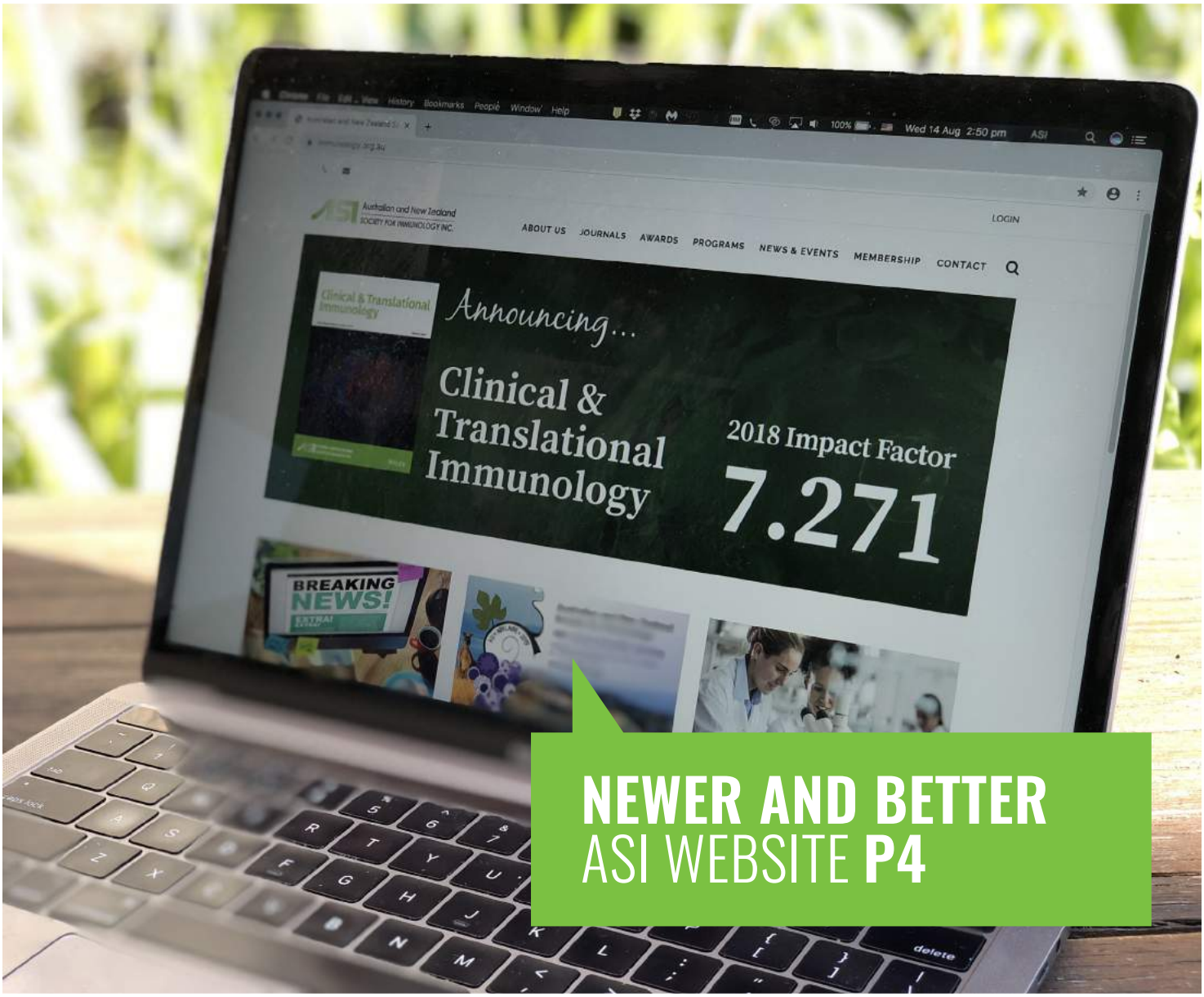
Australian and New Zealand
SOCIETY FOR IMMUNOLOGY INC.

ASI NEWS

SEPTEMBER 2019



NEWER AND BETTER ASI WEBSITE **P4**

CONTACT US

AUSTRALIAN AND NEW ZEALAND SOCIETY FOR IMMUNOLOGY INC.

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Immunologist Faith Osier of Kenya plans to train over 1,000 African

scientists in the discipline during the next decade.

SETTING THE BAR & MOVING ON FAST

Angelica Lau, Newsletter Editor
newsletter@immunology.org.au

It has been roughly 2 months since the celebrations of Day of Immunology across Australia. We are now well and truly into the second half of 2019 - all those grant deadlines, review due dates, abstract submissions… they're all happening! *Speaking of deadlines, have you registered for the ASI Perth Annual Meeting to be held on 8th-12th December this year? It is not too late!* But before you all get carried away with pending stress – make sure to check out some of the winning science communication posters designed by our creative ASI students at the recent DOI outreach events!

2019 has been without question a fast paced and an exciting year for ASI. We saw many new initiatives and changes led by our current council – officially renaming as the Australian and New Zealand Society for Immunology, reinvigorating the Women's Initiative, refining the Gender Equity policies… It has been an absolute pleasure to be on the receiving end of these great changes and to relay these exciting changes to you as editor. But fear not, there are still more exciting news in this issue!

ASI has officially launched of a brand new ASI website – with a modern touch, more streamlined and user-friendly portal for ASI members

We have now launched a brand new ASI website with a sleek and modern touch. The new website is designed to be more streamlined and user-friendly for ASI members to apply for awards and stay up to date with society news.

ASI's flagship journal *Clinical & Translational Immunology* has also achieved a ground-breaking new impact factor! Make sure you check out the CTI special column in this issue!

We also get to hear from the well-deserved recipients of the Gordon Ada Senior Award and the Jared Purton Award. These rising stars have shared with us some of their exciting new research. I hope their stories will be a real inspiration to all you early career researchers out there!

ASI's flagship journal Clinical & Translational Immunology has also achieved a ground-breaking new impact factor!

If you think there are certain news, editorials, featured articles that you think would benefit the ASI community, I am always open to receive suggestions and interesting leads! Send me an email (newsletter@immunology.org.au) and let's have a chat! ■

NEWER AND BETTER

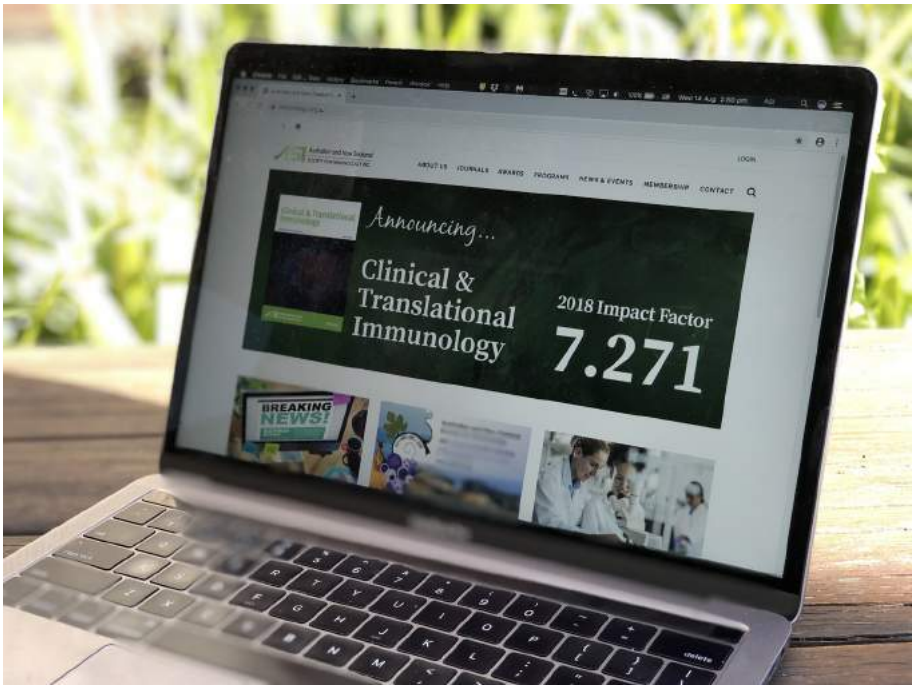
OUR NEW ASI WEBSITE AND SOME GREAT CHANGES

TYANI CHAN, ASI General Manager
generalmanager@immunology.org.au

It is with much excitement that I inform you of some major changes here at ASI. To name a few, in the past 18 months we have established our ASI Strategic Goals, changed our name, engaged AES as our administrative support company, and launched our brand new website on the 28th June 2019.

The move to a new website platform will undoubtedly improve the efficiency of how we operate on a daily basis and also set us up for longer-term sustainability on several levels. A project spanning 18 months, the new website was not implemented purely for aesthetic reasons but rather to address some major ongoing issues surrounding efficiency, security and accuracy of our membership management processes.

A project spanning 18 months, the new website was not implemented purely for aesthetic reasons but rather to address some major ongoing issues surrounding efficiency, security and accuracy of our membership management processes.



We hope that you take a minute to explore the new website (https://www.immunology.org.au).

Click here log in to your member profile by resetting your password if this is your first visit. All members will have an account already, so please log in and check that your member details are current. You'll notice you can indicate your interest in contributing to ASI, being included on the member directory, or being listed on the Women Speakers Database.

In case you missed the emails, here they are again:

- First-timers: Click here for instructions on how to log in for the first time
- Women Speakers: Click here for how to join the Women Speakers Database
- Members on auto-renew: Click here for some important instructions about our change in payment processor

Click here to log in to your member profile by resetting your password if this is your first visit.

Your comments and feedback are always welcome – just drop me a line on generalmanager@immunology.org.au ■

Australian and New Zealand SOCIETY FOR IMMUNOLOGY INC.

SO WHAT ARE THE KEY FEATURES OF OUR NEW WEBSITE?

1. The FAQs

Useful information is now contained within your member profile! You'll be able to look this up in a matter of seconds.

We are frequently asked:

- "What is my ASI member number?"
- "Am I a financial member?"
- "Am I eligible to apply for this ASI award?"

2. Where did the payment go?

Payments received from now on will generate tax invoices that can be downloaded later.

3. Award Status Tracking

We've now included a award status tracking in your profile, giving you greater confidence that we have received your award application, plus the ability to track the progress of your application.

4. Reimbursement Status Tracking

If your award application was successful, you are now able to see that your reimbursements are being processed.

5. Better user experience as you navigate through our website.

6. Significantly improved website security.

7. Automated registrations for new members

Quicker turnaround time for new members to join and start receiving member communications.

8. Mobile-friendliness for the 30% of you that enjoy viewing our website on your phones.

9. So much more that won't fit here!

CTI RECEIVES ITS FIRST EVER IMPACT FACTOR

TYANI CHAN, ASI General Manager,
generalmanager@immunology.org.au

RAJIV KHANNA, CTI Editor-in-Chief,
Rajiv.Khanna@qimrberghofer.edu.au

It's a momentous time in history when your society's journal receives its first ever Impact Factor.

Clinical & Translational Immunology (CTI) was founded in 2012 in response to a growing need for publishing clinically-orientated research papers in the field of immunology.

CTI is an open-access, fully peer-reviewed ASI journal, covering clinical investigations and trials of novel immune-based therapy, cancer immunotherapy, autoimmune disorders, immunodeficiency, transplant immunology, gene therapy, vaccine development and disease pathogenesis and therapy.

Over the past year we had been anxiously awaiting the release of the 2018 Journal Citation Reports, the annual publication by Clarivate Analytics that

It's a momentous time in history when your society's journal receives it's first ever Impact Factor.

provides the latest impact factors and other information about academic journals.

There were certainly some key indicators that we'd receive some fantastic news. For 2017, CTI received a Scopus CiteScore of 3.55; a new metric that evaluates serial citation impact over a three-year period. When this figure doubled in a year to become 7.27 in 2018, CTI was ranked as number 13 of 198 Immunology journals, placing CTI in the 93rd percentile within the Immunology category. It was clear that CTI was increasing in citation impact.

Needless to say, we were ecstatic to hear the Impact Factor result when it was recently released on the 21st June 2019. The 2018 Journal Citation Reports showed an incredible first Impact Factor for CTI of 7.271!

We were ecstatic to hear the Impact Factor result when it was recently released on the 21st June 2019. The 2018 Journal Citation Reports showed an incredible first Impact Factor for CTI of 7.271!

This fantastic Impact Factor placed our journal 22/158 in the Immunology category, and well above other immunology journals such as Journal of Clinical Immunology (4.128), Oncoimmunology (5.333), Clinical and Experimental Allergy (4.741), European Journal of Immunology (4.695), and the Journal of Immunology (4.718).

ASI congratulates the CTI Editorial Board on this outstanding achievement.

ASI Members – don't forget about the fantastic benefits of submitting your work to CTI, including member-only opportunities such as the 20% discount off the cost of publishing, and the automatic entry into the 'CTI Publication of the Year Award', which also includes a speakers slot at the ASI Annual Scientific Meeting.

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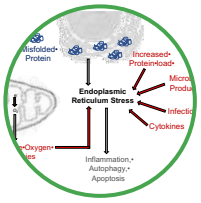
Please don't hesitate to contact CTI Editorial Office to seek presubmission enquiries. We are looking forward for younger leading members of ASI to play an important role in contributing their ground breaking research in CTI.

