

A CLEAR VISION TO THE FUTURE

ANNUAL
REPORT



2010

our mission

ANNUAL REPORT 2010



To achieve excellence
in scientific research
and clinical practice
to prevent blindness.

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ANNUAL REPORT 2010

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David Eiszele
Chairman Lions Eye Institute

Under the leadership of David Mackey the Institute has performed very well during 2010 and is now well placed to achieve the implementation of its strategic research growth objectives.

The Board approved three new research projects that will be funded initially by the Lions Eye Institute (LEI). The projects are the Raine Eye Health Study, Age-Related Macular Degeneration Gene Therapy Trial, and an Indigenous and Remote Eye Health Unit. These projects have commenced and the key people recruited to drive the research projects. Providing additional funds for research growth is a key Institute objective that will assist LEI with our preparations for relocating our research groups to the new Western Australian Institutes of Health (WAIH) building, combining WAIMR and UWA with one floor reserved for LEI, which is scheduled for completion in 2013.

LEI achieved a solid financial performance in

2010 with a surplus from operations and investments of \$0.7million – last year's result was \$3.97million. As indicated above, substantial expenditure was allocated to starting up the new research projects and over a million dollars was spent on the provision of much needed additional clinic space in our existing building.

The total revenue received from operations was \$14.4m, with 68% generated from clinical services and 4% from bequests and donations. The Institute holds \$21m in net assets of which \$7.6 million is in plant, property and equipment.

LEI representatives continued to assist with the design and documentation work required for the two new medical research facilities at the QE11 and Fiona Stanley hospital sites. The building contract for the QE11 site was awarded in February 2011 with construction to be completed by 2013. The Fiona Stanley site research building is planned to follow closely behind the QE11 site project. LEI will lease a whole floor in the QE11

site building under a formal agreement with WAIMR and will be responsible for meeting part of the cost of fitting out the accommodation. The Board has decided to accelerate its fundraising efforts in 2011 to meet the above cost.

Although Western Australian researchers overall did not fare well in the 2010 round of NHMRC grants, LEI researchers Dr Jerome Coudert and Professor Piroska Rakoczy were successful in being awarded project grants to commence in 2011, and Professor Mariapia Degli-Esposti received a Principal Research Fellowship. Professor David Mackey was a beneficiary of Channel 7 Telethon Trust funding for his Western Australian Strabismus Inheritance Study. He also received a prestigious Alcon Research Institute Award and significant untied research funding.

This year's Ian Constable Lecture was held in September at the Octagon Theatre at UWA and was presented by Professor Rolf Zinkernagel. Professor Zinkernagel and his Australian colleague Professor Peter Doherty were awarded the 1996 Nobel Prize in Physiology or Medicine for the discovery of how the immune system recognises virus-infected cells.

Two long serving members of the Board retired at the AGM in April. Brian King, who was the founding Chairman of the Institute, was replaced by Professor Ian McAllister, the current Clinical Services Director, and John Atkins who has served on the Board since 2003 was replaced by Jason Ricketts. Jason is the Managing Partner of Freehills WA office. On behalf of the Institute, I thank both Brian and John for their dedication and service to the Board over many years.

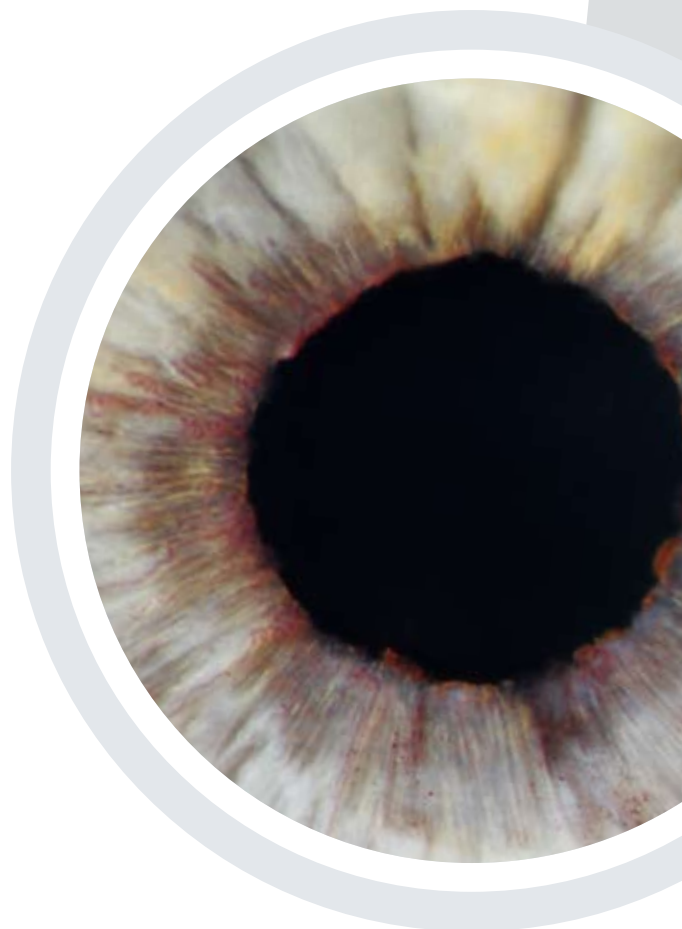
The Board again reviewed its performance and identified issues that need attention to ensure that the Institute continues to flourish. The Board concentrated its efforts on supporting the management team to generate new research projects; it reviewed operations and made recommendations to improve the Clinic's business operations so that it performs in a financially sustainable manner.

The Institute staff has had to work under difficult circumstances during the year whilst building alterations to the first floor were in progress. The additional clinic floor space has already resulted in improved service to our clients and on behalf

of the Board, I express our thanks to all staff for their efforts. The Board is looking forward to working with the management team in 2011 to progress our research and clinical services goals.

It is with deep sadness that we note the passing of Lorraine Strickland in January 2011. Lorraine made an outstanding contribution to the prevention of blindness in her role as Chair of the Lions Save-Sight Foundation. On behalf of the Institute, I extend our sympathy to Peter Strickland and his family.

David Eiszele
Chairman



Changing faces and places

Over the last two years there have been changes in faces and places at the Lions Eye Institute (LEI) including the Volunteers in their red jackets helping visitors and patients the moment they walk in the door and Coffee Biz serving the best coffee on the QEII Campus. In the clinical/research area we have two new ophthalmologists: Associate Professor Angus Turner, who is working in Indigenous and Remote Eye Health, and Associate Professor Fred Chen, a vitreoretinal specialist who is working in stem cell research. Our Board also has two new members: Jason Ricketts, who is Partner and Head of Office at Freehills WA, and ophthalmologist Professor Ian McAllister. We also have the faces of 2,000 Perth 20-year-olds who are participating in the Raine Eye Health Study. Two orthoptists, Sandra Oates and Seyhan Yazar, and three junior doctors, Hannah Forward, Charlotte McKnight and Alex Tan, are working on the study and are often seen around the clinic.

However, it is with profound sadness that we acknowledge the loss of one face from LEI on 11 January 2011: the Chair of the Lions Save-Sight Foundation Lorraine Strickland. She became Chair of the Foundation in 2005 and was always active at the Club, District and Multiple District level in Lions. Lorraine used every opportunity to advocate enthusiastically on behalf of the Foundation. She was indefatigably involved in rebuilding and revitalising the Foundation and increasing public and new Lions Club members' awareness of its purpose and aims. Lorraine's effervescent smile and ready wit will be deeply missed.

There were other changes at LEI during 2010.

To the delight of patients and clinic staff, the clinic area on the mezzanine level was expanded and refurbished.

The old A block (the original floor occupied by LEI when it moved to Sir Charles Gairdner Hospital in 1984) is slowly being renovated and the new Linton Library will be completed in early 2011. The Volunteers are helping re-catalogue the journal collections so they are ready for binding and the new computers for a digital medical library are in place.

The Lions Eye Bank moved to a new, expanded

area in A block in late 2010. It also received funding from the Western Australian Department of Health to set up a tissue culture corneal donation service. This allows longer storage of tissue and a greater opportunity for testing and scheduling of corneal transplants.

Preparation of the site for the new Western Australian Institutes of Health building (in which LEI has a floor) commenced behind the current LEI building, with construction due to be completed at the end of 2013.

Although the strain of the GFC on funding for research was most noticed in 2010, LEI had several success stories during the year.

Lyne Thomas, coordinator of the LEI volunteer service, represented all the volunteers to win the inaugural SUBIZ Volunteer of the Year Award.

The NHMRC has placed particular emphasis on Evidence-Based Medicine (EBM). EBM aims to apply the best available evidence gained from the scientific research to clinical decision making. It seeks to assess the strength of evidence of the risks and benefits of treatments (including no treatment) and diagnostic tests. Evidence quality can range from meta-analyses (statistically combining the results of different comparable studies) and systematic reviews of data from double-masked, placebo-controlled clinical trials at the highest level, down to conventional wisdom at the lowest level. National Glaucoma Guidelines were released, representing several years of intense literature review and meetings of a review panel to create the best summary of the body of evidence for the report. The multidisciplinary panel was led by Professor Bill Morgan as Chair and Professor David Mackey was also a panel member (available from NHMRC website www.nhmrc.gov.au).

Several LEI researchers were successful in receiving funding in the NHMRC 2010 round of funding applications, despite only 17% of applications from WA being approved. Professor Mariapia Degli-Esposti's NHMRC Fellowship was renewed for a further three years. Professor Piroska Rakoczy leads the LEI Molecular Ophthalmology research team that received Project Grant funding and Dr Jerome Coudert from the Experimental Immunology Group also received funding under the Project Grant (New Investigator) scheme. Newly appointed Associate Professor Fred Chen was awarded a Sylvia and Charles Viertel Charitable Foundation grant which, in

combination with the start up funds he received from LEI and the Vice Chancellor at UWA, will allow him to conduct stem cell research at LEI into retinal diseases.

Professor Mariapia Degli-Esposti was honoured during the year when a paper on which she was senior author: Innate immunity defines the capacity of antiviral T cells to limit persistent infection (*J Exp Med.* 2010;2007(6):1333-43), was selected for Faculty of 1000 Biology, which is an award-winning online service that highlights and evaluates the most important papers published in the biological sciences, based on the recommendations of over 2000 of the world's top researchers.

My research team made international headlines with gene discoveries for glaucoma and myopia, achieving triple success with three papers I co-authored published in the October 2010 edition of the prestigious international journal *Nature Genetics*.

Associate Professor Angus Turner, from LEI's Indigenous and Remote Eye Health Unit, is sitting on a Medicare committee to review Medicare funding for tele-ophthalmology, which will be an important advance in the diagnosis of eye disease.

Our research, clinic and administration teams at LEI helped staff a booth at Telethon in November 2010. We received funding from the Channel 7 Telethon Trust for the Western Australian Strabismus Inheritance Study run by Sandra Oates and Seyhan Yazar, who are investigating the genetics of turned eye. This is part of an international collaboration with Harvard University's Professor Elizabeth Engle, who will be spending several weeks at LEI as a UWA Raine Visiting Professor in November-December 2011.

