Eiszele FAICD
Non-executive Chairman

David Eiszele joined the Board in 2003 and was appointed Chairman on December 31, 2004. He holds a Diploma of Civil Engineering and a Masters of Business Degree. He is a Fellow of the Australian Institute of Company Directors.

Mr Eiszele was the Chairman of PearlStreet Limited and a former Managing Director of Western Power Corporation – a major government trading entity. Mr Eiszele has considerable experience in effecting commercial, strategic and cultural change within a large corporation. He has held national leadership roles as member of the Business Council of Australia and past Chairman of ESAA.

Mr Eiszele is Chairman of Verve Energy, Director of Torrens Energy Limited, Past Fellow of the Institution of Engineers Australia, and Australian Institute of Management.



Professor David Mackey MBBS, MD, FRANZCO, FRACS, AICD
Managing Director

Professor David Mackey was appointed as Managing Director of the Lions Eye Institute and Professor of Ophthalmology at The University of Western Australia in March 2009. He heads The University of Western Australia Centre for Ophthalmology and Visual Science.

Professor Mackey studied medicine at the University of Tasmania and trained in ophthalmology at the Royal Victorian Eye and Ear Hospital in Melbourne, subsequently doing a fellowship in Paediatric and Genetic eye diseases at the Royal Children's Hospital, Melbourne. After fellowships at the Johns Hopkins Center for Hereditary Eye Diseases in Baltimore and Moorfields Eye Hospital and the Great Ormond St Hospital for Sick Children in London, he returned to Australia to specialise in genetic eye diseases.

Professor Mackey was Clinical Professor at the University of Tasmania and Associate Professor at the University of Melbourne. Professor Mackey is a member of the Investment Committee.



Professor Ian McAllister
MBBS, FRANZCO, FRACS
 Non-executive Director

Professor Ian McAllister joined the Board in 2010. He studied medicine at The University of Western Australia, completed his ophthalmological training in Western Australia and a fellowship in vitreoretinal disorders at the Cleveland Clinic Foundation in Cleveland, Ohio. A further one year staff position in vitreoretinal disorders was also completed at Cleveland before returning to Perth.

He has been with the Institute since 1988 providing vitreoretinal services to metropolitan hospitals and has also been involved in research into disorders affecting the retina. He has held ten NHMRC grants as well as numerous minor grants and has published over 90 papers in scientific journals.

Professor McAllister is the Director of Clinical Services at the Institute and has extensive experience in research and eye health care.



William Bloking FAICD
 Non-executive Director

William Bloking joined the Board in 2003. He holds a Bachelor of Science in Mechanical Engineering (Summa cum Laude) from The University of South Carolina. He is a Fellow of the Australian Institute of Company Directors.

Prior to his retirement from the oil and gas Industry, Mr Bloking was President of Australia/Asia Gas for BHP Billiton Petroleum.

Mr Bloking is currently Chairman of Nido Petroleum Limited and Transerv Energy Limited, and he is a Director of the John Holland Group, Miclyn Express Offshore Limited and the West Australian Symphony Orchestra. He is also a Governor of the American Chamber of Commerce in Australia and an Adjunct Professor at Murdoch University.

Mr Bloking is Chairman of the LEI's *Building the Vision* Capital Campaign.



Rudolf Brunovs FAICD
 Non-executive Director

Rudolf Brunovs joined the Board in 2005. He is a Fellow of the Institute of Chartered Accountants, CPA Australia and the Australian Institute of Company Directors, and holds a Masters of Business Administration.

Mr Brunovs retired from the chartered accounting firm Ernst & Young after 27 years as a partner in a number of their offices.

He is currently a Director and the Principal of Mainstay Consulting Pty Ltd and a Director of Deep Yellow Limited. Mr Brunovs is a member of the Audit and Risk Committee.

Board of Directors



Jason Ricketts B. Juris (Hons), LLB, LLM (Dist), FAICD
Non-executive Director

Jason Ricketts joined the Board in 2010. He holds Bachelor of Laws and Master of Laws degrees from The University of Western Australia and is a Fellow of the Australian Institute of Company Directors.

Mr Ricketts is a senior Partner and head of the Perth office of Freehills, a major national legal firm.

Mr Ricketts is on the Board of Freehills and Leadership WA, and is a member of the Law Society of Western Australia.

Mr Ricketts is an experienced commercial lawyer, practising in the area of infrastructure law.



Michele Dolin MBA (Melb), MA (Michigan State), BA (Maryland), CPA, FAICD
Non-executive Director
(Retired April 2011)

Ms Dolin joined the Board in 2003, holds a Master of Arts Degree from Michigan State University, a Master of Business Administration from the University of Melbourne and is a Certified Practising Accountant.

Ms Dolin was the Chief Executive Officer of the Government Employees Superannuation Board, a Director of the Association of Superannuation Funds of Australia, a Fellow of the Australian Institute of Company Directors, Australian Institute of Management and Australian Institute of Finance & Banking and a Senior Fellow of the Financial Services Institute of Australasia. She had held senior executive positions at BankWest, Westpac and Challenge Bank.

Ms Dolin was a member of the Investment Committee.



Our Patron
Sir James Cruthers AO

Sir James Cruthers has been a long-standing patron of the Lions Eye Institute. He had a long career in the media and entertainment industry, receiving his knighthood for service to commerce, the community and the arts. After war service, he worked as a journalist with the Perth Daily News. In 1958 he became founding General Manager of TVW Channel 7 and later Chairman.

Past chairmanships include the Australian Film Commission and News American Publishing Inc where he was personal adviser to Rupert Murdoch. Sir James is a philanthropist who established TVW Telethon and the WA annual Christmas Pageant. He actively supports many charitable groups.

Genetics and Population Health



PROFESSOR MACKEY WITH RAINE PARTICIPANTS ERICA HOTVEDT, DYLAN MISSO AND SINEAD TAYLOR

Summary

The Lions Eye Institute's Managing Director Professor David Mackey leads the Clinical Genetics and Epidemiology Unit, having spent more than 20 years studying the genetics of the optic nerve.

In 1993, Professor Mackey initiated the Glaucoma Inheritance Study in Tasmania, creating one of the largest glaucoma biobanks in the world with over 5000 DNA samples and clinical material from familial and sporadic cases of glaucoma.

His group has also examined the impact of providing DNA testing and results to glaucoma families and is currently working on models of cascade family screening for glaucoma.

In 2000, he started the Twins Eye Study in Tasmania and Brisbane to investigate the genetic and environmental factors contributing to the ocular biometry related to glaucoma and myopia.

He also leads the Norfolk Island Eye Study, examining 800 descendants of the Bounty Mutineers.

In Western Australia, he runs the Raine Eye Health Study of 2000 20-year olds from a birth cohort and the Western Australian Strabismus Inheritance Study.

Projects

Raine Eye Health Study

The Raine Study is a longitudinal study that began in 1989, recruiting nearly 3000 women at around 18 weeks of pregnancy.

It is one of the world's largest and most successful studies of the influences of genetics, pregnancy, childhood and adolescence on subsequent health and developmental outcomes.

The 20-year-old follow-up of 2000 cohort participants has a predominant focus on eye health - the Raine Eye Health Study.

This is one of the first studies of eye health and diseases in young adults, for which very little data exists as it is presumed that young adults have the best vision.

It has a particular focus on myopia (short sightedness), strabismus and amblyopia (turned eye and lazy eye), and sun damage-related disorders such as pterygium and keratoconus.

In addition the study will provide a thorough baseline examination data set for future researchers who will examine the participants in 20 and 40 years' time when the signs of leading eye diseases such as glaucoma and macular degeneration begin to appear.

Thus the study and its results are a lasting legacy for Western Australia and its researchers.

Western Australian Strabismus Inheritance Study

Normal visual development is rapid during the first six months of life and continues up to the first decade. Young children are uniquely sensitive to any pathology which interferes with vision and visual development during this time.



RESEARCH COORDINATOR
SEYHAN YAZAR

Strabismus (misalignment of the eyes) affects three to five per cent of the general population. It is often associated with amblyopia, otherwise known as a lazy eye (failure of normal visual development) and reduced or absent binocular (stereoscopic) vision. Thus early diagnosis and treatment enables optimal visual outcomes. The associated poor cosmetic appearance may also interfere with social and psychological development.

Twin, population and family studies suggest there is a genetic component to strabismus. Research allows better understanding of the mechanism by which strabismus occurs, identifying those at higher risk and the potential to develop new treatments. Good vision in childhood is essential to the proper development of vision into adulthood.

Busselton Healthy Ageing Study

The Busselton Study is well known as a major population health study that has been ongoing since the 1960s.

In 2010, the Busselton Population Medical Research Foundation started a study to explore why some people are able to remain healthy and active throughout their senior years, whilst others suffer ongoing illness and infirmity - the Busselton Healthy Ageing Study.

There is an eye component within this study, for which the Lions Eye Institute through Professor David Mackey is providing financial and equipment support.

Outcomes

Raine Study

We have now conducted a comprehensive eye examination of over 1350 20-year old participants in the Raine Study.

We have identified that many participants showed early signs of excessive sun exposure, with two per cent having pterygium in the eye.

We have also been able to investigate young adults for the phenotype of corneal endothelial abnormalities associated with the risk alleles for Fuch's endothelial dystrophy. Data from the full cohort will be used in multinational collaborative eye studies looking at ocular biometry and disease in young adults.

Western Australian Strabismus Inheritance Study

Since 2003 we have been collaborating with the Engle laboratory at the Children's Hospital, Boston, affiliated with the Harvard Medical School, as part of the Strabismus Inheritance Study in Tasmania led by Professor Mackey.

The aim of this collaboration is to identify genes associated with all forms of strabismus, in particular identifying the genes causing complex forms of strabismus referred to as the congenital cranial dysinnervation disorders (CCDDs).

Our collaborative work has primarily focused on CFEOM, congenital ptosis and Duane's Syndrome. This work has continued in Western Australia, recruiting young patients and their families.

Grants/funding

- Australian Foundation for the Prevention of Blindness
- Channel 7 Telethon Trust
- The University of Western Australia Research Collaboration Award
- The University of Western Australia Launching Grant

Key publications

Mackey DA, Warrington NM, Hewitt AW, **Oates SK**, **Yazar S**, **Soloshenko A**, **Crawford GJ**, Mountain JA, Pennell CE. Role of the TCF4 Gene Intronic Variant in Normal Variation of Corneal Endothelium. *Cornea*. 2012;31:162-6.

Forward H, Hewitt AW, **Mackey DA**. Missing X and Y: a review of participant ages in population-based eye studies. *Clin Experiment Ophthalmol*. 2011 Jun 13. doi: 10.1111/j.1442-9071.2011.02626.x. [Epub ahead of print]

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Staff

Professor David Mackey

Sandy Oates

Orthoptist

Seyhan Yazar

Research Coordinator

Alla Soloshenko

Ophthalmologist Assistant

Students

Dr Hannah Forward

Masters by research

Dr Charlotte McKnight

Masters by research

Dr Alex Tan

Masters by research

UWA – Fifteen Year 4 medical students undertook an IMED R&D project on the Raine Eye Health Study

High school – 2 students participated in the BioGENEius Challenge of WA.



DR CHARLOTTE MCKNIGHT, DR HANNAH FORWARD AND DR ALEX TAN

Immunology

PROFESSOR MARIAPIA DEGLI-ESPOSTI

Summary

The Immunology group at the Lions Eye Institute encompasses immunology and virology, viral immunogenetics and ocular immunology. We work in collaboration to study eye diseases that have an immune basis. A number of eye diseases have an immune component, but the knowledge of immune responses in the eye remains limited.

Our research uses a model of a chronic viral infection that can cause significant systemic disease, as well as

severe ocular complications, especially in individuals whose immune systems are compromised. We use this model to understand the mechanisms that regulate the complex immune responses to viral infections, and to understand how viral infections affect the eye.

In addition to the impact of infection, the group is investigating autoimmune diseases that affect the eye. Our aim is to improve our knowledge of the

mechanisms that mediate ocular autoimmune diseases, which are still a leading cause of blindness, and to provide new insights into the causes and potential treatment of autoimmunity.

We seek to understand the mechanisms that regulate immune responses, with the ultimate aim of developing therapies to prevent and treat these persistent and intractable conditions.



Highlights

Dr Matthew Wikstrom and Professor Mariapia Degli-Esposti have developed a collaboration with Professor John Forrester who has been recruited to UWA to work on the cause of uveitis using a novel mouse model - the only one in the world that closely mimics human disease. Our ultimate aim is to design new therapies for this sight-threatening disease. Professor Forrester is now a Professor of Ocular Immunology at The University of Western Australia.

It is expected the study will provide important insights into the cause and potential treatment for other autoimmune diseases, including diabetes, multiple sclerosis, and arthritis.

Projects and outcomes

Immunology and Virology

Our group has continued to investigate the mechanisms used by viral pathogens to escape immune responses. Viruses achieve this by producing proteins that mimic, subvert or alter important cellular functions. Dr Christopher Andoniou's team continues to advance this important research by investigating how viruses interfere with programmed cell death or apoptosis. This work is likely to help us design better treatments for degenerative eye diseases caused by inappropriate cell death.

In collaboration with Professor Geoff Hill from the Queensland Institute for Medical Research (QIMR), we are examining the impact of viral infection post transplantation. Cytomegalovirus represents the most predictable and problematical infection after bone marrow transplant and causes severe disease, including damage to the eye. Our aim is to ultimately design effective therapies to prevent complications from infection in transplant patients.

Viral Immunogenetics

The Viral Immunogenetics group's research focuses on providing insights into novel mechanisms of viral immune evasion. This is considered to be an important step on the path towards developing therapies that limit the severity of viral diseases, including those that affect vision.

The work in this group consists of several major themes. Firstly we are investigating the influence of host resistance genes that limit the severity of infection and which regulate NK cells, a key anti-viral effector cell. Research has shown that mouse CMV replication is regulated by the *Cmv1* locus that encodes an NK cell activation receptor Ly49H. However, CMV can escape Ly49H surveillance by the emergence of escape mutants in the m157 ligand and many variants

of m157 exist that engage inhibitory Ly49 receptors. Analyses of these interactions allows us to define how interactions with viral ligands by activation and inhibition receptors can be integrated by NK cells to determine if they are activated or inhibited.

Ocular Immunology

Our research in ocular immunology concentrates on understanding the impact of viral infections in the eye, but also includes new programs aimed at addressing autoimmune diseases that affect vision.

In relation to viral infection, we continue to investigate the immune response to murine cytomegalovirus (MCMV) infection in the eyes of mice. These studies are the first to investigate the kinetics of specific antiviral responses in the eye. New and improved methodologies allowed us to track specific subsets of immune cells not only in the whole eye, but also in individual eye compartments including the retina. We also evaluated the longevity of immune responses in the eye and showed that, surprisingly, they are sustained for a long period of time. This data provides important insights into the clinical management of viral retinitis.

Grants/funding

- **NHMRC Senior Principal Research Fellowship**
- **NHMRC Program Grant**
Immunological therapies for cancer, chronic infection and autoimmunity
- **NHMRC Project Grant**
Mechanisms of viral induced immunosuppression: effects on DC-NK networks
- **NHMRC Project Grant**
Do resident immune cells cause retinal damage in diabetes?
- **NHMRC Project Grant**
Defining the requirement for the inhibition of Bak to the pathogenesis of cytomegalovirus infection
- **NHMRC Project Grant**
The balance of signals received by NK cells is modulated by viruses as a mean of immune escape
- **NHMRC Equipment Grant**
Automatic tissue processor and tissue embedding centre

Key publications

Zinkernagel MS, McMenamin PG, Forrester JV, **Degli-Esposti MA**. T cell responses in experimental viral retinitis: mechanisms, peculiarities and implications for gene therapy with viral vectors. *Prog Retin Eye Res.* 2011;30:275-84.