We will continue to raise the profile and awareness of both our ASI Journals, to further increase readership, citations and submissions, both nationally and internationally.

As CTI continues to grow, we can't wait to bring you further exciting updates in the near future. ■

Clinical & Translational Immunology

Catch up on recent Special Features from *Clinical & Translational Immunology*, including:

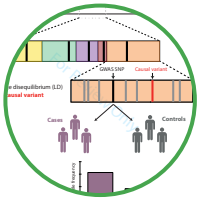


CTI Special Feature on Endoplasmic Reticulum and Oxidative Stress in Immunopathology

Special Feature Coordinator: Sumaira Z Hasnain

Endoplasmic reticulum (ER) stress and related molecular programs, which occur when proteins misfold during biosynthesis in the ER, are important components of the pathophysiology of several diseases including cancer, diabetes, inflammatory bowel disease and multiple forms of respiratory inflammation. Despite this, our understanding of the molecular programs that regulate ER stress, ER-associated degradation pathways, oxidative stress and the unfolded protein response are limited. In this Special Feature of *Clinical & Translational Immunology,* we highlight the complex relationship between cellular stress pathways and inflammation and the potential strategies that could pave the way for specific drugs designed to improve protein folding, manipulate the unfolded protein response to reduce inflammation and restore homeostasis.

(July 2018)

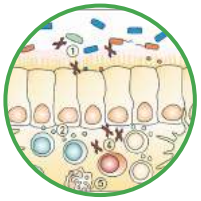


CTI Special Feature on Genome-wide Association Studies and Immunity

Special Feature Coordinator: Manuel Ferreira

This Special Feature of *Clinical & Translational Immunology* marks 10 years since genome-wide association studies (GWAS) were first applied to immune-related diseases. The five reviews cover findings from ankylosing spondylitis, asthma, Crohn's disease, multiple sclerosis and type-1 diabetes. Topics covered include a summary of genetic associations reported to date, the likely target genes underlying those associations, novel insights into disease aetiology, and challenges and opportunities that will shape our field in the next 10 years.

(June 2018)

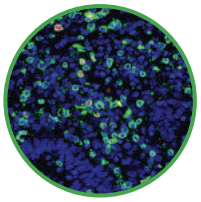


CTI Special Feature on Microbiota and immune cell crosstalk: dialogues across health and disease

Special Feature Coordinator: Erika Duan

The therapeutic potential of correcting microbiota dysbiosis has galvanised researchers and clinicians alike. Immune cells can selectively sense and eliminate microbial species, interact within a local microenvironment and migrate into the periphery or distal organs following co-ordinated activation. This renders them as prime candidates in the endeavour to understand how a localised microbiome can broadly influence organism health and disease susceptibility. Specific commensal microbes can induce tolerogenic or tissue reparative immune cells to maintain organ health, whilst unintentional microbe translocation can initiate disease pathology. Critically, bi-directional communication exists as certain immune cell products can sequester microbial species. Since immune cell contributions to acute and chronic diseases are extensively studied, insight into the mechanisms of immune cell and microbiota crosstalk may provide new leads in the development of superior therapeutic agents. In this Special Feature of *Clinical & Translational Immunology,* we present four reviews which address and summarise the evidence for immune cell and microbiota crosstalk during different acute and chronic diseases.

(May 2018)



CTI Special Feature on Regulatory T cell heterogeneity

Special Feature Coordinators: Ajithkumar Vasanthakumar and Kirsten Ward Hartstonge

Distinguishing self from non-self is a unique feature of the immune system. While negative selection rigorously eliminates auto-reactive T cells, the few cells that escape could trigger severe auto-immune responses. Regulatory T cells (Tregs) however, keep these auto-reactive T cells and other inflammatory T cells in check to preserve immune homeostasis. Paucity of Tregs leads to fatal autoimmunity in both mice and humans. While most Tregs develop in the thymus, they adapt and populate multiple lymphoid and non-lymphoid tissues. Besides suppressing auto-reactive T cells, Tregs also perform non-canonical functions, which include tissue repair and regulation of organismal metabolism. Tregs therefore are heterogeneous in their tissue localization and function. A small fraction of Tregs that differentiate from conventional CD4+ T cells in the periphery further adds to this heterogeneity. In this special feature, we have collated reviews from experts to highlight Treg cell heterogeneity from the perspective of their origin, phenotype, tissue localization, function and the complexity in regulation of these features.

(March 2018)

19 - RM000283

Start reading at **www.wileyonlinelibrary.com/journal/cti**

WILEY

SPECIAL FEATURE ON CELL AND GENE THERAPY

CLINICAL & TRANSLATIONAL IMMUNOLOGY

PAUL BEAVIS AND PHILLIP DARCY, Special Feature Coordinators

Adoptive cellular immunotherapy involving the transfer of autologous chimeric antigen receptor (CAR) T cells has resulted in remarkable responses in relapsed B cell malignancies such as acute lymphoid leukaemia (ALL), often resulting in long-term remission in these patients. These results have led to recent FDA approval of two CAR T cell products for the treatment of CD19+ ALL and non-Hodgkin lymphoma. However, the broad use of this type of therapy for other cancers, in particular solid tumors, has been precluded by both intrinsic and extrinsic factors. This includes the immunosuppressive tumor microenvironment, poor trafficking and infiltration of CAR T cells into the tumor site and heterogenous expression of antigen on the tumor cells.

In this Special Feature of Clinical & Translational Immunology, we have invited leading experts in the adoptive immunotherapy field to discuss recent innovative developments for potentially increasing the function, trafficking and safety of CAR T cell therapy and for broadening the utility of this specialised form of immunotherapy for treatment of cancers that have failed conventional treatments. ■

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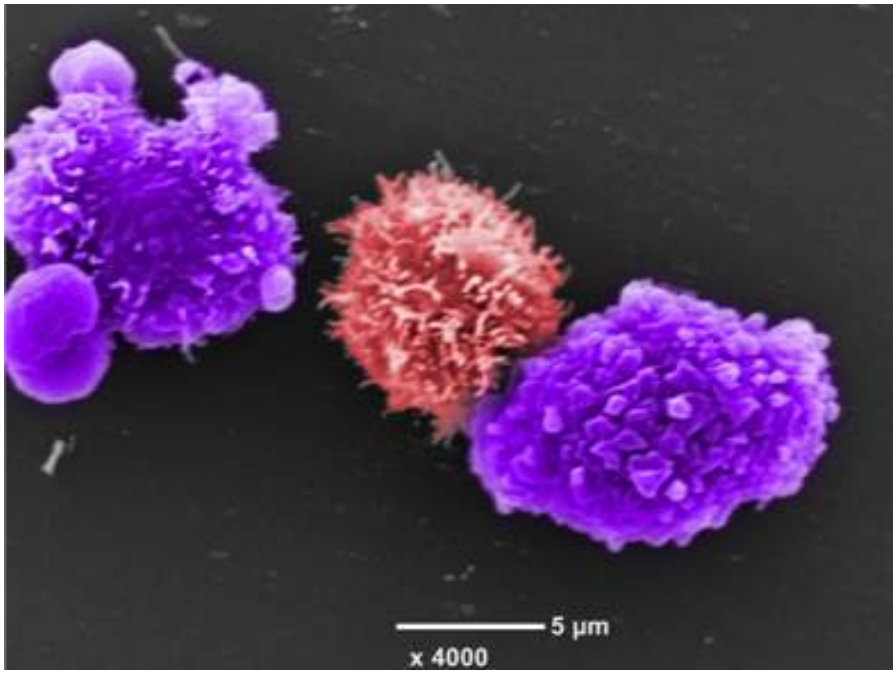

IMAGE GENERATED BY ALEXANDER J DAVENPORT AT THE PETER MACCALLUM CANCER CENTRE, MELBOURNE, AUSTRALIA.

48th Annual Scientific Meeting of The Australian and New Zealand Society for Immunology

Adelaide Convention Centre, South Australia
8 - 12 December 2019

www.asi2019.org

SAVE THE DATE
8-12 December 2019
ADELAIDE, SA

The Organising Committee cordially invite you to participate in the 48th Annual Scientific Meeting of The Australasian Society for Immunology taking place from 8-12 December 2019 in Adelaide, South Australia. The Conference aims to provide another innovative and dynamic scientific program.

We are putting together a varied and balanced program spread over 5 days to showcase the best immunological research from Australia and around the world. With a wide-range of topics from tumour immunology, inflammation, autoimmunity, infectious disease, translational immunology and more, we will ensure there is something for everyone.

Preparations are well underway and we anticipate an intellectually challenging time, as well as an enjoyable opportunity to experience South Australia and its unique environment. The Organising Committee are preparing an engaging social program to give you a flavour of South Australian culture and cuisine.

Adelaide is a modern, dynamic, vibrant and lifestyle city with direct access to Australia's best wine regions and stunning scenery, making it an ideal destination for pre and post-Conference touring. It is home to world-class restaurants, a diverse nightlife, stylish shops and more.

We look forward to welcoming you to Adelaide!

Key Dates

Registration Open
3 May 2019

Call for Abstracts Open
3 May 2019

Call for Abstracts Close
30 August 2019

Abstract Notifications
27 September 2019

Early-bird / Presenter Registration Close
4 October 2019

Special Interest Group Workshops
8 December 2019

ASI2018 Conference
8 – 12 December 2019

Adelaide Convention Centre

The Adelaide Convention Centre is conveniently located in the heart of the city centre and nestled within the beauty of the Riverbank Precinct, surrounded by parklands and the River Torrens.

Close proximity to the medical hub, entertainment, cultural and sport precinct, the Centre is a short walk to international and boutique hotels and accommodation. Public transport, the Adelaide Railway Station and a taxi ramp are on our doorstep.

48th Annual Scientific Meeting of The Australian and New Zealand Society for Immunology

SAVE THE DATE
8-12 December 2019
ADELAIDE, SA

Sunday 8th December

Workshops Featuring our ***Special Interest Groups!***

- *Postgraduate Workshop*
- *SIG Workshop 1: Mucosal Immunology*
- *SIG Workshop 2: Tumour Immunology*
- *SIG Workshop 3: Infection & Immunity*
- *SIG Workshop 4: Stromal Immunology*
- *SIG Workshop 5: Systems Immunology*
- *SIG Workshop 6: Clinical Immunology*

WOMEN'S INITIATIVE NEWS

KYLIE QUINN, Women's Initiative Coordinator
kylie.quinn@rmit.edu.au

In this newsletter, I want to highlight two initiatives that you can get involved with: the Women's Initiative Session at the 2019 Annual Meeting and the ASI Women Speakers Database.

Women's Initiative Session at the ASI Annual Meeting

At the upcoming 2019 Annual Meeting in Adelaide, we will have a Women's Initiative Session.

Everyone is welcomed but the session arose because a number of men within ASI got in contact to say they wanted to act to support gender equity initiatives. The aim of the session is therefore to give all ASI members, but particularly men, some evidence-based tools and practices that folks can use within ASI and in daily life.

We have Prof Karen Farquharson (University of Melbourne) joining us to lead the session. Prof Farquharson is an expert in evidence-based practices that support equity and diversity. We've lined the session up at the beginning of the Annual Meeting, so that everyone will have lots of opportunities to put her suggestions to good use!

So, if you are keen to proactively support gender equity and diversity within ASI and keen to learn about what works, please make sure to register and join us at this event- on the first day of the conference during morning tea (10-11 am).

And many thanks to Tessa Gargett from the Centre for Cancer Biology in Adelaide, who has been helping to organise the session!

A New and Improved Women Speakers Database

The new ASI website is looking great – go check it out if you haven't already. Your ASI profiles have also moved online and one of the big advantages to our new system is that you can load your ASI profile directly into the Women Speakers database.

If you are keen to proactively support gender equity and diversity within ASI and keen to learn about what works, please make sure to register and join us.

HOW TO BE INCLUDED IN THE WOMEN SPEAKERS DATABASE?

If you want to be included on the database, follow these few simple steps:

1. Log into your ASI member profile via the ASI website (www.immunology.org.au/members/)
2. Fill out your details (making sure to select your "Discipline field of interests") and then scroll to the bottom of the "Profile 2" tab. You can tick a box there to load your profile onto the Women Speakers database, but don't forget to scroll a bit further down to fill out the rest of your profile!
3. If you have accounts for Google Scholar, ResearchGate, LinkedIn or ORCID or an institutional website, these can all be added to your profile.

You can also upload a bio picture and a brief biography to highlight your skills and achievements. I highly encourage you to personalise your profile and we have some great looking profiles on there already if you need some inspiration.

A key benefit of the database is that you can now update your details at any time. If you move, have new research interests or skills, or new accolades, just change it on your ASI profile and the database will be updated.

We envision that this database will be used in many different ways- conference and event organisers looking for a speaker or panellist; media outlets looking for expert commentary; scientific journal editors looking for people to invite for articles or reviewing; educators looking for an expert to communicate to their classes; policy makers looking for experts. To enhance the visibility of the database, we will circulate a description and link to the database to a number of outlets on the 1st October 2019.

If you are looking to increase your visibility, these are some great resources to do it.

If you are keen to be featured on the database, please make sure to update your profile before then.