Professor David Mackey
Managing Director



Our Board



1. David Eiszele FAICD [Non-executive Chairman](#)

David Eiszele joined the Board in 2003 and was appointed Chairman from 1 January 2005. He is Chairman of Verve Energy, a director of Torrens Energy Limited and a Fellow of the Australian Institute of Company Directors (WA Division). A former Managing Director of Western Power Corporation - a major government trading entity - Mr Eiszele has held national leadership roles as a member of the Business Council of Australia and Chairman of ESAA. He was the Chairman of PearlStreet Limited prior to its sale in December 2009, a past Fellow of the Institution of Engineers Australia and Australian Institute of Management.

2. Professor David A Mackey MBBS, MD, FRANZCO, FRACS, AICD [Managing Director](#)

Professor David Mackey is internationally recognised as a genetic ophthalmologist who has spent 20 years studying the genetics of the optic nerve, work that was recognised by his peers in 2010 when he was a recipient of a prestigious Alcon Research Institute Award. Before moving to Perth in 2009, David was Associate Professor at University of Melbourne's Department of Ophthalmology and Clinical Professor at the University of Tasmania. From 2005-09 he was also the Pfizer Australia Senior Research Fellow.

3. Professor Ian McAllister MBBS, FRANZCO, FRACS [Non-executive Director \(Appointed 19 April 2010\)](#)

Professor Ian McAllister was born and educated in Western Australia and studied medicine at The University of Western Australia. Initial ophthalmological training was completed in Perth and following this a fellowship in vitreoretinal disorders was completed at the Cleveland Clinic Foundation in Cleveland, Ohio, USA. A further one year staff position in vitreoretinal disorders was also completed at Cleveland before Professor McAllister returned to Perth in 1988. He has provided vitreoretinal services to Royal Perth Hospital and the Lions Eye Institute since returning and has also been involved in research into disorders affecting the retina since this time. He has held eight NHMRC grants as well as numerous minor grants and has published over ninety papers in scientific journals.

4. William Bloking FAICD [Non-executive Director](#)

William (Bill) Bloking joined the Board in 2003. Mr Bloking is currently Chairman of KAL Energy and Nido Petroleum, and he is a non-executive 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, a Fellow of the Australian Institute of Company Directors, and an Adjunct Professor at Murdoch University.

5 . 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.



6. Michele Dolin MBA (Melb), MA (Michigan State), BA (Maryland), CPA, FAICD [Non-executive Director](#)

Ms Dolin joined the Board in 2003. She is a Director and Fellow of the Association of Superannuation Funds of Australia, Fellow and Life Member of the Australian Institute of Management, Senior Fellow of the Financial Services Institute of Australasia, Fellow of the Association of Superannuation Funds of Australia, and a member of CPA Australia. Ms Dolin is the Chief Executive of GESB and has held senior executive positions at BankWest, Westpac and Challenge Bank and was the Pro-Chancellor, Curtin University.

7. Jason Ricketts B. Juris (Hons), LLB, LLM (Dist), GAICD [Non-executive Director \(Appointed 15 June 2010\)](#)

Jason Ricketts has been a partner with national law firm Freehills since 1996. He practises in the area of infrastructure law and also performs management roles within the firm. He has a Bachelor of Jurisprudence, Bachelor of Laws, and a Master of Laws and is a Graduate member of the Australian Institute of Company Directors. He is on the board of Freehills, the board of Leadership WA, the board of Lifeline WA and is a member of the Law Society of Western Australia.

8. John Atkins B. Juris, LLB, LLM, FAICD [Non-executive Director \(retired 19 April 2010\)](#)

John Atkins is Chairman, Western Australia at ANZ. Before joining ANZ, Mr Atkins was Head of the Perth office of national law firm Freehills. In addition to his role at ANZ, he is also non-executive chairman of the nickel exploration company Breakaway Resources Ltd, non-executive director of strategic planning and management consulting company Barrington Consulting Group Pty Ltd, non-executive director of financial services company Australian Finance Group Ltd, Director and Vice President of the Chamber of Commerce and Industry, Member of the Council of Presbyterian Ladies College and Deputy Chairman and former Chairman of Committee for Perth. Mr Atkins is an experienced commercial lawyer and has substantial strategic planning, business building and corporate realignment experience.

9. Brian King AM MBE [Non-executive Director \(retired 19 April 2010\)](#)

With his long standing association with Lions Clubs International as a Past District Governor and 19 years as Chairman of the Lions Save-Sight Foundation, Mr King played a lead role in the creation of the Lions Eye Institute. He was appointed as LEI founding Chairman in 1983 and continuously held this position until his retirement on 31 December 2004. Mr King is a former general insurance executive and in 1981 was appointed a Member of the British Empire. In 2004 he was honoured with a Member of the Order of Australia for service to the community.



Sir James Cruthers AO [Our Patron](#)

Sir James Cruthers has been a long-standing patron of LEI. 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 was appointed 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 Mr Rupert Murdoch. Sir James is a philanthropist who established TVW Telethon and the WA annual Christmas Pageant. He has actively supported many charitable groups.



*Chee-Peng Yao, CFO (R) with
Finance and Administration team*

The Lions Eye Institute exists to:

- conduct research into the causes, prevention and treatment of diseases and conditions giving rise to blindness and other ocular disorders on a not-for-profit basis;
- advance the standards of medical eye care through education and training of the medical and allied professions; and
- stimulate public interest in the social and economic impact of eye disease through promotion of eye health awareness, community screening programs and population research relevant to prevention of blindness.

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.

Board of Directors

Our Board of Directors comprised of six non-executive directors, including the Chairman, and one executive director, being the Managing Director. Directors each give of their expertise and time on a voluntary basis. Professor Ian McAllister was appointed non-executive director on 19 April 2010. Jason Ricketts was appointed non-executive director on 15 June 2010. John Atkins and Brian King retired from the Board on 19 April 2010.

The Board provides strategic guidance to 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 principal objective of eliminating avoidable blinding eye disease.

The Board formally meets nine times a year and on other occasions as required. It receives regular and detailed financial and operational reports from senior management. Upon request, senior management attend Board meetings, provide briefings and respond to questioning by Directors.

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

Executive Committee

Our Executive Committee consisting of the Managing Director, Director of Research, Director of Clinical Services, Director of Surgical Services, Director of Development, Director of Nursing, Chief Financial Officer and Head of Information Technology meets monthly to discuss key budgetary, operational and strategic activities. In addition, Professor Bill Morgan has been co-opted onto the committee.

Financial reporting

The Institute's financial year ended on 31 December 2010. Our Managing Director signed off on the annual financial reporting process on behalf of the Board, advising that to the best of his knowledge the financial statements provided a true and fair view of the financial position of the Institute.

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.

Risk management

In order to reduce exposure to insurable risk the Institute has in place a risk management plan. This plan has effect across all business activities and is regularly reviewed to safeguard our reputation and financial security. Additionally, the Institute maintains a comprehensive insurance program.



Accreditation of clinical services

The Lions Eye Institute's Clinical Services Division has received ISO9001 accreditation as part of 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 will receive expert and personal care.

Western Australian Strabismus Inheritance Study

Winthrop Professor David Mackey is collaborating with Professor Elizabeth Engle from the Children's Hospital, Harvard Medical School in Boston, USA to uncover the genetic contributions to common forms of strabismus. The Western Australian Strabismus Inheritance Study (WASIS) is identifying families that segregate these diagnoses. We have started recruiting families with strabismus and collecting DNA but the full results of this study will take several years to come to fruition. From the Raine Eye Health Study we have found that the impact of strabismus is that 5% of adolescent/young adults have poor stereo vision and would not be able to appreciate 3D movies or television.

Raine Eye Health Study

The Raine Study, also known as the Western Australian Pregnancy Cohort 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 2,000 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



Orthoptist Sandra Oates



*Raine Study staff
Alla Soloshenko and
Professor Mackey with
UWA Vice-Chancellor
Alan Robson*

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.

In our pilot of 400 Raine participants examined in 2010, we have identified some diseases that affect young adults such as keratoconus and pterygium. 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.

Twins Eye Study

Gene identification has proven successful for ocular biometry relating to diseases such as myopia and glaucoma in our parallel project the Twins Eye Study in Tasmania (TEST). Since 2001 over 1,000 sets of twins and nearly 200 of their

other brothers and sisters have been involved in the study. We examined some of the brothers and sisters to check that the twins had similar eye measurements to singletons and most of the time they do. We saw all ages but most were teenagers or young adults.

We are also looking at environmental factors that influence the eye. In the Tasmanian twins, we found that if the mother smoked during pregnancy then there was an increased risk that the twins would have a turn in their eye (strabismus) and poor 3D vision. We also found that smaller birth size was associated with narrower blood vessels in the eye. Lower birth weight was associated with shorter axial length and more curved corneas. Although both these measures are associated with myopia, birth weight was not associated with myopia. This adds new insights into the mechanism for myopia.

The major finding of this study in 2010 was the identification of genes associated with glaucoma and its risk factors affecting the central corneal thickness and the size of the optic nerve. In addition we identified several genes involved in myopia.

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. This study is collecting measures on vision and hearing disorders, respiratory and cardiovascular disease, muscle strength and physical function, obesity, diabetes, sleep disorders, bone health, spinal pain, mental health and cognition.

There is an eye component within this Study, for which the Lions Eye Institute through Winthrop Professor David Mackey is providing financial support, involving the measurement of the participants' focus with an autorefractor machine (used to provide an objective measurement of refractive error and prescription for glasses), measuring pressure with an eye care tonometer and taking a photograph of the retina, in particular of the optic nerve and the macula.

*Dr Christopher Andoniou
and Iona Schuster*

Improving eye health in remote and isolated WA communities is the aim of the Indigenous and Remote Eye Health Unit. The unit was formed at LEI in mid 2010 in response to the recognised need for a strategy to address the disparity in eye health and service provision for indigenous people and those living in remote areas in WA.

LEI is dedicated to improving continuity of care in these regions by providing improved outreach services and increasing patient awareness and education. The program is currently jointly supported by LEI, UWA and the Eye Foundation (the fundraising arm of RANZCO and ORIA). Coordinated by Associate Professor Angus

implementing efficient use of telemedicine models for eye care in remote locations.

Funding is needed to ensure the future expansion of the unit and to establish a more comprehensive research program over the next few years.



Associate Professor Angus Turner

Turner, the unit includes an orthoptist and several medical students and support staff. Regular outreach trips not only offer a clinical service to those living in remote areas but also provide hands-on teaching opportunities and a unique exposure to patients living in small communities who would otherwise have little or no means of seeking medical treatment.

Communities are benefiting from the program through more cost-effective and efficient service delivery and improved coordination between optometry and ophthalmological services. We are



REVIEW *Clinical Research*

The Lions Eye Institute (LEI) 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 LEI all have a major commitment to research and teaching. The benefit to our patients is that we can guarantee that they will receive the most up to date treatment for their eye condition available anywhere in the world and also in many cases, for specific eye disorders, are able to access new treatments before they are available to the general public.

2010 saw some exciting developments that were originally generated in the laboratory of LEI being finally translated to clinical techniques. These include the use of a high intensity laser to create a bypass in blood vessel blockages in the retina. This technique was developed by Professor Ian McAllister and underwent extensive laboratory testing before a phase 3 multicentre trial conducted within Australia proved its effectiveness with the results being

published in the international journal *Ophthalmology* in 2010.

The development of a micro fistula to control intraocular pressure in intractable cases of glaucoma was developed by Professor Bill Morgan and 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 being readied for phase 2 clinical trials.

All of these studies represent many years of basic science research and trials before they have reached these stages.

