Australasian Society for Immunology Inc.

NEWSLETTER

PP 100000910 ISSN 1442-8725 September 2014

Immunology in Wollongong

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Illawarra Health and Medical Research Institute, Wollongong

With the 44th Annual Scientific Meeting of the Australasian Society of Immunology in Wollongong, NSW this coming December (http://asi2014.org/), we thought it timely to highlight the immunological research that takes place in this region. Wollongong is situated in the Illawarra region, a relatively narrow strip of land wedged between the Tasman Sea and the Illawarra escarpment, and extending from the Royal National Park in the north to the banks of the Shoalhaven River in the south. Wollongong is home to some 200,000 residents and is a 60-minute drive or train ride from Sydney Airport. Four independent groups conduct the majority of immunological research at the University of Wollongong. These groups are led by Drs Ronald Sluyter, Martina-Sanderson Smith, Justin Yerbury and Debbie Watson, and operate within the Illawarra Health and Medical Research Institute, Wollongong.

Group of Dr Ronald Sluyter: Purinergic Receptors in Inflammation and Immunity

The group of Dr Ronald Sluyter (rsluyter@uow.edu.au) focuses on the role of the P2X7 receptor in inflammation and immunity. The P2X7 receptor is a trimeric ligand-gated cation channel activated by extracellular ATP and is predominately expressed on mononuclear leukocytes. The P2X7 receptor is widely regarded as a damage-associated molecular pattern (or DAMP) receptor. However this receptor can also function as an autocrine growth receptor to drive T cell proliferation, and as a scavenger receptor (in the absence of extracellular ATP) to mediate the phagocytosis of bacteria and apoptotic

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Scientists conducting immunological research at the Illawarra Health and Medical Research Institute, University of Wollongong. (LtoR) Dr Debbie Watson, Rachael Bartlett, Dr Justin Yerbury, Nicholas Geraghty, Aleta Pupovac, Dr Ronald Sluyter, Diane Ly, Vanessa Sluyter (research assistant), James Tsatsaronis, Kate Roberts, David De Oliveira, Dr Martina Sanderson-Smith, Jonathan Williams

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The New ASI Website

The ASI web site (www.immunology.org.au) has been fully remodelled and updated. New services include:

- Links providing members with free access to Immunology & Cell Biology, Nature Immunology, Nature Reviews Immunology
- Special offers for ASI members
- Download and upload forms for ASI awards
- Positions vacant page
- Online membership renewal
- Upcoming conference listings
- Women's initiative
- Twitter feed

as well as many links to sites of immunological interest at home and abroad. If you would like to advertise a job or conference, or if you have an immunology news story, or a favourite immunology-related site that you would like to see linked to the ASI website, please email Sarah Fardy at fardy.s@wehi.edu.au

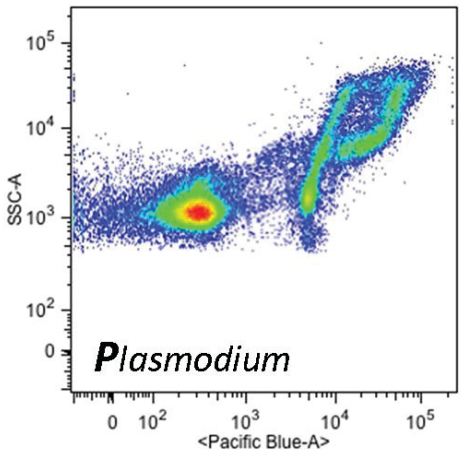
Editorial

Welcome to another edition of the Newsletter. Special thanks, as always, must go to our members who have taken time to write articles for publication. I really enjoyed reading about the work going on at the University of Wollongong in our cover story by Ronald Sluyter and colleagues. It is fascinating to get a glimpse at the breadth and depth of our Society and I encourage you all to consider submitting an expose of your Lab's work for a future edition.

The call for photos for the 2014 ASI Photo Competition went out last week and looks like fun. Often it's microscope images that are most interesting and I don't do much microscopy – but I thought I would use my Editorial privilege and share an interesting image of mine. We do a lot of flow cytometric analysis of *Plasmodium* infected blood – when we were establishing the method we found that early during infection the infected blood cells very clearly form the letter *P* – for *Plasmodium*. We keep hoping other messages will come and provide more guidance. If you have received any such messages, please share them with us via the Photo Competition or the Newsletter.

The call for new Councillors will be happening soon – including the position of Newsletter Editor. I encourage you to consider applying – it's a great way to be involved and contribute to the Society.