Fortunately, ASI is not alone in promoting women in science with access to databases:

The Australian Academy of Science has recently launched "STEM Women" (https://www.stemwomen.org.au), which is an online database of women in STEM in Australia.

500 Women Scientists website has "Request a Women Scientist" (https://500womenscientists.org/request-a-scientist), which is an international online database of women in STEM.

Scimex have the "Find and Expert" database (https://www.scimex.org/find-an-expert), which aims to connect science journalists and scientific experts in Australia and New Zealand, with a lot of great women on this website.

If you are looking to increase your visibility, these are some great resources to do it.

Finally, ASI members can now also access an online Membership Directory under your profile that enables you to contact all other ASI members. If you are looking for a diverse array of women and men in our community for speaking or other opportunities, this is a great resource too. ■

GORDON ADA SENIOR AWARD RECIPIENT 2019

DR NATALIE BORG
Immunity and Immune Evasion Lab, Department of Biochemistry and Molecular Biology, Monash University
natalie.borg@monash.edu

After finishing my undergraduate degree, I admittedly started my honours year at RMIT with much hesitation. I wasn't sure what I wanted to do and so a year's experience in the wet-lab seemed like a good move for future employment. My project involved using phage display to identify influenza epitopes, and this is where my passion for studying viruses began. I found my honours year tough due to the steep learning curve, but as the year progressed I became more persistent, resilient and resourceful. Most importantly, I learnt quickly to ask the right questions of the right people.

> The highlight of my PhD was being the first to determine the structure of the HN protein from hPIV3, and this in turn led to a structure of HN with RELENZA®

After honours I was certain a PhD wasn't for me…and then I started one. In between my two extremes I had stumbled across an advertisement for a PhD student in the newspaper. The position was located at the CSIRO in Parkville and I was enrolled through the University of Melbourne under the supervision of Jenny McKimm-Breschkin and Margot Anders. The project was to study the structure and function of a surface glycoprotein called HN (haemagglutinin-neuraminidase) from human parainfluenza virus type 3 (hPIV3). This project captured my interest as it enabled me to continue my love for viral research whilst exposing me to X-ray crystallography. The highlight of my PhD was being the first to determine the structure of the HN protein from hPIV3, and this in turn led to a structure of HN with RELENZA® (Figure 2), the influenza virus neuraminidase inhibitor, bound to its active site. The study provided insights into the receptor-binding and neuraminidase functions of HN, and highlighted to me the power that visualising a molecule holds towards understanding how it works.

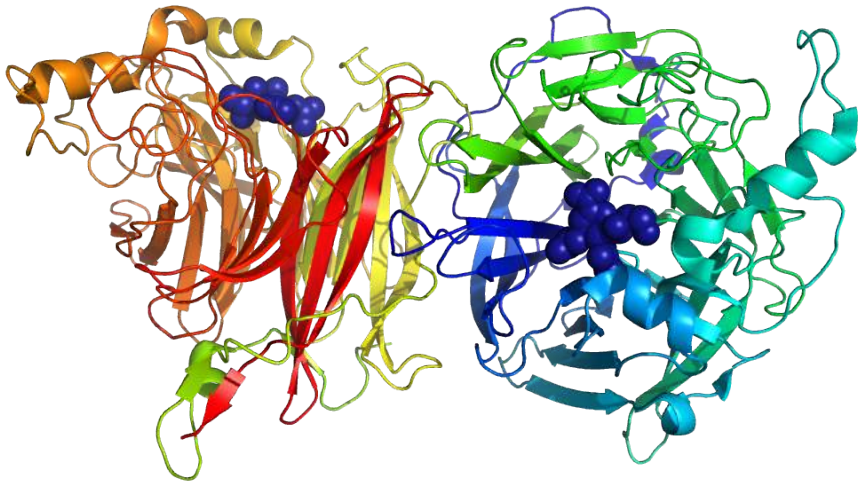

FIGURE: THE STRUCTURE OF HN IN COMPLEX WITH RELENZA®

Following on from my PhD I joined Jamie Rossjohn's laboratory at Monash University. I wanted to continue using X-ray crystallography as a study tool and this position provided the

perfect opportunity to do so, as the Protein Crystallography Unit had just been established at Monash University. My research focus was to understand the cornerstone of adaptive immunity - how T Cell Receptors (TCRs) recognise peptide antigens displayed by Major Histocompatibility Complex (MHC) molecules. This research later extended to understanding how Natural Killer T (NKT) cells recognise glycolipid antigens displayed by MHC-like molecules. A major highlight was being one of the first ever to visualise how TCRs recognise glycolipid antigens – this was significant because at the time we had only ever visualised how TCRs recognise peptide antigens. It was predicted that TCRs might recognize glycolipid-antigens in a similar way to peptide-antigens, but our structure proved otherwise. An added bonus was that the structure was published in Nature, and received a write up in Nature 'News and Views'. The article continues to attract interest as since 2007 it has accrued over 530 citations. I have very fond memories of this time.

My PhD and post-doc outputs

My research vision is to advance knowledge of host- and microbial-dependent regulation of innate immunity, and build on this to enable new strategies to combat microbial infections.

culminated in the award of an NHMRC Peter Doherty Fellowship, and later I received an NHMRC Career Development Award and a L'Oréal Australia for Women in Science Fellowship. I used these fellowships to launch my own laboratory within the Department of Biochemistry and Molecular Biology at Monash University.

MY RESEARCH TEAM. LEFT BACK - MICHELLE AUDSLEY, RIGHT BACK - SARAH ATKINSON; FRONT LEFT – JACINTA WUBBEN, FRONT CENTRE – NATALIE BORG, FRONT RIGHT – MELISSA SWEENEY.

Now faced with finding my own research niche, I came full circle and combined my love of X-ray crystallography with my previous research exposures. Although I am now focused on innate immunity, my major research interests include host-pathogen interactions and understanding the role pathogens play in blocking or manipulating host proteins to aid their replication. I also have an interest in the role of ubiquitination and nucleocytoplasmic transport in regulating the function of host/pathogen-derived proteins. To address our research questions we use a diverse portfolio of structural/biophysical tools combined with high-resolution imaging and cell-based infectious assays. My group started with a single PhD student, but has steadily expanded, and I was awarded an ARC Future Fellowship during this time.

We are in an era where infectious disease remains a significant global challenge due to a lack of treatment options or emerging drug resistance. My research vision is to advance knowledge of host- and microbial-dependent regulation of innate immunity, and build on this to enable new strategies to combat microbial infections. To this end, the biggest highlight of my career so far has been the road to translating an arm of our basic academic research. This venture is in collaboration with David Jans, and has been supported financially by Monash University, BioCurate and Therapeutic Innovation Australia. I'm very much enjoying this journey, and observing the stark differences between academic and translational research. My first exposure to the translational process has re-jigged my way of thinking about basic research, and I hope to spin-off new translational projects in the future. My ultimate aim is to develop therapeutics that will make a lasting contribution to human health. ■

JARED PURTON AWARD RECIPIENT

DR LUCY SULLIVAN
The Peter Doherty Institute for Infection and Immunity, Department of Microbiology and Immunology, University of Melbourne
lcsull@unimelb.edu.au

I completed my Bachelor of Science (Honours) and PhD at the University of Adelaide. My early research focused on comparative aspects of lung physiology and during this time I developed a keen interest in immunity. This prompted a change in direction for my postdoctoral research where I joined the lab of Professor Andrew Brooks at the University of Melbourne.

DR LUCY SULLIVAN, JARED PURTON AWARD RECIPIENT

My current research investigates the immune system following lung transplantation with a focus on defining parameters that can improve survival rates.

A major focus of my post-doctoral studies focused on understanding how viruses shape immune responses during lung transplantation. Through my work at the Brooks lab, I made a significant contribution to understanding the role of natural killer (NK) cells in immunity to viruses following lung transplantation. In recognition of my contribution to transplantation research, I was commended with a joint Research Fellowship at The Alfred Hospital with the Lung Transplant Service and with the Peter Doherty Institute at The University of Melbourne in 2017. Since then I have received several awards during my career, including an NHMRC Peter Doherty Fellowship, NHMRC Career Development Award, a University of Melbourne Research Fellowship and the Josette Eris Memorial Award from the Transplantation Society of Australia and New Zealand (TSANZ). My ability to link basic laboratory research with translational clinical activities saw me convening the 2018 Annual Scientific Meeting of the Transplantation Society of Australia and New Zealand (TSANZ). I am currently chair of the Scientific Program and Education Committee of TSANZ and a member of the Transplantation and Immunogenetics Research Advisory Committee. I am also a strong advocate for women in medical research, being an executive member of the Women in Science Parkville Precinct (WiSPP) group, where we are establishing programs to promote gender equity in medical research.

My current research investigates the immune system following lung transplantation with a focus on defining parameters that can improve survival rates. We have several active and ongoing projects focused on reducing rejection and controlling infection following lung transplantation.

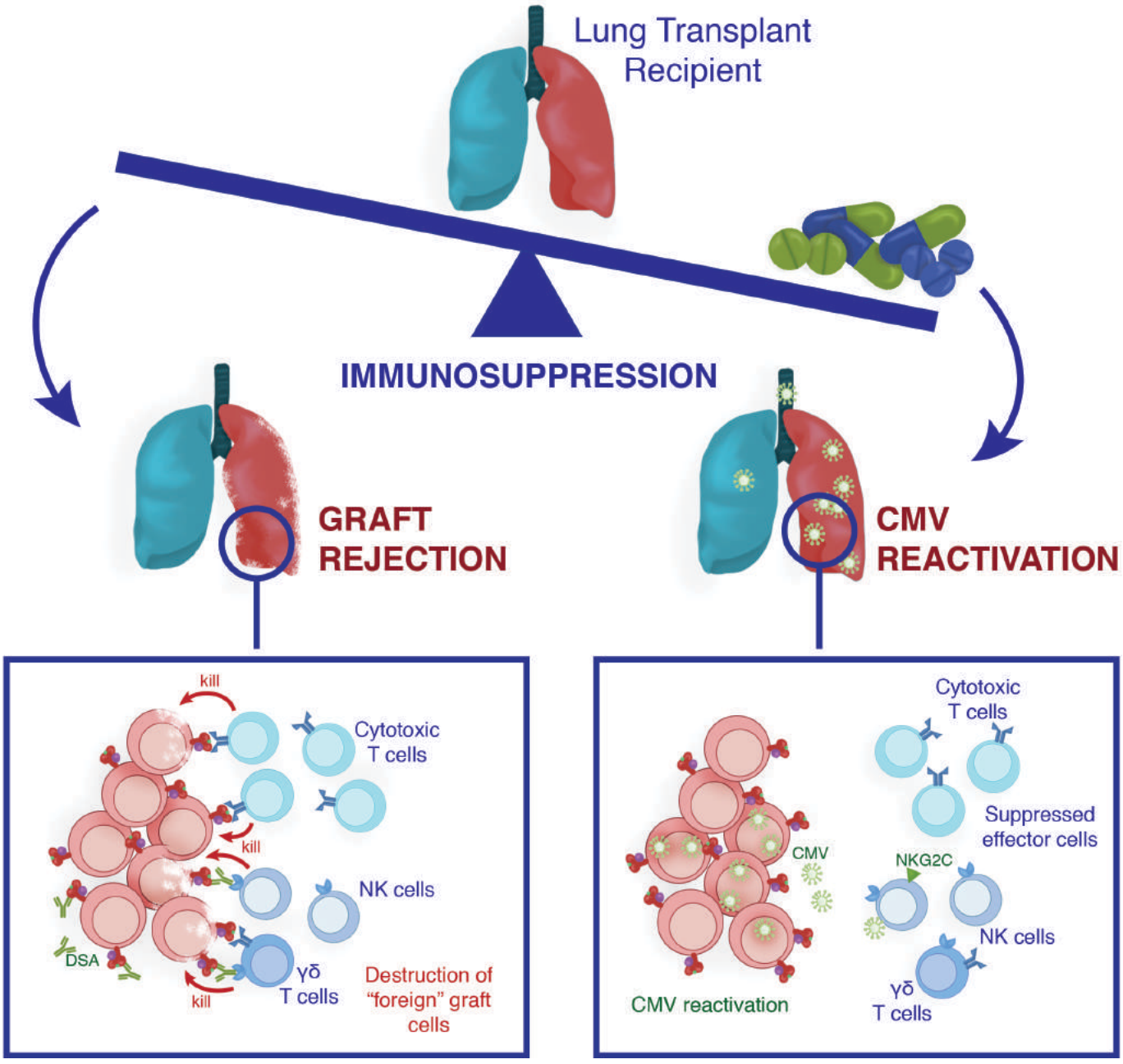

FIGURE : MY RESEARCH FOCUSES ON THE CONTROL OF REJECTION AND INFECTION FOLLOWING LUNG TRANSPLANTATION. LUNG TRANSPLANTATION IS A LIFE-SAVING THERAPY FOR PEOPLE WITH END-STAGE LUNG DISEASE. HOWEVER, LOGISTICAL AND TIME CONSTRAINTS DICTATE THAT LUNG-TRANSPLANT RECIPIENTS ARE NOT HLA-MATCHED TO THEIR ORGAN DONOR, RESULTING IN THE REQUIREMENT FOR LIFE-LONG IMMUNOSUPPRESSION. FIGURE BY DR PHILIPPA SAUNDERS.