We currently have twelve specialty trained ophthalmologists at LEI which enables us to offer expertise in all branches of ophthalmology. In 2010, 35,948 patients visited the Institute with 4,445 procedures being performed by LEI ophthalmologists and 4,051 ocular injections given for diseases including macular degeneration, diabetic retinopathy and retinal vascular disorders.

Other areas of clinical research include 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.

Our Managing Director, Professor David Mackey, continues to expand LEI's clinical database of genetic eye diseases in his Australia-wide program. He is also inducting the Raine Eye Health Study, which is an extensive database of ocular disorders affecting younger patients.

Professor McAllister, Professor Constable, Associate Professor Fred Chen and Dr Isaacs continue their involvement with multicentre clinical trials with nine separate programs investigating new therapies for the treatment of macular degeneration, diabetic retinopathy and retinal vascular disorders. These conditions are responsible for 65% 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 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 also 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 active 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 LEI to improve glaucoma outcomes in advanced cases unresponsive to other treatment. Professor Morgan also continues his research into retinal venous pulsation properties using a specially designed ophthalmodynamometre which was

developed at LEI. This technique is the world's first measurement of glaucoma which, if proven in the current multicentre trial, will actually 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.

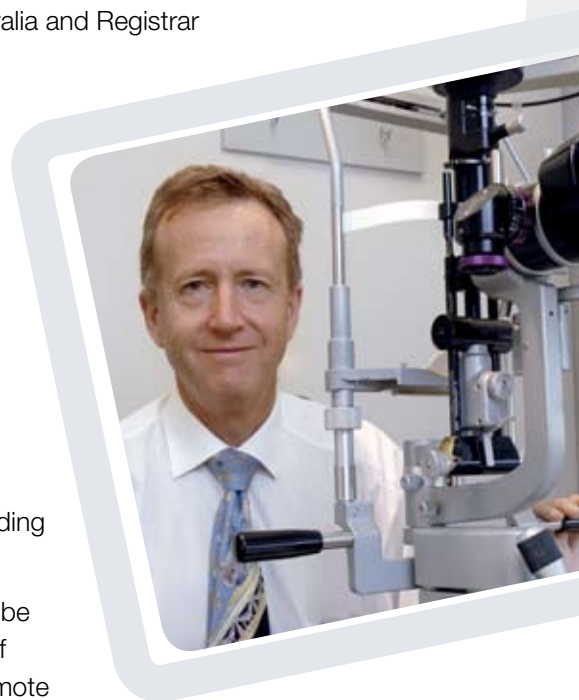
Dr deSousa and Dr Gajdatsy continue their development of new surgical procedures in the area of ocular plastic and orbital surgery. Together with Associate Professor Tay-Kearney they are involved in the teaching program for medical students in Western Australia and Registrar Ophthalmologists.

All clinicians at the Institute continue to be actively involved in research and this is one of 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 Institute continues to be involved in the provision of ophthalmic services to remote and indigenous communities.

Associate Professor Angus Turner is extensively involved in providing ophthalmic services to remote communities and continues to be involved in photographic screening and telemedicine techniques.

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



*Professor
Ian McAllister
Director of Clinical
Services*

REVIEW Immunology & Virology



Professor Mariapia Degli-Esposti

The Immunology and Virology Research Program aims to understand the mechanisms that regulate complex immune responses by studying how the immune system responds to viral infections. Viral infections, especially those induced by chronic viral pathogens, cause considerable clinical challenges and on-going health care costs. The development of effective therapies to prevent and treat persistent infections is therefore of the highest priority. Ultimately, this program hopes to develop such therapies.

In addition to causing extensive whole body disease, many viruses also affect the eye. 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.

Our recent findings have provided exciting evidence of unexpected interactions between components of the immune system. These interactions have proved to be critical in mounting and sustaining immune responses that can curb chronic viral infection. These results have continued to attract attention in the scientific community and were published in 2010 in one of the premier medical journals, the *Journal of Experimental Medicine*.

In addition, our group has continued to investigate the mechanisms used by viral pathogens to weaken physiological responses in their hosts. 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.

A number of eye diseases have an immune component, but the knowledge of immune responses in the eye remains limited. The close interaction

between the Immunology and Virology Program and the Ocular Immunology Program has

strengthened our studies of eye diseases that have an immune basis. In addition to the impact of infection on the eye, we are now also studying autoimmune diseases that affect the eye. These exciting studies will improve our knowledge of the mechanisms that mediate ocular autoimmune diseases which are still a leading cause of blindness, but will also provide new insights into the causes and potential treatment of



autoimmunity in general. Such advances are critical given the increasing incidence of autoimmune diseases in developed countries.

Research Outcomes & Highlights

- Published a seminal study highlighting the unexpected impact of innate immunity on the responses required for efficient control of chronic viral infection
- Awarded major funding by the NHMRC through a Program Grant
- Identified the mode of action of novel viral proteins that interfere with programmed cell death (apoptosis)
- Received invitations to present at premier international conferences
- Continued to be awarded peer-reviewed funding from the NHMRC (Program, Project and Fellowship awards) and the ARC (LIEF award)

Major Sponsors

- NHMRC
- MHRIF



Immunology and Virology Team

Within the Centre for Experimental Immunology at LEI sits the Viral Immunogenetics Group. This 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.

While many viruses are cleared after initial infection, a number of viruses have, over many years, evolved with their hosts to persist for the individual's lifetime. While large DNA viruses such as cytomegalovirus (CMV) generally cause only asymptomatic infection in healthy individuals, they can be lethal or cause diseases such as retinitis in immunosuppressed individuals.

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.

Research outcomes and highlights

- Investigating the consequences of sequence variability of the MCMV *m157* protein. These studies have defined differences in variant *m157* binding to both activating and inhibitory NK cell receptors from a range of different inbred mouse strains and how this dictates the outcome of NK cell activation in vitro and the consequences for the NK cell response to virus infection.

- We have shown that a viral immune evasion molecule can bind a cell adhesion molecule and this can affect viral virulence through effects on cytotoxic T cell responses and by regulating cytokine and chemokine production.

Sponsors

- NHMRC
- MHRIF



*Associate
Professor
Anthony Scalzo*

Ocular Immunology

In 2010, our research in ocular immunology concentrated on understanding the impact of viral infections in the eye, but also expanded to new programs aimed at addressing autoimmune diseases that affect vision.

In relation to viral infection, we continued to investigate the immune response to murine cytomegalovirus infection in the eyes of mice. When the virus was injected into one eye, it spread quickly to other organs (but not the contra-lateral eye), and a rapid and effective anti-viral immune response was detected directly in the eye. 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 found that activated immune cells (CD8+ T cells) that target the virus enter the infected eye within days of infection. We also evaluated the longevity of these responses and showed that, surprisingly, they are sustained for a long period of time: > 3 months.

Interestingly, these cells never entered the uninfected eye, suggesting that they have an uncanny ability for finding the virus or detecting the inflammation caused by infection. This data provides important insights into the clinical management of viral retinitis.

We also found that the eye environment can be influenced by infection, even when the virus does not enter the eye, which may be an important pre-emptive means of defending the eye from viral assault. Although it is well known that the eye possesses several unique attributes that protect it from insults and ensure that sight is preserved, our current studies show that it can also respond to attack, e.g. infection, like other tissue and organs.

Our ocular autoimmunity program progressed well during the year. Professor John Forrester (University of Aberdeen), one of the world's leading ocular immunologists, visited the Institute twice during 2010, as part of his collaboration with Dr Matthew Wikstrom and Professor Mariapia Degli-Esposti. Together with Professor



From back left to right: Professor Degli-Esposti, Professor Constable, Professor Mackey, Malcolm McCusker, Tonya McCusker and Dr Wikstrom

Forrester we have established a new project studying inflammatory ocular disease, also known as uveitis. Uveitis is an autoimmune disease that affects the eye, damaging the retina and causing blindness. It mainly occurs in the 20-50 year age group, and can affect one or both eyes. Uveitis is an important problem, but little is known about its cause. Through our collaboration with Professor Forrester we have commenced work on the cause of uveitis, using a unique mouse model that closely mimics human disease. This model was transferred to Perth in 2010 and will be used to study the cause of uveitis and to design new therapies for this sight-threatening disease.

Research outcomes & highlights

- Published the first study of non-invasive monitoring of an infectious agent (virus) in the eye
- Established a unique model of spontaneous uveitis in our laboratories
- Expanded the collaboration with Professor John Forrester, now an adjunct Professor at the University of Western Australia

Sponsors

- The McCusker Charitable Foundation
- The University of Western Australia

REVIEW *Molecular Ophthalmology*



Professor Piroska Rakoczy

The Molecular Ophthalmology group continued to focus its attention on diabetic retinopathy (DR), age related macular degeneration (AMD) and systems biology. The ophthalmic, molecular and immunological characterisation of our diabetic animal models continued. The AMD-associated animal work was completed and the paper submitted for publication.

The long awaited manufacturing of the recombinant virus for the gene therapy trial suffered further delay, thus the start of the trial was postponed.

In the meantime the group strengthened its computational biology capabilities. Professor Rakoczy again spent 3 months sabbatical at the Centre for Genomic Research in Barcelona at Professor Luis Serrano Pubull's laboratory and Dr Richard McKeone also visited the laboratory during this time.

Research highlights include publication of the first paper from our systems biology work and moves towards establishing collaboration using our new diabetic retinopathy model.