Simon Apte



2014 Zonta Science Award

Dr Laura Green

New Zealand ASI member Dr Laura Green, who is part of a Victoria University of Wellington team researching better ways of treating the debilitating symptoms of multiple sclerosis, has won the 2014 Zonta Women in Science Award.

His Excellency, Lt Gen The Rt Hon Sir Jerry Mateparae, GNZM, QSO, Governor-General of New Zealand presented Dr Green with her prize at a special reception hosted at Government House.

The Zonta Science Award provides Dr Green with $15,000 prize money, and $3,000 to be put towards overseas travel. She will use the funding to travel to Switzerland to work with an eminent researcher who has developed a new imaging technique that can visualise individual immune cells trying to gain entry to the central nervous system.

"I will then bring this specialist knowledge back to New Zealand," says Dr Green who is a Postdoctoral Fellow in Immunology at the Centre for Biodiscovery, School of Biological Sciences. She held her first research position at the University of Wisconsin-Madison in the United States at the age of 17, and has been involved in biomedical research ever since.

In 2003, Dr Green came to New Zealand and has held research positions at Massey University, and the Malaghan Institute of Medical Research based at Victoria. She obtained her PhD in Cellular and Molecular Biology at Victoria in 2012.

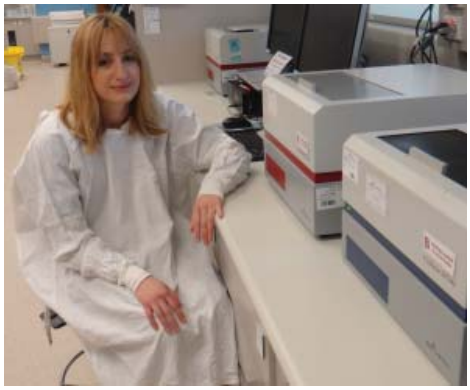
Dame Margaret Sparrow, Convener of the Zonta Science Award, says the judges were impressed not only with Dr Green's commitment to science but also her community involvement, notably her enjoyment of public speaking and her enthusiasm for competitive road cycling, which includes assisting with cycle safety programs and cycling skill clinics. "Laura is passionate about making science accessible to the wider public and is involved in a number of projects including the use of cartoons and film to make science more exciting."

From VUW website, 7 May 2014 (http://www.victoria.ac.nz/news/2014/winner-of-2014-zonta-science-award):

Immunology in Wollongong cont.

Dr Ronald Sluyter, Group Leader

cells by macrophages. Nevertheless, the best-characterised roles of the P2X7 receptor are: the assembly of the NLRP3 (NALP3) inflammasome and the subsequent release of IL-1β and IL-18 from myeloid cells; and the killing of intracellular pathogens such as mycobacteria, chlamydia and toxoplasma within macrophages. As a result of these and other findings, the P2X7 receptor is emerging as a therapeutic target in a variety of inflammatory disorders and infectious diseases.



Aleta Pupovac

Aleta Pupovac, a PhD candidate in the group of Dr Sluyter, has been investigating the role of P2X7 receptor activation in the shedding of cell-surface CD23 (or the low affinity receptor for IgE). Soluble CD23 functions as a cytokine to activate T cells, B cells and macrophages, while the membrane form regulates IgE production. Thus it remains important to understand the mechanisms involved in controlling the expression of membrane CD23 and its release as a soluble molecule. Ms Pupovac has demonstrated that P2X7 activation mediates the rapid shedding of CD23 from both human and murine B cells, and that this process involves

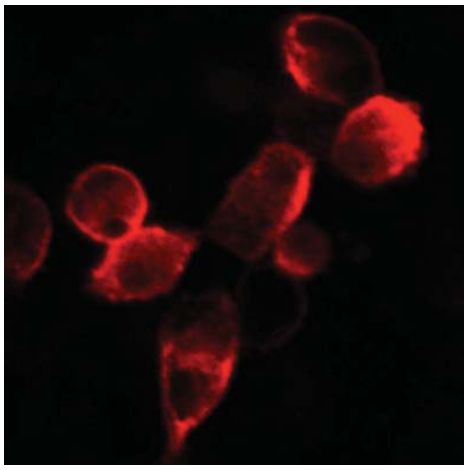
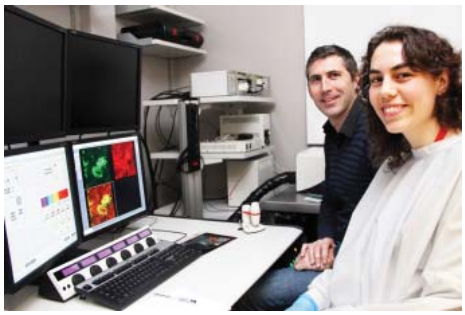