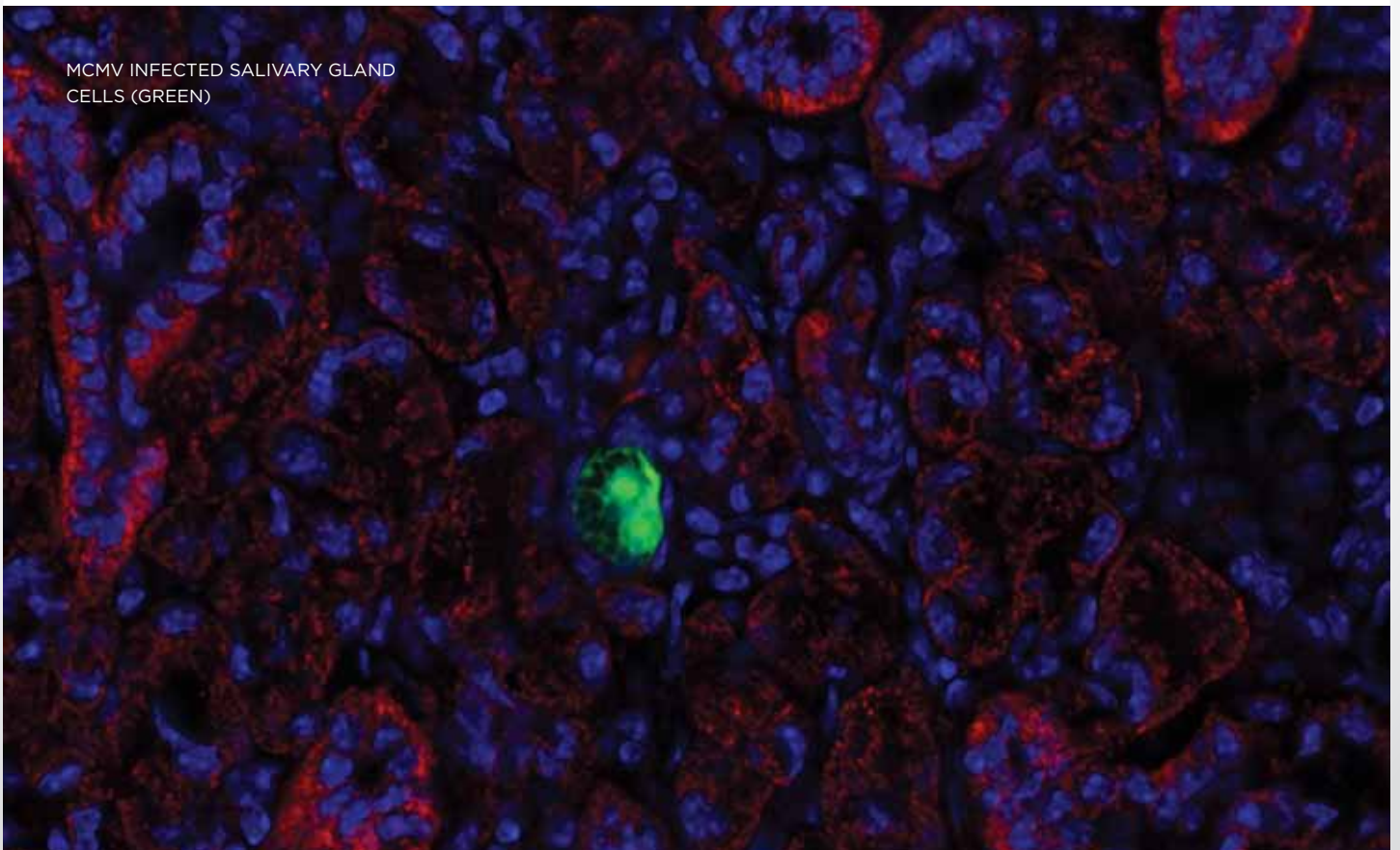
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Zinkernagel MS, Petitjean C, **Wikstrom ME, Degli-Esposti MA**. Kinetics of ocular and systemic antigen-specific T-cell responses elicited during murine cytomegalovirus retinitis. *Immunol Cell Biol.* 2011 May 17. [Epub ahead of print]

Staff

Professor Mariapia Degli-Esposti
Asst Prof Christopher Andoniou
Asst Prof Matthew Wikstrom
Dr Jerome Coudert
Dr Marie Estcourt
Dr Valentina Voigt
Dr Monique Ong
Dr Serani van Dommelen
Peter Fleming
Catherine Forbes
Geraldine Brizard
Iona Schuster
Slavica Pervan

MCMV INFECTED SALIVARY GLAND CELLS (GREEN)



Physiology and Pharmacology

Summary/Highlights

2011 was a year of completing the work on our five year National Health and Medical Research Council program grant and preparing new grants to fund our work in future years.

Our research output was sustained and 17 papers were published in the international literature. Our students performed exceptionally well, with publications in highly ranked journals such as *Brain Research*, *Investigative Ophthalmology and Visual Science*, and *Neuroscience*.

In addition to our long term research in the field of retinal metabolism, retinal vascular biology and studies of ganglion cell axons, we continued with our development of new therapeutic and diagnostic techniques for retinal vascular diseases and glaucoma. We have recently made significant progress in studies using human donor eyes. Through collaboration with the Lions Eye Bank and DonateLife WA, we have access to the remaining human donor eye tissue after removal of the cornea for transplantation purposes. This valuable resource allows us to study microscopic changes to the retina associated with ageing or disease.

Clinical studies of glaucoma progression continued to expand the numbers of patients that have been tested with our new ophthalmodynamometer. This instrument is used to induce pulsation of the blood vessels at the back of the eye and record the eye pressure. This is proving to be an effective predictive measure for the likely progression of the disease and is beginning to allow better targeting of therapy.

Outcomes

The team continues to contribute to knowledge related to key blinding diseases such as glaucoma and diabetic retinopathy. Successful grant outcomes have secured our funding for the next three years which will see the commencement of new projects aimed at developing new diagnostic and therapeutic strategies for use in clinical ophthalmology.

Grants

National Health and Medical Research Council
Program grant

**Australian Research Council
Centre of Excellence in Vision Science**
Grant

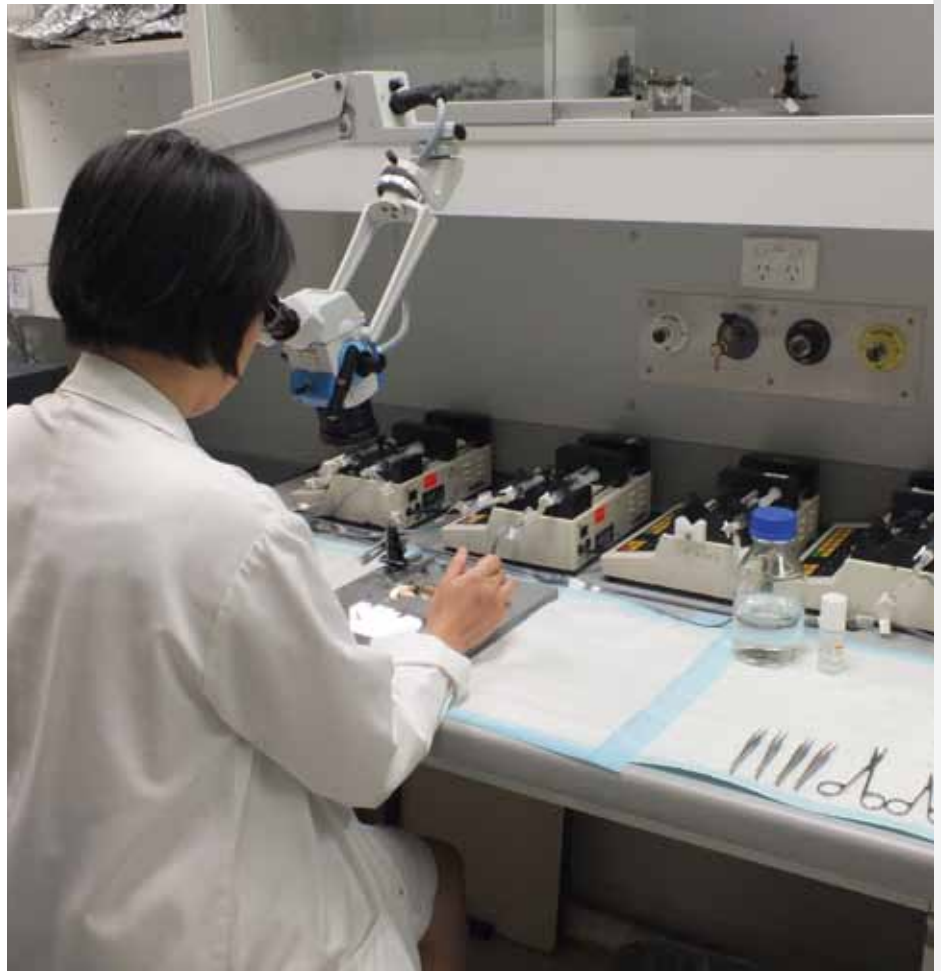
Key Publications

Yu D-Y, Cringle SJ, Yu PK, Su E-N.
Retinal energetics and its critical role in retinal physiology and pathology. *Expert Opinions in Ophthalmology*. 2011 6(4):395-399.

Balaratnasingam C, Cringle SJ, Fatehee N, Morgan WH, Yu D-Y.
Comparison of fluctuating and sustained neural pressure perturbations on axonal transport processes in CNS white matter tracts. *Brain Research*. 2011 1417:67-76.

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Staff

Professor Dao-Yi Yu
Professor Stephen Cringle
Professor Ian McAllister
Professor William Morgan
Associate Professor Er-Ning Su
Assistant Professor Paula Yu
Dean Darcey
Graeme Hewitt

Students

Dr Chandra Balaratnasingam
Dr Naeem Fatehee
Dr Jason Lim
Dr Min Hye Kang
Dr Priscilla Tan

PROFESSOR FRAZER (L) WITH
LEI MD PROFESSOR MACKEY

Professor Ian Frazer

CEO and Research Director
Translational Research Institute, Brisbane

Professor Frazer was the guest speaker at the 11th Ian Constable Lecture, held at The University of Western Australia.

The topic, *Now, free, and perfect? How to live a long and healthy life in the 21st century*, examined some of the options available for a long and healthy life and made both practical and controversial suggestions about how we look after our nation's health. Professor Frazer's novel outlook and wealth of experience resulted in a unique and interesting evening.

Since 2000, The University of Western Australia has hosted the annual Ian Constable Lecture, named in acknowledgement of Professor Constable's outstanding contribution to science over the past 30 years. Professor Frazer was the most recent in a long line of highly esteemed speakers.

Professor Frazer is CEO of the Translational Research Institute in Brisbane and is actively involved in a research program at the Institute investigating immune responses to cancer. He has made many significant contributions to health and science during his lengthy career in research, including his role as co-creator of the technology for cervical cancer vaccines.

He is closely collaborating with Professor Degli-Esposti and the LEI's Experimental Immunology research team as part of a 5 year prestigious NHMRC Program Grant investigating immunological therapies for cancer, chronic infection and autoimmunity.

Molecular Ophthalmology

PROFESSOR ELIZABETH PIROSKA RAKOCZY

Summary

The Department of Molecular Ophthalmology investigates the cause and development of eye diseases, using cutting edge technologies in cell and molecular biology to improve and develop treatments.

Our team of scientists include cell biologists, virologists, chemists, gene therapy experts, developmental biologists and molecular biologists, working closely with ophthalmologists to achieve our objectives.

Molecular Ophthalmology has several major international collaborations and partnerships with a wide range of Australian and overseas institutions, and we are successfully collaborating with the pharmaceutical industry in joint research projects.

Highlights

The Human Gene Therapy Safety Trial started on a very select group of patients. The trial utilises a new approach developed by the Molecular Ophthalmology team for the treatment of wet age-related macular degeneration.

Projects and Outcomes

Age-Related Macular Degeneration

Recombinant adenoassociated virus mediated gene therapy

At present the approved treatment for wet AMD is Lucentis® therapy that requires the injection of Lucentis® into the eye every 4-6 weeks. After a 15 year intense research program we have successfully developed a new approach that will involve only a single injection. To achieve this we developed the concept of “secretion gene therapy” which is the in situ production of a medicine at the site of the disease ie. the retina, via a recombinant virus construct rAAV(2).sFlt. The new compound received CTX approval to conduct a Phase I/II gene therapy clinical trial for the long term treatment of AMD.

Complications of Lucentis® Therapy

The available therapies use recombinant humanised anti-VEGF antibody fragments (Lucentis®) to inhibit VEGF activity and it has been shown that wet AMD can be treated safely and successfully in the majority of patients. Lucentis® intravitreal injection is now the standard for treatment of wet AMD. We propose to investigate whether humoral immunity is the cause of the failure of some patients to respond. This study will examine the role of humoral immunity and will help in the development of new patient management guidelines for non responding individuals.

We aim to establish effective tests for the assessment of “anti-Lucentis®” immunity and assess any correlation between the development of “anti-Lucentis®” immunity and the success or failure of treatment in a cohort of 300 patients receiving Lucentis® injections.

Diabetic Retinopathy

Development and characterisation of animal models

One of the limitations of research into diabetic retinopathy is the lack of suitable animal models. To study how the two most important factors, hyperglycemia and vascular endothelial growth factor, interact in diabetic retinopathy we generated a mouse line that retained the characteristics of the parental strains such as developing hyperglycemia and retinal neovascularization. We continue the characterisation of this animal model.

We have provided several licenses to different organisations for the use of these models including: Singapore Eye Research Institute, University of Virginia, University of Amsterdam and the University of Sydney, University of Tuebingen, Regeneron USA.

Retinitis Pigmentosa

Following Australia’s recently acquired associate membership of the European Molecular Biology Laboratory (EMBL), we established a collaboration with Professor Luis Serrano Puig, the head of the EMBL-CRG systems biology programme. Our links to EMBL and our collaboration with Professor Serrano’s laboratory, one of the global leaders in Systems Biology and Protein Design enables access to the most advanced tools and data-bases and facilitates communication and further collaborations with the leading scientists in the field. Professor Rakoczy (CIA) spent 6 months in 2009/10 and Dr McKeone also visited the lab to learn the use of the computational analytical tools for this study. This

collaboration resulted in the most complete computational analysis of rhodopsin and disease phenotype to date. We aim to use systems biology and computational biology to develop a universal treatment that would help the majority of retinitis pigmentosa patients.

Grants/Funding

- **NHMRC Project grant**
Long-term human response following subretinal injection of recombinant adenoassociated virus-sFlt-1 vector
- **NHMRC Project Grant**
Do resident immune cells cause retinal damage in diabetes?
- **Richard Pearce Bequest**
- **Avalanche Biotechnologies, USA**

Key Publications

Vagaja NN, Chinnery HR, Binz N, Kezic JM, **Rakoczy EP**, McMenamin PG. Changes in murine hyalocytes are valuable early indicators of ocular disease. *IOVS*. 2011; 11:8601-8607.

Lai C-M, Estcourt M, Himbeck R, Lee SY, Yeo I, Luu C, Kwang B, Lee MW, Barathi A, Villano J, Ang CL, van der Most R, Constable I, Degli-Esposti MA, **Rakoczy EP**. Preclinical safety evaluation of subretinal rAAV.sFlt-1 in non-human primates, *Gene Therapy* 2011, 1-11.

Staff

Professor Elizabeth P. Rakoczy
Dr May Lai
Dr Richard McKeone
Dr Aaron Magno

Students

Ireni Ali Rahman
Nina Vagaja

Students

Student	Department	Program	Supervisors
Iona Schuster	Immunology	PhD	Mariapia Degli-Esposti Chris Andoniou Marie Estcourt
Martin Zinkernagel	Immunology	PhD	Mariapia Degli-Esposti Anthony Scalzo
Charlotte McKnight	Genetics & Epidemiology	MMedSc	David Mackey Ian McAllister
Alex Tan	Genetics & Epidemiology	MMedSc	David Mackey Phil House
Hannah Forward	Genetics & Epidemiology	MMedSc	David Mackey Jane Khan
Chandra Balaratnasingam	Physiology & Pharmacology	PhD	Dao-Yi Yu Steve Cringle William Morgan
Jason Lim	Physiology & Pharmacology	MMedSc	Dao-Yi Yu William Morgan Steve Cringle
Naeem Fatehee	Physiology & Pharmacology	MMedSc	Dao-Yi Yu Steve Cringle
Priscilla Tan	Physiology & Pharmacology	MMedSc	Dao-Yi Yu Paula Yu
Min Hye Kang	Physiology & Pharmacology	PhD	Dao-Yi Yu Steve Cringle
Ireni Ali Rahman	Molecular Ophthalmology	PhD	May Lai Nicolette Binz Elizabeth P. Rakoczy
Nina Vagaja	Molecular Ophthalmology	MBBS/PhD	Elizabeth P. Rakoczy Paul McMenamin Nicolette Binz
Josh Bowyer	Indigenous and Remote Eye Health unit	BMedSc	Angus Turner
Jane Lock	Clinic	MSc	Mei-Ling Tay-Kearney Yogesana Kanagasigam William Morgan
Daniel Ting	Clinic	PhD	Mei-Ling Tay-Kearney Yogesana Kanagasigam William Morgan
Georgia Cleary	Clinic	PhD	Ian Constable J Marshall Dr D Spalton
Kambiz Bahaadinbeigy	Telemedicine/ eHealth	PhD	Ian Constable Yogesana Kanagasigam P Sprivilis

Ocular Tissue Engineering

Summary

The new Ocular Tissue Engineering Laboratory has had an exciting and productive year under the direction of Associate Professor Fred Chen.