Sponsors

- NHMRC
- Avalanche Biotechnologies, USA

Molecular Ophthalmology Group



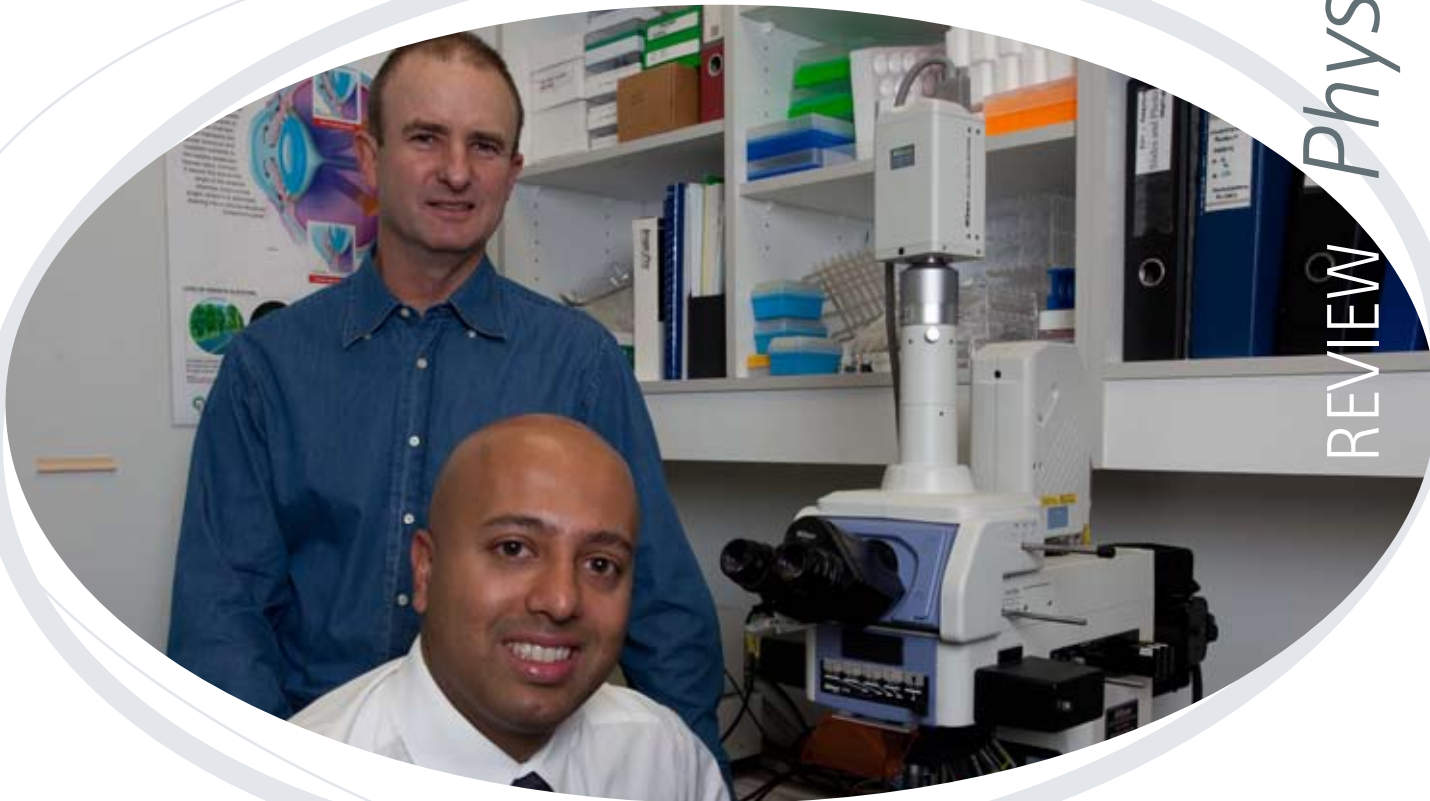
The Physiology and Pharmacology Group at LEI has continued to make significant progress in its efforts to develop new therapeutic and diagnostic approaches to the major sight threatening diseases in clinical ophthalmology. These diseases include diabetic retinopathy, age related macular degeneration, retinal vascular diseases and glaucoma. During 2010, the group published nineteen papers in the ophthalmic literature. Particularly pleasing was the contribution made by some of our younger researchers. Dr Chandra Balaratnasingam, one of our PhD students, published an excellent paper describing the time-dependent effects of focal retinal ischemia on axonal cytoskeleton proteins. This was published in Investigative Ophthalmology and Visual Science, one of the top ranked journals in ophthalmology. One of our medical students, Dr Min Kang, published a paper on the effects of swimming goggles on a normal tension glaucoma patient. The main focus of the senior members of the group over the later months of 2010 was to lay down the groundwork for grant applications to secure funding for the years ahead.

Research outcomes & highlights

- Greatly improved our techniques for studying vascular and structural changes in the ageing human eye
- Published our pilot study on new techniques using lasers for intraocular surgery
- Published nineteen papers in 2010
- Expanded collaborative links with research groups in the USA and China

Sponsors

- NHMRC
- ARC Centre of Excellence in Vision Science
- State Government of Western Australia (MHRIF)
- UWA



Professor Bill Morgan and Dr Chandra Balaratnasingam



The Laser Vision Centre and Day Surgery continue to provide an excellent service to all patients and the review of our systems and customer service is ongoing.

The staff persevere in their quest for excellence and this is obvious in the way in which they continue to contribute with new ideas and patient advocacy.

Lions Optics

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

Lions Optics offers the combined expertise of three optometrists and a qualified optical dispenser, ensuring all clients receive the highest standard of clinical care. Now in its second decade of operation, all profits from Lions Optics are directed to the Lions Eye Institute and its sight saving research.

Most eye examinations can be directly bulk billed to Medicare. To arrange an appointment please call 9381 3860 to organise a time convenient for you. Lions Optics also has the HICAPS direct claiming system which is compatible with many health funds throughout Australia.

Lions Eye Bank

In 2010, the Lions Eye Bank supplied 142 corneas (some sourced from interstate locations) and 95 sclera for transplantation. Together this resulted in an excellent year; the most successful since 1996.

In June, two significant changes occurred. The Eye Bank relocated to an area more compliant with the quality requirements of the TGA licensed facility. Secondly, a funding grant was obtained to change the storage method of corneas. The new method reduces the corneal graft wait list by allowing expansion of the donor pool. A more streamlined distribution process is also achieved

*Lions Eye Bank Director
Associate Professor Steven Wiffen*

Our Clinical Services

2010 proved to be a challenging year in respect to providing clinical services to the community while undertaking a refurbishment program. The Institute built a new clinic on level one which was completed at the end of October. This clinic will provide the latest technology and a more congenial area for corneal and oculoplastic patients.

At the same time we were able to set up areas for specific clinics on level 2 and alleviate patient crowding. Procedures have been streamlined and new equipment purchased to provide the most advanced care for patients that require ongoing levels of service and treatment.

Our Clinical Trials Unit continues to grow with a number of clinicians taking part in internationally sponsored research which is conducted in our clinics.

Our Clinical Services



*Elizabeth Zambotti
Director of Nursing*

through a lengthened storage period allowing the scheduling of corneal transplants which benefits patients, surgeons and theatre staff.

Your decision to become an eye tissue donor can have a tremendous impact on the lives of many. To register, contact the Australian Organ Donor Register (AODR) for an information/registration brochure. Brochures are available at

www.donatelife.gov.au, from the Lions Eye Institute or any Medicare office or phone 1800 777 203. It is important to discuss your decision with your family to ensure that your wishes are observed.



LEI Day Surgery



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 doctorate in philosophy 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 Ophthalmologist at Royal Perth Hospital, is currently continuing his research interest in stem cells and other novel treatments for the various types of macular degeneration at the Lions Eye Institute.



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, 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 laboratory and gene therapy research for retinal diseases. He was Managing Director of the Lions Eye Institute from 1983 to 2009.



Professor Geoffrey Crawford

[\(Corneal disorders and surgery; cataract and refractive surgery\)](#)

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 and regularly presents at national and international scientific meetings.



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 a 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.



Dr Tim Isaacs

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

After training in ophthalmology in the UK, 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 also practises at LEI's satellite clinic at Murdoch. His research interests include the evaluation of new therapies for diabetic retinopathy and macular degeneration. Dr Isaacs is also actively involved in third world ophthalmology and the provision of high volume cataract surgery in Nepal.



Professor David Mackey

(Hereditary and genetic eye diseases)

Managing Director, Lions Eye Institute and Professor of Ophthalmology/Director Centre for Ophthalmology & Visual Science, 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 Centre 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 LEI and a consultant ophthalmologist at Royal Perth, Sir Charles Gairdner and Princess Margaret Hospitals. Professor McAllister is actively involved in research for cures for vitreoretinal disorders, especially retinal vascular disorders, and has held eight 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. A consultant ophthalmologist at Royal Perth and Princess Margaret Hospitals, he is a Professor at UWA and also Co-Director of LEI's McCusker Glaucoma Centre. He has completed a doctorate in philosophy 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.



Associate Professor Mei-Ling Tay-Kearney

(Opportunistic 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 and is an examiner for the RANZCO Part 2 College examinations.



Associate Professor Steven Wiffen

(Corneal and refractive surgery, anterior segment disorders & 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. Professor Wiffen is a Consultant Ophthalmologist at Fremantle Hospital and Associate Professor at UWA. He is Director of the Lions Eye Bank of Western Australia.

The Development and Media Group continued to provide financial support from individuals and corporations through its fundraising and community awareness programs. This support is crucial in reducing the gap between the substantial costs of research and the income received through the highly competitive grant process.



Helen Rowe, Director of Development with team

Through a range of media and public relations activities the Development and Media Group were able to highlight to the wider community LEI's research successes and clinical activities. Some of the more notable media highlights for 2010 were:

Retinal Vein Bypass: A World First Treatment For Retinal Vein Blockages

In developed countries retinal vein occlusions are one of the more common causes of blindness, especially in the elderly and those suffering from blood pressure-related problems. Until now there has been no effective treatment allowing restoration of vision for this blinding condition and management has been aimed at end-stage complications.

For the last 15 years Professor Ian McAllister has led a team of scientists at the Lions Eye Institute investigating a method to overcome this retinal

blockage using a high intensity laser to create a venous bypass. Results from the resulting trial indicated a very conclusive beneficial treatment effect with the bypass procedure.

The results of this trial were published in the prestigious ophthalmic journal *Ophthalmology* and this technique is now an accepted treatment for this otherwise blinding condition. The bypass technique is performed as an outpatient procedure using a laser and is completely painless. Many patients can expect complete or nearly complete restoration of vision.

LEI's Managing Director Honoured

Professor David Mackey, LEI's Managing Director, has been awarded the 2010 Alcon Research Institute (ARI) Prize. Developed as a virtual institute in 1981, the ARI exists to support eye health research and expand the frontiers of vision sciences and has now awarded over \$21 million in grants to support outstanding contributors to ophthalmic research worldwide.

In 2010, Professor Mackey was one of only six researchers to receive this prestigious and highly competitive prize. Award recipients become members of ARI and then have the opportunity to share their most recent research, which can lead to new areas of investigation and novel approaches to the resolution of ophthalmic diseases.



LEI Volunteer Program Wins Award

Just 5 months after the new volunteer concierge program started at LEI, volunteer coordinator Lyne Thomas was recognised as Volunteer of The Year by the Subiaco Business Association at its inaugural SUBIZ Awards Presentation Dinner.



Lyne worked with the Lions Save-Sight Foundation and the LEI Clinic Practice Manager to set up the program. She now coordinates the service which runs each weekday.

Lions Save-Sight Foundation Building a Vision

The Lions Save-Sight Foundation (LSSF) has continued its work of fundraising, education, screening and recycling of glasses. The support from Lions Clubs and volunteers has ensured not only the success of the work but the continued growth and ongoing support of research fellowships and projects. The success of this year's work has been overshadowed by sadness with the great loss of a friend and colleague, Lorraine Strickland. Lorraine reached into the hearts and lives of many and was a true Lion in her drive and vision for the LSSF. One of Lorraine's initiatives was supporting the Volunteer Concierge Program at the Lions Eye Institute (LEI).

Working in conjunction with LEI, LSSF has continued to co-fund the PDG Brian King Fellowship, which was awarded to Dr Nicolette Binz for her research on diabetic retinopathy. In 2010, Dr Binz was granted a 6 month extension. A donation of \$5,000 was made to Professor Mackey for the purchase of sunglasses for the participants of the Raine Eye Health Study.

Our successful glaucoma screening programs have continued, thanks to the support of Mr Geoff Moore (Screenings Chairman) and

volunteers. This important work assists those in regional areas to access tests and become informed about glaucoma.

The program to recycle glasses to third world countries continues to grow. Thousands of glasses are distributed through the work of Lions Clubs and the volunteers who sort and pack for this program. LSSF is leading the community with this recycling initiative.

Tribute

The Lions Eye Institute (LEI) and the Lions Save-Sight Foundation (LSSF) recently lost a dear friend and colleague with the passing of Past District Governor Lorraine Strickland.

Lorraine died after a short battle with leukaemia.

From joining the LSSF Board of Directors in 2000, Lorraine was increasingly committed to the foundation, becoming Honorary Secretary in 2002 and holding the role of Chairman from 2005 until her death.