Image of canine P2X7 in HEK-293 cells detected using an anti-P2X7 antibody and confocal microscopy

the stimulation of ADAM10. She has also shown that P2X7 activation causes the rapid shedding of a second ADAM10 substrate, CXCL16 from human B cells. While other recent work from our group has demonstrated that P2X7 activation induces the rapid shedding of CD62L from human $CD4^+$ and $CD8^+$ T cells. The functional significance of CD23, CXCL16 and CD62L shedding following P2X7 activation is an area of current investigation.

The work of Ms Pupovac has also revealed that the phospholipase D1 antagonist, CAY10593 impairs activation of the human P2X7 receptor. This effect occurs independently of phospholipase D1 stimulation, which is a well-known signalling event downstream of P2X7 receptor activation. While other work from our group in collaboration with Dr Leanne Stokes (RMIT University, Bundoora), has shown that probenecid, a uricosuric drug to treat gout, can also impair activation of the human P2X7 receptor including impairment of P2X7-mediated IL-1β release. Collectively, these studies add to the growing list of compounds that can block P2X7 as an off-site target. Whether the therapeutic action or side effects of such compounds act by blocking the P2X7 receptor *in vivo* is a potential area of future investigation.

Rachael Bartlett, a PhD candidate in the groups of Dr Sluyter and Dr Justin Yerbury, has been studying the interaction of extracellular ATP and the P2X7 receptor in the neuroinflammation and neurocytotoxicity associated with amyotrophic lateral sclerosis (ALS) (termed Lou Gehrig's disease in the USA). ALS is the most common form of motor neurone disease affecting some



Dr Justin Yerbury & PhD candidate Rachael Bartlett

400,000 people worldwide and is usually fatal within 2–5 years of diagnosis. ALS results from the destruction of the motor neurons however the mechanisms involved in this process remain obscure. To date the work of Ms Bartlett has identified and characterised the presence of P2X7 receptors on murine EOC13 microglia and NSC-34 motor neurons. Both these cell lines will serve as useful models as she begins to explore the role of this receptor in ALS. In this regard, P2X7 receptor activation results in the generation of reactive oxygen species and cell death in EOC13 microglia.

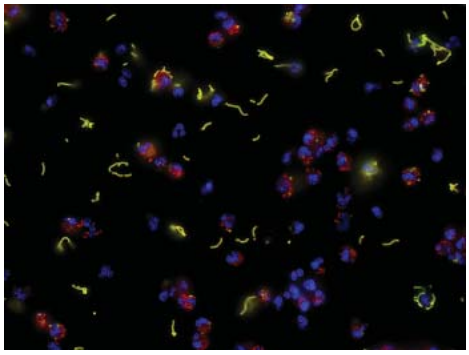
Finally, the group of Dr Sluyter is investigating the role of the canine P2X7 receptor in inflammation and immunity. Due to the valuable roles of dogs in society, the many similarities between dogs and humans, and the presence of breed specific disorders, there is interest in increasing our understanding of canine biology including immunology. Results from this work have demonstrated the presence of functional P2X7 receptors on canine T cells, B cells and monocytes, as well as kidney epithelial cells. This work also showed the presence of the NLRP3 inflammasome in canine monocytes and that activation of the P2X7 receptor in these cells and in whole blood induces the release of IL-1β. Collectively, these results demonstrate that the P2X7 receptor may serve as a therapeutic target in dogs. Moreover, work on the canine P2X7 receptor has identified polymorphic variants of this receptor some of which alter receptor function. Notably a missense variant, $Arg^{270}Cys$ causes an almost complete loss of receptor function and preliminary data suggests that this variant is restricted to Cocker Spaniels. It remains to be determined if this variant is associated with any specific disorders within this breed. Insights from P2X7 receptor in dogs will help in furthering our understanding of the P2X7 receptor and its potential as a therapeutic target in humans.