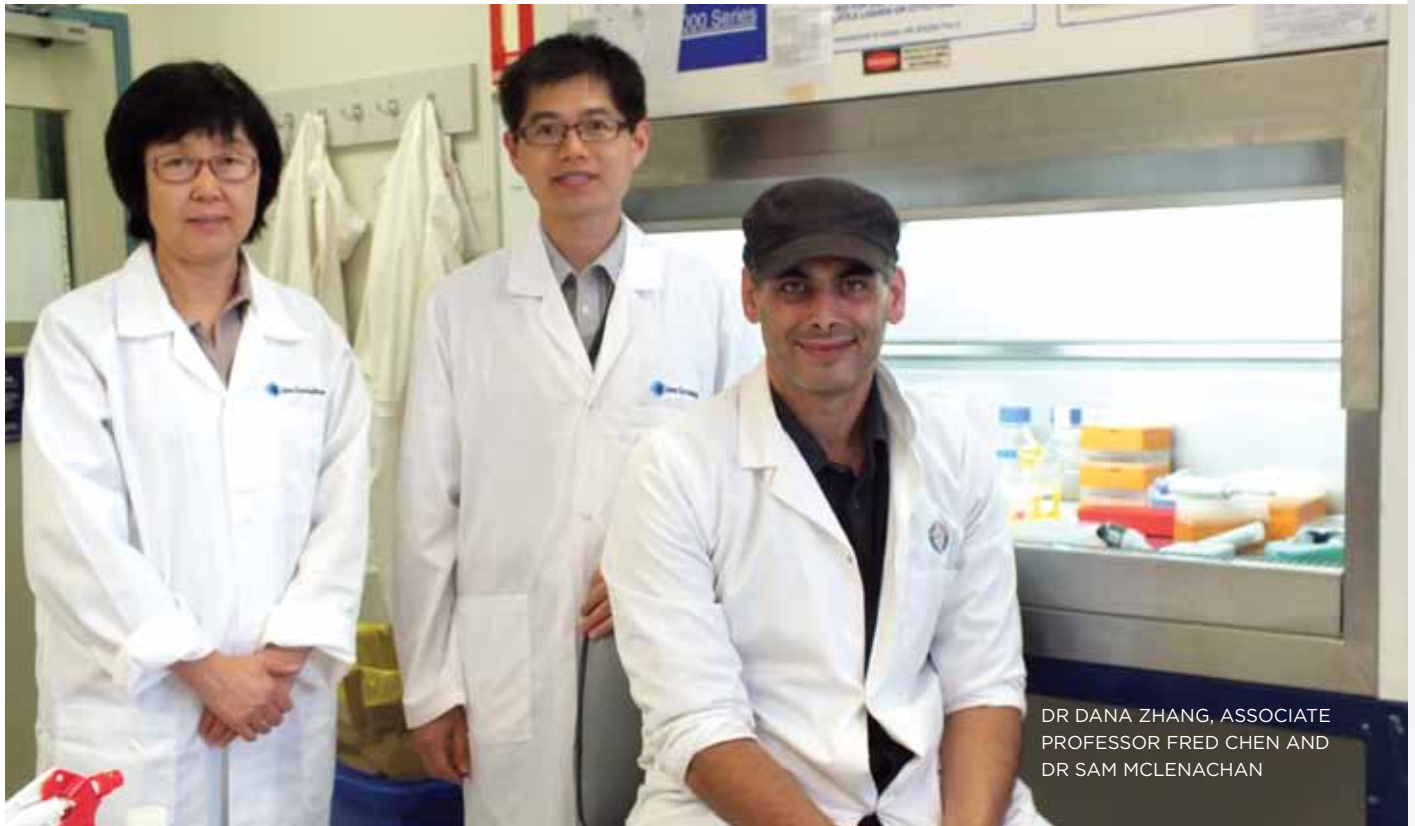
Dr Chen returned to Perth in December 2010 after three years of PhD study in cell transplantation techniques for retinal degeneration at the University College of London and two years of surgical and medical fellowships in the treatments of vitreoretinal diseases at the Moorfields Eye Hospital in London.

During 2011, his research team worked on the development of a novel cellular reprogramming protocol for turning adult stem cells into retinal pigmented cells.

This complex reprogramming work could not have been established in Perth without funding support from the Lions Eye Institute, The University of Western Australia, generous donations from Dr Chen's private patients and collaborative work with

internationally renowned stem cell scientists in London and Barcelona.

In addition to the work on cellular reprogramming techniques, this group has also established a microperimetry laboratory in which validation and natural history studies in Stargardt's disease and dry macular degeneration are being carried out.



DR DANA ZHANG, ASSOCIATE PROFESSOR FRED CHEN AND DR SAM MCLENACHAN

Projects

Cellular reprogramming of adult stem cells into retinal pigment epithelium

Retinal cell transplantation to preserve and restore vision of people with macular or retinal degeneration has been the focus of several large international research groups over the last few decades. The rationale for exploring this treatment approach is that visual loss in macular degeneration is thought to be the consequence of primary damage and loss of pigmented cells within the retina and secondary loss of photoreceptor cells which detects light. Therefore, replacement of pigmented cells within the retina – the retinal pigment epithelium – will in theory preserve central vision in people with macular degeneration.

Microperimetry comparison and cohort studies in macular degeneration

Visual acuity testing has been the cornerstone of ophthalmic assessment. However, with the advent of new treatments in retinal and macular diseases, there is a growing need for assessment of central visual field. Traditional visual field assessment used in monitoring of glaucoma is not suitable for use in patients with macular disease due to uncertainty of fixation locus and stability and poor reproducibility arising from eye movements during the test. This problem has been addressed by a new device called a fundus-controlled microperimeter which enables central visual field assessment whilst the retina of the eye is being tested. It is continuously monitored and tracked throughout the examination. Microperimetry has been used by large international eye centres as part of routine eye care and clinical trials. Dr Chen has brought his experience in microperimetry in London back to

Perth to set up the first microperimetry testing laboratory in Western Australia so that clinical trials and private patients at the Lions Eye Institute can benefit from this detailed assessment of the macular function.

Outcomes

Cellular reprogramming of adult stem cells into retinal pigment epithelium

The group is currently refining the techniques of mouse corneal limbal stem cell culture and RNA reprogramming protocol in turning these cells into retinal pigment epithelium. We are now characterising the new pigmented cells derived from cellular reprogramming to ensure that these cells are performing the same function as adult retinal pigment epithelium. Once the reprogramming techniques are optimised using mouse cells, we will then proceed to use human adult stem cells to produce retinal pigment epithelium.

Microperimetry comparison and cohort studies in macular degeneration

The comparison study will enrol over 100 people with or without retinal diseases. We have enrolled 25 healthy subjects and patients in our comparison study and are still actively recruiting patients into the comparison and cohort studies which examine the natural history of patients with early dry macular degeneration and Stargardt's disease.

Grants

The Lions Eye Institute

Seed Fund

The University of Western Australia

Seed Fund

Viertel Charitable Foundation

Investigatorship

The Honda Foundation

Equipment Grant

Key Publications

Chen FK, Patel PJ, Xing W, Crossland MD, Bunce C, Rubin GS, Da Cruz L. Intrasession repeatability in fixation stability assessment using the Nidek MP-1. *Optom Vis Sci* 2011;88(6):742-50.

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Staff

Associate Professor Fred Chen

Dr Samuel McLenachan

Dr Dana Zhang

Student

N. Sharma Beeharree

Indigenous and Remote Eye Health



ASSOCIATE PROFESSOR TURNER
WITH PATIENT

Summary

The Indigenous and Remote Eye Health Unit (IREHU) is headed by Associate Professor Angus Turner and aims to improve eye health in remote and isolated Western Australian communities.

Coordinated by Dr Turner, the unit includes an orthoptist and several medical students and support staff.

Many patients are living in small communities where blindness and impaired vision continue to be a

serious problem for the Aboriginal population. They are benefiting from improved service delivery and the strengthening relationships formed between health service providers throughout regional WA.

Highlights

The unit secured a Memorandum of Understanding with the Kimberley Aboriginal Medical Services Council (KAMSC), with a full-time diabetic screening project officer based in the Kimberley to provide ongoing support for primary eye health and diabetic screening in 2012-2013. The position is partly funded by the IREHU.

There was a roll out of new and upgraded equipment for outreach eye services. Through the efforts of IREHU staff, \$500,000 from the Office for Aboriginal and Torres Strait Islander Health and the Department of Health and Ageing in Canberra was used to equip three regional centres for cataract surgery and eight sites have benefited from new tele-ophthalmology equipment for digital imaging of the eye. A new outreach service was established for the Pilbara.

The IREHU has also collaborated with the George Institute as part of the Lilwan project, Fitzroy Valley, WA. The IREHU were commissioned to carry out a comprehensive prevalence survey of Indigenous children in the Fitzroy Valley.

A feasibility study for the implementation of telehealth in the field of ophthalmology was completed for the Health Department of Western Australia.

A submission was completed for the Royal Australian and New Zealand College of Ophthalmology (RANZCO) and presented to Medicare Australia regarding telehealth in ophthalmology.

A relationship with the Aboriginal Medical Service network in Perth was established to provide a new camera and screen for diabetic retinopathy in Indigenous people in urban areas.

New services are also in the planning stages for the Bunbury Aboriginal Medical Service, Goldfields and northern goldfields including Leonora.

Grants/funding

The Lions Eye Institute
The University of Western Australia
McCusker Charitable Foundation
The RANZCO Eye Foundation
Health Department of WA

Key publications

Turner AW, Xie J, Arnold A-L, Dunn RA, Taylor HR. Eye health service access and utilisation in the National Indigenous Eye Health Survey. *Clin Experiment Ophthalmol.* 2011;39:598-603.

Turner AW, Mulholland WJ, Taylor HR. Coordination of outreach eye services in remote Australia. *Clin Experiment Ophthalmol.* 2011;39:344-9.

Staff

Associate Professor Angus Turner
 Ophthalmologist
Sandy Oates
 Orthoptist
Aimee Leong
 Orthoptist
Sue Hogan
 Outreach Administrator

Students

Josh Bowyer
 B Med Sci



INDIGENOUS UNIT STAFF AND TEAMMATES RAISE MONEY ON THE GIBB RIVER ROAD MOUNTAIN BIKE CHALLENGE

Lions Eye Bank of WA

Established in 1986, the Lions Eye Bank celebrated its 25th anniversary in 2011.

More than 3600 corneal transplants have been performed in that time – 186 of those in 2011, with 129 corneas sourced locally and 57 from interstate.

The Lions Eye Bank is the only facility in WA that coordinates the collection, processing and distribution of eye tissue for transplantation. In addition to corneal transplants, scleral tissue is used in other surgical procedures.

All donor tissue is utilised either for transplantation or, if unsuitable, for ethically approved research or surgical training with the consent of the donor's family. This tissue is crucial to advancing research and developing surgical techniques.

The new organ culture storage method introduced in April 2011 contributed to our most successful year. The Eye Bank is now in a position to schedule patients, negating the previous practice of managing a long waiting list.

Ten surgeons perform corneal grafts for both public and private patients including LEI clinicians Professor Graham Barrett, Professor Geoffrey Crawford and Associate Professor Steven Wiffen.

As a member of the Eye Bank Association of Australia and New Zealand (EBAANZ), the Lions Eye Bank works collaboratively with other eye banks to maintain consistently high levels of quality, safety, proficiency and ethics. Excess tissue is shared when appropriate and emergency requests for tissue are always supported.

As an independent organisation, the Lions Eye Bank is self-funded through cost recovery and is supported by the Lions Save-Sight Foundation.



FAR LEFT: ASSOCIATE PROFESSOR STEVE WIFFEN, MR BRIAN KING AND PROFESSOR GEOFFREY CRAWFORD AT THE 25TH ANNIVERSARY AFTERNOON TEA

LEFT: EYE BANK STAFF JESSICA SEEBAUER, TRACY CARR, STEPHANIE DURHAM, HAYLEY FLEAY (FRONT) AND MANAGER LISA BUCKLAND

A portrait of Associate Professor Brendan Vote, a man with short brown hair and a friendly smile, wearing a white button-down shirt with vertical blue stripes and a brown leather belt. He is standing in a hallway with a wooden staircase railing visible behind him. A semi-transparent teal graphic element is overlaid on the right side of the image, containing text.

Associate Professor Brendan Vote

Clinical Associate Professor
University of Tasmania

Dr Brendan Vote was invited to Perth as part of the LEI's Visiting Professor Lecture Series in October 2011.


His presentations, given to students studying for higher degrees at the LEI as well as WA's Ophthalmology Registrars, detailed his clinical research audits involving Lucentis® patients and toric intraocular lenses. He also delivered an update on intravitreal treatments to the clinic nurses and optometrists. A passionate speaker, the lectures were well attended and a welcome addition to the Series.

Dr Vote is an ophthalmologist in Tasmania who specialises in small incision cataract surgery, complicated glaucoma procedures and treatment for age related macular degeneration, and is a Clinical Associate Professor at the University of Tasmania.

He is based at Launceston Eye Institute, which he established in 2008, and retains an active teaching and research role at the Institute. He travels regularly to both Hobart and Burnie and provides the only vitreoretinal service in Tasmania.

Dr Vote has collaborated extensively with the LEI's Professor David Mackey, particularly on the Glaucoma Inheritance Study in Tasmania.

Clinical Research



The Lions Eye Institute offers the unique blend of having scientists working in close association with the clinicians to bring laboratory generated ideas and techniques to the level where they can be of benefit to people suffering some of the most common blinding eye conditions in the world.

The clinicians at the LEI have a major commitment to research and teaching. The benefit to our patients is the guarantee that they will receive the most advanced treatment available anywhere in the world. In many cases, patients with specific eye disorders are given access to new treatments before they are available to the general public.

The Institutes ground breaking research into retinal vascular occlusions continues to progress with a new project looking at addressing the blinding aspects of the occlusion as well as the obstruction itself. This work is being conducted by Professor Ian McAllister.

The development of a micro fistula to control intraocular pressure in intractable cases of glaucoma, developed by Professor Bill Morgan, is currently undergoing phase 3 clinical trials.

A gene therapy treatment for the wet or neovascular form of age related macular degeneration has been developed by Professor Ian Constable and Professor Piroska Rakoczy and is currently undergoing phase 2 clinical trials.

These studies represent many years of basic science research and trials before reaching these stages.

We currently have 13 specialty trained ophthalmologists at the LEI which enables us to offer expertise in all branches of ophthalmology. In 2011, 38,748 patients visited the Institute with 4,863 procedures being performed by the LEI ophthalmologists and 5,161 ocular injections given for diseases including macular degeneration, diabetic retinopathy and retinal vascular disorders.

Clinical research includes participation in a wide range of multicentre clinical drug trials, mainly for retinal disorders including macular degeneration, diabetic retinopathy and retinal vascular disease. Other trials include treatments for ocular inflammatory disorders and glaucoma.



DIRECTOR OF CLINICAL SERVICES
PROFESSOR IAN MCALLISTER

Professor McAllister, Professor Constable, Associate Professor Chen and Dr Isaacs continue their involvement with multicentre clinical trials with nine separate ongoing programs, investigating new therapies for the treatment of macular degeneration, diabetic retinopathy and retinal vascular disorders. These conditions are responsible for 65 per cent of blindness in Western Australia.

Professors Crawford, Barrett and Wiffen have introduced the new technique of insertion of intrastromal cornea ring segments into WA. This technique is performed at the LEI and a clinical trial is currently underway examining the outcomes of this procedure for treating corneal conditions such as keratoconus, pellucid marginal degeneration and laser induced kerectasia. Professors

Wiffen and Crawford are also involved in a clinical trial regarding collagen cross-linking which is a new technique for stabilising progressive keratoconus. Associate Professor Wiffen is involved in reviews of new treatments for ocular squamous metaplasia using topical Mitomycin-C and Interferon. Professor Barrett continues to be an innovative and highly sought after international speaker in the area of new developments in cataract surgery.

Professor Morgan and Dr Giubilato are actively involved in conducting trials and audits of difficult glaucoma cases. Professor Morgan continues to be involved in the development of the micro fistula project which was developed at the LEI to improve glaucoma outcomes in advanced cases unresponsive to other treatment. Professor Morgan continues his research into retinal venous pulsation properties using a specially designed ophthalmodynamometre, developed at the LEI. This technique is the world's first measurement of glaucoma which, if proven in the current multicentre trial, will be predictive of future glaucoma vision loss. This will enable people at risk of developing progressive loss of vision from glaucoma to be monitored and treated at an earlier stage.

Dr deSousa and Dr Gajdatsy continue their development of new surgical procedures in the area of ocular plastic and orbital surgery. Together with Associate Professor Tay-Kearney they are involved in the teaching program for medical students in Western Australia and Registrar Ophthalmologists.

Associate Professor Tay-Kearney is actively involved in multicentre research projects into new treatments for uveitis and has also been involved in developing new tools for remote area diabetic retinopathy screening.

All clinicians at the Institute continue to be actively involved in research and this is one of the LEI's major strengths, enabling new developments and treatments for these blinding eye conditions to be not only developed further but also made available to patients attending our clinical facility.

The clinical services and clinical research at the LEI are only made possible by the dedication and professionalism of our staff and clinical coordinators in both the clinic and theatre areas.

Clinical Trials



Summary

The Lions Eye Institute conducts a range of clinical trials which are approved by a Human Research Ethics Committee and meet stringent national and international guidelines.

