

## Research sponsored by local family

Carolyn Miocevic was in her 30s when she began to lose her eyesight.

"She went from being able to read to the point where she couldn't drive, then walk without assistance. It was a dramatic change," her husband Brad explained.

"Carolyn had a previous diagnosis of retinitis pigmentosa (RP) but over a long period of time, we sought other medical opinions to make sure that diagnosis was correct."

Eventually, Mrs Miocevic was seen by Associate Professor Fred Chen, head of the LEI's Ocular Tissue Engineering Laboratory, who raised the possibility of Auto-immune Retinopathy (AIR).

A diagnosis of AIR is still controversial but it is believed that antibodies generated by the body to fight an unrelated infection or illness attack and damage the retina, resulting in rapid vision loss.

In Mrs Miocevic's case, Associate Professor Chen arranged for blood samples to be sent to one of the few clinics in the world – the Casey Eye Centre in Oregon, USA – that can test for the presence of antibodies reacting against the retina.

The tests returned positive, indicating an immune reaction to the retina had taken place. Together, Associate Professors Chen and Mei-Ling Tay-Kearney recommended exploring the option of using specialised medicine to modify the immune response to arrest the decline in her eyesight.

With help from Dr Dominic Mallon, an immunologist at Fremantle Hospital, an immune suppressant that is normally used to treat non-Hodgkin's lymphoma was released under special circumstance for treatment of Mrs Miocevic's condition.

"The theory behind the treatment Carolyn is receiving is to get rid of those antibodies that react against the retina and slow or halt the rate of progression of the disease. This drug suppresses the body's production of antibodies," Associate Professor Chen said.

Her treatment, which is experimental but which has been described and used in the United States for this condition, began in December last year and according to Mr Miocevic, there are some positive signs.

"It's very early days but Carolyn has seen some improvement in the visual acuity of her left eye and it appears that the decline in her sight has been arrested," he said.



ASSOC PROF FRED CHEN EXAMINES CAROLYN MIOCEVIC AS BRAD LOOKS ON

"The whole process led us to the conclusion that there was not a whole lot of understanding of this condition so we felt it would be a good thing to support further research in this area."

The result is the funding of a new research position – to be known as the Miocevic Retinal Fellow - who will work with Associate Professor Chen. It is hoped the research will unlock some of the unknowns around AIR.

"Auto-immune Retinopathy is a very rare disease," Associate Professor Chen said. "We are grateful to have this Fellowship to facilitate the establishment of a national database of this rare eye disease."

"The second thing we'd like the Fellow to look at is the phenomenon of antibodies reacting against the retina in other common blinding retinal diseases such as retinitis pigmentosa and macular degeneration."

Mr Miocevic said eventually, his family would like to fund the Fellowship in perpetuity to ensure a breakthrough in the detection and treatment of AIR could be achieved.

## Closing the Gap Lions Outback Vision Van

Lions Outback Vision Van project is gaining momentum and is expected to be on the road in late 2015. The Outback Vision Van is a mobile eye health facility that showcases how collaboration, innovation and technology can be harnessed to effectively deliver services in regional and remote communities.

The Outback Vision Van consists of a large truck and trailer that houses four consulting rooms fitted out with specialist equipment. It has the capacity to treat 200 patients per week providing comprehensive optometry and ophthalmology care, including treatment of cataracts, refractive error, trachoma, glaucoma and diabetic retinopathy. The Van will travel over 24,000 kilometres a year on sealed roads throughout the State, providing services in Albany, Esperance, Kalgoorlie, Leonora, Wiluna, Newman, Roebourne, Karratha, Port Hedland, Broome, Derby, Fitzroy Crossing, Halls Creek, Kununurra, Exmouth and Carnarvon.

Using a unique service delivery model the Outback Vision Van will address the gap in eye health between rural and remote Western Australians and their urban counterparts. People living in rural and remote Australia needlessly experience higher rates of blinding eye disease.

