



Dear friends and supporters

February each year is observed as Age-related Macular Degeneration (AMD) Awareness month. As mentioned in our last Newsletter, this disease has been the major focus of research in our Southampton laboratories for the last twenty years. We have contributed significantly to identifying causes for the onset of the disease and can now pinpoint the condition at an earlier stage. However, there is still much to be done to find a therapy to slow or stop the progression of this devastating condition.

Dr Rebecca Kaye, one of my PhD students, has been investigating how a genetic risk factor for AMD causes malfunctions. TSPAN10 is found in retinal cells and is associated with an increased risk of macular degeneration. Rebecca has discovered that these cells have less pigment than normal and patients with this faulty gene have been identified as having thinner retinas prior to developing AMD. These findings provide a clearer understanding of the ways in which this gene causes the supporting cells at the back of the eye to fail and may lead on to better treatment options in the future. Some of this work was published in *Nature Scientific Reports*.

In separate work we have published the results of performing a specialised laser treatment called Photodynamic Therapy (PDT) in patients with a retinal condition called central serous chorioretinopathy (CSR). We have shown that it improves vision and the structure of the retina, so this is a useful treatment for this condition. Details of this work have just been published in *Eye (Lond)*. This treatment has been available for other retinal conditions in clinics for some time, which means that patients with CSR can be treated promptly.

Much of our work in our vision research laboratories will help to identify further causes of retinal diseases. We are hoping to help purchase updated imaging kit and other laboratory equipment for the team in order that they can move their vital investigations forward at greater speed. Your donations to Gift of Sight are imperative in helping us achieve this goal and I would like to pass on my heartfelt thanks for your generous help.

I have written an ebrochure to celebrate my twenty years of academic vision research in the University of Southampton. Putting it together brought back many happy memories. It can be downloaded through our Gift of Sight website [here](#).

Finally, I'm thrilled to see that fundraising events are returning and I do hope to meet some of you in person during the year.

With my warm regards.

Andrew Lotery MD, FRCOphth
Professor of Ophthalmology
University of Southampton

MEMORY DONATIONS 2022

We send our warmest thanks to all who commemorated loved ones by sending
Memory Gifts to help our research. We remember:

Miss Anne Bickley Josie Berrow John and Jean Burgess Mr Bobbie Cummins
Mr Brendan Daly Mr Andrew Elkington The Rev. George Gebaur Mrs Michèle Linsell
Mrs Judy Moody Mrs Cath Pomeroy Fred and Gwen Stephens Mr Eric Stratford
Mrs Molly Wood



Dr Arjuna Ratnayaka, Associate Professor in Vision Sciences

The past year witnessed the gradual easing of lockdown measures with PhD students and postdocs returning to laboratories operating under more normal conditions. 2022 also coincided with awards to commence three new PhD studentships. The first of these will investigate how an unhealthy diet can alter cells in the retina, and the second will study how the retina becomes damaged in Stargardt disease. Both students (Anna Muir and Stephanie Turner) have provided introductions to their respective projects in this newsletter. The third

PhD studentship will investigate the commonalities between Age-related Macular Degeneration (AMD) and other neurodegenerative conditions such as Alzheimer's disease. We also celebrate the accomplishments of another PhD student, Rebecca Miller, who successfully defended her work in a *viva voce* examination to progress into the final year. Her discoveries were selected to be presented at the world's largest Eye meeting in the United States.

From PhD students to postdoctoral scientists: Dr Jenny Dewing and I will continue to work together to publish her findings in Sorsby disease. Jenny and I were also the recipients of an award to study the policy implications of our work, which resulted in an article published in *Nature Eye* on the challenges of obtaining better funding for sight research in the UK. Last year my group also published an important study in *Molecular Nutrition & Food Research*, showing how an unhealthy high-fat diet in mice reproduced key features of early-intermediate AMD. This was the work of Dr Ellie Keeling, who completed a highly successful postdoctoral post, which was supported by the Gift of Sight. The Vision Group is fortunate to retain Ellie who is currently working with Dr Jay Self.

This newsletter will also be a fitting opportunity to say farewell to Dr Savannah Lynn, who will successfully complete her NC3R Fellowship in June. Savannah was my first PhD student and her productive doctoral work enabled Gift of Sight to offer funding for follow-up postdoctoral studies. Savannah's work during this critical period resulted in her securing a prestigious NC3R Fellowship (the first such award in Vision Science at Southampton). After nearly 10 years of working in this group, Savannah's departure will be keenly felt by everyone in the Vision Group and amongst the wider Faculty. Apart from being an outstanding scientist who has won many accolades, Savannah is an excellent colleague, a valued mentor to students and a role model for early-career scientists. Her discoveries have produced a large body of work, which has been published as original research and methods articles. These include, most recently, a paper on AMD biomarkers in the *Int. Journal of Molecular Science*, reviews, book chapters as well as numerous conference proceedings. Collectively, these have made an important contribution to understanding how pathology develops in the retina. I wish Savannah all the very best in the next stage of her career.