Left panel: Donor-recipient mismatches result in the stimulation of cellular (T cell) and humoral (antibody) alloreactivity. Whilst T cell alloreactivity is an established risk factor for rejection, there is an increasing recognition of anti-HLA donor specific antibodies (DSA) against the lung allograft also contributing to rejection. One stream of our research focuses on the identification and the mechanisms of DSA formation and determining the role of natural killer (NK) and gd T cells as effectors of antibody-mediated rejection.

Right panel: Post-transplant immunosuppression, required to prevent rejection, results in impaired ability to control infections. Cytomegalovirus (CMV) is the most significant pathogen causing post-transplant complications. Our research investigates the immune cells that control CMV following transplantation, with a focus on NK and gd T cell subsets. Our study aims to ultimately guide diagnostic tests to predict CMV infection and to harness immune cells for cellular therapy in recipients with CMV disease.

DR LUCY SULLIVAN, JARED PURTON AWARD RECIPIENT

One project aims to identify and understand the mechanisms of antibody-mediated destruction of the lung allograft, for the purpose of ultimately designing targeted therapies to prevent rejection. In an exciting new development in this project we now believe that the antibodies that are produced by the donor's immune cells can also contribute to antibodies present in transplant recipients. We will continue to pursue this area of research as

With the help of the Jared Purton Award, I have established new collaborations that will enable me to extend our research into multiple lung transplant centres.

it has the potential to cause a paradigm shift in the way we think about antibodies that can damage a transplanted lung. Another project is focused on the control of cytomegalovirus (CMV) following lung transplantation. CMV disease is a major problem following transplantation and uncontrolled CMV replication can result in organ loss and death. Our research in this area has identified subsets of immune cells that have future utility in novel cell therapy for post-transplant CMV disease. We are also developing diagnostics to predict recipients who are at most risk of CMV disease. (Figure 4)

With the help of the Jared Purton Award, in April 2019 I attended the annual meeting of the International Society for Heart and Lung Transplantation (ISHLT) in Orlando, Florida. This is the world's largest lung transplantation meeting with attendance by clinicians, scientists and commercial companies. We are currently refining pilot experiments with the objective of commercially marketing an assay that aims to improve the clinical management of transplant patients. The Jared Purton Award allowed present this research at ISHLT, helping to raise my research profile at this crucial point in my career. With the help of the Jared Purton Award, I have established new collaborations that will enable me to extend our research into multiple lung transplant centres. Most importantly, this award assisted me towards my ultimate goal: to extend the lives of transplant recipients. ■

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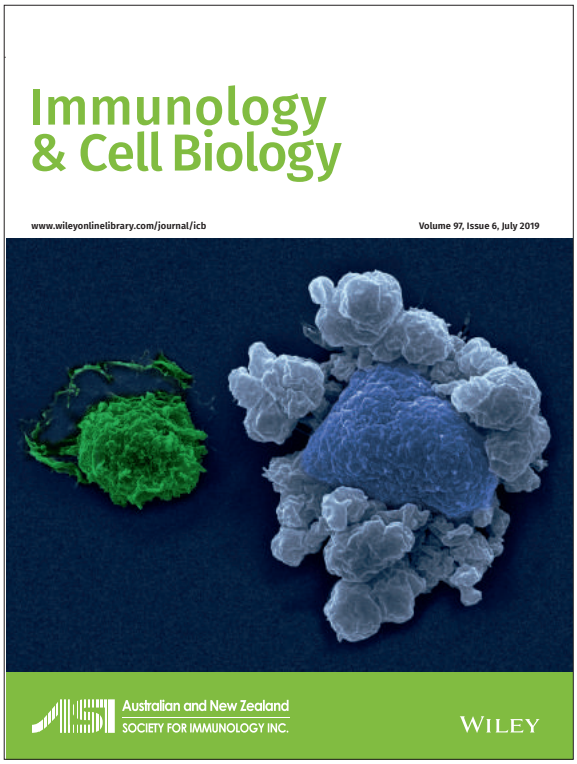

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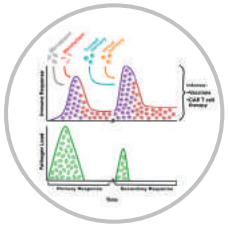
Immunology & Cell Biology

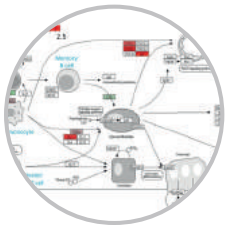
the flagship journal of the Australian and New Zealand Society for Immunology (ASI)

Catch up on recent Special Features from *Immunology & Cell Biology,* including:



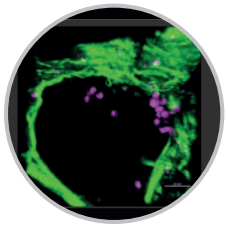
Special Feature on Immunological Memory

The August 2019 issue of *Immunology & Cell Biology* contains a Special Feature on Immunological Memory. The term "Immunological Memory" refers to the phenomenon that, after an initial exposure, immune mechanisms respond more vigorously to subsequent exposure to a pathogen. This is fundamental to the concept of immunity; it is a cornerstone many immune-based therapies and it has been documented in human history for thousands of years. However, there remains much to be learned about the basic biology underlying this phenomenon. This series of articles explores recent advances in immunological memory, by examining our current understanding of CD4 T cell memory differentiation pathways, evaluating the impact of the microbiome on developing B and T cell memory and exploring the role of metabolism in control of memory cell development. The articles also highlight how our understanding of the basic biology of immunological memory can be used to refine the design of immunotherapies, including vaccines and cell-based cancer therapies. Finally, several articles explore the broadening definition of immunological memory, with an exploration of trained immunity and virtual memory cells. *Immunology & Cell Biology* thanks the coordinators of this Special Feature – Joanna Kirman, Kylie Quinn and Robert Seder – for their planning and input.



Special Feature on Primary Immunodeficiencies

The April 2019 issue contains a Special Feature on Primary Immunodeficiencies. Inborn errors of immunity, or primary immunodeficiency disorders (PID), are monogenic diseases of the immune system. These affections give rise to complex diseases with a wide range of susceptibility to infections. The advent of next-generation sequencing has ushered in a Golden Age of PID research. The number of genes identified as responsible for PID has been rapidly rising, with a new PID gene identified on average every week for the past 10 years. Despite the recent explosion of knowledge, 90% of the estimated 3000 PID genes have yet to be studied. This Special Feature discusses recent advances in PID research, and what it means for our understanding of human immunology. *Immunology & Cell Biology* thanks the coordinators of this Special Feature – Adrian Liston & Stephanie Humblet-Baron – for their planning and input.



Special Feature on Macrophages in Tissue Repair

The March 2019 issue of *Immunology & Cell Biology* contains a Special Feature on Macrophages in tissue repair. In the late 18th century, Metchnikoff proposed the 'phagocytosis theory' in which he controversially placed the contribution of macrophages to organismal biology as being of even greater importance than their role in bactericidal defence. His view still prevails today, with macrophages appreciated as playing a fundamental role in the process of tissue repair. The present series of articles explores recent advances in this area, highlighting the importance of macrophage heterogeneity, plasticity, tissue specificity, activation status and cellular metabolism on the outcome of tissue repair. Finally, in a broader view of the repair process, the role of neutrophils as well as eicosanoids as supporting macrophage migration and polarisation is discussed. *Immunology & Cell Biology* thanks the coordinators of this Special Feature – Tiffany Bouchery and Nicola Harris – for their planning and input.

Find out more by visiting the journal's homepage here:
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ASI-ADVANCED IMMUNOLOGY SCHOOL

22-25TH JULY, 2019, ILUKA RETREAT, RAWSON, VICTORIA

SARAH DART, Immunology and Microsurgery Group, University of Western Australia

STEVEN HEATON, Department of Biochemistry & Molecular Biology, Monash University

On July 22nd-25th, ASI hosted the inaugural Advanced Immunology School at Iluka Retreat in Mornington Peninsula, Victoria. There was genuine warmth on display that cut through the winter air, leading to new friends and great discussions between early career researchers and established experts in the field.

Centred on the theme 'Immune Life', we heard from some of Australia's best scientists through expert seminars, panel discussions and skills workshops. Early career researchers had the chance to present their latest research, all the while being encouraged to challenge dogma, discover our passion and consider what type of scientist we are.

Among the most memorable advice in crafting our own 'Immune Life' were the words of

BONDING OVER A MORNING COFFEE

Early career researchers had the chance to present their latest research, all the while being encouraged to challenge dogma, discover our passion and consider what type of scientist we are.

A/Prof Kim Jacobson, reminding us to "be your own FACS Aria; sort advice into collection or dump channels". Dr Joanne Reed also reflected on some great life lessons we can borrow from immunology, including "learn through positive and negative feedback", and "build diverse and collaborative teams".

The unique opportunity to present work to all delegates without judgement for prizes allowed us to present in a relaxed environment and get to know

AUDIENCE PARTICIPATION WAS THE NAME OF THE GAME

a great opportunity to meet other early career researchers in immunology, forging life-long friendships and potential future collaborations. Hopefully this will be the first of many Advanced Immunology Schools and we encourage all early career researchers to watch this space in 2020!

Thank you to the organising committee: Susanne, Odilia, Jess and Nick, for this wonderful initiative, and to the subcommittees for all their help in making the event possible.

A huge thank you also to the inspiring faculty team for their advice, guidance and expertise. ■

others at the School, to find overlapping themes, techniques or areas of interest to discuss over our next meal. Throughout the week we had the opportunity to meet each and every person in our cosy camp group of 58, allowing for many great conversations.

Hopefully this will be the first of many Advanced Immunology Schools and we encourage all early career researchers to watch this space in 2020!

In true camp style, our evenings were filled with (immunology-related) fun including quizzes, campfires and the lab Olympics, during which we got to see just how good some of our 'immunology experts' were at filling tip boxes (with cryogloves on, because, who doesn't fill tip boxes like that?).

Overall, the Advanced Immunology School was a wonderful week, mixed with lots of learning and discussing of immunology. It was also

POSTER SHOWCASE: DOI 2019

GABRIELA KHOURY, DOI Coordinator
Gabriela.khoury1@gmail.com

Angelica Lau, Newsletter Editor
newsletter@immunology.org.au

Students were encouraged to put together a poster to explain their research project in the manner of communicating their scientific work to the public during Day of Immunology. These posters were on display during the public lectures throughout DoI and the public voted on their favourites across continent! Here is a compilation of the wonderful work these students have made and they look great!

IMAGING POSTERS

MONASH University

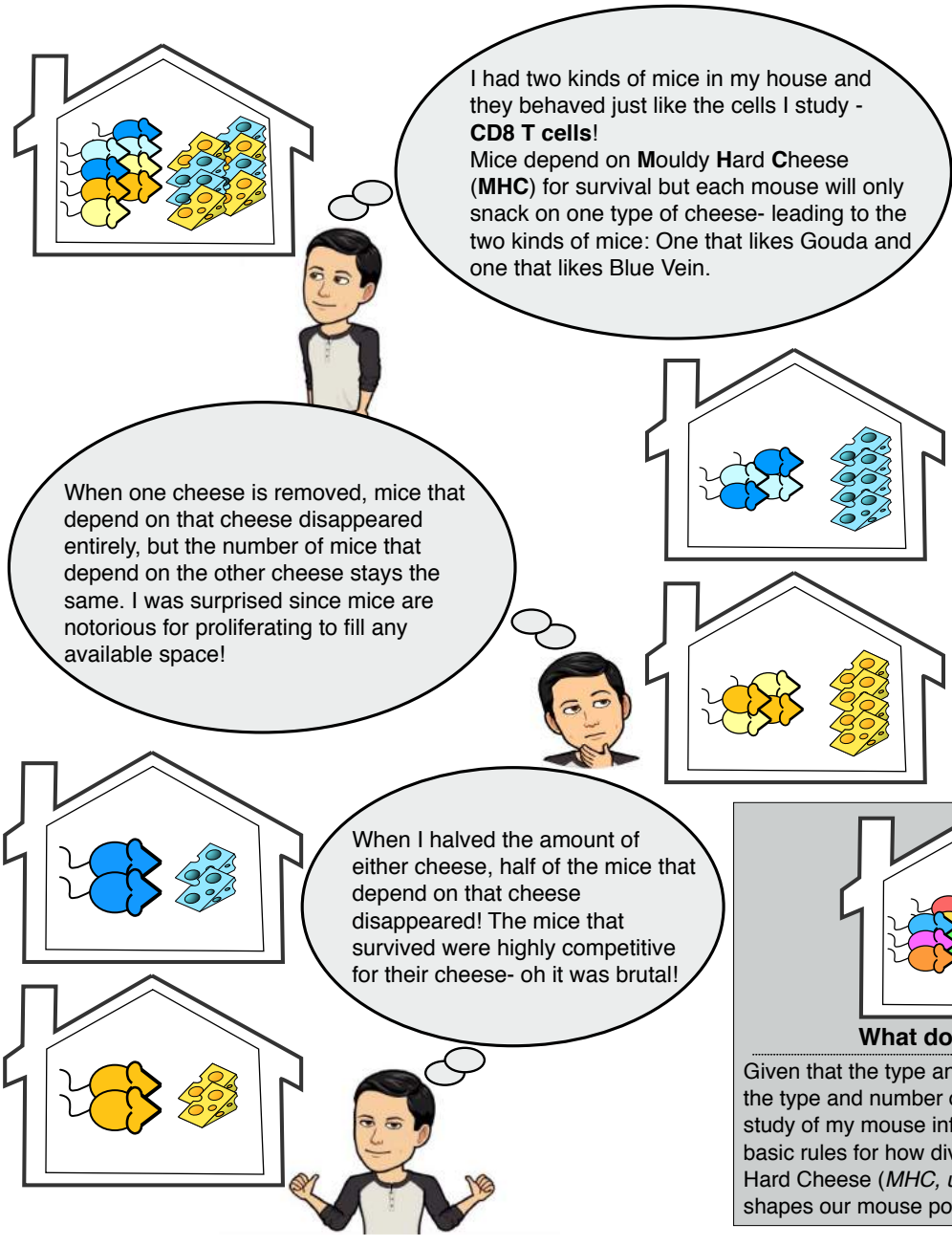
Australian and New Zealand SOCIETY FOR IMMUNOLOGY INC.