Dr Martina Sanderson-Smith, Group Leader

Group of Dr Martina Sanderson-Smith: *Streptococcus pyogenes* Infection and Immunity

The group of Dr Martina Sanderson-Smith (martina@uow.edu.au) is focused on the human pathogen *Streptococcus pyogenes* (group A streptococcus; GAS). GAS is a human specific pathogen responsible for a wide variety of infections, including severe invasive infections like necrotising fasciitis, and post-infection sequelae such as rheumatic heart disease. It is estimated that GAS infection results in over 500,000 deaths per year. GAS has evolved numerous mechanisms to avoid recognition and killing by the host immune system, including resistance to anti-microbial peptides, escape from DNA NETs, avoidance of neutrophil mediated phagocytosis, recruitment of host proteins and intracellular survival. Developing an understanding of how this complex human pathogen escapes the early immune response may facilitate the development of improved therapeutic targets for reducing the global burden of GAS infection

James Tsatsaronis, a PhD candidate in the group of Dr Sanderson-Smith, has been investigating novel mechanisms of resistance to neutrophil killing. Using a systems biology approach, incorporating whole genome sequencing, transcriptomics and proteomics, this work has identified a novel role for the GAS proteins SclA and Gls24 in protecting GAS from neutrophil mediated killing. More recently, James' work has focused on the response of neutrophils to GAS infection. He has identified key differences in the cell-death pathways initiated following exposure to avirulent versus virulent strains



Group A streptococci invading human neutrophils. Image showing extracellular (yellow) and intracellular (red) Group A streptococci amongst neutrophils (with nuclei stained blue)

of GAS. These findings may explain some of the clinical symptoms typically associated with severe GAS infection such as tissue destruction and hyper-inflammation. The ability to manipulate these pathways during the course of GAS infection will be the topic of future investigations.

David De Oliveira, a PhD candidate in the group of Dr Sanderson-Smith, is studying the role of the major GAS surface protein and vaccine candidate, the M protein, in the interaction between GAS and the host. M proteins are a highly diverse family of proteins, with over 200 variants identified to date. These proteins extend from the GAS cell surface and have been found to bind to a variety of host proteins and cell types. Much of the work in this area has focused on a small subset of M protein types, identifying roles for the M protein in resistance to phagocytosis, attachment to host cells including endothelial and epithelial cells, neutrophils and platelets, and binding to key immune effectors. Recent work by Mr De Oliveira has demonstrated that M proteins are both evolutionarily and functionally distinct. This work will now be extended to determine the role of diverse M proteins in interactions with the host, including the classic immune resistance functions traditionally attributed to M proteins.

Diane Ly, a PhD candidate in the group of Dr Sanderson-Smith, is investigating the role of bacterial plasminogen recruitment in the early stages of GAS infection. Plasminogen is an abundant human plasma protein, which can be converted to the broad-spectrum protease plasmin. Plasmin is typically involved in degradation of the extracellular matrix and fibrin clots, and as such its activation is tightly regulated. GAS has evolved numerous mechanisms to uncouple plasminogen from normal regulatory pathways, resulting in sequestration of plasminogen and plasmin to the bacterial cell surface, and high levels of plasmin activity at sites GAS of infection. Whilst much work has focused on the ability of GAS to use plasmin to escape from fibrin clots and destroy host tissue barriers, leading to invasive disease, less is known about the role of plasminogen recruitment in the early stages of infection. The work of Ms Ly recently established that plasminogen at the GAS cell surface blocks C3b deposition and C3b mediated neutrophil killing, both *in vitro* and *in vivo* in a humanised plasminogen mouse model of GAS infection. Work is now continuing to assess the role of plasminogen recruitment in the interaction of GAS with other immune cell types, including macrophages, and the effect of plasminogen activation on immune cell recruitment during GAS infection.

Jonathan Williams, an Honours student in the group of Dr Sanderson-Smith, is extending the group's findings on the role of plasminogen acquisition in GAS virulence to the field of group B streptococcal virulence. GBS is the leading cause of neonate meningitis, and a significant cause of post-partum infection globally. Mr Williams is investigating mechanisms of plasminogen recruitment by GBS, and the effect of plasminogen recruitment on the interaction between GBS and host cells including neutrophils, macrophages and epithelial cells.

In summary, the group of Dr Sanderson-Smith is focused broadly on host pathogen interactions. In collaboration with colleagues at the University of Queensland, Murdoch Children's Research Institute, The Centenary Institute and the University of California San Diego, *in vitro* and *in vivo* models of infection are combined with basic tools in cell and molecular biology to unravel the mechanisms of disease initiation by the globally significant human pathogen GAS.