Periods of expansion and contraction constitutes the natural cycle of research groups, and I am grateful to Gift of Sight for their past funding and support in training future scientists, so that better treatments for blindness can be developed where none exists today.

Anna Muir, PhD student

In 2022 I received my bachelors' degree in Biomedical Science from the University of Southampton, which equipped me with the skills to undertake a PhD, funded by Sight Research UK (SRUK).

AMD is a complex disease influenced by age and genetic risk factors as well as the environment. The focus of my PhD is to investigate the impact of diet on developing AMD, as previous research has shown a strong link between diet and eye health. What is so tantalising about this project is the real-world opportunity to empower patients, as although an individual's age and genetics cannot be changed, a person's diet can be altered to bring about improved outcomes for better vision.

My research will investigate the effects of lipid imbalances in the retina, as well as finding means of better protecting the retina against age and diet-induced damaging effects. This will shed light on the molecular-pathways altered by diet in the retina. Whilst my experiments in the laboratory will address these questions, another aspect of my PhD will address the public/patient engagement side of this project.

I am grateful to SRUK as well as the Gift of Sight Appeal and their generous supporters who enable this kind of vital research happen through their donations.



Stephanie Turner, PhD student

I am a PhD student working with Dr Arjuna Ratnayaka. I have a broad interest in advancing our understanding of degenerative diseases and how we may alleviate their symptoms or cure them. My PhD project aims to understand the cause of death in cells which maintain the health of photoreceptors in the retina. This will focus on studying how mutations in the *ABCA4* gene cause Stargardt disease, the biggest cause of macular disease in children, for which there is currently no treatment.

During my project, I will develop a cell model which will provide a tool to help understand the underlying causes of this condition, when *ABCA4* is either faulty or not present, and trial new approaches to alleviate them.

Prior to starting my PhD I completed a masters degree in Genetic Manipulation and Molecular Cell Biology at Sussex University. I have experience in genome editing cells for drug discovery in industry and have also used a cell model which mimics Parkinson's disease to screen compounds for neuroprotection.

I would like to thank all who contribute and support Gift of Sight. Your generosity, alongside funding from the Gerald Kerkut Charitable Trust, has enabled my work into this blinding disease.

Legacies helping future generations

Some of our donors are thinking ahead and kindly finding a space for Gift of Sight in their Will, leaving a legacy to ensure eye research continues to help future generations. We have been able to recruit talented PhD students as a result of generous legacy gifts, allowing further research to be explored. What an amazing legacy to leave.

If you would like to consider this yourself, we'd love to chat to you.



FORTHCOMING EVENTS - Please join us and bring your friends!

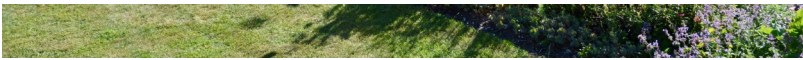


Little Court Garden Party

Little Court, Crawley, Winchester, SO21 2PU

Thursday, 15th June 2023 6.30 – 8.30pm

(no dogs, except guide dogs please)



An exclusive evening Garden Party at Little Court, by kind invitation of Mrs Patricia Elkington.

Please join Professor Lotery and some of our research team to spend time in this beautiful garden, the only opportunity in June.

Cost: £15pp (to include a glass of fizz or a soft drink) and canapes.

Raffle.

Booking details below.

A Hoedown with Testvale Squares

Foxlease, Clay Hill, Lyndhurst, SO43 7DE

Saturday 15th July 2023 7pm—10pm

An evening of fun and dancing to instruction.

No experience necessary!

Raffle

Soft drinks and light refreshments available

Please wear flat or comfortable shoes!

Booking details below.



Cost: £10pp (over 12 years only - sorry but unsuitable for young children)

To book either of these events, please visit www.giftofsight.org.uk/events

or telephone 023 8059 7239. If you would like to talk to us regarding accessibility or parking please telephone 023 8059 5921.

Would you be able and willing to sponsor any of our events please?

We keep our costs low but sponsorship would mean ALL income helps our vital research.



Retina UK Eastleigh Peer Support Group Meeting

Monday 27 March 10.30am—12.30pm

Allington Room – 1st Floor , Wells Place Centre, Eastleigh, SO50 6LJ

Dr Rebecca Kaye will talk to the group about her work as a clinician at Southampton Eye Unit and her research studies as a PhD student in our vision science group. Members of Retina UK will already know about this event. Bookings through the [Retina UK website](http://www.giftofsight.org.uk).

Please remember to let us know if you no longer wish to receive our newsletters

Contact: Ailsa Walter | T:023 8059 9073 or Jennie Mugridge | T:023 8059 5921

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