The Facts:

- Blindness and vision loss is avoidable in over 4 out of 5 Australians
- Indigenous Australians are
  - 14 times more likely to have diabetes related blindness and
  - 5 times more likely to have refractive error blindness
- The number of Australians living with blindness and low vision is predicted to double by 2024



DR ANGUS TURNER WITH A PATIENT



EYE EXAMINATION

The Outback Vision Van will provide more cost effective and efficient eye health services, improving care for people in their own communities.

enough to prevent myopia but avoiding increased risks of getting skin cancer or sun-related eye diseases.

The Western Australian Eye Protection Study is continuing to investigate the effects of sun exposure and use of eye protection amongst the Western Australian community. Our aim is to have a comprehensive representation of the impact of sun exposure on the eye health of the WA population.

In particular, we are looking at the causes of myopia. Myopia or short sightedness is a major public health problem and is increasing in prevalence and severity. It affects around 20% of Australian adults but is extremely high in the cities of East Asia, affecting nearly 90% of school leavers. Although myopia is commonly corrected with glasses or contact lenses, high myopia can lead to other blinding eye diseases such as retinal detachment and glaucoma.

Time spent outdoors has been found to reduce your risk of becoming myopic.

However, too much sun exposure can lead to skin cancer and eye disease such as pterygium. A pterygium is a fleshy growth on the front surface of your eye that can affect your vision if it starts to grow over the iris. Our research aim is to find the optimal balance of sun exposure to prevent myopia, while also reducing your risk of getting skin cancer or sun-related eye diseases.

At present, we are particularly interested in seeing high school students to evaluate the eye health of adolescents who are engaged in outdoor sports compared to those who are not. This may help our research to establish a balanced level of sun exposure that is ideal for eye health in youth in order to prevent or minimise adverse outcomes in adulthood.

Currently we have tested 750 participants and wish to test an additional 2000 people over the next four years, so if you or a family member ages 12+ are interested in participating in our study, please contact Lisa Booth on 9381 0707 or email lisaboath@lei.org.au.

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## Vision News

SUMMER 2015

## Glaucoma Awareness Week Beat Invisible Glaucoma

Glaucoma is called "the sneak thief of sight" or "invisible blindness" as there are usually no signs or symptoms of glaucoma in its early stages. It can be detected through a comprehensive eye examination, including a review of the optic nerve, before vision loss occurs. An intraocular pressure test alone is not enough to detect glaucoma.

An early diagnosis alongside appropriate treatment offers the best chance of halting, or at least slowing, progressive vision loss.

Direct relatives of people who have already been diagnosed with glaucoma have up to a ten- times greater chance of having glaucoma than the general population. If you have been diagnosed with glaucoma, inform your family they have an increased risk, and encourage them to get a comprehensive eye exam.

The Lions Eye Institute joins Glaucoma Australia in observing Glaucoma Awareness Week from March 8 – 14 2015, and encourages the Australian community to undertake a comprehensive eye exam at least every two years, yearly if family members have glaucoma.



The Lions Eye Institute Clinic will be collecting donations for Glaucoma Australia throughout Glaucoma Awareness Week. To find out more about organising a B.I.G. Breakfast for Glaucoma Australia visit [www.thebigbreakfast.org.au](http://www.thebigbreakfast.org.au)

## TARRGET a new glaucoma initiative

In partnership with Flinders University (SA) and the Lions Eye Institute (WA), Glaucoma Australia are funding the Targeting At Risk Relatives of Glaucoma patients for Early diagnosis and Treatment study (TARRGET), to increase knowledge and awareness of the increased risk of glaucoma to close family members of those known to be affected. The pilot phase of the study is planned to run for one year, with a further one year extension planned.



If people with glaucoma are diagnosed early in the disease process, there is a much better chance that good vision can be maintained throughout their life. We already know that first degree relatives (children, siblings, and parents) of affected patients are more than nine times more likely to develop the disease over their lifetime.