Group of Dr Justin Yerbury: Protein Aggregation and Neuroinflammation

The group of Dr Justin Yerbury (jyerbury@uow.edu.au) examines the role of protein aggregation and neuroinflammation in neurodegenerative diseases such as ALS. ALS is a fatal neurodegenerative disease resulting from the death of motor neurons in the cortex, brain stem and spinal cord. Around 10% of ALS cases are familial caused by mutations in a range of genes

Dr Justin Yerbury, Group Leader

including TDP-43, FUS, OPTN, VCP and SOD1, and the hexanucleotide repeat in C9ORF72. The remaining 90% of cases are sporadic and the cause of these cases remains unknown. The pathological hallmarks of ALS are the presence of ubiquitin positive inclusion bodies in motor neurons and neuroinflammation in the form of increases in numbers and inflammatory markers on both microglia and astrocytes. In the SOD1 mouse model of ALS reactive microglia and astrocytes are thought to contribute to the rapid progression of pathology.

Kate Roberts, a PhD candidate in the group of Dr Yerbury, has been investigating the response of glia to ALS-associated protein aggregates. Both protein aggregation and gliosis are thought to contribute to ALS progression, but the little is known about the link between these two processes. Previous work from other neurodegenerative diseases suggests misfolded and aggregated proteins are proinflammatory stimuli, probably due to their structural similarity to bacterial cell walls. Ms Roberts has demonstrated that although soluble SOD1 does not induce significant increases in microglial activation, aggregated G93A SOD1 promotes a four-fold increase in TNF-α release. The response is concentration-dependent and can be detected as early as six hours after addition of aggregates. She has also shown that microglia treated with aggregated SOD1 also show an increase in ROS production suggesting that the response is not restricted to TNF-α release.

The work of Ms Roberts also shows that aggregated SOD1 binding to microglia is inhibited by pre-treatment with MβCD, fucoidan and LPS suggesting that binding is dependant on lipid raft formation, scavenger receptors and CD14. Further, supernatants from microglia that have been activated by contact with aggregated SOD1 have been shown to be toxic to motor neuron-like cells in culture, consistent with a role of activated microglia in the cell death of motor neurons in ALS.

The group of Dr Yerbury, in collaboration with Dr Fiona McKay, Westmead Millennium Institute for Medical Research, and Dr Brad Turner, Florey Neurosciences, is also investigating the role of T regulatory cells in neuroinflammation and disease progression in ALS. Evidence is accumulating that an immune response, dominated by T cells, is evident within the central nervous system of ALS patients. Whether this inflammatory response contributes to motor neuron damage or is purely an epiphenomenon remains to be resolved. Increased percentages of $CD4^+$ T cells, and increased MHC class II on monocytes and macrophages are suggestive of systemic immune activation, although expression of the activation marker CD38 on $CD4^+$ T cells decreases in advanced disease. Expression of the Th2 cytokine IL-13 is increased in peripheral $CD4^+$ T cells, and correlated with disease severity and progression rate (although not correlated with the typical Th2 cytokine IL-4; thus may not represent generalised Th2 skewing). Serum and CSF levels of the proinflammatory cytokine IL-17 are dramatically upregulated in ALS, as are spinal cord $CD8^+$ T cells and mast cells. $CD4^+$ and $CD8^+$ T cells are found in areas of motor neuron destruction in spinal cords in human ALS, and express CD40 and co-localise with $CD40L^+$ macrophages, consistent with T cell activation. Our current aims are to test whether pharmacological stimulation of T regulatory cell numbers improves survival in the mSOD1 mouse model.

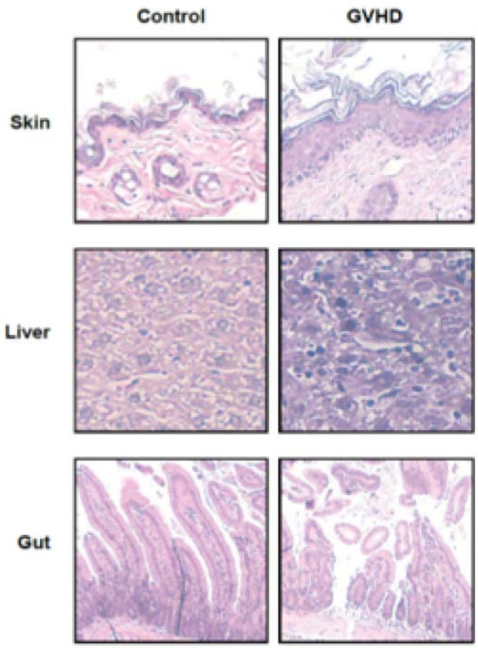
Group of Dr Debbie Watson: Transplantation and Graft-versus-Host Disease