Clinical trials can include the testing of new drugs or new devices, the collection of information from patients to improve understanding of a particular condition or a review of patient notes to establish treatment outcomes and highlight areas where improvements can be made.

Staff

- Caroline Adams**
Clinical Trials Manager
- Amira Romanowski**
Study coordinator
- Cora Pierce**
Study coordinator
- Kate Maslen**
Study coordinator
- Elizabeth Argentieri**
Study coordinator
- Diana Bowman**
Admin assistant

Studies

FOVEA Study

A 6-month, phase 2, double-masked, multicentre, randomised, placebo-controlled, parallel group study to assess the safety and efficacy of topical administration of two concentrations of FOV2304 (1% and 2%) twice daily for the treatment of centre-involving clinically significant macular oedema associated with diabetic retinopathy.

This is a six month study for patients who have diabetic macular oedema involving the centre of the macula in at least one eye and will not benefit from (further) laser treatment. The primary aim of the study is to determine whether eye drops of FOV2304 at concentrations of 1% BID or 2% BID are more effective than placebo in decreasing mean central retinal thickness following 12 weeks of treatment for patients with DME.

Principal Investigator:

Prof Ian McAllister

Sponsor: FOVEA Pharmaceutical FA

Condition: Diabetic macular oedema

VIVID Study (DME)

A randomised, double masked, active controlled, phase 3 study of the efficacy and safety of repeated doses of intravitreal VEGF Trap-Eye in subjects with diabetic macular oedema.

The VIVID study is testing the safety and efficacy of an investigational study medication for the treatment of diabetic macular oedema. The study will be assessing the potential benefit of VEGF trap-eye, an intravitreal treatment (an injection into the back of the eye), compared with standard of care laser treatment in improving best corrected visual acuity in subjects with diabetic macular oedema with central involvement.

Principal investigator:

Prof Ian McAllister

Sponsor: Bayer Healthcare

Condition: Diabetic macular oedema

BEVORDEX

A multicentre randomised clinical trial of intravitreal bevacizumab (Avastin®) versus intravitreal dexamethasone (Ozurdex™) for persistent diabetic macular oedema. The primary aim of the study is to compare the visual acuity outcomes from both treatments to ascertain whether one treatment is more effective than the other.

Principal investigator:

Prof Ian McAllister

Coordinating site:

Save Sight Institute

Condition: Diabetic macular oedema

LUMINOUS

A study to observe the effectiveness and safety of Lucentis® through individualized patient treatment and associated outcomes. This observational study will research the long term effects of ranibizumab, including effects on visual acuity, treatment patterns, quality of life and adverse events.

Principal investigator:

Prof Ian McAllister

Sponsor: Novartis

Condition: Patients being treated with ranibizumab

Allergan RVO Study

A 12-Month, Multicenter, 2-Stage (Open Label, Dose-Escalation, Followed by Masked, Randomized) single dose study of the safety and efficacy of AGN-208397 in patients with macular oedema associated with retinal vein occlusion.

The aim of this study is to evaluate the effects of treatment on retinal oedema and improvement of best corrected visual acuity as well as the safety of AGN-208397 as a treatment for macular oedema associated with retinal vein occlusion.

Principal investigator:

Prof Ian McAllister

Sponsor: Allergan

Condition: Macular oedema associated with retinal vein occlusion

Abbott Uveitis Study

A multicenter study of the efficacy and safety of the Human Anti-TNF Monoclonal Antibody Adalimumab as maintenance therapy in subjects requiring high dose corticosteroids for active non-infectious intermediate, posterior, or pan-uveitis. The aim of the study is to evaluate the efficacy and safety of patients receiving Adalimumab compared to patients receiving a placebo.

Principal investigator:

Assoc Prof Mei-Ling Tay-Kearney

Study Sponsor: Abbott

Condition: Active or inactive non-infectious intermediate or posterior or pan-uveitis

View2 Study

A randomised, double masked, active controlled, phase 3 study of the efficacy, safety, and tolerability of repeated doses of intravitreal VEGF Trap-Eye in subjects with neovascular age-related macular degeneration. The main objective of the study is to assess and compare VEGF Trap Eye to Lucentis® in preventing moderate vision loss.

Principal investigator:

Prof Ian McAllister

Sponsor: Bayer Schering Pharma

Condition: Wet macular degeneration

Galileo Study

A randomised, double-masked, sham-controlled phase 3 study of the efficacy, safety and tolerability of repeated intravitreal administration of VEGF Trap-Eye in subjects with macular oedema secondary to central retinal vein occlusion.

The primary aim of the study is to determine the treatment effect of VEGF Trap-eye on best corrected visual acuity and macular oedema.

Principal investigator:

Prof Ian McAllister

Sponsor: Bayer Schering Pharma

Condition: Macular oedema secondary to central retinal vein occlusion

GSK Study 852

A phase 2b dose-ranging study of pazopanib eye drops versus ranibizumab intravitreal injections for the treatment of neovascular age-related macular degeneration.

The aim of the study is to see whether daily-dosed pazopanib eye drops can maintain or possibly improve vision while reducing the need for Lucentis® injections.

Principal investigator:

Prof Ian Constable

Study Sponsor: GlaxoSmithKline

Condition: Neovascular age-related macular degeneration

The Mactel Study

A natural history observation and registry study of macular telangiectasia type 2. The natural history observation study is a long term study aimed at attaining a better understanding of the condition by examining the features and changes of this condition over 5-10 years.

Principal investigator:

Prof Ian Constable

Sponsor: The MacTel Foundation

Condition: Macular telangiectasia type 2

L-BRVO Study

The efficacy and safety of treatment with intravitreal ranibizumab in patients with branch retinal vein occlusion. The outcomes of the study are measured by changes in visual acuity and macular thickness between the two treatment arms.

Principal investigator:

Prof Ian McAllister

Sponsor: Investigator Initiated Study

Condition: Macular oedema secondary to a branch retinal vein occlusion

Fight Retinal Blindness (FRB) Study

This is a national project that aims to establish a national prospective system to monitor, track and evaluate treatment outcomes for macular disease. Currently the project is focussing on wet macular degeneration. The data from consenting patients' notes is collected and recorded in a database that has been developed for the study. The database is able to track a patient's progress with regard to their treatment, and will potentially be developed as a valuable tool in clinical practice.

Principal investigator:

Prof Ian McAllister

Sponsor: NHMRC grant

Condition: Macular disease

Our Clinical Services



OUR VOLUNTEERS

The Lions Eye Institute continued to provide high quality care to the community in 2011.

A number of services expanded which allowed the clinic to be divided into smaller sub-speciality units, benefiting clinicians and patients.

We have continued providing a service to patients with macular degeneration by introducing special clinics for treatment options, such as intravitreal injections.

In 2011, the LEI began scanning and digitalising medical records to allow for improved service delivery and access to patient files. This project will continue over the next 12 months.

The volunteers provided excellent assistance to our patients and staff. This service has grown over the year and we are grateful to have their help at call.

Our Murdoch clinic continues to provide an excellent service to our patients south of the river.

The staff and clinicians make the service what is today and we continue to strive for a high level of safety and quality.

The LEI's Clinical Services Division has received ISO9001 accreditation as part of current world's best practice for delivery of outstanding patient care. Patients who receive treatment at our Day Surgery Unit, Laser Vision Centre and Patient Clinic do so in the knowledge that they receive expert and personal care.

Volunteers

Our team of dedicated volunteers contributed their time and expertise during 2011.

Changes to the QEII site have created challenges for patients and visitors and the assistance of our volunteers has played a major part in minimising these disruptions.

Thank you to all our volunteers who are a valued and important part of the Institute.

Lions Optics

Lions Optics is located next to the Lions Eye Institute and provides comprehensive eye examinations as well as offering a wide range of spectacles, accessories, contact lenses, sunglasses and low vision aids.

Now in its second decade of operation, all profits are directed to the LEI's research programs. Lions Optics offers the combined expertise of two optometrists and a qualified optical dispensing technician, ensuring all clients receive the highest standard of clinical care.

Lions Optics has an onsite laboratory for both major and minor repairs, many of which can be completed within a minimal waiting time.

Lions Optics uses the HICAPS direct claiming system which is compatible with many health funds throughout Australia and most eye examinations can be directly bulk billed to Medicare.

Clinicians

The LEI's international reputation for clinical excellence attracts over 30,000 patients each year from both Australia and overseas. The clinic is one of the largest group ophthalmic practices in Australia with an unrivalled skill base. Our standard of clinical care is world class and patients are assured of receiving the best possible treatment.

The LEI's ophthalmologists provide substantial services to both private and public patients in Western Australia including consultant sessions within each of Perth's teaching public hospitals. The LEI has long standing affiliations with Sir Charles Gairdner Hospital, Royal Perth Hospital and Fremantle Hospital.

The LEI remains committed to providing quality ophthalmic care overseas. Since 1983 the LEI has provided subspecialty skills training for ophthalmologists from over 30 nations.

Supported by a dedicated clinical services staff, the LEI clinic provides crucial funds that contribute to the costs of running an integrated research program.



Dr Tim Isaacs

Vitreoretinal surgery, diabetic retinopathy, macular degeneration, retinal vascular disease

After training in ophthalmology in London, Dr Isaacs completed sub-specialty training in vitreoretinal surgery at Royal Perth Hospital and Sir Charles Gairdner Hospital. He is a consultant ophthalmologist at Royal Perth Hospital and Princess Margaret Hospital, and also practises at LEI's satellite clinic at Murdoch. He also operates on public patients at Armadale Hospital. His research interests include the evaluation of new therapies for diabetic retinopathy and macular degeneration. Dr Isaacs is a member of the Ocular Oncology Special Interest Group of RANZCO and the local coordinator for a national study of new treatments for choroidal melanomas.



Professor Ian Constable AO

Vitreoretinal surgery, retinal vascular disease, diabetic retinopathy, macular degeneration

Professor Constable trained in ophthalmology in New South Wales before moving to Harvard University and the Massachusetts Eye and Ear Infirmary in Boston USA where he spent five years as a Clinical and Research Fellow, then Lecturer and Acting Head of the Retinal Service. He became the Foundation Professor of Ophthalmology at The University of Western Australia in 1975 and built the clinical and research teams which now constitute the Lions Eye Institute.

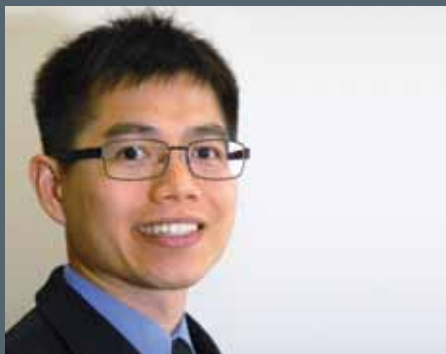
He has held many global leadership positions in ophthalmology including President of the Asia-Pacific Academy of Ophthalmology, current president of the Asia Pacific Vitreoretinal Society, a Member of the International Council of Ophthalmology and a Member of the Academia Ophthalmologica Internationalis. He maintains a busy clinical practice at Sir Charles Gairdner, Princess Margaret and St John of God Hospitals and he is extensively involved in gene therapy research for retinal diseases. He was Managing Director of the Lions Eye Institute from 1983 to 2009.



Professor Graham Barrett

Keratorefractive surgery, corneal and anterior segment disorders and surgery

Trained in ophthalmology in Perth, Western Australia, Professor Barrett undertook specialty training in the USA. He is a consultant ophthalmic surgeon and Head of Department at Sir Charles Gairdner Hospital. Professor Barrett is founding and current president, Australasian Society of Cataract & Refractive Surgeons and president, Asia Pacific Association of Cataract and Refractive Surgeons. He is the recipient of major international awards including the Ridley Medal (European Society of Cataract & Refractive Surgeons), the Binkhorst Medal (American Society of Cataract & Refractive Surgeons) and the Ridley Medal (Congress of German Ophthalmic Surgeons).



Associate Professor Fred Chen

Vitreoretinal Surgery, macular degeneration, diabetic retinopathy

Associate Professor Chen was trained in ophthalmology in Western Australia before moving to London where he spent over four years as a research and clinical fellow at the UCL Institute of Ophthalmology and Moorfields Eye Hospital. He completed a PhD at the University College of London studying surgical techniques of retinal pigment epithelium transplantation for treatment of dry and wet macular degenerations.

Associate Professor Chen, also a Consultant Vitreoretinal Surgeon at Royal Perth Hospital, is currently continuing his research interest in retinal cell transplantation for macular degeneration and functional retinal imaging in macular diseases at the Lions Eye Institute.



Professor Geoffrey Crawford

Corneal & Refractive surgery; cataract surgery

Professor Crawford completed his ophthalmic training in Western Australia and is a Fellow of the Royal Australian and New Zealand College of Ophthalmologists and a Fellow of the Royal Australasian College of Surgeons. He completed further sub-specialty training in Oculoplastic Surgery at Moorfields Eye Hospital in London and then Cornea and Refractive Surgery at Emory University in Atlanta, Georgia, USA. He is the Director of Surgical Services and the Director of the Laser Vision Centre at the Lions Eye Institute and is a Consultant Ophthalmic surgeon at Royal Perth Hospital and Princess Margaret Hospital.

Professor Crawford has held many positions within RANZCO including Director of Continuing Professional Development, Chairman of the Programme Committee and Chairman of Examiners. He is a co-inventor of the AlphaCor™ artificial cornea and AlphaSphere™ orbital implant and developed the techniques for insertion of these devices. He also introduced LASIK surgery into Western Australia. He serves on the committees of the Australian and New Zealand Cornea Society and the Asia Cornea Society.

Clinicians



Dr Jean-Louis deSousa

Oculoplastics, orbital and lacrimal surgery, cosmetic eyelid surgery and non-surgical periocular rejuvenation

Dr deSousa trained in ophthalmology in Perth before completing fellowships in ophthalmic plastic and reconstructive surgery in Oxford and East Grinstead in the UK. He is a member of the Australian and New Zealand Society of Ophthalmic Plastic Surgeons. A consultant ophthalmologist at Royal Perth Hospital, he also provides ophthalmic services to the Central Wheatbelt from Merredin. Dr deSousa is the WA representative for continuing professional development and a basic sciences examiner for RANZCO.



Dr Adam Gajdatsy

Oculoplastic, orbital, lacrimal and cosmetic eye surgery

Dr Gajdatsy trained in ophthalmology in Western Australia before undertaking fellowship training in oculoplastic, lacrimal and orbital surgery at the University Hospital of Wales, Cardiff, and Moorfields Eye Hospital, London. He is consultant ophthalmic surgeon at Sir Charles Gairdner Hospital and an honorary consultant ophthalmologist at Princess Margaret Hospital.

Dr Gajdatsy is a State Councillor for RANZCO, Western Australian Director of Training for RANZCO, Fellow and Executive member of the Australian and New Zealand Society of Ophthalmic Plastic Surgeons, coordinator of ophthalmology teaching and adjunct clinical associate professor at UWA. His research interests currently include novel methods of eyelid reconstruction and tear drainage following chemotherapy for breast cancer, and genetics of uveal melanoma.



Dr Antonio Giubilato

Glaucoma

After training in ophthalmology in Perth, Western Australia, Dr Giubilato underwent specialty fellowship training in glaucoma at the Royal Victorian Eye and Ear Hospital. This included both clinical and surgical management of glaucoma as well as research into new therapies for the condition. He is presently consultant ophthalmologist in the Glaucoma Clinic at Royal Perth Hospital and also operates at Bentley Hospital for public patients. Dr Giubilato is currently an LSSF Board Member and the Western Australian representative on the board of ANZGIG.



Professor David Mackey
Hereditary and genetic eye diseases

Professor Mackey is the Managing Director of the Lions Eye Institute and Professor of Ophthalmology/Director of the Centre for Ophthalmology & Visual Science at The University of Western Australia.

Professor Mackey is a world authority on the genetics of eye disease, with his research extending beyond the laboratory to cascade genetic screening for at-risk individuals. He was born and educated in Tasmania, studying Medicine at the University of Tasmania. After resident years in Launceston he trained in Ophthalmology at the Royal Victorian Eye and Ear Hospital, subsequently doing a fellowship in Paediatric and Genetic eye diseases at the Royal Children's Hospital where he completed his MD thesis. After fellowships at the Johns Hopkins Center for Hereditary Eye Diseases in Baltimore and Moorfields Eye Hospital and the Great Ormond Street Hospital for Sick Children in London, Professor Mackey returned to Australia to specialise in Genetic Eye Diseases. He sees patients at the Lions Eye Institute for second opinions on rare genetic eye diseases and more common genetic eye diseases involving new genetic research.



Professor Ian McAllister
Vitreoretinal surgery, retinal vascular disease, diabetic retinopathy, macular degeneration, ocular trauma

Professor McAllister undertook training in Western Australia with additional sub-specialty training in vitreoretinal disorders in the USA. He is Director of Clinical Services at the LEI and a consultant ophthalmologist at Royal Perth and Sir Charles Gairdner Hospitals. Professor McAllister is actively involved in research for cures for vitreoretinal disorders, especially retinal vascular disorders, and has held ten NHMRC grants in this area as well as numerous minor grants. He has published over 90 papers in scientific journals and has been involved for many years in state-wide diabetic retinopathy screening and treatment services and coordinates and reviews photographs from diabetic screening in remote parts of Western Australia.