The TARRGET program will use new 'state of the art' diagnostic approaches to determine what the pick-up rate will be amongst first degree relatives, when starting with a family member who

already meets the criteria of Australian and New Zealand Registry of Advanced Glaucoma (ANZRAG) for advanced field loss in at least one eye.

The investigators will randomly select 200 cases of open angle glaucoma from ANZRAG across the two study sites, and then offer a free comprehensive glaucoma screening test for any of their first degree family members over the age of 40 (younger in certain instances). The plan is to include all close relatives, whether they have previously been seen or not, and whether they believe they are affected or not. This should provide a clear answer as to how effective the new screening strategies could be if they were applied more widely.

A study such as this can help to advocate for changes to government policy so as to improve access and affordability for effective glaucoma screening strategies.

For further information please visit: [www.glaucoma.org.au](http://www.glaucoma.org.au)

## Yes, I want to help Save Sight

Please accept my donation of: \$.....(Donations over \$2 are tax deductible)

Please find enclosed my  Cheque  Money Order OR, please debit my  Mastercard  American Express  Visa

Card No: / / /  Expiry Date: /

Cardholders name: ..... Signature: .....

### TAX RECEIPT DETAILS

Name: .....

Address: .....

Suburb: ..... Postcode: .....

Telephone: .....

Email: .....

Please send me information on how I can include the Lions Eye Institute in my Will.

I have already provided for the Lions Eye Institute in my Will.

## Your donation will help eradicate blindness

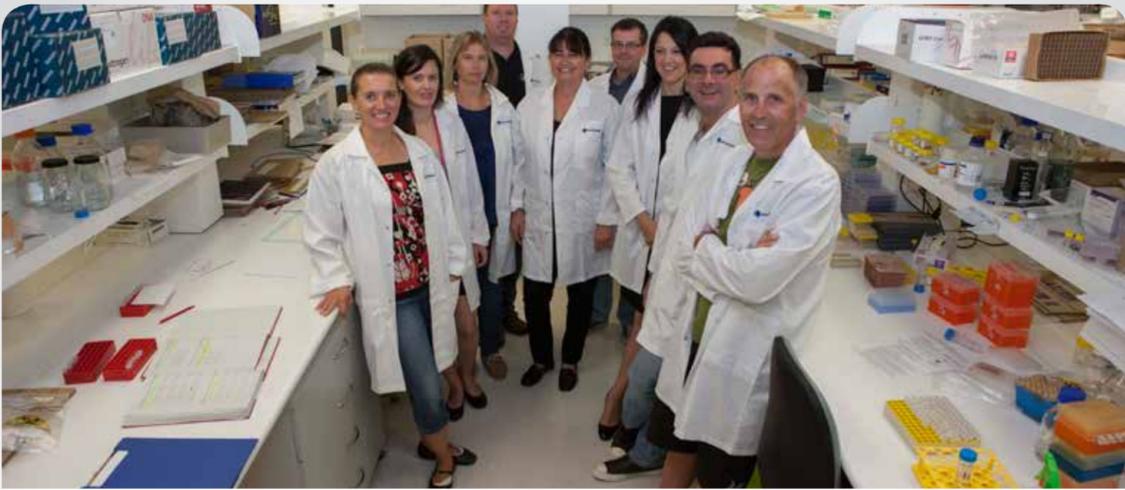
Mail to:  
Lions Eye Institute,  
Reply Paid 62815  
2 Verdun St  
Nedlands WA 6009  
(No stamp required)

## Thank You

Thank you to all everyone who donated so generously to our Christmas appeal. Your very kind support is helping us to find the optimal balance of sun exposure -



EYE PROTECTION STUDY



IMMUNOLOGY

## Proven link between viral infection and autoimmune disease

**A research team from the Experimental Immunology Division at the Lions Eye Institute has defined the cause of a common autoimmune disease that affects the eye.**

Professor Mariapia Degli-Esposti, from the Lions Eye Institute and The University of Western Australia, said the research proved a link between chronic viral infection and autoimmune disease.