LEI greatly benefited from the support of LSSF during Lorraine's leadership as a result of her dedication to LEI's research projects and clinical care services. Her infectious enthusiasm helped revitalise LSSF and raise its profile, both with the public and Lions Club members.

Lorraine had a long involvement with Lions of WA, becoming a Ladies Auxiliary member of her husband's Club in 1977, and a Club member in 1992.

Her professional background was in education. She lectured at Murdoch University for many years and continued to tutor and mentor external education students until very recently.

We extend our deepest sympathy to her husband Peter and family. She will be sadly missed and remembered with great affection.



A special thanks to our Corporate and Community Supporters

The Mandurah Murray Mayday Club (Inc) has been raising funds for a variety of charities and needy causes for almost 40 years through the sale of second hand clothing and bric-a-brac from its two shops in Mandurah and Barragup.

LEI wishes to acknowledge and thank the club for its ongoing generous support since 2003.

Jazz Club of WA

LEI would like to also acknowledge and thank the Jazz Club of WA who conducted a fundraising event in June. Over 20 musicians from Perth's traditional jazz bands volunteered their time and talent to stage a successful night of music to raise funds for the Institute.

Jazz Club of WA President Ron Knight with Helen Rowe (R) and Janet Murr



Verve Energy

LEI is appreciative of the ongoing donations it receives from the Verve Energy staff giving program.

JLT Australia

LEI is grateful for the ongoing support of JLT.

Nobel Laureate this year's Ian Constable Lecture key note speaker

The annual Ian Constable Lecture acknowledges the contribution of Professor Ian Constable AO, Foundation Professor of Ophthalmology at The University of Western Australia (UWA) and Founding Managing Director of the Lions Eye Institute.

This year's lecture was held on Tuesday 28 September at the Octagon Theatre at UWA in conjunction with the Institute of Advanced Studies. The 2010 lecture was presented by Professor Emeritus Rolf Zinkernagel who was awarded the Nobel Prize in 1996 for Physiology or Medicine (with Australian Peter C. Doherty). Professor Zinkernagel hails from the University of Zurich in Switzerland where he works in the Experimental Immunology Department. His research focuses on solving uncertainties and discrepancies in immunology as well as furthering study into biomedical research and its application. Professor Zinkernagel's oration discussed the regulation of immunity and immunopathology by antigens.

Professor Zinkernagel



The lecture was very successful with several hundred people taking the opportunity to hear a Nobel Laureate speak about his area of expertise.



Visionary Lunch

Over 30 guests attended the annual Visionary Lunch at LEI in December. The function gave LEI staff the opportunity to extend their warm appreciation to our dedicated long term supporters whose ongoing commitment helps fund the Institute's vital research.

Guest speaker Professor John Forrester discussed his present collaboration with LEI's Immunology research group and the close association he has formed with the Institute in recent years. Professor Forrester is a highly regarded ophthalmologist who is widely published and has received many distinguished



awards. He has collaborated on numerous international research projects and is currently Cockburn Chair of Ophthalmology at the University of Aberdeen, Scotland.

Pilbara Aboriginal Eye Health Program

Since 2004, BHP Billiton Iron Ore's generous support has enabled LEI to continue to play a major role in helping to eradicate preventable blindness in the Pilbara region. Through its partnership, both organisations are committed to improving the eye health of indigenous remote communities in the region.

In 2010 retinal screening was undertaken in Karratha, Newman, South Hedland, Jigalong, Tom Price, Marble Bar and Nullagine where the prevalence of diabetes highlights the ongoing need for preventative and educational programs.

How you can help

Preparing and updating your Will is one of the most important duties you will ever undertake and ensures your estate is distributed according to your wishes. A free Will and advisory service is available for anyone wishing to substantially include LEI in their Will. Further information can also be found in our Preserving the Gift of Sight brochure. For a confidential discussion on including a bequest to LEI in your Will, or to request a brochure, please contact the Development Group on (08) 9381 0795.

LEI remains indebted to those who have been inspired to make a bequest to LEI. Such gestures are very much appreciated and we acknowledge with gratitude the following individuals who bequeathed to LEI during 2010:

The Estate of the late Livio Nicolini

The Estate of the late Greta Eelman

The Estate of the late Audrey Shaw

The Estate of the late James Daly

The Estate of the late John Oliver McIntosh

The Estate of the late Mercy Davies

The Estate of the late Eileen Lithgo

The Estate of the late John Silas

Benjamin Lloyd



Funded by The Alan & Lilian Cameron Charitable Endowment, managed by Perpetual

Funded by Harry & Margaret Kerman Trust Fund, managed by Perpetual



Dr Christopher Andoniou
The University of Western Australia
 – Assistant Professor

Australasian Society for Immunology - Treasurer
2010 Annual Scientific Meeting of the Australasian Society for Immunology
 – Chair of organising committee
NHMRC – Recipient, Program Grant



Professor Graham Barrett
Sir Charles Gairdner Hospital
 - Head of Department; Consultant Ophthalmologist

The University of Western Australia
 - Clinical Professor
Asia Pacific Association of Cataract and Refractive Surgeons - President
Australasian Society of Cataract and Refractive Surgeons - President
International Intraocular Implant Club
 - Secretary
American Society of Cataract and Refractive Surgery - Member
European Society of Cataract and Refractive Surgery - Member
International Society of Refractive Keratoplasty – Member
International Intraocular Implant Club
 – Treasurer
Hawaiian Eye Foundation - Recipient of the International Award for Excellence



Dr Nicolette Binz
PDG Brian King Fellowship



Associate Professor Fred K Chen
Association for Research in Vision and Ophthalmology – Member

Australian Medical Association
 – Member
Royal Australian and New Zealand College of Ophthalmologists – Fellow

The University of Western Australia
 – Associate Professor, Centre of Ophthalmology and Visual Science



Professor Ian Constable AO
Lions Eye Institute Limited
 – Past Managing Director
Academia Ophthalmologica Internationalis - Member

Asia Pacific Academy of Ophthalmology
 - Past-President

Scientific Advisory Council, Western Australian Institute for Medical Research
 - Member

State Facilities Council for Centres of Excellence - Member

State Health Research Advisory Council
 - Member

The University of Western Australia
 - Foundation Lions Professor of Ophthalmology, Centre of Ophthalmology and Visual Science



Professor Geoffrey Crawford
Lions Eye Institute Limited
 - Director of Surgical Services;

Director, Laser Vision Centre

The University of Western Australia
 - Professor of Ophthalmology, Centre for Ophthalmology and Visual Science

Royal Perth Hospital
 - Consultant Ophthalmic Surgeon

Princess Margaret Hospital
 - Consultant Ophthalmic Surgeon

Tokushima University, Japan - Visiting Professor

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
 - Executive Committee Member

Lions Save-Sight Foundation – Director

Engineering Society of Detroit – AlphaSphere™ orbital implant, developed at LEI and now marketed by Addition Technology Inc., has been awarded the 2010 Alpha Award for Innovation in Engineering & Technology



Professor Mariapia A Degli-Esposti

NHMRC - Recipient, Principal Research Fellowship

NHMRC – Recipient, Program Grant

Centre for Ophthalmology and Visual Science, The University of Western Australia
– Division Head, Experimental Immunology

Lions Eye Institute Limited
– Director of Research

Raine Medical Research Foundation
– Research Committee Member

Faculty of Medicine, Dentistry and Health Sciences, The University of Western Australia
– Strategic Research Advisory Group, Member

Faculty of Medicine, Dentistry and Health Sciences, The University of Western Australia
– Research Committee, Member

International Scientific Committee for 12th Meeting of the Society for Natural Immunity and NK 2010 – Member



Dr Adam Gajdatsy

American Academy of Ophthalmology
– International Member

Australian and New Zealand Society of Ophthalmic Plastic Surgeons - Fellow

Princess Margaret Hospital
– Honorary Consultant Ophthalmologist

Royal Australian and New Zealand College of Ophthalmologists
– Director of Training WA network, Fellow; State Councillor

Royal College of Physicians of the UK
– Member

Sir Charles Gairdner Hospital
– RANZCO training supervisor, Consultant Ophthalmic Surgeon

The University of Western Australia
– Senior Lecturer; Teaching Coordinator,

Ophthalmology; Postgraduate Anatomy Lecturer

ANZSOPS - Executive Board Member

The University of Western Australia
– Associate Professor



Dr Tim Isaacs

Royal Australian and New Zealand College of Ophthalmologists
– Fellow

Royal Perth Hospital
– Consultant Ophthalmologist

The Royal College of Ophthalmologists (UK)
– Fellow



Winthrop Professor David A Mackey

Lions Eye Institute Limited -
Managing Director

The University of Western Australia
– Professor of Ophthalmology, Centre for Ophthalmology and Visual Science

Lions Save-Sight Foundation - Board Member
Ophthalmic Research Institute of Australia
– Board Member

Australian Society of Ophthalmic & Vision Science - Board Member

Asia Pacific Society of Eye Genetics
– Board Member

Glaucoma Research Society - Invited Member
NHMRC Panel for the evidence based medicine guidelines for glaucoma - Member

Ophthalmology Planning Group at Fiona Stanley Hospital - Member

Neurosciences & The Senses Health Network eye health advisory group - Member

RANZCO Annual Scientific Meeting
– Member of scientific program committee

Asia-ARVO 2011 Symposium
– Member of organising committee

Asia-ARVO 2013 Symposium
– Member of organising committee

Alcon Research Institute 2010 Awardee

Association for Research in Vision and Ophthalmology - Silver Fellow (April 2010)



Professor Ian McAllister

Lions Eye Institute - Director,
Clinical Services; Consultant
Ophthalmologist

American Academy of Ophthalmology
- Member

**Australian Foundation for the Prevention of
Blindness** - Director

Australian Medical Association - Member

Cleveland Ophthalmological Society - Member

**Cocos Keeling Islands & Christmas Island,
Indian Ocean**
- Visiting Consultant Ophthalmologist

Northern Greece Ophthalmological Society
- Member

Oceanic Retina Association - Member

Retina Society - Member

Royal Australian College of Ophthalmologists
- Member

Royal Australian College of Surgeons
- Member

Royal Perth Hospital
- Consultant Ophthalmologist

Sir Charles Gairdner Hospital
- Consultant Ophthalmologist

The University of Western Australia
- Professor of Ophthalmology, Centre of
Ophthalmology and Visual Science



Professor William Morgan

Lions Eye Institute Limited
- Consultant Ophthalmologist

Association for the Blind of

Western Australia - Honorary Ophthalmic
Consultant to the Board of Directors

**Australian New Zealand Glaucoma Interest
Group** - Board Member

Curtin University - Associate Professor

Training Awards Committee - Member
Assessment Panel

Princess Margaret Hospital
- Consultant Ophthalmologist

**Royal Australian and New Zealand College of
Ophthalmologists** - Member

Royal Perth Hospital - Consultant
Ophthalmologist

The University of Western Australia - Professor

**NHMRC Panel for the evidence based
medicine guidelines for glaucoma** - Chair



Ireni Ali Rahman

The University of Western Australia
- Postgraduate Travel Award

**Australian Society of Medical
Research** - Travel Bursary

Brunei Darussalam Postgraduate Travel Fund



**Associate Professor
Angus Turner**

Fremantle Hospital
- Consultant Ophthalmologist

The University of Western Australia
- Associate Professor



**Dr Sarojini
Vijayasekaran**

The University of Western Australia
- Associate Professor (Adjunct)