Dr Debbie Watson (dwatson@uow.edu.au) is a postdoctoral researcher at UOW and her research focuses on transplantation and graft-versus-host disease (GVHD). Dr Watson currently collaborates with Dr Ronald Sluyter and Associate Professor Stephen Alexander (The Kid's Research Institute, The Children's Hospital at Westmead) on the development of therapeutic strategies to prevent allograft rejection and GVHD. Dr Watson has extensive background in transplantation models and more recently in the development of humanised mouse

Dr Debbie Watson, Group Leader

models to examine therapeutic strategies that target the human immune response to prevent disease.

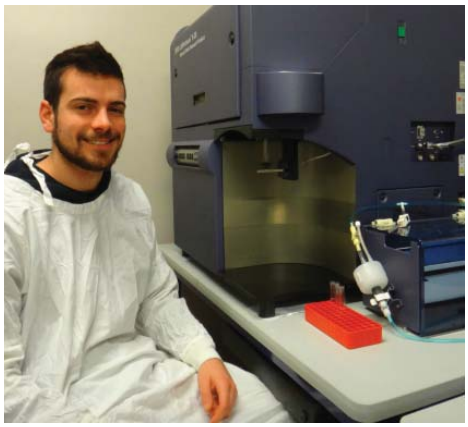
Preventing allograft rejection and promoting long-term specific tolerance to transplants without broad range immunosuppression and increasing the number of organ donors are the major goals of transplantation research. In her research, Dr Watson has developed a novel strategy "pruning" (removing proliferating allo-activated T cells) to specifically delay allograft rejection across a major MHC mismatch, which has proven to be effective for skin, heart and islet allografts in mouse transplant models.



Graft-versus-host disease in a humanised mouse model. Histological sections of tissues from NSG mice injected with saline (Control) or human PBMCs (GVHD) (8 weeks post-injection)

Currently, Dr Watson is leading a project, in collaboration with Dr Sluyter, developing a humanised mouse model at UOW to investigate therapeutic strategies to prevent GVHD. GVHD is most prevalent in blood cancer patients following allogeneic stem cell transplantation and affects 25,000 people worldwide each year. In this disease donor immune cells target and destroy tissues such as the skin, liver, gut and lungs. GVHD accounts for 15-30% of deaths following allogeneic stem cell transplantations and is a major cause of morbidity in up to 50% of transplant recipients.

Nicholas Geraghty, an Honours candidate, in the groups of Drs Watson and Sluyter, is investigating the therapeutic potential of P2X7 receptor blockade in humanised mouse as a means to prevent GVHD. Work by others has indicated a role for this receptor in an allogeneic mouse model of GVHD, but the relevance of the P2X7 receptor to GVHD in humans remains to be defined.



Honours student Nicholas Geraghty

The Illawarra Health and Medical Research Institute, University of Wollongong

Funding

The above groups are currently supported by grants from the National Health and Medical Research Foundation, The Australian Research Council, MND Australia, the American Kennel Club Canine Health Foundation, Australian Rotary Health, the University of Wollongong, the Centre for Medical and Molecular Bioscience, The Global Challenges Program, and the Illawarra Health and Medical Research Institute.

President's Column

Dear ASI members.

Some exciting things to report on … firstly, ASI's journals, *Immunology and Cell Biology* and *Clinical and Translational Immunology*. Alongside Gabrielle Belz (chief editor) and the editorial team, we are very pleased to announce that the 2013 Journal Impact Factors have just been released and ***Immunology and Cell Biology*** has achieved a new high of 4.205. For comparison, Impact Factors for some related journals are as follows: *International Immunology*, 3.181; *Immunology*, 3.735; *European Journal of Immunology*, 4.518; *Journal of Immunology*, 5.362; *Plos One*, 3.534. So, next time you are preparing a paper for publication, please consider sending it to ICB. CTI is also progressing very well and is eligible for listing with PubMed Central – we are working to establish this as soon as we can. Lastly, if you would like to get involved with the production of these journals, there are new editorial positions to be filled soon. If you are interested in this, please contact Gabrielle Belz belz@wehi.edu.au.