Published in the leading international medical journal Immunity, the research found that chronic cytomegalovirus (CMV) infection could lead to the development of Sjogren's (SHOW-grins) (SS) syndrome.

Cytomegalovirus (CMV), a member of the herpes family, is a common virus that causes mild flu-like symptoms in healthy people, but can lead to more serious illness in those with compromised immune systems.

Up to 60 per cent of people in developed countries are infected with this virus. Although normally innocuous, given the right genetic background, chronic viral infection with CMV can trigger autoimmunity.

SS is the second most common autoimmune disease in humans, affecting up to three per cent of the population or more than four million people in the United States alone," Professor Degli-Esposti said.

"It affects the function of salivary and lacrimal glands and leads to a debilitating disease characterised by the loss of saliva and tear production."

It is a disease suffered mainly by women, with most symptoms of the disorder emerging in the 40 to 60 year age group.

"In our model of SS we have been able to dissect the exact cellular and molecular mechanisms that lead to the development of this common autoimmune disease," Professor Degli-Esposti said.

"We have now gained critical insights into the pathways that need to be targeted to provide improved treatments for a common and debilitating human condition."

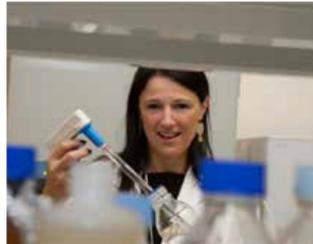
The research, done in entirety at the Lions Eye Institute by Dr Iona Schuster as part of her PhD studies, was a collaborative effort between several members of the Immunology Division, including Dr Matthew Wikstrom, a Lions Save Sight Foundation Brian King Fellow. The research was led by Professor Degli-Esposti and Dr Chris Andoniou from LEI.

Significantly, this type of research has potential far beyond helping people suffering from SS. Indeed, it provides important knowledge for improving the treatments of a wide range of conditions, including other diseases associated with viral infections, such as keratoconjunctivitis,

meningitis, mononucleosis (glandular fever) and shingles. It also offers important clues about other autoimmune diseases, including those that also affect the eye such as uveitis, as well as more common ones such as multiple sclerosis, diabetes and arthritis that affect the body as a whole.

"This research gives us new understanding and offers the hope of improved and better targeted therapeutic treatments into the future."

The discovery from Professor Degli-Esposti's team is an example of how eye health research translates and offers hope of improving the treatments for a wide variety of diseases.



PROF MARIAPIA DEGLI-EPOSTI



IONA SCHUSTER

## Eye Safety

Thanks to generous support from the Joyce Henderson Bequest Fund, the Lions Eye Institute (LEI) is working on a large research program to find solutions to prevent children's eye injuries. As part of this research, a 12 year audit was conducted of children's eye injuries requiring admission to Princess Margaret Hospital for Children in Perth. This contributed to the development of a proposal for sports eye protection standard which was approved by Standards Australia in late November 2014.

Sports-related eye injuries are common, due to children's close proximity to sports equipment such as racquets and bats, and physical contact with other competitors. It was stated in the LEI study that in Australia eye injuries from sporting activities accounted for 10% of severe eye trauma in children, with permanent visual damage occurring in 27% of these cases.

In the playground and elsewhere, common household objects, such as elastic bands, have caused significant eye damage to children both in Australia and overseas. The availability of hand-held laser 'toys' and their potential to cause retinal damage is also a concern.

Children's developing physical coordination and limited ability to detect risks in their environment increases their risk of eye trauma. While risks should not hinder the provision of engaging in interesting activities, mild injuries such as eyelid bruising or corneal abrasions do



occur. Lasting damage can be caused by more serious high-impact injuries such as blunt trauma or penetrating injuries.

Prof David Mackey, LEI's Managing Director explains further: 'A child's visual development continues from birth until seven to eight years of age therefore visual outcomes following trauma in children are worse than adults. Any approach to reduce incidence of eye injuries in children should attempt to remove or limit hazards – with parents and caregivers as vital influences on attitudes for change.'