**Associate Professor
Steven Wiffen**

**Lions Eye Bank of Western
Australia** - Director

Fremantle Hospital - Consultant
Ophthalmologist

The University of Western Australia - Associate
Professor



Dr Matthew Wikstrom

McCusker Charitable Foundation
- Research Fellowship

**2010 Annual Scientific Meeting of
the Australasian Society for Immunology**
- Member of organising committee



Elizabeth Zambotti

Australian Day Hospital Assoc
- Executive Conference committee
member

Australian Day Hospital Association
- WA Chairperson

**Australian Nurses Association of Short Stay
Facilities** - Member

Australian Private Hospital Association
- National member (WA committee member)



*Professor Mackey, Professor Degli-Esposti
with Professor Ian Frazer*

Population Health and Genetics

Visitors

Caroline Andrews - Research Specialist II, Howard Hughes Medical Institute Engle Lab & Centre for Strabismus Research, Children's Hospital, Boston USA

Dr John Heckenlively - The University of Michigan Kellogg Eye Centre, Ann Arbor, Michigan USA

Lisa Kearns - Orthoptist and Genetic Counsellor, Centre for Eye Research Australia, University of Melbourne, Royal Victorian Eye and Ear Hospital, Melbourne

Sarah MacKinnon - Lead Orthoptist, Department of Ophthalmology & Centre for Strabismus Research, Children's Hospital, Boston USA

Dr Akira Meguro - Department of Ophthalmology and Visual Science, Yokohama City University Graduate School of Medicine, Yokohama, Kanagawa, Japan

Prof Nobuhisa - Department of Ophthalmology and Visual Science, Yokohama City University

Graduate School of Medicine, Yokohama, Kanagawa, Japan

Sandra Staffieri - Research Orthoptist, Clinical Genetics Unit, Centre for Eye Research Australia, University of Melbourne, Royal Victorian Eye and Ear Hospital, Melbourne

Collaborators

Dr Kathryn Burdon - Flinders University, Adelaide

Prof Elizabeth Engle - Howard Hughes Medical Institute Engle Lab & Centre for Strabismus Research, Children's Hospital, Boston USA

Dr Jamie Craig - Flinders University, Adelaide

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

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

Prof Chris Hammond - King's College London School of Medicine, London UK

Dr Alison Hardcastle - UCL Institute of Ophthalmology, London UK

Prof 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

Prof Nick Martin - Queensland Institute of Medical Research, Brisbane

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

Prof Grant Montgomery - Queensland Institute of Medical Research, Brisbane

Prof Anthony (Tony) Moore - Institute of Ophthalmology, University College, London UK

Assoc Prof Craig Pennell - School of Women's and Infants' Health, The University of Western Australia, Perth

Prof Carmel Toomes - Leeds Institute of Molecular Medicine, Leeds University, Leeds UK

Prof 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

Prof Tien Wong - Singapore Eye Research Institute, Singapore

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

Centre For Experimental Immunology

Visitors

Prof John Forrester - University of Aberdeen, Scotland UK

Prof Ian Frazer - Diamantina Institute, University of Queensland, Brisbane

Prof Rolf Zinkernagel - Institute for Experimental Immunology, University Hospital, Zurich, Switzerland

Collaborators

Prof Matt Brown - Diamantina Institute, University of Queensland, Brisbane

Asst Prof Michael Brown - Department of Medicine, University of Virginia, Charlottesville, Virginia USA

Prof Chris Goodnow - Australian National University, Canberra

Asst Prof John Heusel - Department of Pathology, University of Iowa, Iowa City, Iowa USA

Prof 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

Prof Lambert Loh - University of Saskatoon, Saskatchewan, Canada

Prof Charles NJ McGhee - Department of Ophthalmology, University of Auckland, New Zealand

Prof Paul McMenamin - Department of Anatomy & Developmental Biology, Monash University, Victoria

Prof Eric Pearlman - Department of Ophthalmology and Visual Sciences, Case Western Reserve University, Cleveland USA

Prof Mark Smyth - Cancer Immunology Program, Peter MacCallum Cancer Centre, Melbourne

Prof Ranjeny Thomas - Diamantina Institute, University of Queensland, Brisbane

Molecular Ophthalmology

Visitors

Dr Li Cairui - Ophthalmology Department, Hospital of Dali University, Yunnan Province, China

Collaborators

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

Dr Lee Shu Yen - Singapore Eye Research Institute, Singapore

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

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

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

Prof Jude Samulski - University of North Carolina USA

Prof Luis Serrano - Centre for Genomic Research, Barcelona Spain

Physiology And Pharmacology

Visitors

Prof Trevor Lamb - Australian National University, Canberra

Prof Günter Niemeye - Zurich

Prof Jonathan Stone - University of Sydney, Sydney

Collaborators

Prof Balawantray Chauhan - Dalhousie University, Nova Scotia Canada

Prof Tom Gardner - Penn State University, Pennsylvania USA

Prof Wenyi Guo - Fudan University, Shanghai China

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

Prof Trevor Lamb - Australian National University, Canberra

Prof Jonathan Stone - Sydney University, Sydney

Prof Jan Provis - Australian National University, Canberra

Prof Xinghua Sun - Fudan University, Shanghai China

Dr Xiaobo Yu - Fudan University, Shanghai China

Dr Gerhard Zinser - Heidelberg Engineering, Germany

Aquesys - USA

Pharmaxis - Australia

Clinical Researchers

Collaborators

Associate Professor Mei-Ling Tay-Kearney:

Dr Yogesan Kanagasingam - Senior Fulbright Scholar 2010, Research Director CSIRO

Mr Samuel Kirubakaran - Fujitsu Australia Ltd

January 2010

**Royal Hawaiian Eye Meeting
Hawaii, USA**

Professor Graham Barrett

Invited Speaker: Modest monovision: a premium solution for presbyopia

February 2010

**Australia & New Zealand Special Interest Group Annual Scientific Meeting
Wellington, New Zealand**

Winthrop Professor David Mackey

Oral: Glaucoma heritability: a review of twin and family studies in ophthalmology

March 2010

**Natural History Observation and Registry Study of Macular Telangiectasia Type 2: Annual Scientific Meeting
Los Angeles, USA**

Professor Ian Constable

**Keystone Symposium on HIV Vaccines
Banff, Canada**

Professor Mariapia Degli-Esposti

Invited Plenary Speaker: Innate immunity defines the capacity of anti-viral CD4+ T cells to limit persistent infection

April 2010

**Vlth Cornea World Congress
Boston, USA**

Associate Professor Steve Wiffen

Presentation: Collagen Cross-linking

**Vlth Cornea World Congress
Boston, USA**

Associate Professor Steve Wiffen,
Chee K

Co-author: Treatment of ocular surface squamous neoplasia with mitomycin C and interferon alpha 2b

**American Society of Cataract and Refractive Surgery Annual Meeting
Boston, USA**

Professor Graham Barrett

Plenary speaker: Myopic Mystery: Intraocular lens power prediction in high myopia

**Unité d'Immunologie, Département de Biologie Clinique, Institut Gustave Roussy
Paris, France**

Professor Mariapia Degli-Esposti

Invited Seminar: Interactions between innate and adaptive immunity

May 2010

**Australian & New Zealand Society of Retinal Surgeons
Sydney, New South Wales**

Professor Ian McAllister

Invited Speaker: Central Retinal Vein Bypass Study

**Bali International Ophthalmology Retreat
Bali, Indonesia**

Professor Ian Constable

Invited Speaker: Proliferative diabetic retinopathy

**Bali International Ophthalmology Retreat
Bali, Indonesia**

Professor Ian McAllister

Invited Speaker: Current trials and trends in the management of retinal vein occlusion

**Association for Research in Vision and Ophthalmology Annual Meeting
Fort Lauderdale, USA**

Ireni Ali Rahman

Dr Nicolette Binz

Associate Professor Chooi-May Lai
Winthrop Professor Piroska Rakoczy

Poster Presentation: Expression of Endothelin-2 in Animal Model of Hyperglycemia and Retinal Neovascularisation

June 2010

World Ophthalmology Congress Berlin, Germany

Winthrop Professor David Mackey

Invited Plenary Speaker, ARVO symposium,
Genetics of Eye Diseases (Current Clinical
Perspective): Glaucoma Genetics

World Ophthalmology Congress Berlin, Germany

Professor Ian Constable

Plenary Speaker: Retina Symposium

Australian Society for Medical Research Symposium Perth, Australia

Ireni Ali Rahman

Oral: Early Marker for Diabetic Eye Disease

2010 Pfizer Ophthalmology Forum Sydney, New South Wales

Winthrop Professor David Mackey

Invited Speaker: Genetics of Glaucoma

July 2010

Fusion Conference 2010: Combined meeting of AUSCRS and APACRS Cairns, Queensland

Professor Ian McAllister

Invited Speaker: Current trends in the treatment
of retinal vein occlusion

European Society of Cataract and Refractive Surgery Annual Meeting Paris, France

Professor Graham Barrett

Invited Speaker: PRK, LASEK, EpiLASIK and how
different are they?

European Society of Cataract and Refractive Surgery Annual Meeting Paris, France

Professor Graham Barrett

Invited Speaker: Effective lens positions and
centration with Z haptic IOL

The John Curtin School of Medical Research, The Australian National University Canberra, Australia

Professor Mariapia Degli-Esposti

Invited Seminar: Persistent infections: is it all
dependent on innate immunity?

August 2010

SIGMA (Specialists in Glaucoma Meeting with Alcon) Melbourne, Victoria

Winthrop Professor David Mackey

Invited Speaker: Diurnal variation in IOP: does it
vary with age?

Combined Biological Sciences Meeting The University of Western Australia Perth, Western Australia

Dr Richard McKeone
Kiel C, Stricher F, Serrano L,
Winthrop Professor Piroska Rakoczy

Poster Presentation: A Correlation between
Rhodopsin Stability and the Severity of Retinitis
Pigmentosa

Combined Biological Sciences Meeting The University of Western Australia Perth, Western Australia

Ireni Ali Rahman
Dr Nicolette Binz
Associate Professor Chooi-May Lai
Winthrop Professor Piroska Rakoczy

Poster Presentation: Assessment of ocular
Endothelin-2 expression in mouse model of
ocular disease

September 2010

Society for Natural Immunity Meeting "NK 2010" Cavtat Dubrovnik, Croatia

Dr Jerome Coudert

Poster Presentation: Following MCMV infection,
Ly49H+ NK cells prevent the loss of cDC and
pDC in the periphery, as well as DC progenitors in
the bone marrow

Society for Natural Immunity Meeting “NK 2010”

Cavtat Dubrovnik, Croatia

Professor Mariapia Degli-Esposti

Invited Symposium Speaker: NK cells regulation of adaptive immunity

European Glaucoma Society

Madrid, Spain

Winthrop Professor David Mackey
PG Sanfilippo, AW Hewitt
CJ Hammond

Poster presentation: Heritability of glaucoma traits: a review of twin and family studies

European Glaucoma Society

Madrid, Spain

Winthrop Professor David Mackey

Invited Speaker: Heritability of ocular biometry

Asia-Pacific Academy of Ophthalmology

Beijing, China

Professor Ian Constable

Named Lecture: Golden Apple Award Lecture
Evolving challenges in the teaching of ophthalmology

Asia-Pacific Academy of Ophthalmology

Beijing, China

Professor Ian Constable

Academia Ophthalmologica Internationalis
Lecture:
Management of proliferative diabetic retinopathy with laser and pharmacotherapy