AUSTRALIA AND NEW ZEALAND DAY OF IMMUNOLOGY

DoI News

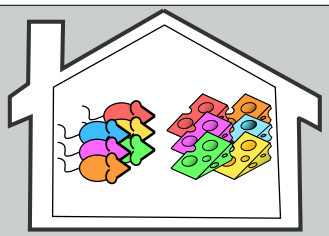
www.DoIdailynews.com.au **FRIDAY**, MAY 3, 2019 DoI ISSUE

DoI2019 BREAKING NEWS: SCIENTISTS DICOVER LINK BETWEEN MOUSE SURVIVAL AND MOULDY HARD CHEESE



Xavier Sng

Xavier Sng is a 3rd year PhD student in Prof. Nicole La Gruta's lab at Monash University, co-supervised by Dr. Kylie Quinn, with a long-standing interest in CD8 T cell biology.
His research focuses onto how MHCI gene dosage dictates the level of MHCI expression and delimits the size and quality of resulting naive CD8 T cell population in the periphery. This study has significant implications for the composition of naive CD8 T cell populations in individuals with diverse haplotype.



What does this mean?

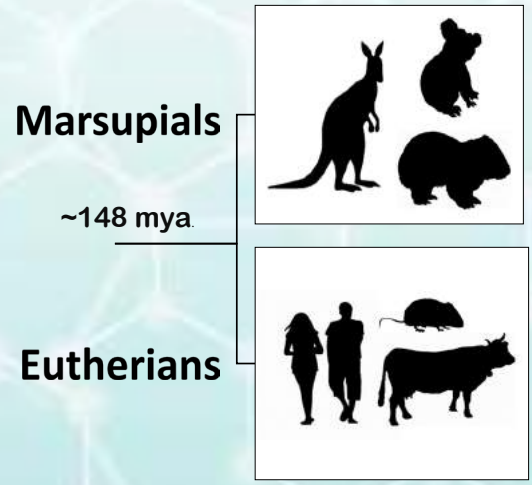
Given that the type and amount of cheeses limit the type and number of mice (*CD8 T cells*), my study of my mouse infestation gives us some basic rules for how diversity and amount of Mouldy Hard Cheese (*MHC, up to six different varieties!*) shapes our mouse population (*CD8 T cell pool*).

FIGURE 1: WINNING POSTER BY XAVIER SNG

Marsupial Immunology

Andrea L. Schraven[1], Hayley J. Stannard[2,3], Oselyne T.W. Ong[4], Julie M. Old[1]

[1]School of Science and Health, Western Sydney University, Richmond, NSW Australia
[2]School of Life and Environmental Sciences, and Charles Perkins Centre, The University of Sydney, Sydney, NSW, Australia.
[3]Charles Sturt University, School of Animal and Veterinary Sciences, Wagga Wagga, NSW, Australia
[4]QIMR Berghofer Medical Research Institute, Brisbane, Queensland, Australia



- Humans complete their development in a sterile uterine environment
- marsupials are born into a non-sterile environment
- Marsupials are highly underdeveloped & without a fully functional immune system at birth.

- Immune tissues and cells develop at different stages in marsupials from the time of birth.
- Spleen and lymph nodes involved in specific immune defences are developed after birth
- Bone marrow and thymus are the main sites of blood cell development, developing much later in marsupials.

Marsupials have the ability to survive (and thrive) outside the mothers' uterus with little development whereas humans cannot!

Human vs. **Tammar Wallaby**

9 month gestation

26 day gestation

FIGURE 2: RUNNER-UP POSTER BY ANDREA

Exercise takes your immune system for a ride

Catriona Vi Nguyen-Robertson

Have you exercised today? If you have, your immune system has changed...

Introduction

We have always been encouraged to exercise regularly, as it is beneficial for our physical and mental wellbeing. BUT it's not always so black and white; elite athletes are more likely to develop respiratory tract infections compared to non-athletes, especially during their peak training periods.

Why is this? Does exercise weaken the immune system?

Let's explore the immune system
Like any army, it has many types of defenders:

Natural Killer cells	*Neutrophils*	*B cells*	*T cells*
Kills infected/unhealthy cells to limit spread of infection	Ingests microbes Lays traps for microbes	Produces antibodies that attack and sweep up invaders	Kills infected/unhealthy cells to limit the spread of infection Coordinates the entire immune response

These defenders all respond to exercise in one way or another...

The Study

METHOD

Healthy men rode an exercise bike at 50% or 80% of their maximum effort

Their blood was collected before and after exercise, and during recovery

before immediately after 2 hours after 24 hours after

We counted how many immune cells were in the blood

...and tested their attacking abilities

THE RESULTS

Before exercise:	Immediately after exercise:	During recovery:	
			Immediately after exercise, the number of immune cells in your blood is increased **...but as you recover in the hours following, there are fewer immune cells in your blood.** *Note that these cells aren't just disappearing. We are looking into where they might be going (e.g. muscles or the spleen (a hub for immune cells)).
			Immediately after exercise, the attacking abilities of NK cells and T cells increases. The more intense your workout, the greater the increase. **...but as you recover, their attacking abilities are weaker than normal.** **For T cells, NK cells and neutrophils in particular, it's more the ability to attack bacteria and viruses that is impacted, while many other functions remain normal.**

*at 80% of your max effort, the increase is more pronounced

WHAT'S GOING ON?

Adrenaline ("fight or flight" hormone)

Cortisol (stress hormone)

When you do intense exercise (over 50% of your maximum effort), adrenaline and cortisol are pumped into your blood

These can alter the immune system

The result is a temporary burst and then drop in immune cell number and function in the blood

Neutrophils, NK cells, and T cells in particular are affected. They're less able to fight off microbes during your recovery after exercise and form a weaker defense

It takes up to 24 hours for the immune system to return to normal

For most people, this effect has little overall impact on their immune system.

This is <u>not</u> an excuse to stop exercising!
...but you could use it as an excuse as to why you're not an elite athlete...

During intense training periods, athletes often start training again before their immune systems have returned to normal. This means that their ability to fight bacteria and viruses is constantly lower – that's why they're more likely to get sick!

Acknowledgements

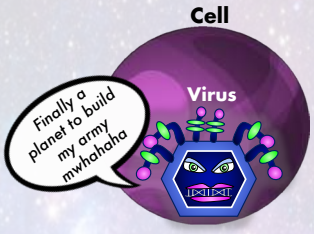
I would like to acknowledge the contributions of Dr Samy Sakkal, Dr Erik Hanson, Chantelle Blyth, Jackson Fyfe, A/Prof. Nigel K Stepto, and Shadney Que from Victoria University, and Prof. Dale Godfrey, Dr Daniel Pellicci and Dr Nicholas Gherardin from the University of Melbourne.

FIGURE 3: RUNNER-UP POSTER BY CATRIONA VI NGUYEN-ROBERTSON

Chelsea Gerada (PhD candidate) University of Sydney @ChelseaGerada1

Alien VS Predator: An epic battle between viral infection and NK cells

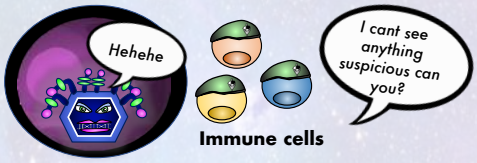
- In a galaxy far far away... an alien known as **Violet the Virus** was looking for a new planet to inhabit, so it could build a mega alien army to take over the body galaxy
- The human body is like a galaxy, except instead of stars the body is comprised of billions of **cells**
- **Viruses** like aliens need a place to inhabit to gain resources. Viruses can not produce more of themselves alone, they need **cells to infect**, so they can use the cells machinery to produce more virus



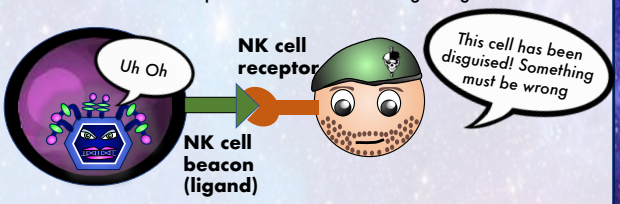
The immune system is the bodies defense force

- Our bodies have an **immune system** to help defend against viruses
- It comprises of innate and adaptive arms
- **Innate** immune response
  - **Rapid** form of defense to help quickly recognize and control viral infection
  - It comprises physical barriers, inflammation and innate immune cells like natural killer **(NK) cells**
  - Can **detect** pathogen presence
- **Adaptive** immune response
  - Comprises of T and B cells which are **slower** to respond but can act in a more **specific** manner
  - These cells are special because they can also **remember** how to respond to different pathogens
  - Can **recognize** specific pathogens

Viruses can hide from the immune system: NK cells to the rescue



- Viruses have evolved to stop immune cells from recognizing infected cells

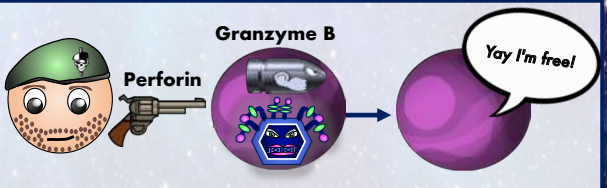


- **Natural killer (NK) cells** are specialist innate immune cells which can detect virally infected cells which have been tampered with
- This is because they use **different receptors** to recognize beacons or **ligands** on infected/ damaged cells

NK cell killing of virally infected cells

- Once an NK cell has **recognized** a virally infected cell it has a **variety of weapons** in its arsenal to kill infected cells to **stop the virus from spreading**
  - The NK cell comes into close contact with the infected cell through the formation of a **immunological synapse** to ensure only infected cells are killed
  - **Perforin** is released and acts as a gun, puncturing the cell membrane and allowing granzyme B (the bullet) to enter the cell
  - **Granzyme B** causes the cell to self destruct and can also damage the virus without inducing cell death

Induction of cell destruction by Granzyme B



Induction of virus destruction by Granzyme B

An evolutionary arms race between viruses and NK cells

- NK cells are pretty good at eliminating virally infected cells however, some **viruses are able to disable NK cell killing** and manipulate their function
- The **complex interaction** between viruses and NK cell function makes this topic **super interesting** to research, as there is a lot more to discover!
- Researching this interaction may provide treatment targets for viruses which impact on human health

Interested in talking to me about viruses, NK cells or cell death?
Follow me on Twitter @ChelseaGerada1

FIGURE 4: WINNING POSTER BY CHELSEA GERADA

Lungs, Eyes & Babies

Lakshanie Wickramasinghe (Department of Immunology, Monash University)

STATISTICS

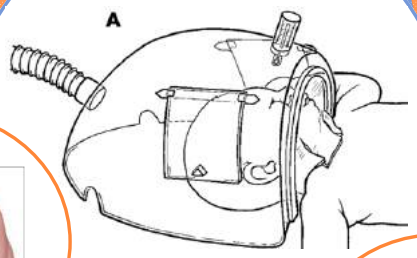
Each year 15 million babies are born too early worldwide.

In Australia alone, 1 in 12 babies are born before a normal pregnancy is completed[1].

BACKGROUND

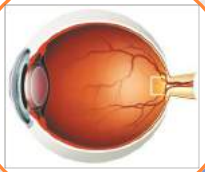
A normal pregnancy lasts for an average of 37 to 40 weeks[2].

A baby born < 37 weeks of pregnancy is considered to be premature and cannot breathe on their own so they must be given supplemental oxygen to keep them alive[2].



Baby wearing a hood that delivers supplemental oxygen (O_2)

Lung



Eye

PROBLEM

Too much **supplemental** oxygen can lead to the **simultaneous** development of a severe **eye** and **lung** disease in these babies and no cure exists for either disease[3,4].

BUT... The **link** between the immune responses in neonatal eye and lung disease have not been researched in detail before.

RESEARCH AIM

To investigate this link, microscopy techniques will be used to identify new and exciting ways to simultaneously treat eye and lung disease in babies, ideally using a single treatment.