Professor William Morgan
Glaucoma, ophthalmic public health

Initially trained in Perth, Western Australia, Professor Morgan undertook his fellowship at the Centre for Ophthalmology and Visual Science based at LEI. He is Head of Department of Ophthalmology and consultant ophthalmologist at Royal Perth Hospital, consultant ophthalmologist at Princess Margaret Hospital, a Professor at UWA and also Co-Director of LEI's McCusker Glaucoma Centre. He has completed a PhD studying the response of the optic nerve to pressure, particularly in relation to glaucoma. Professor Morgan maintains an active research interest in glaucoma as well as in the epidemiology of blinding eye disease and eye diseases within Aboriginal populations.

Clinicians



**Associate Professor
Mei-Ling Tay-Kearney**

Ocular infections, uveitis
and inflammatory disorders
of the eye

Associate Professor Tay-Kearney completed her medical and ophthalmological training in Perth, Western Australia before pursuing postgraduate study at Johns Hopkins Hospital in Baltimore, USA. She is an Associate Professor at COVS/UWA and a member of The International Society for Ocular Inflammation, as well as the Australian Uveitis Study Group. She holds the Chair of Qualifications and Education as well as an Examiner for the RANZCO Part 2 College examinations.



**Associate Professor
Steven Wiffen**

Corneal and refractive surgery,
anterior segment disorders and
surgery, ocular surface disorders

Associate Professor Wiffen trained in ophthalmology in Western Australia before undertaking fellowships at the Corneo-Plastic Unit, East Grinstead, UK, and at the Mayo Clinic, Rochester, Minnesota, USA. Dr Wiffen is a Consultant Ophthalmologist at Fremantle Hospital and Associate Professor at UWA. He is Director of the Lions Eye Bank of Western Australia.

Lions Save-Sight Foundation

A year of change and review

The year under review has seen changes occur in the leadership of the Lions Save-Sight Foundation (WA) Inc familiarly known as LSSF.

The untimely death of PDG Lorraine Strickland in January 2011 resulted in my election as Chairman.

In June, Lion Elsie Constantine resigned as Hon. Secretary and LSSF Office Manager Gail Mason has taken on the role until a permanent replacement is found.

It is some time since a major review of the activities of the LSSF was undertaken. With a new Chairman and a different set of eyes, it is an ideal time to commence a drive in this direction.

We need to ensure our major projects of glaucoma screenings, collecting used glasses for redistribution to countries in need and raising funds to support our various causes are undertaken in an efficient manner.

We need to halt the decline in numbers whom we screen for glaucoma and establish eye health screening programs that reflect current health issues – diabetic retinopathy being an example.



LSSF CHAIRMAN AMBROSE DEPIAZZI

While the numbers of glasses we currently receive and send to countries in need has grown astronomically, we need to further enhance this valuable program. For thousands of people this is the only opportunity they have of being able to see again and we thank our Lions Clubs of Western Australia for their support.

Our funding towards the continuance of the Lions Chair of Ophthalmology, salary of the Director of Research, co-funding of the Post Doctoral Brian King Fellowship and our full backing of the Jack Hoffman Scholarship absorbs a major portion of our ongoing funds – areas that are critical in our support of the Lions Eye Institute and will always be a priority for our Foundation.

As a Foundation, we are proud to work in conjunction with the Lions Eye Institute to ensure future generations, through our efforts and research, are given every opportunity to avoid a world of darkness and a life of diminished quality. When Lions accepted the challenge of Helen Keller in 1925 to become “Knights for the Blind” she would have expected nothing less of us.

A handwritten signature in black ink that reads "Ambrose Depiazzi".

Ambrose Depiazzi
CHAIRMAN
LSSF

Our Supporters

The Lions Eye Institute is grateful for the generous support of all our supporters and donors who made a contribution in 2011.

This vital support allows us to continue our investment into the prevention and treatment of sight threatening diseases.

Thank you to our corporate supporters who contribute through staff and matched giving programs, and to our regular donors.



RETIRED OPHTHALMOLOGIST DR RAY WHITFORD DONATED HIS EQUIPMENT TO THE NEW LINTON LIBRARY

We would especially like to acknowledge the substantial contribution made by the individuals listed below and organisations supporting our Capital Fundraising Campaign. We also thank those who wish to remain anonymous.

Lotterywest
Wesfarmers
McCusker Charitable Foundation
The Stan Perron Charitable Foundation
The Constantine Family Foundation
Balance Legal
Content Living
CKA Risk Solutions
Calibre Global
Freehills Foundation
Mecciv Construction
WAFEX
David and Kathy Aspinall
William Bloking
Bruno Camarri
Associate Professor Fred Chen
Dr Jean-Louis deSousa
Professor Ian McAllister

Trusts and Foundations

The ongoing support from Trusts and Foundations provide crucial funding for our staff and students and allows us to continue to conduct important research projects that will make a real difference to advancing eye health. Our sincere thanks to these contributors.

Joyce Henderson Trust
Shepherd Family Trust
McCusker Charitable Foundation
Channel 7 Telethon Trust
Honda Foundation
Sylvia and Charles Viertel
Charitable Foundation
Lions Save-Sight Foundation
Australian Foundation for the
Prevention of Blindness



The Alan & Lilian Cameron Charitable
Endowment - managed by Perpetual
Harry and Margaret Kerman Trust
Fund - managed by Perpetual



MS LIZA HARVEY MLA,
PROFESSOR MACKAY AND
PROFESSOR GEOFF LAM WITH
THE JOYCE HENDERSON TRUSTEES

Bequests

The Institute is grateful to those who have been inspired to make a bequest to the LEI. Such gestures are very much appreciated and we acknowledge with gratitude those who bequeathed to LEI during 2011.

Legacy of sight

Joyce Henderson spent a lifetime giving to people less fortunate than herself, and even in death, her legacy continues.

The Joyce Henderson Trust has gifted \$3 million to the LEI to create the Joyce Henderson Paediatric Ophthalmology Fellowship for a final year ophthalmology trainee or Fellow who wishes to specialise in paediatric ophthalmology, with investment of the funds ensuring the Fellowship will continue in perpetuity.

Joyce Henderson was a leading figure in the local Anglican parish and among her many contributions to the local community was the construction of the Henderson Environment Centre, housed within a beautiful local reserve. Her friendship with leading WA ophthalmologist Mary Bremner sparked her personal interest in eye health.

The bequest will allow a final year trainee to conduct clinical work at Princess Margaret Hospital, as well as research through the LEI.

In the Media



TONYA MCCUSKER AND FAMILY VISIT THE LEI AS PART OF A CHANNEL 7 STORY

15.12.2011
Bequest injects \$3 million into prevention of eye injury in children

The Joyce Henderson Trust has gifted \$3 million to the LEI to create the Joyce Henderson Paediatric Ophthalmology Fellowship.

16.11.2011
LEI develops new global partnerships

The Lions Eye Institute continues to develop international partnerships with some of the world's leading medical researchers.

21.10.2011
Prestigious speaker presents annual Ian Constable Lecture

The guest speaker for the 2011 Ian Constable lecture was Professor Ian Frazer, CEO of the Translational Research Institute in Brisbane, and co-creator of the technology for cervical cancer vaccines.

19.10.2011
LEI wins top business award

The Lions Eye Institute has won Best Not for Profit Organisation at the Subiaco Business Association's SUBIZ Awards against a highly competitive field.

26.08.2011
Channel 7 film the Governor of WA

Malcolm McCusker and his family at the LEI as part of a Today Tonight feature on the McCusker's charitable activities.

28.11.2011
Lions Eye Institute prepares to make its next leap forward in cure for blindness

The *Building the Vision* capital fundraising campaign was formally launched at the Old Sunset Hospital in Dalkeith on Friday, November 25.

01.11.2011
More time outdoors may reduce children's risk for nearsightedness

New international research, co-authored by LEI MD Professor David Mackey shows that children who spend more time outdoors enjoy reduced rates of nearsightedness, or myopia.

20.10.2011
LEI researchers secure more than \$6 million in NHMRC grants

Researchers at the Lions Eye Institute have secured more than \$6 million from the NHMRC to conduct a range of important investigations into eye disease.

04.10.2011
LEI chief named new president of prestigious international society

Professor David Mackey elected President of the International Society for Genetic Eye Diseases and Retinoblastoma (ISGEDR).



CHRIS BARRY'S AWARD
WINNING PHOTO

18.08.2011
**Lions Eye Institute
photographer
wins coveted
national award**

LEI clinic photographer Chris Barry named Australian Science, Environment and Nature Photographer of the Year.

06.06.2011
**Australian
researchers in
glaucoma gene
advance**

Australian researchers have unlocked part of the genetic code for open-angle glaucoma, which could lead to reductions in the rate of glaucoma blindness.

29.04.2011
**LEI staff join
charity ride**

A team from the LEI hit the Gibb River Road to put their muscles to the test in a bid to raise \$10,000. Funds raised were split between WA Police Legacy and the Indigenous and Remote Eye Health Unit.

18.02.2011
**The Lions
Eye Bank of
WA Supports
DONATELIFE
Week 2011**

As a DonateLife Partner, the Lions Eye Bank was proud to support the first Australian DonateLife Week to increase Australia's organ and tissue donation rates.

20.01.2011
**Lions Youth
of the Year
Winners Tour LEI**

Six 2010 Lions Youth of the Year State winners and the National Leo of the Year visited the LEI as part of their national tour.

30.06.2011
**Lions Eye Bank
celebrates 25
years of the
gift of sight**

July 1 marked the 25th anniversary of the Lions Eye Bank of WA.

17.05.2011
**LEI researcher
awarded 2011
Brian King
Fellowship**

LEI researcher Dr Matthew Wikstrom has beaten an international field to secure the prestigious PDG Brian King Post Doctoral Fellowship for 2011.

23.02.2011
**LEI supports
World Glaucoma
Week**

North West Shelf Australia LNG President Phil Byrne visited the LEI during World Glaucoma Week to help highlight the risk of glaucoma.

02.01.2011
New Faces at LEI

The LEI welcomed our newest ophthalmologists, Dr Fred Chen and Dr Angus Turner.

Appointments, awards and honours

Assistant Professor Christopher Andoniou

Appointments: Assistant Professor, The University of Western Australia; Member, Australasian Society for Immunology.

Awards: Recipient, Program Grant.

Dr Chandrakumar Balaratnasingam

Awards: 2011 Robert Street Prize.

Professor Graham Barrett

Appointments: Head of Department; Consultant Ophthalmologist, Sir Charles Gairdner Hospital; Professor, The University of Western Australia; President, Asia Pacific Association of Cataract and Refractive Surgeons; President, Australasian Society of Cataract and Refractive Surgeons; Secretary, International Intraocular Implant Club; Member, American Society of Cataract and Refractive Surgery; Member, European Society of Cataract and Refractive Surgery; Member, International Society of Refractive Keratoplasty; Treasurer, International Intraocular Implant Club.

Mr Chris Barry

Appointments: Managing Editor, Journal of Ophthalmic Photography; Fellow, Ophthalmic Photographers' Society; Fellow, Australian Institute of Medical and Biological Illustration.

Awards: Australian Institute of Professional Photography 2011 Nature and Science Professional Photographer of the Year; Australian Institute of Medical and Biological Illustration: 2011; Best overall medical picture, plus two gold awards; Institute of Medical Illustration (UK) winner Affiliate Award; American Academy of Ophthalmology/Ophthalmic Photographer's Society Scientific Exhibit 2011: 1st prize Cross Categories, 1st prize Clinical Setting; American Society of Cataract and Refractive Surgery; 1st prize Cross Categories.

Associate Professor Fred Chen

Appointments: Consultant Ophthalmologist, Royal Perth Hospital; Consultant Ophthalmologist, Princess Margaret Hospital; Associate Professor, The University of Western Australia.

Professor Ian Constable

Appointments: Professor of Ophthalmology, The University of Western Australia; Consultant Ophthalmologist, Sir Charles Gairdner Hospital; Consultant Ophthalmologist, Princess Margaret Hospital; President, Asia Pacific Vitreoretinal Society; Council Member & Regional Secretary, Asia Pacific Academy of Ophthalmology; Member, Academia Ophthalmologica Internationalis; Member State Health Research Advisory Committee; Member, Scientific Advisory Board Western Australia Institute of Medical Research; Board Member, Loewe Medical Foundation; Member, Executive Committee and Scientific Advisory Committee, International Macular Telangiectasia project.

Professor Geoffrey Crawford

Appointments: Professor of Ophthalmology, The University of Western Australia; Consultant Ophthalmic Surgeon, Royal Perth Hospital; Consultant Ophthalmic Surgeon, Princess Margaret Hospital; Director of Surgical Services; Director, Laser Vision Centre, Lions Eye Institute Limited; Director, Lions Save-Sight Foundation; Executive Committee Member, Australian Society of Cataract and Refractive Surgeons; Executive Committee member, Royal Australian and New Zealand College of Ophthalmologists (WA Branch); Executive Committee Member, Australian and New Zealand Cornea Society.

Awards: Visiting Professor, National University of Singapore and Singapore National Eye Centre June 2011.

Professor Mariapia Degli-Esposti

Appointments: Division Head, Experimental Immunology, Centre for Ophthalmology and Visual Science, The University of Western Australia; Director of Research, Lions Eye Institute Limited; Member, Research Committee, Raine Medical Research Foundation; Member, Strategic Research Advisory Group, Faculty of Medicine, Dentistry and Health Sciences, The University of Western Australia; Member, International Scientific Committee for 13th Meeting of the Society for Natural Immunity; Member, National Advisory Committee, Lorne Infection and Immunity Conference.

Associate Professor Adam Gajdatsy

Appointments: Associate Professor; Teaching Coordinator, Ophthalmology; Postgraduate Anatomy Lecturer, The University of Western Australia; Executive Board Member, ANZSOPS; Fellow, Australian and New Zealand Society of Ophthalmic Plastic Surgeons; Honorary Consultant Ophthalmologist, Princess Margaret Hospital; RANZCO training supervisor, Consultant Ophthalmic Surgeon, Sir Charles Gairdner Hospital; Director of Training WA network; Fellow; State Councillor, Royal Australian and New Zealand College of Ophthalmologists; International Member, American Academy of Ophthalmology; Member, Royal College of Physicians of the UK.

Dr Tim Isaacs

Appointments: Fellow, Royal Australian and New Zealand College of Ophthalmologists; Consultant Ophthalmologist, Royal Perth Hospital; Fellow, The Royal College of Ophthalmologists (UK).

Professor Ian McAllister

Appointments: Board Member; Director, Clinical Services; Consultant Ophthalmologist, Lions Eye Institute Limited; Director, Australian Foundation for the Prevention of Blindness; Professor of Ophthalmology, Centre of Ophthalmology and Visual Science, The University of Western Australia; Fellow, Royal Australian and New Zealand College of Ophthalmologists; Member, Royal Australian College of Surgeons; Visiting Consultant Ophthalmologist, Cocos Keeling Islands and Christmas Island, Indian Ocean; Consultant Ophthalmologist, Royal Perth Hospital; Consultant Ophthalmologist, Sir Charles Gairdner Hospital; Member, American Academy of Ophthalmology; Member, Australian Medical Association; Member, Cleveland Ophthalmological Society; Member, Northern Greece Ophthalmological Society; Member, Oceanic Retina Association Member, Retina Society.

Winthrop Professor David Mackey

Appointments: Chair of Ophthalmology, The University of Western Australia; Director, Centre for Ophthalmology and Visual Science, The University of Western Australia; Managing Director Lions Eye Institute Limited; Board Member, Lions Eye Institute Limited; State Director of Eye Services, Western Australian Department of Health; Member of WA State Government Neurosciences and The Senses Health Network eye health advisory group; President, International Society for Genetic Eye Disease and Retinoblastoma; State Chair, Western Australian branch, Royal Australian and New Zealand College of Ophthalmologists; Fellow, Royal Australian and New Zealand College of Ophthalmologists;



DR MATTHEW WIKSTROM WITH LSSF
CHAIRMAN AMBROSE DEPIAZZI

Examiner (Genetics), Royal Australian and New Zealand College of Ophthalmologists; Member of Basic and Clinical Science Course (BCSC) Sect. 2 Subcommittee, Fundamentals and Principles of Ophthalmology, American Academy of Ophthalmology.

Awards: Asia-Pacific Academy of Ophthalmology Distinguished Service Award 2011.

Professor William Morgan

Appointments: Board Member, Australian New Zealand Glaucoma Interest Group.

Honorary Ophthalmic Consultant to the Board of Directors, Association for the Blind of Western Australia; Fellow, Royal Australian and New Zealand College of Ophthalmologists;

Consultant Ophthalmologist, Lions Eye Institute Limited; Head of Department of Ophthalmology, Consultant Ophthalmologist, Royal Perth Hospital; Consultant Ophthalmologist, Princess Margaret Hospital; Professor, The University of Western Australia; Associate Professor, Curtin University; Member Assessment Panel, Training Awards Committee; NHMRC Fellowship review panel member.