Website developments: Our new website has been 'tweaked' a little and it is looking pretty swish I think. It should now work very well on portable devices as well as computers. We now have five sustaining members: Jomar Bioscience, Miltenyi Biotec, Elisakit.com, BD, and the ARC Centre of Excellence for Advanced Molecular Imaging. As before, our sustaining members are very valuable to the society, so please click through to their websites http://www.immunology.org.au/asi-sustaining-members/ and look around at what they have to offer. As we are rapidly approaching December (membership renewal time), I encourage you to use the online renewal process. Please contact our Project Manager, Sarah Fardy, fardy.s@wehi.edu.au with any comments or queries regarding the website or online membership renewal. On a related matter, if you haven't already, please consider signing up to follow ASI on twitter and facebook. We now have a very impressive following of 261 people on twitter and Gabi Khoury is doing a great job keeping followers informed with up to the minute developments in all matters of interest and importance for ASI members. Check them out here https://twitter.com/ASImmunology and here https://www.facebook.com/ASImmunology.

The ASI Women's Initiative page http://www.immunology.org.au/womens-initiative/ is fully operational. We now have an impressive list of potential mentors (192 at last count – thanks to all who have signed up). This is a great resource so I encourage potential mentees to sign up - it is highly likely that you can be paired up with someone who can provide appropriate assistance and advice. Please also note that this page includes a database of female immunologists, categorized into research areas, which should help with meeting organisation and speaker invitations. Furthermore, it includes a forum for informal discussion of issues relating to gender equity. Now all it needs is a bit of momentum, so please check it out and get involved.

We are still tracking toward another great meeting this year in Wollongong (a joint meeting with the Human Leucocyte Differentiation Antigen (HLDA) workshop). It is a great venue with a terrific list of speakers – registration is open so please sign up (see advertisement in this newsletter for details). I am also pleased to announce an exciting new development for 2015. Working in conjunction with Sammy Bedoui, Anselm Enders, Su Heinzel, Christian Kurts and Hans-Martin Jäck, we have planned a two stage joint meeting between ASI and a selection of speakers from the German Society for Immunology (DGfI) that will span 1½ days at the end of the main ASI Annual Scientific meeting, Canberra, 2015. Furthermore, a reciprocal meeting will be held in Germany in 2016 where a selection of ASI members will travel to a dedicated joint meeting in Germany. If this works well, we may make satellite meetings with other Immunology societies a regular feature on the ASI calendar.

If you are keen to get more involved in ASI's activities, now is a good time to give this some serious thought. We are accepting new Councillors in a variety of positions including Treasurer (one year of training prior to taking up the position of Treasurer in 2016), Newsletter Editor, and other positions to be announced in an email to members in the next few weeks. Stay tuned.

Lastly, as you will all know, we saw a shocking atrocity unfold in July with the loss of hundreds of innocent lives when Malaysian Airlines flight MH17 was shot down over Ukraine. Six of these victims were on their way to attend the International AIDS Conference in Melbourne. On behalf our Society, I wrote to the Councillors and representatives of the International AIDS Society and the meeting organisers, to extend our sincere condolences to their membership. A copy of this letter is in the news items on the homepage of the ASI website.

Dale Godfrey

An invitation and a request to all ASI members

to contribute copy that they think might be interesting, useful, historical, humorous or thought provoking.

- We invite our student membership to voice their views on issues that interest or directly concern them.
- It's our newsletter, so let's support it and strive to make it even better.
- The ASI newsletter comes out 4 times a year and we welcome your contributions.

AND YOU COULD WIN $200 FOR THE BEST ARTICLE PUBLISHED IN THE NEWSLETTER!

44th Australasian Society for Immunology Annual Scientific Meeting

Monday 1st - Friday 5th December 2014
Novotel Wollongong Northbeach, New South Wales

INTERNATIONAL SPEAKERS

Yasmine Belkaid,
National Institute of Health, NIAID, USA
NOBEL LAUREATE - Bruce Beutler,
UT Southwestern Medical Center , USA
Arya Biragyn,
National Institutes of Health, USA
Marco Colonna,
Washington University, USA
Andrea Cooper,
Trudeau Institute, USA
Gennaro De Libero,
Singapore Immunology Network (SIgN), Singapore
Ronald Germain,
National Institute of Allergy and Infectious Diseases, USA
Bart Lambrecht,
Ghent University, Belgium
Takaharu Okada,
RIKEN Center for Integrative Medical Science Center, Japan
Virginia Pascual,
Baylor Institute for Immunology Research, USA
Erika Pearce,
Washington University School of Medicine, USA
Qizhi Tang,
UCSF Diabetes Center, USA