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IMAGES

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3. Lungs: https://www.healthcanal.com/lungs-breathing/66107-whats-lurking-in-your-lungs-surprising-findings-emerge-from-u-m-microbiome-research.html

FIGURE 5: RUNNER-UP POSTER BY LAKSHANIE WICKRAMASINGHE

How drug resistant bacteria hide from the immune system

Timothy Patton[1], Jhih-hang Jiang[2], Viola Oorschot[3], Georg Ramm[3], Anton Peleg[2,4], Meredith O'Keeffe[1]
[1] Infection and Immunity theme, Monash Biomedicine Discovery Institute, Department of Biochemistry and Molecular Biology, Monash University
[2] Infection and Immunity theme, Monash Biomedicine Discovery Institute, Department of Microbiology, Monash University
[3] Monash Ramaicotti Centre for Cryo EM, Monash University
[4] Department of Infectious Disease, Central Clinical School, The Alfred Hospital and Monash University

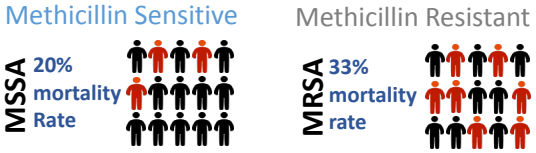
Have you heard of Golden Staph?

Golden Staph refers to the infection with a bacteria known as *Staphylococcus aureus*. These infections are constantly circulating Australian hospitals, and represent one of the most commonly diagnosed hospital acquired blood-stream infections. *Staphylococcus aureus* also causes serious infections in the community setting- including toxic shock syndrome and infections of the skin such as cellulitis.

The post-antibiotic era

Since the discovery of penicillin and it's first use in 1942, the way in which we manage infections has changed dramatically, with improved prognosis for patients. However, more recently we are faced with the increasing threat of resistance to penicillin, and indeed many newer antibiotics- a threat referred to as the post-antibiotic era.

Infections such as *S. aureus* are often able to be treated with antibiotics. Based off their sensitivity to the antibiotic methicillin, these infections are classified as methicillin sensitive *S. aureus* (MSSA), or methicillin resistant *S.aureus* (MRSA). The fatality rate of a resistant infection is more than double that of an antibiotic sensitive infection.



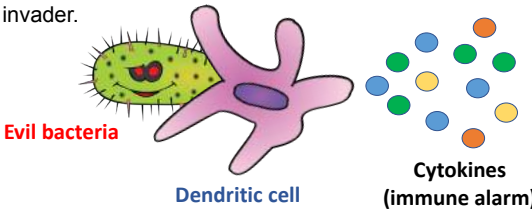
How does immunity come into play?

With antibiotic resistance on the rise, almost two thirds of *S. aureus* infections are characterised as methicillin resistant (MRSA), of which some are broadly resistant to all of our available antibiotics. It is therefore more important than ever to understand how the immune system is normally able to see these bacteria and clear them from our bodies.

Dendritic cells: the eyes of the immune system

To understand how the immune system can *'see'* and respond to infection, we must consider a specialist immune cell type known as the dendritic cell. These cells constantly circulate between our organs, tissues and blood stream on patrol for pathogen.

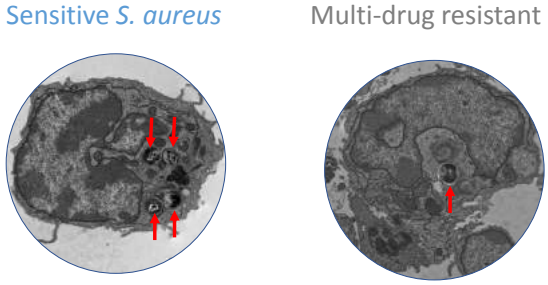
Upon detection an invading pathogen such as *S. aureus*, a dendritic cell should phagocytose or *'eat'* the bacteria, and subsequently produce signalling molecules called cytokines, which call out to and alert the rest of the immune system of the invader.



Dendritic cells struggle to see drug resistant MRSA

In our laboratory, we investigate how dendritic cells respond to various strains of *S. aureus,* isolated from patients suffering multi-drug resistant infection.

To date, some of our most notable findings have shown that dendritic cells tend to phagocytose or *'eat'* less bacteria if the bacteria are multi-drug resistant. This results in the dendritic cells making less cytokines (the immune alarm messengers), and therefore an overall weaker immune response.



Each image shows a dendritic cell interacting with a different strain of *S. aureus.* Red arrows indicate phagocytosed *'eaten'* bacteria

Understanding how antibiotic resistant bacteria avoid detection by dendritic cells will be critical as we navigate the post-antibiotic era. With broad resistance to new antibiotics on the rise, enhancing our own immune system with new vaccines and immunotherapies may be our best weapon in the treatment and prevention of these infections.

MONASH University

FIGURE 6: RUNNER-UP POSTER BY TIMOTHY PATTEN

BD SCIENCE COMMUNICATION AWARD RECIPIENT

2018 ASI ANNUAL MEETING, PERTH, AUSTRALIA

AMY PROSSER, supervised by Prof Michaela Lucas at
The University of Western Australia
Amy.prosser@research.uwa.edu.au

I was grateful to receive this award in conjunction with Catriona Nguyen-Robertson from a very strong field of other researchers. In a fortunate turn of events, the 2018 ASI ASM, held in Perth, was shortly after the West Coast Eagles were victorious in the AFL Grand Final. I used this to my advantage in presenting the work of my PhD looking at the influence of tissue-resident lymphocytes on solid organ transplantation outcome. From that I was able to have a couple of innocent digs at Collingwood supporters by a happy coincidence.

I'm currently completing my PhD at The University of Western Australia under the supervision of Prof Michaela Lucas, Prof Axel Kallies, A/Prof Silvana Gaudieri and Prof Gary Jeffrey. Our small team is associated with the Western Australian Liver and Kidney Transplant Service, affording us a unique position to access human samples and for translation of our findings to patients. We have several extremely talented microsurgeons who perform solid organ transplants in mice, which is technically extremely challenging. I've previously worked in many areas of immunology as a research assistant however transplantation has really grabbed my focus.

Our small team is associated with the Western Australian Liver and Kidney Transplant Service, affording us a unique position to access human samples and for translation of our findings to patients.

To overcome end-stage disease by surgical engraftment of a fully functioning organ is one of the greatest modern medical achievements and a fascinating field of immunology to work in. Unfortunately for many transplant recipient patients,

AMY PROSSER, JOINT-WINNER OF 2018 BD SCIENCE COMMUNICATION AWARD

To overcome end-stage disease by surgical engraftment of a fully functioning organ is one of the greatest modern medical achievements and a fascinating field of immunology to work in.

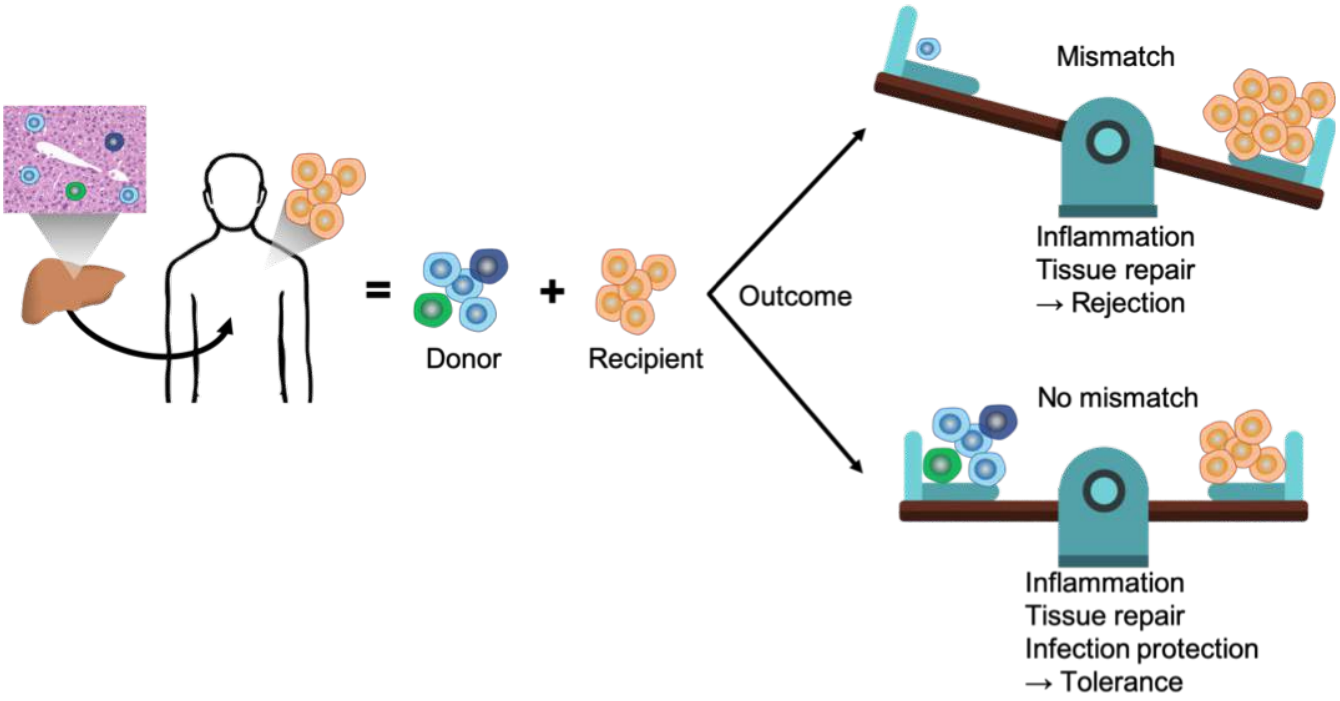
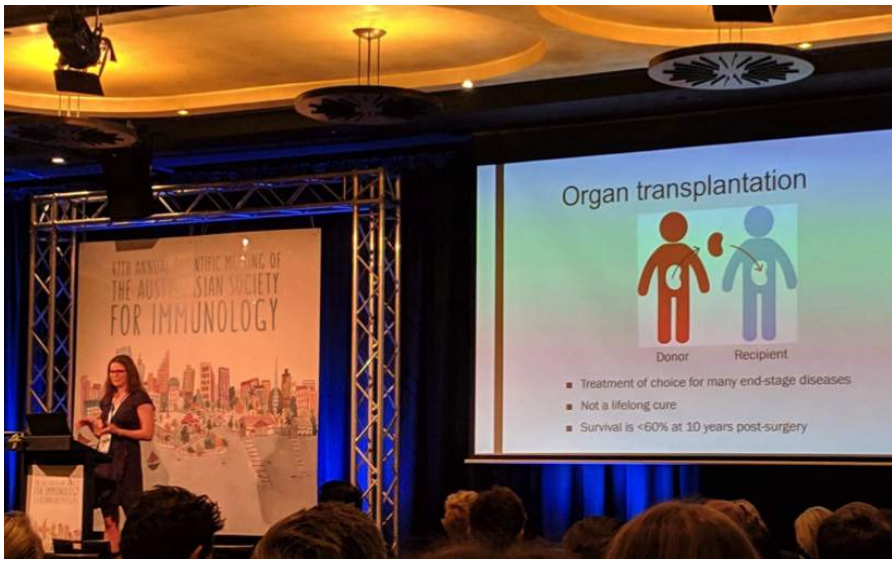


FIGURE: TRANSPLANTATION OF A SOLID ORGAN INVOLVES SIMULTANEOUS ENGRAFTMENT OF THE TARGET TISSUE AS WELL AS DISTINCT 'PASSENGER' AND TISSUE-RESIDENT LYMPHOCYTES. DONOR-DERIVED AND RECIPIENT-DERIVED IMMUNE CELLS INTERACT BOTH IN THE GRAFT AND IN THE PERIPHERY OF THE ORGAN TRANSPLANT RECIPIENT. WHEN THE DONOR AND RECIPIENT ARE MATCHED, DONOR LYMPHOCYTES SURVIVE AND CAN INFLUENCE INFLAMMATION, TISSUE REPAIR, INFECTION PROTECTION, AND ESTABLISHMENT OF TOLERANCE. IN A MISMATCHED DONOR AND RECIPIENT COMBINATION THESE DONOR CELLS ARE DEPLETED AND LARGE NUMBERS OF RECIPIENT-DERIVED LYMPHOCYTES INFILTRATE INTO THE GRAFT, ALSO INFLUENCING INFLAMMATION, TISSUE REPAIR, AND LIKELY LEADING TO REJECTION.

their (usually long) wait for a suitable organ does not result in a lifelong cure. Chronic graft rejection remains one of the primary causes of low long-term (>1 year) survival, though the immunology underpinning this outcome remains poorly understood. Additionally, the lifelong immunosuppression these patients must undertake convey significant adverse side effects and remains ineffective at ultimately preventing rejection.



DELIVERING MY AWARD-WINNING BD SCIENCE COMMUNICATION PRESENTATION AT ASI 2018

We have found some crucial pieces of evidence that may question some of the dogma currently accepted within the field. Further confirming and developing these findings will bring new knowledge to this understudied field.