Winthrop Professor Elizabeth Piroska Rakoczy

Appointments: Member, NHMRC Fellowship Committee; Member, Organising Committee, International Society for Eye Research.

Associate Professor Angus Turner

Appointments: Consultant Ophthalmologist, Fremantle Hospital; Associate Professor, The University of Western Australia.

Dr Sarojini Vijayasekaran

Appointments: Associate Professor (Adjunct), The University of Western Australia.

Associate Professor Steven Wiffen

Appointments: Director, Lions Eye Bank of Western Australia; Consultant Ophthalmologist, Fremantle Hospital; Associate Professor, The University of Western Australia.

Assistant Professor Matthew Wikstrom

Appointments: Assistant Professor, The University of Western Australia.

Awards: Research Fellowship, McCusker Charitable Foundation; PDG Brian King Post Doctoral Fellowship.

Collaborators and visitors

GENETICS AND POPULATION HEALTH

Visitors

Professor Brendan Vote – Visiting Professor, University of Tasmania

Collaborators

Dr Kathryn Burdon – Flinders University, Adelaide

Professor Minas Coroneo – University of Sydney, Sydney

Dr Jamie Craig – Flinders University, Adelaide

Professor Jonathan Crowston – Centre for Eye Research Australia, University of Melbourne, Royal Victorian Eye and Ear Hospital, Melbourne

Dr Elizabeth Engel – Howard Hughes Medical Institute Engle Lab and Center for Strabismus Research, Children's Hospital, Boston USA

Dr Jeremy (Jez) Guggenheim – University of Cardiff, Cardiff UK

Professor Chris Hammond – King's College London School of Medicine, London UK

Dr Alison Hardcastle – UCL Institute of Ophthalmology, London UK

Professor Mingguang He – Zhongshan Ophthalmic Centre, Sun Yat-sen University, Guangzhou China

Dr Alex Hewitt – Centre for Eye Research Australia, University of Melbourne, Royal Victorian Eye and Ear Hospital, Melbourne

Dr Simon John – The Jackson laboratory, Bar Harbor, Maine USA

Dr Geoff Lam – Princess Margaret Hospital, Perth

Dr Stuart MacGregor – Queensland Institute of Medical Research, Brisbane

Professor Nick Martin – Queensland Institute of Medical Research, Brisbane

Professor Paul Mitchell – Centre for Vision Research, Department of Ophthalmology and Westmead Millennium Institute, University of Sydney, Sydney

Professor Grant Montgomery – Queensland Institute of Medical Research, Brisbane

Professor Anthony (Tony) Moore – Institute of Ophthalmology, University College London UK

Associate Professor Craig Pennell – School of Women's and Infants' Health, The University of Western Australia, Perth

Professor Carmel Toomes – Leeds Institute of Molecular Medicine, Leeds University, Leeds UK

Professor Ian Trounce – Centre for Eye Research Australia, University of Melbourne, Royal Victorian Eye and Ear Hospital, Melbourne

Dr Rohit Varma – Doheny Eye Centre, Los Angeles, California USA

Dr Cathy Williams – University of Bristol, Bristol UK

Dr Mary Wirtz – Oregon Health & Science University, Portland, Oregon USA

Professor Tien Wong – Singapore Eye Research Institute, Singapore

Dr Terri Young – Duke University Medical Centre, Durham, North Carolina USA

CENTRE FOR EXPERIMENTAL IMMUNOLOGY

Visitors

Professor Marc Dalod – Centre d'Immunologie de Marseille-Luminy, France

Professor Ian Frazer – Diamantina Institute, University of Queensland, Brisbane

Collaborators

Professor Matt Brown – Diamantina Institute, University of Queensland, Brisbane

Professor John Forrester – University of Aberdeen, Scotland UK

Professor Chris Goodnow – Australian National University, Canberra

Professor Geoff Hill – Bone Marrow Transplant Laboratory, Queensland Institute of Medical Research, Brisbane

Dr David Huang – Molecular Genetics of Cancer Division, The Walter and Eliza Hall Institute of Medical Research, Melbourne

Professor Paul McMenamin – Department of Anatomy and Developmental Biology, Monash University, Melbourne

Professor Mark Smyth – Cancer Immunology Program, Peter MacCallum Cancer Centre, Melbourne

Professor Joseph Trapani – Cancer Immunology Program, Peter MacCallum Cancer Centre, Melbourne

Professor Ranjeny Thomas – Diamantina Institute, University of Queensland, Brisbane

Professor George Yeoh – The University of Western Australia, Perth

Professor Laurence Zitvogel – Institut Gustave Roussy, Villejuif, France

MOLECULAR OPHTHALMOLOGY

Collaborators

Professor Chong-Lye Ang - Singapore Eye Research Institute, Singapore

Dr Lee Shu Yen - Singapore Eye Research Institute, Singapore

Dr Nigel Barnett - Vision, Touch and Hearing Research Centre, School of Biomedical Sciences, University of Queensland, Brisbane

Professor Miranda Grounds - School of Anatomy and Human Biology, The University of Western Australia, Perth

Professor Kristina Narfstrom - College of Veterinary Medicine, University of Missouri, Columbia USA

Professor Jude Samulski - University of North Carolina USA

Professor Luis Serrano - Centre for Genomic Research, Barcelona Spain

PHYSIOLOGY AND PHARMACOLOGY

Visitors

Professor Trevor Lamb - Australian National University, Canberra

Collaborators

Professor Balawantray Chauhan - Dalhousie University, Nova Scotia Canada

Professor Tom Gardner - Penn State University, Pennsylvania USA

Professor Wenyi Guo - Fudan University, Shanghai China

Professor Mark Humayun - Doheny Eye Institute, Los Angeles, California USA

Professor Trevor Lamb - Australian National University, Canberra

Professor Jonathan Stone - Sydney University, Sydney

Professor Jan Provis - Australian National University, Canberra

Professor Xinghua Sun - Fudan University, Shanghai China

Dr Xiaobo Yu - Fudan University, Shanghai China

Dr Gerhard Zinser - Heidelberg Engineering, Germany

Aquesys - USA

OCULAR TISSUE ENGINEERING

Visitors

Dr Lyndon Da Cruz - Moorfields Eye Hospital, London

Dr Michael Edel - Research Institute of Hospital Val d Hebron, Barcelona, Spain

Collaborators

Professor Peter Coffey - UCL Institute of Ophthalmology, London, UK

Professor Gary Rubin - UCL Institute of Ophthalmology, London, UK

Dr Amanda-Jane Carr - UCL Institute of Ophthalmology, London, UK

Professor Gerald Fishman - University of Illinois, Chicago, Illinois, USA

Professor John Olynyk - Department of Gastroenterology, Fremantle Hospital, Perth

Dr Liz Milward - University of Newcastle, NSW, Australia

Dr David Birch - Retina Foundation of the Southwest Anderson Vision Research Centre, Texas, US

CLINICAL RESEARCHERS

Clinical Researcher

Professor Ian Constable

Collaborators

Professor Mark Blumenkranz - Chairman Ophthalmology, Byers Eye Institute at Stanford University

Professor Steven Schwartz - Head Vitreoretinal Surgery Jules Stein Eye Institute, University of California Los Angeles

Professor Richard Samulski - Professor of Molecular Biology, University of North Carolina

Clinical Researcher

Professor Geoffrey Crawford

Collaborators

Professor Donald Tan - Director of the Singapore National Eye Centre

Clinical Researcher

Associate Professor Mei-Ling Tay-Kearney

Collaborators

Dr Yogesan Kanagasingam - Research Director CSIRO

Samuel Kirubakaran - Fujitsu Australia Ltd

Conferences and invited lectures

January

Winthrop Professor

David Mackey. Heritability of Glaucoma Traits: A Review of Twin and Family Studies. Invited speaker, *International Society for Genetic Eye Diseases & Retinoblastoma*, Bangalore, India.

Winthrop Professor David

Mackey. Basics of genetics and eye disease. Invited Presentation, *Christian Medical College*, Vellore, India.

Winthrop Professor David

Mackey. Continuing Medical Education on genetics of glaucoma. Invited Lecture, *Christian Medical College*, Vellore, India.

Winthrop Professor David

Mackey. Continuing Medical Education on Genetics of Congenital Cataract. Invited Lecture, *Christian Medical College*, Vellore, India.

Winthrop Professor David

Mackey. Continuing Medical Education on Genetics of Optic Atrophy. Invited Lecture, *Christian Medical College*, Vellore, India.

Professor Geoffrey

Crawford. Conference Participation, *Asia-ARVO*, Singapore.

Chris Barry.

Invited speaker, Digital Imaging Course, *Singapore National Eye Centre*, Singapore.

Winthrop Professor

David Mackey. Glaucoma Genetics. Invited speaker, Symposium Genetics, *Asia-ARVO*, Singapore.

Winthrop Professor David

Mackey, Staffieri SE, Ruddle JB, Kearns L, Barbour J, Edwards T, Paul P. Pilot study into the efficacy of population cascade genetic screening for glaucoma. Presentation speaker, Symposium 19 - ORIA Sponsored. *Asia-ARVO*, Singapore.

Professor Ian McAllister.

New treatment Strategies for Retinal Vein Occlusion. Invited speaker, *Asia-ARVO*, Singapore.

Professor Ian McAllister.

Morphometric Characteristics of Central Retinal Artery and Vein Endothelium in the Normal Human Optic Nerve Head. Invited speaker, *Asia-ARVO*, Singapore.

Winthrop Professor

EP Rakoczy. Stem cell treatments for dry and wet AMD. Invited speaker, *Asia-ARVO*, Singapore.

Winthrop Professor EP

Rakoczy. Non conventional gene therapy approaches. Invited speaker, *Asia-ARVO*, Singapore.

Professor Geoffrey

Crawford. Participation, *Singapore National Eye Centre Scientific Meeting*, Singapore.

February

Professor William

Morgan. The translaminal pressure gradient and its consequences. Keynote Lecture, *Australian and New Zealand Glaucoma Interest Group meeting*, Melbourne.

Professor Mariapia Degli-

Esposti. Modulating anti-viral immunity. Invited Speaker, *Lorne Infection and Immunity Conference*, Lorne, Australia.

March

Winthrop Professor David

Mackey. Genetic modifiers of glaucoma. Invited speaker, *Alcon Research Institute meeting*, Fort Worth USA.

Professor Ian Constable.

Presentation, *Annual Conference Macular Telangiectasia*, Los Angeles.

Professor Ian Constable.

Chairman Scientific Advisory Board Meeting, *Avalanche Biotechnology*, Los Angeles, USA.

Professor Geoffrey

Crawford. The present state of Keratoprostheses. Invited speaker, *Australian & New Zealand Cornea Society Annual meeting*, Sydney.

Professor Ian Constable.

Scientific meeting and discussant *Academia Ophthalmologica Internationalis*, Sydney.

Professor Geoffrey

Crawford. The long-term follow-up of AlphaCor artificial corneas. Poster presentation, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Dr Paula Yu.

Microvasculature, neurons and glial cells in Human Macula: new information on macular vasculature. Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Winthrop Professor David

Mackey. Genetics of normal-tension glaucoma. Invited speaker, Von Graefe Society Symposium - Normal-Tension Glaucoma - Topics of Increasing Importance, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor Ian Constable.

Monitoring Diabetic Retinopathy after Laser and Vitreous Injections. Invited Lecture, AOI Lecture, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Winthrop Professor David

Mackey. Challenges and Progress in Organising Education Program in Australia and New Zealand. Plenary speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor Ian Constable.

High resolution OCT scanning. Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Winthrop Professor

David Mackey. Genetic Epidemiology of Glaucoma and Optic Disc Morphologies. Oral presentation, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Associate Professor Fred

Chen. Diabetic macular oedema; when should a surgical approach be considered? Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor William

Morgan. Cerebrospinal fluid – intraocular pressure difference in normal tension glaucoma. Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor William Morgan.

Translaminar Pressure Gradients in Glaucoma. Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Associate Professor Mei-Ling Tay-Kearney.

Herpes Infections in the Eye. Invited speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Daniel Ting, Tay-Kearney

ML, Kanagasingam Y. Validation of a New Alternative Diabetic Retinopathy Screening Method – Retinal Video Recording. Oral presentation. *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Winthrop Professor David

Mackey. Genetics of retinal diseases. Oral presentation, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor Ian McAllister.

Organisation and Chair of Symposium on Surgery for Retinal Vascular Disorders. Invited Speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor Ian McAllister.

Surgical Interventions for retinal venous occlusive disease: Is there a role for this approach? Invited Speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Professor Ian McAllister.

Chorioretinal Venous Anastomosis, its role in central retinal vein occlusion. Invited Speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

Winthrop Professor EP

Rakoczy. Gene Therapy. Invited Speaker, *Asia Pacific Academy of Ophthalmology Congress*, Sydney.

April

Winthrop Professor David

Mackey. GWAS success in Ophthalmology. Oral presentation, Functional Genomics Session. *Genemappers*, Hobart.

Associate Professor Fred

Chen. Argus II retinal prosthesis. Invited speaker, *Ocular Therapy Conference, Lions Eye Institute*, Perth.

Associate Professor Fred

Chen. RPE transplantation in Age-related Macular Degeneration. Invited speaker, *Ocular Therapy Conference, Lions Eye Institute*, Perth.

Associate Professor Fred

Chen. Structure-function correlations in macular diseases. Invited speaker, *Ocular Therapy Conference, Lions Eye Institute*, Perth.

Professor Geoffrey Crawford.

Keratoprotheses. The use of Intrastromal corneal ring segments for Keratoconus. Two presentations, *Ocular Therapy Conference, Lions Eye Institute*, Perth.

Associate Professor Fred

Chen. Vitelliform macular detachment. Invited speaker, *Ocular Therapy Conference, Lions Eye Institute*, Perth.

Winthrop Professor David

Mackey. Ophthalmic success with GWAS. Invited speaker, *SERI Lunch-time Talk Series, Singapore Eye Research Institute*.

Winthrop Professor David

Mackey. Glaucoma genetics from Genealogy to GWAS. Invited speaker, *National University Health System*, Singapore.

Winthrop Professor Dao-

Yi Yu, Cringle SJ, Yu P, Su E-N. Retinal energetics and its critical role in retinal physiology and pathology. Oral Presentation, *Asian Ophthalmology Meeting*, Chongqing China.

May

Winthrop Professor David

Mackey. Ethical Issues in the Use of Genome Wide Association Studies in Ophthalmology Research. Invited Speaker, Ethics of Genetic Applications in Ophthalmology Workshop sponsored by ARVO Ethics and Regulations in Human Research Committee. *Association for Research in Vision & Ophthalmology* Fort Lauderdale, USA.

Winthrop Professor David

Mackey. Use of twin studies in ocular quantitative trait mapping. Invited speaker, Ocular Quantitative Traits: Approaches to Gene Discovery and Contributions to Common Complex Disease session. *Association for Research in Vision & Ophthalmology* Fort Lauderdale, USA.

Winthrop Professor David

Mackey. The Norfolk Island Eye Study: ocular biometry of the Bounty Mutineers. Poster presentation Myopia and Refractive Error session. *Association for Research in Vision & Ophthalmology* Fort Lauderdale, USA.

Professor Ian Constable.

Co-Chairman and Opening Address. *Bali International Ophthalmology Retreat*, Bali, Indonesia.

Professor Ian Constable.

Chairman Round table discussion on Proliferative Vitreoretinopathy, Retinal Detachment and Diabetic Retinopathy, *Bali International Ophthalmology Retreat*, Bali, Indonesia.

Conferences and invited lectures

Associate Professor Fred Chen. Macular Degeneration; a journey through the eye. Invited speaker, *Macular Degeneration Foundation*, Perth.

June

Professor Geoffrey Crawford. Conference participation, *European Society of Ophthalmology* (SOE), Geneva, Switzerland.

Winthrop Professor David Mackey. GWAS success in ophthalmology. Invited speaker. *Western Australian Institute of Medical Research*, Perth.

Winthrop Professor David Mackey. GWAS success in ophthalmology. Invited speaker. *Faculty of Medicine, University of Strasbourg*, Strasbourg, France.

Winthrop Professor David Mackey. Optic nerve quantitative trait genes as risk factors for glaucoma. Chair & Invited speaker, Understanding the genetic basis of Glaucoma: its role in clinical practice session. *World Glaucoma Congress*, Paris, France.

Winthrop Professor David Mackey. Identification of genes responsible for ocular quantitative traits as risk factors for Glaucoma. Invited speaker, Genetics (research, clinical applications) session. *World Glaucoma Congress*, Paris France.

Winthrop Professor David Mackey. GWAS for Central Corneal thickness. Chair & Invited speaker, Identification of genes responsible for ocular quantitative traits as risk factors for Glaucoma session. *World Glaucoma Congress*, Paris, France.

