LVF Eye Centre NEWS

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In this edition you will read about our third and final CPD session in our 2024 Optometry Education dinner series at which attendees gained 2.5Ti CPD hours; an update from our PhD student who is studying Uveal melanoma, the most common intraocular malignancy in adults; and the excitement that is surrounding the Optometry night of nights!

Read these articles in depth on the back page.

Optometry Educational Dinner

On Wednesday 7th August the LVF Eye Centre held the 3rd and final Optometry Educational dinner for the 2024 series.

The presentation "Glaucoma: Modern Options for a Surgical Disease" by Professor Christopher Layton focused on advancements in glaucoma treatment and the evolving surgical techniques available.

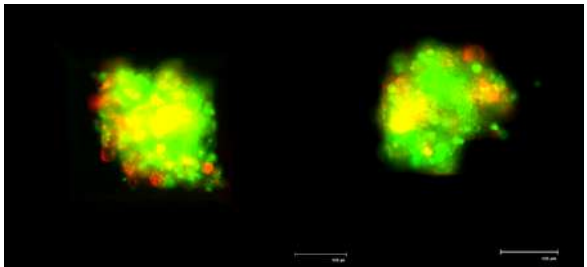

Figure 1: UM cells (stained fluorescent red) growing with liver cells (stained fluorescent green) in a model of metastatic UM co-cultured in AggreWell 800. The yellow colour represents areas where the UM is growing within the liver spheres (like in real cancer). Images were captured using the EVOS FLoid Imaging System (ThermoFisher Scientific, United States).

PhD Student Update

Rebecca Wilson is studying Uveal melanoma (UM), the most common intraocular malignancy in adults, and is aiming to achieve a novel gene therapy for metastatic UM in the liver.

UM is derived from melanocytes of the iris, choroid or ciliary body in the eye. Whilst highly curable when localised in the eye, it is very difficult to treat after it metastasises. Up to 50% of patients with UM will have their cancer metastasize with approximately 95% occurring in the liver.

With conventional melanoma therapies (i.e. radiotherapy, chemotherapy) having poor efficacy, new treatments for metastatic UM are needed.

Celebrating Vision with a night of fun and fundraising

Coinciding with World Sight Day, the Love Your Eyes Charity Gala Dinner saw 140 guests fill the Victoria Park Ballroom in a night that celebrated advancements in vision science. The funds raised from the evening will play a crucial role in supporting groundbreaking research into cures for blinding diseases, bringing us closer to a world without preventable blindness.

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Optometry Educational Dinner Series Wrap up

Professor Christopher Layton's presentation highlighted several critical insights, starting with the importance of understanding the various surgical options that optometrists and surgeons may recommend to patients.

Professor Layton discussed the history of optometric practice, noting how political battles over prescribing rights have shaped the profession. He emphasized that many of the traditional medications, such as pilocarpine and timolol, are no longer the primary treatments for glaucoma. Instead, procedures like Selective Laser Trabeculoplasty (SLT) have become the first line of treatment for open-angle glaucoma, largely due to the positive outcomes shown in the LiGHT trial, which was mentioned as a landmark study.

The talk then moved into Microincisional Glaucoma Surgery (MIGS), exploring its benefits, limitations, and suitability for different stages of glaucoma. For moderate to severe cases, stent-based procedures such as the iStent and Hydrus Stent were discussed. The latest version, the iStent Infinite, was highlighted for its enhanced efficacy in reducing intraocular pressure (IOP). Professor Layton provided a detailed comparison of the different devices, including their associated risks, such as stent obstruction and inflammation.

The presentation emphasized that advancements in glaucoma treatment are providing more personalized and less invasive options, but careful consideration is needed in choosing the appropriate treatment path. The discussion encouraged optometrists and referring professionals to stay informed about surgical developments to better guide their patients toward effective care.

The LVF Eye Centre will once again be holding three seminars next year for Optometrists and GPs. If you are interested in attending these events please follow us on LinkedIn and Facebook to stay informed about the 2025 dates.

PhD Student, Rebecca Wilson explains her research

The Layton Vision Foundation (LVF) is at the forefront of research into UM. Its researchers were one of the first to provide genetic evidence that exposure to ultraviolet sunlight may be a risk factor for UM. Additionally, published work from the LVF researchers has also showed that Queensland, and particularly the Central Queensland area (where I am from), has the highest incidence of UM in the world. Given Prof. Layton and his team's expertise in not only UM but also adeno-associated virus (AAV) gene therapy it seemed a no brainer to collaborate with the LVF for my PhD.

The first step in developing a treatment for a disease is to develop a way of modelling it. In my case, I am using established UM cell lines that have been donated by the LVF. Traditionally, these cell lines are grown on the bottom of a plastic dish and the cancers that form are not very similar to the metastatic ones that grow in the liver. So, in looking for a better model for metastatic UM I have been working on genetically profiling 3-dimentional culture methods whereby I grow the cancer as small spheres. By growing these cells as spheres rather than flat on the plate, the UM cells start to genetically take the form of metastatic cancer and start producing metastatic proteins which are not present when grown flat.

Additionally, we have developed a model where UM cells have been grown with liver cells to model the metastatic cancer in a liver (Figure 1 on front page). Optimizing the metastatic model will allow me to develop a therapy that has the potential to specifically target metastatic cells instead of primary type cells. These results are currently being written up for publication.

The next and current step in my research is to make a better, more targeted gene therapy using AAV. To do this, I will be using techniques learnt from visiting the LVF laboratory in Brisbane. I will be making a library of viruses and selecting only those that can efficiently target the UM cells while sparing the liver cells. This ambitious project has the potential to change the way in which metastatic UM is treated, and I am excited to be starting on this project.

Whilst I still have a couple years left on my PhD, I am looking forward to completing it, while looking for opportunities to continue my career as an ocular scientist. I have visions of working in Europe and Asia, making a difference wherever I go.

A Night to Remember: Love Your Eyes Charity Gala Brings Community Together for Vision Research

We're delighted to share highlights from the recent Love Your Eyes charity gala dinner, an unforgettable evening where guests gathered to support the Layon Vision Foundation. The gala offered a wonderful opportunity for the community to come together, celebrate advancements in vision science, and deepen our commitment to a future without preventable blindness.

Throughout the evening, guests enjoyed inspiring speeches and lively entertainment. The atmosphere was filled with energy and generosity, and one of the evening's highlights was a spirited series of raffles and auctions, which raised over $10,000 for the Layton Vision Foundation. Every dollar from these contributions will directly support the LVF Research Centre, driving forward new advancements in the fight against vision loss.

The evening raised more than $38,000 and proceeds of the event will play a crucial role in supporting groundbreaking research into cures for blinding diseases, bringing us closer to a world without preventable blindness.

A sincere thank you goes out to everyone who attended, volunteered and supported the event. Together, we are lighting the way to a future where vision loss is a thing of the past. We look forward to next year's event for another memorable night in support of sight-saving research!