With recent acknowledgement of tissue-resident lymphocytes as characteristically and functionally different to their circulating counterparts, their location within organ tissue makes them prime candidates as key influencers of transplantation outcome. With this in mind, my PhD has focussed on characterising the donor and recipient immune response to matched and mismatched liver transplants in mice. We have found some crucial pieces of evidence that may question some of the dogma currently accepted within the field. Further confirming and developing these findings will bring new knowledge to this understudied field. In the future, we will expand these to identify potential targets for the prevention of rejection and optimisation of immunosuppressive therapies to improve the outcome for transplantation patients. ■

THE IUIS CORNER

J. ALEJANDRO LOPEZ, IUIS Representative
a.lopez@griffith.edu.au

Here is a brief update of the news coming from IUIS. If you wish to follow the news coming directly from the IUIS, visit the www.iuisonline.org and/or register for the Newsletter.

You can also follow IUIS on Twitter: twitter.com/iuis_online And/or Facebook: https://www.facebook.com/IUISorg/

IUIS 2019 BEIJING

17th International Congress of Immunology

October 18–23, 2019 | Beijing, China

IUIS 2019 is fast approaching

The Scientific Programme for the IUIS International Congress of Immunology is online! Take a look at the over 100 sessions covering today's immunology hot topics, workshops and poster presentations: Scientific Programme.

IUIS New Council

During IUIS 2019, the 68th IUIS Council meeting will take place and a new Council will be elected in the course of the 17th IUIS General Assembly on Saturday, October 19, 2019. It will consist of the Executive (President, Vice-president, Secretary and Treasurer) and 16 Council members representing the member societies.

We are looking forward to the new team lead by elected president Immunologist Faith Osier. Faith will be the first African and second woman to be elected president of the International Union of Immunological Societies (IUIS) and she will begin her three-year term in October. During her presidency, Osier, who holds faculty appointments at Heidelberg University Hospital in Germany and the KEMRI-Wellcome Trust Research Programme in Kilifi, Kenya, will oversee an effort to train 1,000 African PhD students in immunology over the next 10 years. This training, dubbed the Federation of African Immunological Societies (FAIS) Legacy Project initiative, aims to bolster the representation of African scientists in immunology. Her ambitious program is detailed in this link.

Immunopaedia Ambassadors

We have now two Australian ambassadors working with Immunopaedia in its effort to help with generating teaching and popularising material to spread the knowledge of Immunology. They are Richard Charlesworth and Natkunam Ketheesan from University of New England.

Natkunam Ketheesan has produced a video entitled The Immune System In 333 Seconds which you may wish to watch as an introductory general audience material.

Frontiers in Immunology

Frontiers in Immunology is an open access journal published by Frontiers, launched in 2010 and it is the official journal of the IUIS. It has become a leading journal in its field, publishing rigorously peer-reviewed research across basic, translational and clinical immunology.

Frontiers in Immunology current impact factor is 5.511, it is currently the world's 6th most-cited journal – and most-cited open-access journal – in the JCR category of Immunology for number of absolute citations, and one of the leading journals in its field.

A special feature of the journal promotes the publication of Research Topics, which are article collections directly organized by investigators in the field based

IMMUNOLOGIST FAITH OSIER OF KENYA HAS A BOLD PLAN FOR TRAINING 1,000 AFRICAN SCIENTISTS IN THE DISCIPLINE DURING THE NEXT DECADE.
CREDIT: JAMES TUJU/KENNEDY MWAI

UPCOMING IUIS CONGRESSES

IUIS 2022, Cape Town, South Africa. August 15-20

IUIS 2025, hosting society will be chosen in the course of the coming IUIS Council meeting and confirmed by the General Assembly. Bidders are:

- Canadian Society for Immunology (CSI) – Toronto
- Österreichische Gesellschaft für Allergologie und Immunologie (ÖGAI) - Vienna
- Société Française d'Immunologie (SFI) - Paris

The journal is constantly looking for Topic editors and this is a very interesting opportunity of gathering together key publication and promoting your own.

around a theme of their own choice. A Research Topic can consist of different article types, including Original Research and Reviews: all accepted articles are published within the journal online without any embargo period and without waiting for the collection to be officially concluded. Each Research Topic has a dedicated webpage through which individual articles and an e-book of the complete collection can be accessed free-of-charge. The journal is constantly looking for Topic editors and this is a very interesting opportunity of gathering together key publication and promoting your own. In particular, up-and-coming researchers may find that subjects not-covered widely by other journals will find the perfect niche in this journal. Please feel free to contact me should you be interested in contributing with a Research Topic. ■

MORE TO COME

VISITING SPEAKERS FOR REMAINDER OF 2019

STUART MANNERING, VSP Coordinator
smannering@svi.edu.au

We had a great time hosting Kate Jeffrey, Michael Gerner and Donna Faber who visited multiple cities in the past few months to share their research. Coming up we have Mirjam van der Burg and Joachim Schultze, who will be visiting in October and November- so watch this space!

Mirjam van der Burg

Hosted by Emily Edwards from Monash University. Mirjam will visit, Victoria, South Australia and NZ. Mirjam will be here 6th to 19th October. She will be visiting Adelaide (6th – 10th Oct), Melbourne (10th to 16th Oct) and Auckland (16th to 19th Oct).

Research Interests

Mirjam has made seminal contributions to two topics of immunology: B cells and Primary Immunodeficiencies (PIDs). Mirjam has specific interests and expertise in V(D) J recombination and the impact of defects in this pathway on B cell differentiation and function, with a focus on severe combined immunodeficiency (SCID) and predominantly antibody deficiency (PAD). The most significant contributions to the field were the identification of four new candidate genes for PIDS (genes mutated in PIDs). Two related to SCID and two related to PAD. Mirjam's research contributed to Erasmus MC being recognized as a Jeffrey Mondell Foundation Centre for Excellence in PIDS in 2010.

Paul Kubes

Hosted by Tonia Woodberry, ANU. Paul's trip has been delayed for personal reasons. We're expecting him to visit in 2020.

Click here to stay up to date with our VSP program on the ASI website!

Joachim Schultze

Hosted by Stephen Turner from Monash University. Joachim will visit Queensland, NSW, ACT and Victoria. He arrives in Brisbane on November 10th and leaves from Adelaide after attending the ASI meeting.

Research Interests

Prof Schultze is Director of Genomics and Immunoregulation research program, at the LIMES (Life and Medical Sciences Bonn) Institute at the University of Bonn. In addition, he is the Founding Director of the Single Cell Genomics and Epigenomics platform at the University of Bonn and the German Center for Neurodegenerative Diseases. Since 2018, he is also the Speaker of the Bonn site of the newly formed West German Genome Center, a center with more than 70 groups focusing on genomics research. Furthermore, he is

the designated coordinator of the national NGS competence network, funded by the German Research Foundation (DFG). He has a sustained track record in developing new systems biology approaches for unravelling complex transcriptional and epigenomic programs within immune cell lineages. He as applied these approaches to generate paradigm shifts in our understanding how transcriptional heterogeneity at a single cell level contributes to myeloid and lymphoid immune cell differentiation and development. He has also applied these approaches to gain new insights into many disease states such as COPD, obesity, cancer, and neurodegeneration.

Kate Jeffrey

Hosted by Joanna Groom, from WEHI, Kate visited WEHI 6th August (VIC), Hudson Institute 8th August (VIC), Garvan 13th August (NSW) and UQ 15th August (QLD).

Research Interests

Dr Jeffrey has made significant contributions to our understanding of the intersection of chromatin accessibility, epigenetics, non-coding RNAs and transcriptional control in innate immune cells and how dysregulation of these events can lead to immunological disease. Her publication record in multiple high impact journals reflects her important contributions to these fields. In particular, Kate is recognized for the discovery of the first inhibitor of the bromodomain and extra terminal (BET) family of epigenetic readers and the demonstration of its protective effects in inflammation (Nicodeme, Jeffrey et al Nature, 2010, cited >950 times). This manuscript laid the ground for what is now and extremely active area in both academia and industry. The bromodomain inhibitor that was discovered by Dr. Jeffrey in collaboration with GlaxoSmithKline is currently in clinical trials. Now as an independent investigator, Kate has discovered a novel immune-restricted epigenetic reader protein, SP140, essential for macrophage identity (Mehta et al, Science Immunology, 2017). Importantly, mutations within this epigenetic protein associate with 3 immunological diseases: Crohn's disease, multiple sclerosis and CLL.

Michael Gerner

Hosted by Cameron Bastow, from University of South Australia. Michael visited Melbourne from Monday 19th to Friday 23rd August 2019, followed by Adelaide from Saturday 24th August. Michael arrived Sydney on Tuesday 27th August and returned home from Sydney on Saturday 31st August.

Research interests

Michael Gerner, has made a significant contribution to the field of dendritic cell and lymphocyte biology. He has established the analytical technique of histo-cytometry. Briefly, histo-cytometry combines the high-quantitative analysis and robust cell identification capabilities of flow cytometry with the spatial information provided by regular immunofluorescence imaging techniques. Utilising this technology, Michael has published a number of high-impact papers in Nature, Cell, and Immunity centred around the precise microanatomical locations of immune cells and how this relates to their function, information that is lost upon normal tissue dissociation required for flow cytometry. Michael's microspcopy expertise further branches out to include tissue clearing techniques which best preserve reporter protein and fluorophore detection, whole-organ confocal microscopy and 2-photon intra-vital microscopy.

Donna Faber

Hosted by David Tarlinton, Monash University. Donna visited Victoria, NSW, ACT and Queensland. She arrived in Melbourne on August 14th, after attending the IgV meeting on she travelled to Sydney (18th, 19th Aug), then to Canberra (20-21st Aug) and finally to Brisbane (22-23rd Aug).

Research Interests

Donna has made seminal contributions to two areas of Immunology. One is in resident memory T cells (Trm), a topic of great interest to ASI members. Her specific interests and expertise in localisation and function of Trm in the lung, and their requirement for anti-viral responses have made important contributions. Equally her analysis of the transcriptional networks required for the development and activation of these cells have been major achievements that have provided a basis for the field to progress. Perhaps of greater significance is Donna's contribution to the 5-centre program entitled "Tissue compartmentalization of human lymphocytes", which is a truly remarkable undertaking to map lymphocytes to tissues over the lifespan of humans using a remarkable resource, tissues from organ donors. Part of this work was published this year and last year in Immunity and in the last year in Science Immunology. It is easy to see how this study is going to be the basis of many future studies. Equally important is that Donna is particularly interested in collaborating with groups that have an interest in the data she and her colleagues are generating. ■

BRANCH REPORTS

NEW ZEALAND REPORT

RIES LANGLEY, NZ Councillor, r.langley@auckland.ac.nz

NZ Branch Meeting – 30 June to 2 July

This year the New Zealand Branch Meeting returned to Wellington after several years travelling around the regions. A hands-on Spectral Cytometry Experience, hosted by Cytek, preceded the Opening Mixer. This was followed by two days of presentations from NZ members at all levels and from all around the country. A big thank you to guest speakers Prof Axel Kallies, Prof Ruth Ganss, Dr Joanna Groom, Dr Rob Weinkove for taking time out to participate in our meeting and helping make it such a great event. And a special thanks to our Watson Orator, Prof Anne La Flamme. The meeting was organized by members from Victoria University of Wellington and the Malaghan Institute of Medical Research - Lisa Connor (Chair), Angela Jones, Katharina Robichon, Olivier Lamiable, Laura Ferrer Font, and Katherine Woods. Thank you to the local organizing committee for putting on another fantastic meeting. Thank you to Mediray, In Vitro Technologies, Miltenyi Biotech, Lonza/peprotech, Cytek, BD Bioscience, Abacus ALS, Abcam, and the Malaghan Institute of Medical Research for sponsoring the meeting.

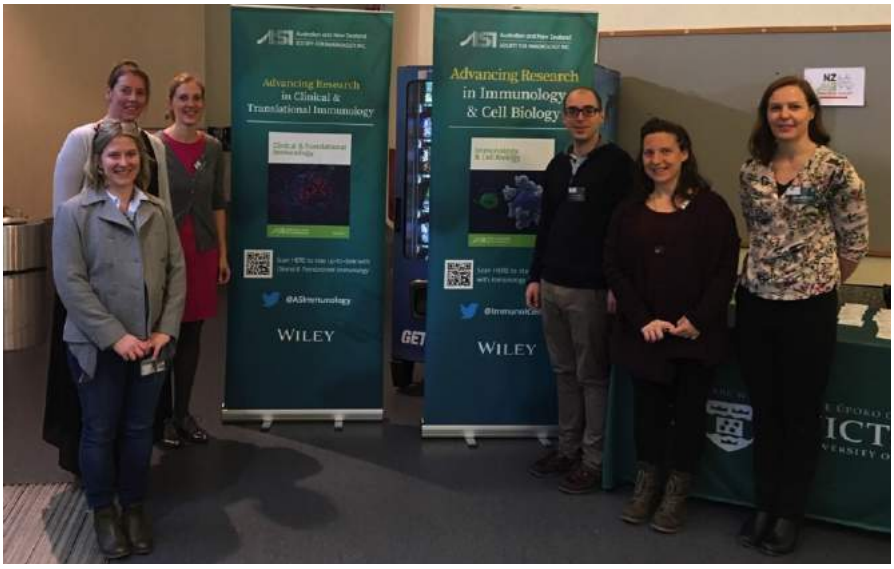
The Glenn Buchan (Buck) Award for best student presentation went to Theresa Pankhurst with Hamish Angus as runner-up. Dr EJ Loef won the Barbara Heslop Award for best post-doctoral presentation and Dr Johannes Mayer came in a close second.