From the 12 year audit by LEI it was found that children's eye injuries requiring hospital admission were most commonly caused by being struck by an object.

"Other causes were children falling over, hitting their eye, and then things being thrown," Prof Mackey said.

With these findings, Prof Mackey stresses that, "The most important thing is that parents and people involved in the care and supervision of children are alert to potential dangers. We need to work further at designing better protective strategies for children. Looking at sports, perhaps change the rules of the sport or the ways children use sports equipment, and if that's not possible, whether we can have protective eye protection that they can wear to stop their eyes being injured."

By adopting simple protective measures, such as using eye protectors when necessary, 90% of eye injury is preventable.

## Perth Glaucoma Support Group

Perkins Building at QQ Block, QEII Campus, Nedlands (behind southern side of Lions Eye Institute)

**SATURDAY** 16th May 2pm – 4pm  
Guest Speaker: Dr Tony Giubilato at Perkins Building



**ENTRY:** \$5.00 per person includes Afternoon Tea and Raffle Ticket (Kindly sponsored by Eye Surgery Foundation, West Perth)

Please RSVP for catering purposes and to confirm Guest Speaker Gaela on 0416 074 415 or Email: gaela12@hotmail.com

For information on glaucoma contact: **Glaucoma Australia** freecall 1800 500 880 or email glaucoma@glaucoma.org.au Providing education, information and mutual support for glaucoma sufferers and their families and friends

## We're growing Nedlands

The Lions Eye Institute will undertake some major changes over the coming months with renovations proposed to its existing facilities at Nedlands. Relocation of our busiest clinics onto Ground Floor along with improved layout and facilities to all of our clinics will place LEI as a patient centred, state of the art facility. Other proposed improvements include more efficient and logical patient flow along with more comfortable waiting areas, increased consultation and testing rooms and an additional day surgery to meet the demands and expectations of our patients. Design is currently underway for this exciting transformation and all visitors to the clinics will sure to be impressed with the final outcomes.

Coupled with this we are replacing our current passenger lift with a vastly improved (and larger) lift car that will provide safer and efficient transport between floors.



MURDOCH NEW WAITING AREA



MURDOCH NEW CONSULTING ROOM

We look forward to this journey through design and into construction and will provide regular updates on our website and in our newsletters throughout 2015.

## Murdoch

Expansion and renovation works completed at our Murdoch clinic have provided a vastly improved clinic that is able to cater for the increased patient

volumes. The entire premises have been freshly painted with new carpets, window treatments and improvements to lighting in Consult Rooms. Some of the additional improvements include an additional waiting room with tea/coffee facilities and television entertainment; three additional Consulting/Optomestrist rooms, a dedicated treatment room and a new HRT/Testing room.

## The gift of sight

**Mrs Tammy Pickles was happy to celebrate her milestone 80th birthday with family and friends, but rather than receiving gifts she wanted to give a gift – the gift of sight. Tammy asked all her friends and family to make donations to The Lions Eye Institute (LEI) instead of giving her a gift.**

Born a 'rubella baby', Tammy had great difficulty seeing and hearing from birth. Her life and vision took a happy turn when at age 11 she became one of the first 'rubella babies' to be operated on by Sir Norman McAlister Gregg, who discovered that rubella infected pregnant woman could cause birth defects in their unborn children (congenital rubella syndrome). Though it did not completely restore her sight she was able to live well, and went on to study nursing. Unfortunately her vision impairment made finishing her studies impossible. Over time, treatments improved and Tammy had intra-ocular lenses implanted, greatly improving her

vision. In 2001 Tammy fell, suffering an eye injury and was referred to the LEI. She received excellent treatment from Prof. Ian McAllister and Dr Jean-Louis deSouza

and has been supporting the institute's work ever since. Happy Birthday Tammy, you are giving the gift of sight.



TAMMY PICKLES VISITS THE LEI, WITH VINKA ALUJEVIC AS HER TOUR GUIDE