Asia-Pacific Academy of Ophthalmology

Beijing, China

Professor Ian Constable

Plenary speaker, Medical Retina Symposium:
Challenges in the management of diabetic retinopathy

October 2010

**American Academy of Ophthalmology, Retina
Subspecialty Program
Chicago, USA**

Professor Ian McAllister

Invited Speaker: Current trends in the treatment of retinal vein occlusion

**American Academy of Ophthalmology
Chicago, USA**

Professor Graham Barrett

Panelist, “What’s new” Symposium

Panelist, Spotlights on cataracts: Decision making with IOL complications

RANZCO Colloquia Meetings

Perth, Western Australia

Professor Mariapia Degli-Esposti

Invited Speaker: Viral infections and the eye

November 2010

**International Society for Clinical
Electrophysiology of Vision
Fremantle, Western Australia**

Winthrop Professor David Mackey

Invited Lecture: ERG GWAS Why Not? (what we can learn from the genetic basis of a normal ERG)

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

Hannah Forward, AW Hewitt
Winthrop Professor David Mackey

Oral: Missing X & Y: a review of participants ages in population-based eye studies

**RANZCO Annual Scientific Meeting, ORIA
Symposium**

Adelaide, South Australia

Professor Ian McAllister

Symposium Presentation: Endothelial cell changes in the central retinal vein at sites of predilection to occlusion

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

S Staffieri, J Ruddle, L Kearns,
T Edwards, J Barbour,
Winthrop Professor David Mackey

Oral: Telemedicine model to prevent blindness
from familial glaucoma

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

Winthrop Professor David Mackey

Plenary Speaker: RANZCO/AAO Symposium, Hot
Topics 2010

Rock, paper, scissors: paediatric traumatic
cataract

**Australasian Ophthalmic & Visual Science
Meeting 2010
Adelaide, South Australia**

Winthrop Professor David Mackey

Invited Speaker: New myopia genes from GWAS
studies

**Asia-Pacific Vitreo-Retina Society
Singapore**

Professor Ian Constable

Plenary Speaker, Retinal Vascular Diseases
Symposium: Monitoring retinal vascular disease
with OCT

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

Priscilla Tan, Dr Paula Yu
Chandra Balaratnasingam
Professor Ian McAllister
Professor Steve Cringle
Winthrop Professor Dao-Yi Yu

Poster Presentation: Microvasculature structure
and organisation in the normal human retina

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

Professor Bill Morgan
Naeem Fatahee, Hazelton M
Betz-Stablein B
Professor Steve Cringle
Winthrop Professor Dao-Yi Yu

Poster Presentation: Change in intraocular
pressure is a major determinant of retinal vein
pulsation properties

**RANZCO Annual Scientific Meeting
Adelaide, South Australia**

Chew A, Spilsbury K,
Dr Timothy Isaacs

Poster Presentation: Survival From Uveal
Melanoma in Western Australia 1981-2005

**5th Australian Health & Medical Research
Congress
Melbourne, Australia**

Ireni Ali Rahman
Associate Professor Chooi-May Lai
Li C., Dr Nicolette Binz
Winthrop Professor Piroska Rakoczy

Poster Presentation: Characterisation of Akimba
mouse: a model of diabetes and retinal
neovascularisation

**NHG Eye Institute 3rd International
Ophthalmology Congress
Singapore**

Professor Geoffrey Crawford

Invited Speaker: The longterm results of insertion
of AlphaCor artificial cornea

**NHG Eye Institute 3rd International
Ophthalmology Congress
Singapore**

Professor Geoffrey Crawford

Invited Speaker: Wedge keratectomy for high
astigmatism post-keratoplasty for keratoconus

December 2010

**Australasian Society for Immunology
40th Annual Scientific Meeting
Perth, Western Australia**

Professor Mariapia Degli-Esposti

Invited Lecture, Postgraduate Workshop: Novel
interactions between innate and adaptive
immunity play a role in anti-viral responses

**Australasian Society for Immunology
40th Annual Scientific Meeting
Perth, Western Australia**

Andrea Khong, Dr Matthew Wikstrom
Peter Fleming, Hyacinth Tabarias,
Hertzog PJ, Smyth MJ, Hill GR
Dr Christopher Andoniou
Professor Mariapia Degli-Esposti

Oral: Murine cytomegalovirus infection induces
monocyte/macrophage differentiation and
concurrent bone marrow hypoplasia

**Australasian Society for Immunology
40th Annual Scientific Meeting
Perth, Western Australia**

Dr Jerome Coudert
Géraldine Brizard, Hyacinth Tabarias,
Dr Christopher Andoniou
Professor Mariapia Degli-Esposti

Poster Presentation: Ly49H+ NK cells prevent the
loss of DC in the periphery, as well as DC progenitors
in the bone marrow upon MCMV infection

**Australasian Society for Immunology
40th Annual Scientific Meeting
Perth, Western Australia**

Corbett AJ, Dr Jerome Coudert,
Catherine Forbes,
Associate Professor Anthony Scalzo

Poster Presentation: Functional consequences of
natural sequence variation of murine
cytomegalovirus m157 for Ly49 receptor
specificity and NK cell activation

**Australasian Society for Immunology
40th Annual Scientific Meeting
Perth, Western Australia**

Iona S Schuster, Dr Marie J Estcourt,
Dr Matthew E Wikstrom, Manzur M,
Dr Christopher Andoniou
Professor Mariapia Degli-Esposti

Poster Presentation: TRAIL inhibits the antiviral
response to MCMV

**Asia-Pacific Joint Glaucoma Congress 2010
Taipei, Taiwan**

Winthrop Professor David Mackey

Invited speaker: The future of cell survival by gene
and medical therapies.

Andoniou CE

Suicide watch: how cytomegalovirus interferes with the cell-death pathways of infected cells
Tissue Antigens. 2010;76:1-8

Andoniou CE, Fleming P, Sutton VR, Trapani JA, Degli-Esposti MA

Cathepsin C limits acute viral infection independently of NK cell and CD8+ T-cell cytolytic function
Immunol Cell Biol. 2010;1-9

Andrews DM, Estcourt MJ, Andoniou CE, Wikstrom ME, Khong A, Voigt V, Fleming P, Tabarias H, Hill GR, van der Most RG, Scalzo AA, Smyth MJ, Degli-Esposti MA

Innate immunity defines the capacity of antiviral T cells to limit persistent infection
J Exp Med. 2010;2007(6):1333-43

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LTBP2 and CYP1B1 mutations and associated ocular phenotypes in the Roma/Gypsy founder population
Eur J Hum Genet. 2010 Nov 17. [Epub ahead of print]

Bahaadinbeigy K, Yogesan K, Wootton R

A survey of the state of telemedicine in Western Australia
J Telemed Telecare. 2010;16:176-180

Bahaadinbeigy K, Yogesan K, Wootton R

Gaps in the systematic reviews of the telemedicine field
J Telemed Telecare. 2010;16:414-416

Bahaadinbeigy K, Yogesan K, Wootton R

MEDLINE versus EMBASE and CINAHL for telemedicine searchers
J Telemed Telecare. 2010;16:916-919

Balaratnasingam C, Morgan WH, Bass L, Kang M, Cringle SJ, Yu D-Y

Time dependent effects of focal retinal ischemia on axonal cytoskeleton proteins
Invest Ophthalmol Vis Sci. 2010;51(6):3019-3028

Charlesworth J, Kramer PL, Dyer T, Diego V, Samples JR, Craig JE, Mackey DA, Hewitt AW, Blangero J, Wirtz MK

The path to open angle glaucoma gene discovery: endophenotypic status of intraocular pressure, cup-to-disc ratio, and central corneal thickness
Invest Ophthalmol Vis Sci. 2010;51:3509-14

Cherepanoff S, McMenamin P, Gillies MC, Kettle E, Sarks SH

Bruch's membrane and choroidal macrophages in early and advanced age-related macular degeneration
Br J Ophthalmol. 2010;94:918-925

Chinnery HR, Ruitenberg MJ, McMenamin PG

Novel characterization of monocyte-derived cell populations in the meninges and choroid plexus and their rates of replenishment in bone marrow chimeric mice
J Neuropathol Exp Neurol. 2010;69(9):896-909

Clark A, Morgan WH, Cain S, Farah H, Armstrong K, Preen D, Semmens JB, Yu D-Y

Diabetic retinopathy and the major causes of vision loss in Aboriginals from remote Western Australia
Clin Experiment Ophthalmol. 2010;38:475-82.

Clark A, Morgan WH, Cain S, Farah H, Armstrong K, Preen D, Semmens JB, Yu D-Y

Diabetic retinopathy in Australian Aboriginal people: response
Clin Experiment Ophthalmol. 2010 Oct 8. doi:10.1111/j.1442-9071.2010.02430_2.x.

Cleary G, Spalton DJ, Zhang J-J, Marshall J

In vitro lens capsule model for investigation of posterior capsule opacification
J Cataract Refr Surg. 2010;36(8):1249-52

Cleary G, Spalton DJ, Gala KB

A randomized intraindividual comparison of the accommodative performance of the bag-in-the-lens intraocular lens in presbyopic eyes
Am J Ophthalmol. 2010;150(5):619-627

Cohn AC, Turnbull C, Ruddle JB, Guymer RH, Kearns LS, Staffieri S, Daggett HT, Hewitt AW, Mackey DA

Best's macular dystrophy in Australia: phenotypic profile and identification of novel BEST1 mutations
Eye (Lond). 2010 Nov 26. [Epub ahead of print]

Corbett AJ, Coudert JD, Forbes CA, Scalzo AA

Functional consequences of natural sequence variation of murine cytomegalovirus m157 for Ly49 receptor specificity and NK cell activation
J Immunol. 2010 Dec 27 doi:10.4049/jimmunol.1003308

Crewe JM, Morgan WH, Morlet N, Crowley M, Semmens JB

Utilisation of services by legally blind patients in Western Australia
Clin Experiment Ophthalmol. 2010;38(7):736-747

Crewe JM, Morlet N, Morgan WH, Spilsbury K, Mukhtar A, Clark A, Ng JQ, Crowley M, Semmens JB

Quality of life of the most severely vision impaired
Clin Experiment Ophthalmol. 2010. doi:10.1111/j.1442-9071.2010.02466.x

Cringle SJ, Yu D-Y

Oxygen supply and consumption in the retina: Implications for studies of retinopathy of prematurity.
Documenta Ophthalmologica. (invited review)2010: 120:99-109

Dimasi DP, Burdon KP, Hewitt AW, Savarirayan R, Healey PR, Mitchell P, Mackey DA, Craig JE

Candidate gene study to investigate the genetic determinants of normal variation in central corneal thickness
Mol Vis. 2010;16:562-9.

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The relationship between retinal arteriolar and venular calibers is genetically mediated and each is associated with risk of cardiovascular disease
Invest Ophthalmol Vis Sci. 2010 Oct 6. [Epub ahead of print]

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Correlating morphometric parameters of the porcine optic nerve head in spectral domain optical coherence tomography with histological sections
Brit J Ophthalmol. 2010 Dec 13. doi:10.1136/bjo.2010.188441

Frost S, Martins RN, Kanagasingam Y.