NZ BRANCH MEETING AWARD WINNERS (LEFT TO RIGHT) EVERT JAN LOEF, HAMISH ANGUS, JOHANNES MAYER, MELANIE PROUT, THERESA PANKHURST, AND YASMIN NOURI.

The Glenn Buchan (Buck) Award for best student presentation went to Theresa Pankhurst with Hamish Angus as runner-up. Dr EJ Loef won the Barbara Heslop Award for best post-doctoral presentation and Dr Johannes Mayer came in a close second. The John Marbrook Award for best technician presentation was awarded to Melanie Prout and the runner-up in this category was Yasmin Nouri. Well done to all our winners and to everyone else who participated. The caliber of presentations was outstanding across the board.

NZ Branch Banner Competition

You will have noticed that the ASI website has had an excellent redesign. We now have a new Branch page too that currently sports a generic immunology-image banner. The NZ Branch is running a competition for its members to design a new NZ banner that reflects NZ and our immunology. Check out the top of the NZ Branch page of the website to see where the banner sits (Required dimensions: 1140px wide x 420 px deep). Send your entries to me r.langley@auckland.ac.nz before the end of the year.



THE NZ BRANCH MEETING LOCAL ORGANIZING COMMITTEE (LEFT TO RIGHT) LISA CONNOR (CHAIR), ANGELA JONES, KATHARINA ROBICHON, OLIVIER LAMIABLE, LAURA FERRER FONT, AND KATHERINE WOODS.

The NZ Branch provides travel assistance for its student, technician, and early career scientist members to attend VSP events. Please provide me with a short justification for the travel if you wish to take advantage of this opportunity.

Visiting Speaker to New Zealand

Mirjam van der Burg will be visiting Auckland from 17-19 October 2019. She will be speaking at the NZCIAG meeting on 18th October. Please contact me or the local host Maia Brewerton ArihiaB@adhb.govt.nz for more information or if you wish to meet with Mirjam. The NZ Branch provides travel assistance for its student, technician, and early career scientist members to attend VSP events. Please provide me with a short justification for the travel (why you want to go and what it would mean for your research) if you wish to take advantage of this opportunity. ■

QLD BRANCH REPORT

SUMAIRA HASNAIN, QLD Councillor, sumaira.hasnain@mater.uq.edu.au

Brisbane Immunology Group Meeting 2019

1-2nd August – Novotel Twin Waters Resort, Sunshine Coast

BIG committee: Sumaira Hasnain (MRI-UQ), Rajiv Khanna (QIMR), Ray Steptoe (UQDI), Kate Stacey (SCMB-UQ), Matt Sweet (IMB-UQ), Margaret Jordan (JCU), Danielle Stanisic (Griffith)

Events Management: QIMR Berghofer Medical Research Institute; Dr Nancy Cloake

The one-and-a-half-day BIG meeting kicked off on Thursday morning at the Sunshine Coast, attended by more than 120 people. We had some big names attending the meeting including Prof. Phil Hodgkin (Joint Head of the Immunology Division, Walter and Eliza Hall Institute of Medical Research) who gave the Jonathan Sprent Oration (whilst Prof. Jonathon Sprent was in the audience!).

BEACH CRICKET WITH RAY STEPTOE

Thank you to our interstate plenary speakers who travelled to be with us at the Sunny Coast and helped us judge the best postgraduate presentation:

- Dr Shalin Naik, Walter and Eliza Hall Institute of Medical Research
- Associate Professor Roslyn Kemp, University of Otago
- Associate Professor Kim Good-Jacobson, Monash University

Prize Winners:

- Best Postgraduate Oral Talk: Rabini Giri (MRI-UQ)

THIS YEAR QLD BRANCH MEETING WAS HELD AT NOVOTEL RESORT

- Best Poster Presentation 1: Jack Na (QIMR)
- Best Poster Presentation 2: Denuja Karunakaran (IMB-UQ

The committee would like to thank events at QIMRB and in particular Nancy Cloake for organising everything and making the event such a success. We would also like to thank our sponsors (below):

The BIG committee is excited about welcoming you all back in 2020 for the 20th BIG meeting!

SPONSORS FOR OUR QLD BRANCH MEETING

NSW BRANCH REPORT

HELEN MCGUIRE, NSW Councillor, helen.mcguire@sydney.edu.au

Immunology has come to NSW in a big way recently! We've enjoyed a really jam-packed schedule of visiting speakers in August, hosting A/Prof Kate Jeffrey, Prof Donna Farber and A/Prof Michael Gerner. All gave fascinating talks, and were very pleased they included NSW on their Australasian tour.

We are thrilled that this momentum of immunology celebrations has continued immediately with our joint ACT/NSW Branch retreat, held at Sebel Harbourside, Kiama 5th & 6th September, with around 90 delegates. Many sincere thanks to our wonderful invited speakers Dr Anne Bruestle (John Curtin School, ANU), A/Prof Antje Blumenthal (University of Queensland) and A/Prof Daniel Gray (Walter and Eliza Hall Institute), which we enjoyed along with some fantastic presentations, largely from our budding student ASI ACT/NSW membership.

Special thanks to our sponsors, my fellow councillor Anselm

AUGUST SAW ALIGNMENT OF THE STARS WITH VISITS FROM A/PROF KATE JEFFREY, PROF DONNA FARBER AND A/PROF MICHAEL GERNER

ASI NSW ACT JOINT BRANCH MEETING, THE SEBEL, KIAMA 5TH-6TH SEPTEMBER 2019

> Immunology has come to NSW in a big way recently! We've enjoyed a really jam-packed schedule of visiting speakers.

Enders and our organising committee (below) with registration & website support from Tyani Chan and ASI admin staff.

ASI ACT/NSW Branch Meeting Organising Committee

- Helen McGuire
- Anselm Enders
- Kirstie Bertram
- Ron Sluyter
- Alicia Wilson
- Anne Bruestle
- Debbie Watson
- Felix Marsh-Wakefield

We look forward to publishing a full report, including prize recipients in the next ASI newsletter addition!

As a branch we also embraced the World Congress of Immunology, being held this month, Sept 15th until 19th. For NSW ASI members registered to attend the World Congress on Inflammation received further subsidies to attend the ASI NSW/ACT Branch Retreat. 7 students received fully complementary registration to the branch retreat, and 5 non-students receiving half their registration cost additionally subsidised.

In the lead up to ASI2019 in Adelaide, the remaining immunology events on the NSW calendar include ASI International Speaker visits from

Steven Albelda
(Penn Institute for Immunology),
October 24th - 25th.
https://www.med.upenn.edu/apps/faculty/index.php/g20001880/p14450

Joachim Schultze
(Bonn University),
November 19th - 20th.
https://www.limes-institut-bonn.de/en/research/research-departments/unit-2/schultze-lab/schultze-lab-home/

Stay tuned to email blasts about talk locations and times!

Please feel free to contact me if you would like to get more information or make any suggestions for upcoming events (helen.mcguire@sydney.edu.au). I'm always keen to hear the thoughts of ASI members. ■

PUBLICATIONS OF INTEREST

OUR SUSTAINING MEMBERS

abcam

Recombinant Anti-PD-L1 antibody [28-8] (ab205921)
(https://www.abcam.com/pd-l1-antibody-28-8-ab205921.html)
Li Z et al. (2019). Cancer-associated fibroblasts promote PD-L1 expression in mice cancer cells via secreting CXCL5. Int J Cancer. DOI: 10.1002/ijc.32278

Recombinant Anti-Thiophosphate ester antibody [51-8] (ab133473)
(https://www.abcam.com/thiophosphate-ester-antibody-51-8-ab133473.html)
Shehata SN et al. (2019). Identification of novel PCTAIRE-1/CDK16 substrates using a chemical genetic screen. Cell Signal. DOI: 10.1016/j.cellsig.2019.03.012

Recombinant Anti-Topoisomerase I antibody [EPR5375] (ab109374) (https://www.abcam.com/topoisomerase-i-antibody-epr5375-ab109374.html)
Zimmermann M et al. CRISPR screens identify genomic ribonucleotides as a source of PARP-trapping lesions. Nature. DOI: 10.1038/s41586-018-0291-z

AUSTRALIAN biosearch

Recombinant MAOA protein
https://www.activemotif.com/catalog/details/31502/recombinant-maoa-protein
Li et al, 2019, Development of the triazole-fused pyrimidine derivatives as highly potent and reversible inhibitors of histone lysine specific demethylase 1 (LSD1/KDM1A). Acta Pharmaceutica Sinica B. DOI: 10.1016/j.apsb.2019.01.001

Recombinant MAOB protein
https://www.activemotif.com/catalog/details/31503/recombinant-maob-protein
Li et al, 2019, Development of the triazole-fused pyrimidine derivatives as highly potent and reversible inhibitors of histone lysine specific demethylase 1 (LSD1/KDM1A). Acta Pharmaceutica Sinica B. 10.1016/j.apsb.2019.01.001

Recombinant NFkB p50 protein
https://www.activemotif.com/catalog/details/31101/nfkb-p50
Wong et al, 2019, Genomic mapping of the MHC transactivator CIITA using an integrated ChIP-seq and genetical genomics approach. 4 Genome Biology. DOI: 10.1186/s13059-014-0494-z

goGermline embryos
(https://www.ozgene.com/goGermline)
Zhou et al. (2019). The testicular soma of Tsc22d3 knockout mice supports spermatogenesis and germline transmission from spermatogonial stem cell lines upon transplantation. Genesis. doi: 10.1002/dvg.23295

Knock-in mouse model
(https://www.ozgene.com/services/knock-in-mice)
Tsai et al. (2019). GDF15 mediates adiposity resistance through actions on GFRAL neurons in the hindbrain AP/NTS. International Journal of Obesity (Lond). doi: 10.1038/s41366-019-0365-5

Knockout mouse model
(https://www.ozgene.com/services/knockout-mice)
Pereira et al. (2019). The GCN2 inhibitor IMPACT contributes to diet-induced obesity and body temperature control. PLos One. doi: 10.1371/journal.pone.0217287

JOMAR LIFE RESEARCH

17-0042-83, CD4 Monoclonal Antibody (RM4-5), APC, eBioscience™
https://www.ncbi.nlm.nih.gov/pubmed/31123109
Persson E, Verstraete K, Heyndrickx I, Gevaert E, Aegerter H, Percier J, et al. Protein crystallization promotes type 2 immunity and is reversible by antibody treatment. Science. 2019;364

53-0112-80, CD11b Monoclonal Antibody (M1/70), Alexa Fluor 488, eBioscience™
https://www.ncbi.nlm.nih.gov/pubmed/30923196
Sweere J, Van Belleghem J, Ishak H, Bach M, Popescu M, Sunkari V, et al. Bacteriophage trigger antiviral immunity and prevent clearance of bacterial infection. Science. 2019;363

14-0081-82, CD8a Monoclonal Antibody (53-6.7), eBioscience™
https://www.ncbi.nlm.nih.gov/pubmed/30471110
Aarts S, Seijkens T, Kusters P, Van Tiel C, Reiche M, den Toom M, et al. Macrophage CD40 signaling drives experimental autoimmune encephalomyelitis. J Pathol. 2019;247:471-480

STEMCELL™ TECHNOLOGIES

EasySep™ Human CD8+ T Cell Isolation Kit, EasySep™ Mouse CD8+ T Cell Isolation Kit
Wang W. et al, (2019). CD8+ T cells regulate tumour ferroptosis during cancer immunotherapy. Nature. Doi: 10.1038/s41586-019-1170-y

EasySep™ Human B Cell Enrichment Kit
Alanine D.G.W. et al, (2019). Human Antibodies that Slow Erythrocyte Invasion Potentiate Malaria-Neutralizing Antibodies. Cell. Doi: 10.1016/j.cell.2019.05.025

EasySep™ Mouse B Cell Isolation Kit
Nam G. et al, (2019). Disruption of the Myc-PDE4B regulatory circuitry impairs B-cell lymphoma survival. Nature Leukemia. Doi: 10.1038/s41375-019-0492-y

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Enabling Legendary Discovery™

Ultra-LEAF™ purified anti-human HLA-A, B, C antibody
(https://www.biolegend.com/en-us/products/ultra-leaf-purified-anti-human-hla-a-b-c-antibody-8095)
Monel et al, 2019. HIV Controllers Exhibit Effective CD8+ T Cell Recognition of HIV-1-Infected Non-activated CD4+ T Cells. Cell Reports. Doi: 10.1016/j.celrep.2019.03.016

Zombie Violet™ Fixable Viability Kit
(https://www.biolegend.com/en-us/products/zombie-violet-fixable-viability-kit-9341)
Barman et al, 2019, Skin Wounding-Induced Monocyte Expansion in Mice Is Not Abrogated by IL-1 Receptor 1 Deficiency, Journal of Immunology. Doi: 10.4049/jimmunol.1801481

GoInVivo™ Purified anti-mouse CD152 (CTLA-4) Antibody
(https://www.biolegend.com/en-us/products/goinvivo-purified-anti-mouse-cd152-antibody-13153)
Li et al, 2019, Gut microbiota dependent anti-tumor immunity restricts melanoma growth in Rnf5-/- mice. Nature Communications. Doi: 10.1038/s41467-019-09525-y

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