Winthrop Professor David Mackey. The genetics of ocular structure. Session speaker, Tonometry and corneal biomechanics session. *World Glaucoma Congress*, Paris, France.

Professor Mariapia Degli-Esposti. NK cells as regulators of anti-viral immunity, how and why. Invited Speaker, *8th International Conference on Innate Immunity*, Crete, Greece.

July

Winthrop Professor David Mackey. Invited Guest and Speaker, Evidence? Pressure? Reflection? Ophthalmology Department Grand Round Meeting, *Royal Perth Hospital*, Perth.

Alexander Tan, Chen FK, Forward H, Mountain J, Newnham JP, Pennell CE, Mackey DA. Central macular thickness measurements in young adults measured by Spectralis optical coherence tomography: The Raine Eye Health Study. Oral presentation. *2011 Melbourne Ophthalmic Alumni Meeting*.

August

Winthrop Professor David Mackey. GWAS Success in Ophthalmology. Invited speaker, *University of Western Australia School of Pathology and Laboratory Medicine*, Perth.

Dr Christopher Andoniou. Session Chair, Death on the Reef – *1st Australian Workshop on Cell Death*, Lindeman Island, Australia.

Professor Geoffrey Crawford. Corneal Collagen Cross Linking. Invited speaker, *WA Vision Education Optometry Conference*, Fremantle.

Professor Geoffrey Crawford. Intrastromal Corneal ring segments for Keratoconus. Invited speaker, *WA Vision Education Optometry Conference*, Fremantle.

September

Professor Ian Constable. Presidential Address, *Annual meeting of Asia Pacific Vitreoretinal Society*, Hyderabad, India.

Winthrop Professor David Mackey. Eye genetics in relationship to clinical practice of ophthalmology and pedigree drawing. Invited Speaker, *Joint Chinese University of Hong Kong- Hong Kong Eye Hospital Grand Round*, Hong Kong.

Winthrop Professor David Mackey. GWAS Success in Ophthalmology. Invited speaker, Institute Seminar, *Queensland Institute of Medical Research*, Brisbane.

Professor Ian Constable. Gene therapy for age related macular degeneration. Invited Lecture, *Stanford University*, Palo Alto, USA.

Professor Ian Constable. Discussant, *Half yearly conference, International MacTel project*, London.

Winthrop Professor David Mackey. GWAS Success in Ophthalmology. Invited speaker, *University College London, Institute of Ophthalmology*, UK.

Winthrop Professor David Mackey. Invited Lecturer. *Paediatric teaching clinic, University College London*, UK.

Associate Professor Fred Chen. Retinal Pigment Epithelium Transplantation in Retinal Diseases. Invited speaker, *Seminar Series, School of Pathology and Laboratory Medicine, University of Western Australia*, Perth.

Professor Ian Constable. Invited Speaker at the official opening of the Byer Eye Institute at Stanford University, USA.

Professor Mariapia Degli-Esposti.

Understanding how to better control chronic viral infections. Invited Speaker, *Australian Diabetes Society*.

Professor Geoffrey Crawford. The present status of Keratoprostheses. Visiting Professor and Invited Lecture, *Singapore National Eye Centre*, Singapore.

October

Associate Professor Fred Chen. Advances in Technology for Monitoring of Retinal Dystrophy. Invited speaker, *Retina Australia WA*, Perth.

Chris Barry. Diabetic retinopathy screening in Western Australia: an update. Oral Presentation, *International Conference on Ophthalmic Photography*, Oxford, UK.

Chris Barry. Diabetic screening in Western Australian Prisons. Oral Presentation, *Scientific Session Ophthalmic Photographers' Society Annual Meeting*, Orlando, USA.

Chris Barry. Oral presentation, *Rare Case Symposium: Ophthalmic Photographers' Society Annual Meeting*, Orlando, USA.

Dr Jerome Coudert.

Consequences of natural sequence variations of murine cytomegalovirus m157 for Ly49 receptor specificity, NK cell activation and control of viral infection. Oral presentation, *Australasian Society for Immunology, Perth Immunology Group Symposium*, Perth, Australia.

Professor Mariapia Degli-Esposti. Understanding and manipulating complex immune responses using a model of chronic viral infection. Invited speaker, *Perth Immunology Group Scientific Symposium*, Perth, Australia.

Dr Matthew Wikstrom. A chemokine-like viral product dampens CD8+ T cell activation during acute infection. Oral presentation, *Perth Immunology Group Scientific Symposium*, Perth, Australia.

Professor William Morgan. Central venous pulsations: New findings and their clinical importance. Invited speaker, *New York Glaucoma Foundation Think Tank*, New York, USA

Winthrop Professor EP Rakoczy. Anti VEGF to treat AMD. Invited speaker, Australian College of Optometry, Melbourne, Australia.

November

Dr Jerome Coudert. Revisiting the role of the MCMV-encoded m157 protein in anti-viral NK cell response. Invited speaker, *The University of Western Australia, School of Biomedical, Biomolecular & Chemical Sciences, Microbiology and Immunology Seminars*.

Dr Alexander Tan, Chen FK, Mountain J, Newnham J, Pennell CE, Mackey DA. Retinal and Choroidal Measurements in the Raine Eye Health Study. *Presented at the Raine Study Annual Scientific Meeting*.

Professor Geoffrey Crawford. Conference Participation, *Australasian Society of Cataract & Refractive Surgeons annual scientific meeting*, Canberra.

Professor Geoffrey Crawford. Conference Participation, *Royal Australian & New Zealand College of Ophthalmology Annual Scientific Meeting*, Canberra.

Winthrop Professor David Mackey. Genetics of strabismus syndromes. Oral Presentation, *Royal Australian & New Zealand College of Ophthalmology Annual Scientific Meeting*.

Winthrop Professor David Mackey. Success of Genome Wide Association Studies in Ophthalmology. Invited speaker, *AOVSM ARC Vision Centre Lecture*, Canberra.

Dr Alexander Tan, Mackey DA, Mountain J, Pennell CE, Chen FK. Interocular Symmetry in Macular and Subfoveal Choroidal Thickness with the Spectralis optical coherence tomography in Healthy Young Adults: The Raine Eye Health Study. *Oral Presentation, Australian Ophthalmic and Visual Sciences Meeting*, Canberra.

Dr Alexander Tan, Chen FK, Forward H, Mountain J, Newnham JP, Pennell CE, Mackey DA. Central macular thickness measurements in young adults measured by Spectralis optical coherence tomography: The Raine Eye Health Study. *Poster presentation, Royal Australian and New Zealand College of Ophthalmology Annual Scientific Congress*, Canberra.

Dr Alexander Tan, Mackey DA, Forward H, Mountain J, Newnham JP, Pennell, Chen FK. Spherical equivalent associated with subfoveal choroidal thickness in young adults measured using enhanced depth imaging optical coherence tomography: The Raine Eye Health Study. *Poster presentation, Royal Australian and New Zealand College of Ophthalmology Annual Scientific Congress*, Canberra.

Dr Charlotte McKnight, Sherwin J, Yazar S, Pennell C, Mountain J, Coroneo M, Mackey D. Prevalence and autofluorescence characteristics of pterygium in young Australian adults. *Poster presentation, Royal Australian and New Zealand College of Ophthalmology Annual Scientific Congress*, Canberra.

Conferences and invited lectures

Dr Charlotte McKnight,

Sherwin J, Yazar S, Pennell C, Mountain J, Coroneo M, Mackey D. Conjunctival ultraviolet autofluorescence in young adults. *Poster presentation, Royal Australian and New Zealand College of Ophthalmology Annual Scientific Congress, Canberra.*

Dr Charlotte McKnight,

Kemp A, Preen D, Morlet N, Clark A, McAllister I, Sanfilippo F, Ng J, Reynolds W, Gilles M. Thromboembolic events following intraocular injections of Vascular Endothelial Growth Factor (VEGF)-inhibitors. *Poster presentation, Royal Australian and New Zealand College of Ophthalmology Annual Scientific Congress, Canberra.*

December

Professor Ian Constable.

Seminar Lead for panel on proliferative vitreo-retinopathy.

Winthrop Professor

Dao-Yu Yi. VEGF Trap-Eye for other indications. Invited Speaker, *The International Symposium on Ocular Pharmacology and Therapeutics meeting, Vienna, Austria.*

MacIntyre JN, Dong AX, Straiker A, Zhu J, Howlett SE, **Winthrop Professor Dao-Yi Yu, Professor Er-Ning Su,** Kelly MEM. GPR18 is a candidate endothelial receptor for cannabinoid and lipid-mediated vasorelaxation in retinal microvasculature. Poster,

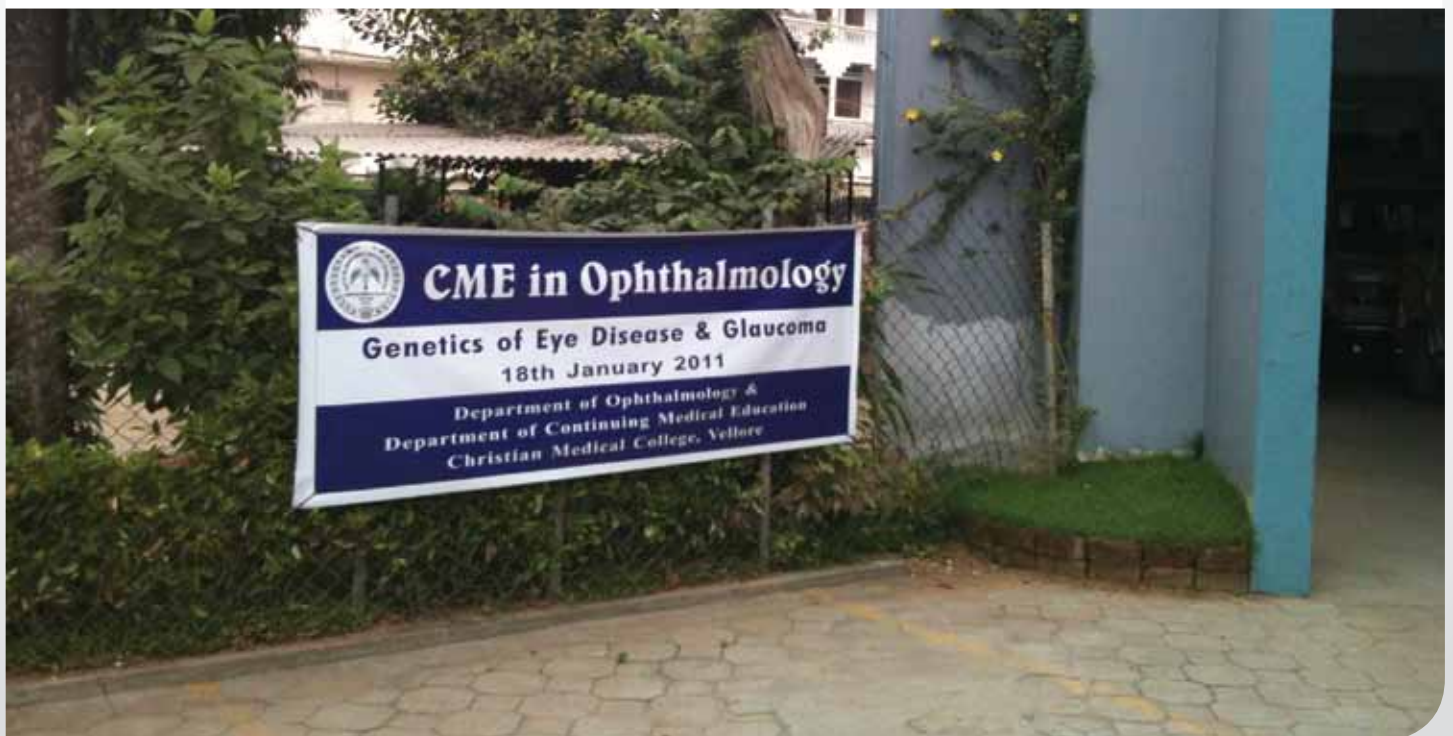
International Symposium on Ocular Pharmacology & Therapeutics, Vienna, Austria.

Dr Christopher Andoniou.

A single viral open reading frame encodes multiple immune evasion products that act via divergent mechanisms. Oral presentation, *41st Australasian Society for Immunology Annual Meeting, Adelaide, Australia.*

Xiao D, Vignarajan J, Lock J, **Associate Professor Mei-Ling Tay-Kearney,** Kanagasingam Y. Poster presentation, Retinal image registration and comparison for clinical decision support. *1st Australian Workshop on Artificial Intelligence in Health (AIH 2011), in*

conjunction with the 24th Australian Joint Conference on Artificial Intelligence (AI 2011), Perth.



Publications

GENETICS & POPULATION HEALTH

Sherwin JC, Hewitt AW, Kearns LS, Griffiths LR, **Mackey DA**, Coroneo MT. The association between pterygium and conjunctival ultraviolet autofluorescence: The Norfolk Island Eye Study. *Acta Ophthalmol.* 2011 Dec 16. doi: 10.1111/j.1755-3768.2011.02314.x. [Epub ahead of print]

Souzeau E, Goldberg I, Healey PR, Mills RA, Landers J, Graham SL, Grigg JR, Usher B, Straga T, Crawford A, Casson RJ, Morgan WH, Ruddle JB, Coote MA, White A, Stewart J, Hewitt AW, **Mackey DA**, Burdon KP, Craig JE. The Australian and New Zealand Registry of Advanced Glaucoma: methodology and recruitment. *Clin Experiment Ophthalmol.* 2011 Dec 15. doi: 10.1111/j.1442-9071.2011.02742.x. [Epub ahead of print]

Mackey DA, Warrington NM, Hewitt AW, **Oates SK**, **Yazar S**, **Soloshenko A**, **Crawford GJ**, Mountain JA, Pennell CE. Role of the TCF4 Gene Intronic Variant in Normal Variation of Corneal Endothelium. *Cornea.* 2011 Dec 2. [Epub ahead of print]

Pratap DS, Lim LL, Wang JJ, **Mackey DA**, Kearns LS, Stawell RJ, Burdon KP, Mitchell P, Craig JE, Hall AJ, Hewitt AW. The role of toll-like receptor variants in acute anterior uveitis. *Mol Vis.* 2011;17:2970-2977.

Mackey DA. Genetic eye research in Tasmania: an historical overview. *Clin Experiment Ophthalmol.* 2011 Nov 2. doi: 10.1111/j.1442-9071.2011.02728.x. [Epub ahead of print]

Rance G, Kearns LS, Tan J, Gravina A, Rosenfeld L, Henley L, Carew P, Graydon K, O'Hare F, **Mackey DA**. Auditory function in individuals within Leber's hereditary optic neuropathy pedigrees. *J Neurol.* 2011 Sep 2. [Epub]

Ali M, Hocking PM, McKibbin M, Finnegan S, Shires M, Poulter JA, Prescott K, Booth A, Raashid Y, Jafri H, Ruddle JB, **Mackey DA**, Jacobson SG, Toomes C, Lester DH, Burt DW, Curry WJ, Inglehearn CF. Mpdz Null Allele in an Avian Model of Retinal Degeneration and Mutations in Human LCA and RP. *Invest Ophthalmol Vis Sci.* 2011 Sep 27;52(10):7432-40.

Mackey DA, Hewitt AW, Ruddle JB, Vote B, Buttery RG, Toomes C, Metlapally R, Li YJ, Tran-Viet KN, Malecaze F, Calvas P, Rosenberg T, Guggenheim JA, Young TL. Pediatric cataract, myopic astigmatism, familial exudative vitreoretinopathy and primary open-angle glaucoma co-segregating in a family. *Mol Vis.* 2011;17:2118-28.

Larsson M, Duffy DL, Zhu G, Liu JZ, Macgregor S, McRae AF, Wright MJ, Sturm RA, **Mackey DA**, Montgomery GW, Martin NG, Medland SE. GWAS Findings for Human Iris Patterns: Associations with Variants in Genes that Influence Normal Neuronal Pattern Development. *Am J Hum Genet.* 2011;89:334-343.

Sanfilippo PG, Medland SE, Hewitt AW, Kearns LS, Ruddle JB, Sun C, Hammond CJ, Young TL, Martin NG, **Mackey DA**. Ophthalmic Phenotypes and the Representativeness of Twin Data for the General Population. *Invest Ophthalmol Vis Sci.* 2011;52:5565-72.

Staffieri SE, Ruddle JB, Kearns LS, Barbour JM, Edwards TL, Paul P, **Mackey DA**. Telemedicine model to prevent blindness from familial glaucoma. *Clin Experiment Ophthalmol.* 2011;39:760-5.

Van Bergen NJ, Crowston JG, Kearns LS, Staffieri SE, Hewitt AW, Cohn AC, **Mackey DA**, Trounce IA. Mitochondrial oxidative phosphorylation compensation may preserve vision in patients with OPA1-linked autosomal

dominant optic atrophy. *PLoS One.* 2011;6(6):e21347.