Ocular biomarkers for early detection of Alzheimer's Disease. Review
J Alzheimers Dis. 2010;22:1-16

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Pretreatment with Intravitreal triamcinolone prior to laser for diabetic macular edema: 6 month results of a randomised, placebo controlled trial
Invest Ophthalmol Vis Sci. 2010;51(5):2322-28.

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Ablation of subretinal tissue with optical fibre delivered 266 nm laser pulses
Exp Eye Res. 2010;91:257-63.

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Glycosylation contributes to variability in expression of murine cytomegalovirus m157 and enhances stability of interaction with the NK-cell receptor Ly49H
Eur J Immunol. 2010;40:2618-31

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Photodynamic therapy with Verteporfin for corneal neovascularisation
Ophthalmic Surg Lasers Imaging. 2010 Mar 9:1-3

Haller JA, Bandello F, Belfort R Jr, Blumenkranz MS, Gillies M, Heier J, Loewenstein A, Yoon YH, Jacques ML, Jiao J, Li XY, Whitcup SM; OZURDEX GENEVA Study Group (including Giubilato A, Isaacs T).

Randomized, sham-controlled trial of dexamethasone intravitreal implant in patients with macular edema due to retinal vein occlusion.
Ophthalmology. 2010;117(6):1134-46.e3

Hysi PG, Young TL, Mackey DA, Andrew T, Fernández-Medarde A, Solouki AM, Hewitt AW, Macgregor S, Vingerling JR, Li YJ, Ikram MK, Fai LY, Sham PC, Manyes L, Porteros A, Lopes MC, Carbonaro F, Fahy SJ, Martin NG, van Duijn CM, Spector TD, Rahi JS, Santos E, Klaver CC, Hammond CJ

A genome-wide association study for myopia and refractive error identifies a susceptibility locus at 15q25
Nat Genet. 2010;42:902-5

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PLoS Genet. 2010;6:e1001184

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New observations concerning the nature of the central retinal vein pulsation.
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Morphometric characteristics of central retinal artery and vein endothelium in the normal human optic nerve head
Invest Ophthalmol Vis Sci. 2010 Nov 11 [Epub ahead of print]

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Case of normal tension glaucoma induced or exacerbated by wearing swimming goggles
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Kearns LS, Mackey DA

Genetic testing in a new decade
Optometry Pharma. 2010;Mar;20-21.

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Does acute loss of vision in autosomal dominant optic atrophy occur early in childhood?
Ophthalmic Genet. 2010;31:44-6

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In situ measurement of spectral changes in the anterior eye following application of ultraviolet-absorbing compounds
Eur J Pharm Biopharm. 2010;75:200-205

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The monocyte chemokine receptor CX3CR1 does not play a significant role in the pathogenesis of experimental autoimmune uveoretinitis
Invest Ophthalmol Vis Sci. 2010;51(10):5121-27

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Digital quantification of human eye color highlights genetic association of three new loci.
PLoS Genet. 2010;6:e1000934

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Common genetic variants near the Brittle Cornea Syndrome locus ZNF469 influence the blinding disease risk factor central corneal thickness
PLoS Genet. 2010;6:e1000947

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The Central Retinal Vein Bypass Study: A trial of laser-induced chorioretinal venous anastomosis for central retinal vein occlusion
Ophthalmology 2010;117(5):954-965

McAllister IL, Chen SD, Patel JI, Fleming BL, Yu D-Y

Management of submacular haemorrhage in age related macular degeneration with intravitreal tenecteplase
Brit J Ophthalmol. 2010;94:260-261

Macgregor S, Hewitt AW, Hysi PG, Ruddle JB, Medland SE, Henders AK, Gordon SD, Andrew T, McEvoy B, Sanfilippo PG, Carbonaro F, Tah V, Li YJ, Bennett SL, Craig JE, Montgomery GW, Tran-Viet KN, Brown NL, Spector TD, Martin NG, Young TL, Hammond CJ, Mackey DA

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Lions Eye Institute Limited

The Company is a charitable and public benevolent institution. The principal activities during the year were in 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 2009 and details of Research Grant Funds.

Income Statement

FOR THE YEAR ENDED 31 DECEMBER

	2010	2009
	\$	\$
Total income including research grants	14,357,478	15,978,757
Total expenditure including research expenses	(13,655,814)	(13,181,693)
Operating profit before significant items	701,664	2,797,064
Significant item	0	1,170,521
Operating (loss)/profit after significant items	701,664	3,967,585
Accumulated profit at the beginning of the year	20,293,561	16,325,976
Accumulated profit at the end of the year	<u>20,995,225</u>	<u>20,293,561</u>

SIGNIFICANT ITEMS

Comprised of:

Fair value adjustment of investment to market value	0	1,170,521
Total	<u>0</u>	<u>1,170,521</u>

GENERAL AVAILABLE CASH AND BEQUEST FUNDS

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. Allowing for specific research funds and bequests, the general cash reserves available are:

	2010	2009
	\$	\$
Research grant funds not yet spent	5,525,167	4,356,593
Endowment Fund	11,907,322	10,329,343
General cash reserves	2,025,485	3,346,997
Cash at bank and bequest funds	<u>19,457,974</u>	<u>18,032,933</u>

STATISTICAL SUMMARY

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

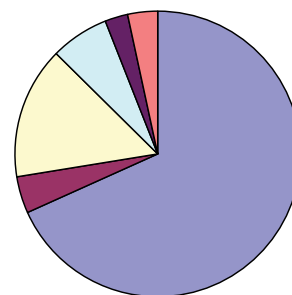
Balance Sheet

AS AT 31 DECEMBER

	2010 \$	2009 \$
TOTAL FUNDS	<u>20,995,225</u>	<u>20,293,561</u>
Represented by:		
Cash and cash equivalents	7,550,651	7,737,109
Other assets	1,178,873	1,445,875
Financial assets	11,930,865	10,319,366
Property, plant and equipment	<u>7,595,237</u>	<u>6,995,570</u>
TOTAL ASSETS	<u>28,255,626</u>	<u>26,497,920</u>
Payables	1,009,309	1,126,249
Research grant funds not yet spent	5,525,167	4,356,593
Provision for employee entitlements	<u>725,925</u>	<u>721,517</u>
TOTAL LIABILITIES	<u>7,260,401</u>	<u>6,204,359</u>
NET ASSETS	<u>20,995,225</u>	<u>20,293,561</u>

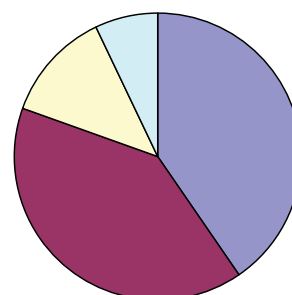
INCOME FOR THE YEAR ENDED 31 DECEMBER (EXCLUDING SIGNIFICANT ITEMS)

		2010	2009
Clinic, Day Surgery & LASIK	A	68%	56%
Donations & bequests	B	4%	10%
Research grants (excludes UWA funds)	C	15%	17%
Interest	D	7%	12%
Optics Shop	E	3%	2%
Other	F	3%	3%



EXPENDITURE FOR THE YEAR ENDED 31 DECEMBER

		2010	2009
All staffing salaries, fees & oncosts	A	40%	36%
Other research & clinical costs	B	40%	48%
Equipment, depreciation & maintenance	C	13%	12%
Administration & overheads	D	7%	4%



CURRENT YEAR RESULTS

The profit from ordinary activities after income tax amounted to \$701,664

Research funds received by the LEI are held in trust for application to the research projects for which they are received.

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.

FINANCIAL REPORTS

The following summary financial reports reflect the financial position of the AFPB Trust for the year ended 31st December 2010.

	2010	2009
	\$	\$
INCOME		
Donations and subscriptions	1,250	1,350
Imputation Credits	23,799	26,493
Interest & Investment Income	94,953	95,917
Fair value adjustment of Investment to market value	-	356,079
Total Income	<u>120,002</u>	<u>479,839</u>
LESS EXPENDITURE		
Audit Fees	2,730	2,678
Bank Fees	70	70
Donation -Financial	45,824	64,053
Administration	-	50
Insurance	2,438	2,290
Fair value adjustment of Investment to market value	90,790	-
Total Expenditure	<u>141,852</u>	<u>69,141</u>
NET (LOSS)/PROFIT FOR THE YEAR	(21,850)	410,698
Accumulated funds at beginning of year	2,551,963	2,141,265
ACCUMULATED FUNDS AT END OF YEAR	<u><u>2,530,113</u></u>	<u><u>2,551,963</u></u>
Represented by:		
CURRENT ASSETS		
Cash at bank	1,050,215	954,709
Other Assets	2,605	31,888
	<u>1,052,820</u>	<u>986,597</u>
NON-CURRENT ASSETS		
Investments	1,479,793	1,567,666
TOTAL ASSETS	<u>2,532,613</u>	<u>2,554,263</u>
CURRENT LIABILITIES		
Other Creditors	2,500	2,300
NET ASSETS	<u><u>2,530,113</u></u>	<u><u>2,551,963</u></u>

AUSTRALIAN COMPETITIVE GRANTS	CHIEF INVESTIGATOR
NHMRC Principal Research Fellowship	Degli-Esposti, M
NHMRC Project Grant Advanced new therapeutics and diagnostics in retinal diseases and glaucoma	Yu, D-Y
NHMRC Project Grant Immunological therapies for cancer, chronic infection and autoimmunity	Degli-Esposti, M
NHMRC Project Grant Mechanisms of viral induced immunosuppression: effects on DC-NK networks	Degli-Esposti, M Andoniou, C
NHMRC Project Grant Defining the requirement for the inhibition of Bak to the pathogenesis of cytomegalovirus infection	Andoniou, C
NHMRC Project Grant The role of monocytic lineage cells in models of corneal disease	McMenamin, P, Pearlman, E Degli-Esposti, M, Forrester, J
NHMRC Project Grant Do resident immune cells cause retinal damage in diabetes?	McMenamin, P Rakoczy, P
NHMRC Project Grant Defining the requirement for the inhibition of Bak to the pathogenesis of cytomegalovirus infection	Andoniou, C
NHMRC Equipment Grant	Yu, D-Y et al
ARC Centre of Excellence Centre of Excellence in Vision Science	Yu, D-Y
NHMRC Project Grant	
INTERNATIONAL COMPETITIVE GRANTS	
Alcon Recognition Award for Outstanding Contribution in Vision Science	Mackey, D
GOVERNMENT GRANTS	
Government of Western Australia, Department of Health, Round 13 MHRIF	Yogesana, K
OTHER GRANTS	
The University of Western Australia Alvina King Scholarship	Schuster, I
The University of Western Australia Alvina King Scholarship	Vagaja, N
The University of Western Australia Ada Bartholomew Medical Research Trust Grant	Mackey, D
The University of Western Australia Research Collaboration Award	Mackey, D
The University of Western Australia Launching Grant	Mackey, D
The University of Western Australia Centre of Ophthalmology and Visual Science Infrastructure Funding	
Channel 7 Telethon Trust	Mackey, D
McCusker Charitable Foundation Uveitis Project	Wikstrom, M
Lions Save-Sight Foundation Research Support	
Australian Foundation for the Prevention of Blindness Trust Research Support	
TOTAL GRANTS 2010	\$3,647,762

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Every five seconds
one person in our world goes blind.
Every minute a child goes blind.
The implications of visual disability
are enormous. The public imperative
of blindness cannot be ignored.

Professor Ian Constable AO - Founding Managing Director



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**Electronic version of this report
is available on our website.**

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