Mackey DA, Sanfilippo P, **Godfrey A**, **Zambotti E**. Fail-to-attend rates in a private ophthalmology clinic by age group. *Clin Experiment Ophthalmol.* 2011 Jun 30. doi: 10.1111/j.1442-9071.2011.02647.x. [Epub ahead of print]

Forward H, Hewitt AW, **Mackey DA**. Missing X and Y: a review of participant ages in population-based eye studies. *Clin Experiment Ophthalmol.* 2011 Jun 13. doi: 10.1111/j.1442-9071.2011.02626.x. [Epub ahead of print]

Sherwin JC, Kelly J, Hewitt AW, Kearns LS, Griffiths LR, **Mackey DA**. Prevalence and predictors of refractive error in a genetically isolated population: the Norfolk Island Eye Study. *Clin Experiment Ophthalmol.* 2011;39:734-42

Burdon KP, Macgregor S, Hewitt AW, Sharma S, Chidlow G, Mills RA, Danoy P, Casson R, Viswanathan AC, Liu JZ, Landers J, Henders AK, Wood J, Souzeau E, Crawford A, Leo P, Wang JJ, Rochtchina E, Nyholt DR, Martin NG, Montgomery GW, Mitchell P, Brown MA, **Mackey DA**, Craig JE. Genome-wide association study identifies susceptibility loci for open angle glaucoma at TMCO1 and CDKN2B-AS1. *Nat Genet.* 2011;43:574-8.

Sherwin JC, Hewitt AW, Kearns LS, Coroneo MT, Griffiths LR, **Mackey DA**. Distribution of conjunctival ultraviolet autofluorescence in a population-based study: the Norfolk Island Eye Study. *Eye (Lond).* 2011;25:893-900.

Sherwin JC, Kearns LS, Hewitt AW, Ma Y, Kelly J, Griffiths LR, **Mackey DA**. Prevalence of Chronic Ocular Diseases in a Genetic Isolate: The Norfolk Island Eye Study (NIES). *Ophthalm Epidemiol.* 2011;18:61-71.

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Mackey DA, Sherwin JC, Kearns LS, Ma Y, Kelly J, Chu B-S, MacMillan R, Barbour JM, Wilkinson CH, Matovinovic E, Cox HC, Bellis C, Lea RA, Quinlan S, Griffiths LR, Hewitt AW. The Norfolk Island Study (NIES): Rationale, Methodology and Distribution of Ocular Biometry (Biometry of the Bounty). *Twin Res Hum Genet.* 2011;14:42-53.

Kinnick TR, Mullins RF, Dev S, Leys M, **Mackey DA**, Kay CN, Lam BL, Fishman GA, Traboulsi E, Iezzi R, Stone EM. Autosomal Recessive Vitelliform Macular Dystrophy In a Large Cohort Of Vitelliform Macular Dystrophy Patients. *Retina.* 2011;31:581-595.

EXPERIMENTAL IMMUNOLOGY

Zinkernagel MS, McMenamin PG, Forrester JV, Degli-Esposti MA. T cell responses in experimental viral retinitis: mechanisms, peculiarities and implications for gene therapy with viral vectors. *Prog Retin Eye Res.* 2011;30:275-84.

Simkins HM, Hyde E, Farrand KJ, **Ong ML, Degli-Esposti MA**, Hermans IF, Ronchese F. Administration of alpha-galactosylceramide impairs the survival of dendritic cell subpopulations in vivo. *J Leukoc Biol.* 2011;89:753-62.

Tze LE, Horikawa K, Domaschitz H, Howard DR, Roots CM, Rigby RJ, Way DA, Ohmura-Hoshino M, Ishido S, **Andoniou CE, Degli-Esposti MA**, Goodnow CC. CD83 increases MHC II and CD86 on dendritic cells by opposing IL-10-driven MARCH1-mediated ubiquitination and degradation. *J Exp Med.* 2011;208:149-65.

Zinkernagel MS, Petitjean C, Wikstrom ME, Degli-Esposti MA. Kinetics of ocular and systemic antigen-specific T-cell responses elicited during murine cytomegalovirus retinitis. *Immunol Cell Biol.* 2011 May 17. [Epub ahead of print]

Fear VS, Burchell JT, Lai SP, **Wikstrom ME**, Blank F, von Garnier C, Turner DJ, Sly PD, Holt PG, Strickland DS, Stumbles PA. Restricted aeroallergen access to airway mucosal dendritic cells in vivo limits allergen-specific CD4+ T cell proliferation during the induction of inhalation tolerance. *J Immunol* 2011;187:4561-4570.

PHYSIOLOGY PHARMACOLOGY

Guo W, Zhu Y, Yu PK, Yu X, Sun X, **Cringle SJ, Su EN, Yu DY.** Quantitative study of the topographic distribution of conjunctival lymphatic vessels in the monkey. *Exp Eye Res.* 2011 Nov 25. [Epub ahead of print]

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Dai Y, Sun X, Guo W-Y, **Yu D-Y.** Astrocytic Responses in the Lateral Geniculate Nucleus of Monkeys with Experimental Glaucoma. *Vet Ophthalmol.* 2011 April 27. doi: 10.1111/j.1463-5224.2011.00906.x.

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Balaratnasingam C, Morgan WH, Bass L, Kang M, Cringle SJ, Yu D-Y. Axotomy-induced cytoskeleton changes in unmyelinated mammalian central nervous system axons. *Neuroscience.* 2011;177:269-82.

Yang Q, Shen J, Guo W, Wen J, Wang Z, **Yu D-Y.** Effect of acute intraocular pressure elevation on blood flow velocity and resistance in the rabbit ophthalmic artery. *Vet Ophthalmol* 2011;14:353-357.

Yu PK, Balaratnasingam C. Retinal Vasculature: A close up view. *J Ophthalmic Photography.* 2011;33:80-81.

Yu D-Y, Cringle SJ, Yu PK, Su E-N. Retinal energetics and its critical role in retinal physiology and pathology. *Expert Opinions in Ophthalmology.* 2011;6:395-399.

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MOLECULAR OPHTHALMOLOGY

Lai CM, Estcourt MJ, Himbeck RP, Lee SY, Yew-San Yeo I, Luu C, Loh BK, Lee MW, Barathi A, Villano J, Ang CL, van der Most RG, **Constable IJ, Dismuke D, Samulski RJ, Degli-Esposti MA, Rakoczy EP.** Preclinical safety evaluation of subretinal AAV2.sFlt-1 in non-human primates. *Gene Ther*. 2011 Nov 10. doi: 10.1038/gt.2011.169. [Epub ahead of print]

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McKeone R, Vieira H, Gregory-Evans K, Gregory-Evans CY, Denny P. Foxf2: A Novel Locus for Anterior Segment Dysgenesis adjacent to the Foxc1 Gene. *PlosONE*. 2011;6:e25489.

OCULAR IMMUNOLOGY

Chinnery HR, McLenachan S, Binz N, Sun Y, **Forrester JV, Degli-Esposti MA, Pearlman E, McMenamin PG.** TLR9 Ligand CpG-ODN Applied to the Injured Mouse Cornea Elicits Retinal Inflammation. *Am J Pathol*. 2011 Nov 12 [Epub ahead of print]

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OCULAR TISSUE ENGINEERING

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Chen FK, Acheson JF, Franks WA, Da Cruz L. Microperimetry evidence of functional improvement after vitrectomy for optic disc pit-related intraretinal fluid without serous detachment. *Clin Experiment Ophthalmol*. 2011;39:707-10.

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2011 Publications by ERA ranking



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Professor John Forrester

Cockburn Chair of Ophthalmology
University of Aberdeen, Scotland

Professor John Forrester, a world leader in ocular immunology and holder of the Cockburn Chair of Ophthalmology at the University of Aberdeen, Scotland, spent three months at the LEI to undertake cutting edge research into inflammatory ocular disease, or uveitis.

Professor Forrester is working closely with LEI researchers Dr Matthew Wikstrom and Professor Mariapia Degli-Esposti studying the causes of uveitis, a condition that accounts for 10% of blindness in people of working age in developed countries. Little is known about the cause of this disease.

Professor Forrester is internationally recognised as a preeminent expert in ocular immunology. He specifically sought the expertise at the LEI to progress his work on the causes of uveitis and define the mechanisms that regulate tolerance and immune activation in the eye.

A better understanding of the mechanisms of tolerance will help us to develop new strategies for the treatment of autoimmune disease in the eye and in other tissues.

The outcomes from Professor Forrester's research will be immediately relevant to ophthalmology, but could also ultimately provide insights into the cause and treatment of the more global problems caused by autoimmune disorders.

As of 2012, Professor Forrester will have a joint appointment at The University of Western Australia and the LEI and will be spending at least six months a year in Perth focusing on the collaborative research with the LEI's ocular immunology group.

Grants

Grant	Chief Investigators
Australian Competitive Grants	
NHMRC Senior Principal Research Fellowship	Degli-Esposti, M
NHMRC Program Grant Immunological therapies for cancer, chronic infection and autoimmunity	Degli-Esposti, M
NHMRC Program Grant Advanced new therapeutics and diagnostics in retinal diseases and glaucoma	Yu, D
NHMRC Project Grant Mechanisms of viral induced immunosuppression: effects on DC-NK networks	Degli-Esposti, M Andoniou, C
NHMRC Project Grant Do resident immune cells cause retinal damage in diabetes?	McMenamin, P Rakoczy, P Degli-Esposti, M Scalzo, T
NHMRC Project Grant Defining the requirement for the inhibition of Bak to the pathogenesis of cytomegalovirus infection	Andoniou, C
NHMRC Project Grant Long-term human response following subretinal injection of recombinant adenoassociated virus-sFlt-1 vector	Rakoczy, P
NHMRC Project Grant The balance of signals received by NK cells is modulated by viruses as a mean of immune escape	Coudert, J
NHMRC Scholarship Grant	Forward, H
NHMRC Equipment Grant Automatic tissue processor and tissue embedding centre	Degli-Esposti, M
ARC Centre of Excellence Centre of Excellence in Vision Science	Yu, D
Sylvia and Charles Viertel Charitable Foundation Detection of retinal and microvascular changes and dysfunction in pre-diabetes using advanced retinal imaging and analysis techniques	Chen, F
Honda Foundation Equipment - Centrifuge Machine	Chen, F

International Competitive Grants

Alcon Recognition Award for Outstanding Contribution in Vision Science	Forrester, J
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Government Grants

Government of Western Australia Department of Health Round 14 MHRIF

WA Dept of Health Feasibility study of tele-health consultations for specialised ophthalmology in remote areas of WA	Turner, A
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Other Grants

Channel 7 Telethon Trust Phenotyping Eyes of Adolescents for Signs of Early Sun Damage from UVR Sun Exposure	Mackey, D
McCusker Charitable Foundation Remote Eye Health	Turner, A
The University of Western Australia Research Collaboration Award	Mackey, D
The University of Western Australia Safety Net Grant	Scalzo, T
The University of Western Australia AA Saw Scholarship	McKnight, C
The University of Western Australia AA Saw Scholarship	Tan, A
The University of Western Australia Near Miss Grant	Yu, P
The University of Western Australia Centre of Ophthalmology and Visual Science Infrastructure Funding	
Lions Save-Sight Foundation Research Support	
Australian Foundation for the Prevention of Blindness Research Support	

TOTAL GRANTS 2011	\$3,836,976
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Financial Statements

Lions Eye Institute Limited

The Company is a charitable and public benevolent institution. The principal activities during the year were medical research and promotion of eye care through education and training of medical and allied professions, and fundraising to support research activities.

To enable measurement of our activity and performance we have included the following financial information from the Audited Special Purpose Financial Statements for the year ended 31 December 2011 and details of Research Grant Funds.

	2011 \$	2010 \$
Income statement for the year ending 31 December		
Total income including research grants	19,444,853	14,357,478
Total expenditure including research expenses	(14,481,889)	(13,655,814)
Operating profit before significant items	4,962,964	701,664
Significant item	(1,218,972)	0
Operating (loss)/profit after significant items	3,743,992	701,664
Accumulated profit at the beginning of the year	20,995,225	20,293,561
Accumulated profit at the end of the year	24,739,217	20,995,225
Significant Item Comprised of:		
Fair value adjustment of investments to market value	(1,218,972)	0
Total	(1,218,972)	0
General Available Cash and Bequest and Endowment Funds		
Research grant funds not yet spent	6,108,353	5,525,167
Endowment Funds	11,313,846	11,907,322
Joyce Henderson Bequest - Restricted Cash	3,007,969	0
Capital Fundraising Campaign - Restricted cash	752,005	0
General cash reserves	2,744,259	2,025,485
Cash at bank and bequest and endowment funds	23,926,432	19,457,974

General Available Cash and Bequest Funds

The LEI's cash and bequest funds include some amounts specifically set aside for ongoing research projects. Donation and bequest funds are also preserved for special future projects, enabling the Institute to continually expand into new areas of research and to support the further development of existing projects that are showing promising results.

The Joyce Henderson Bequest Fund was established in December 2011 to fund in perpetuity the Joyce Henderson Paediatric Ophthalmology Fellowship and to conduct clinical work at the Princess Margaret Hospital as well as research through the LEI into causes, prevention and treatment of eye injuries in children.

Financial Statements

Balance Sheet

As at 31 December

	2011 \$	2010 \$
Total funds	24,739,217	20,995,225
Represented by:		
Cash assets	12,612,586	7,550,651
Other assets	1,886,843	1,178,873
Other financial assets	11,337,388	11,930,865
Property, plant and equipment	7,141,125	7,595,237
Total assets	32,977,942	28,255,626
Payables	1,415,872	1,009,309
Research grant funds not yet spent	6,108,353	5,525,167
Provision for employee entitlements	714,500	725,925
Total liabilities	8,238,725	7,260,401
Net assets	24,739,217	20,995,225

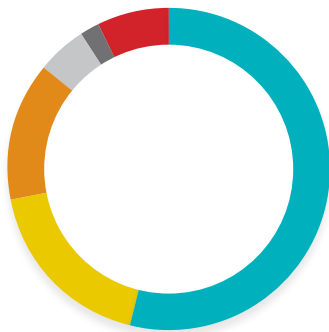
Statistical Summary

	2011 \$	2010 \$	2009 \$	2008 \$	2007 \$
Total income	19,444,853	14,357,478	15,978,757	13,784,655	11,586,282
Total expenditure	(15,700,861)	(13,655,814)	(13,181,693)	(14,860,707)	(10,683,486)
Net assets	24,739,217	20,995,225	20,293,561	16,325,976	17,402,028
Property, plant and equipment (net)	7,141,125	7,595,237	6,995,570	7,049,392	7,054,370
Average no. of FTE staff	85	82	82	67	69

CURRENT YEAR RESULTS

The profit after income tax amounted to \$3,743,992

Income for the year ended 31 December



Clinic

2011 **54%** 2010 **68%**

Bequests and donations

2011 **18%** 2010 **4%**

Grants

2011 **14%** 2010 **15%**

Investment income

2011 **5%** 2010 **7%**

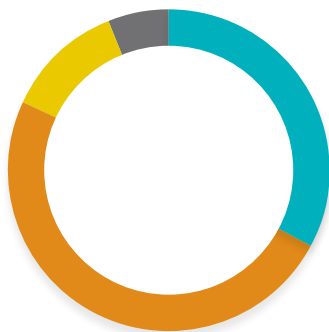
Optics

2011 **2%** 2010 **3%**

Others

2011 **7%** 2010 **3%**

Expenditure for the year ended 31 December



All staffing salaries, fees and oncots

2011 **33%** 2010 **40%**

Other research and clinical costs

2011 **49%** 2010 **40%**

Equipment, depreciation and maintenance

2011 **12%** 2010 **13%**

Administration and overheads

2011 **6%** 2010 **7%**



Financial Statements

Australian Foundation For The Prevention of Blindness Trust

The Treasurer and Chairman for the Australian Foundation for the Prevention of Blindness Trust (AFPB Trust), Mr Carlo Manera, has continued to provide sound financial guidance during the last financial year.

The following summary financial reports reflect the financial position of the AFPB Trust for the year ended 31st December 2011.

	2011 \$	2010 \$
Income		
Donations and Subscriptions	1,050	1,250
Imputation Credit	28,785	23,799
Interest and Investment Income	111,512	94,953
Total Income	141,347	120,002
Less Expenditure		
Audit Fees	2,475	2,730
Bank Fees	70	70
Donation - Financial	81,406	45,824
Insurance	2,485	2,438
Fair value adjustment of Investment to market value	102,460	90,790
Total Expenditure	188,896	141,852
Net (Loss)/Profit For The Year	(47,549)	(21,850)
Accumulated Funds at the beginning of year	2,530,113	2,551,963
Accumulated funds at end of the year	2,482,564	2,530,113
Represented by		
CURRENT ASSETS		
Cash at Bank	1,049,744	1,050,215
Other Assets	11,999	2,605
NON-CURRENT ASSETS		
Investments	1,423,321	1,479,793
Total Assets	2,485,064	2,532,613
Current Liabilities		
Other Creditors	2,500	2,500
Net Assets	2,482,564	2,530,113