NATIONAL SPEAKERS

Gabrielle Belz, *WEHI, VIC*
Robert Brink, *Garvan Institute of Medical Research, NSW*
Anthony Cunningham, *Westmead Millennium Institute, NSW*
Andrew Currie. *Murdoch Univeristy, WA*
Stephen Daley, *Australian National University, ACT*
Barbara Fazekas, *Centenary Institute, NSW*
Paul Foster, *The University of Newcastle, NSW*
Katharina Gaus, *University of New South Wales, NSW*
Dale Godfrey, *University of Melbourne, VIC*
Michele Grimbaldeston, *SA Pathology, SA*
Margaret Hibbs, *Monash University, VIC*
Charles Mackay, *Monash University, VIC*
Ben Roediger, *Centenary Institute, NSW*
Sarah Russell, *Peter MacCallum Cancer Centre, VIC*
Ray Steptoe, *University of Queensland, QLD*
Jennifer Stow, *The University of Queensland, QLD*

EARLY BIRD REGISTRATION AND ABSTRACT SUBMISSION DEADLINE: FRIDAY 5TH SEPTEMBER

www.asi2014.org

Honorary Secretary's News

Travel awards

There are two sets of travel awards coming up. A call will soon go out for the second round of post-graduate and post-doctoral travel awards. These are always popular and highly competitive so perhaps start thinking now about your application. Expect the official call to come out in mid September. There will also be travel awards offered for students to attend the ASI Annual Meeting in Wollongong. Once again, an official notification will be sent out in the next few weeks. More information about these awards is available on the ASI website. In addition to these awards, ASI members are eligible for discount registration costs to attend the ASI Annual meeting, so sign up as ASI members before you register to attend the Wollongong meeting.

Nominations for ASI Council

ASI will soon call for nominations to fill vacancies on ASI Council that will arise as current office-holders complete their period as office holders. These include the roles of Treasurer, Newsletter Editor and editorial roles with ASI's journals, *Immunology and Cell Biology* and *Clinical and Translational Immunology*. New Councillors will also be required for several ASI branches. More details about these positions will come when we officially call for nominations, but please have a think about whether you would like a role on ASI Council. Feel free to contact me (sberzins@federation.edu.au) if you have any questions about what these positions involve.

Website

The ASI website is looking great thanks to Sarah Fardy, who is doing a fantastic job keeping content up to date and uploading items of interest to members. Please visit the website on a regular basis because a lot of the information that used to be sent around in emails is now posted online and will be front and centre on the home page (http://www.immunology.org.au/). ASI branches have their own pages on the website too, so you find out about local news, as well as national information.

Please note that a new competition has been launched to develop a database of photos we can use on the website. The best ones are often those taken by members in their labs or at conferences and ASI has launched a new competition to attract more of these that we can use to illustrate articles that go on the website. The winner gets a new iPad mini, so take a few snaps and send in your entries. (Please note that we want science-themed photos, so as a guide to what we're looking for photos of tubes with coloured liquid in them, or of students working at a hood, or of people talking at a scientific conference are safe and potentially great choices, but we probably don't need historical photos of the ASI Executive enjoying the free punch at one of Prof. Richard Boyd's legendary pool parties, or photos taken of your colleagues in a bar after 3am after last year's Christmas party got out of hand). Remember to get the permission of people in the photo so we avoid copyright issues and ensure the subjects of photos are ok with their images being used on the ASI website.

Stuart Berzins

Contributions sought for the ASI Newsletter

You could win $200 !!

Deadline for the next issue: 1st February 2013

Please email your contributions to the Secretariat by the above date.

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Australia
Tel: +61 3 9756 0128
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Email: asi@21century.com.au

The ASI Visiting Speaker Program

Cancellation
Unfortunately, the visit by **A/Prof. Anand Goldrath** from the Section of Molecular Biology, University of California, San Diego, CA.(USA) has been postponed.
Hosted by Roslyn Kemp, University of Otago

Planned visits for 2014

September/October
Professor Frederic Geissmann
King's College, London, UK
Prof. Geissmann will visit Melbourne, Sydney and Canberra
Hosted by Gabrielle Belz, WEHI

December
Professor Peter Ghazal
Personal Chair of Molecular Genetics and Biomedicine
University of Edinburgh, UK
Prof. Ghazal will visit Perth, Melbourne and will attend the ASI annual meeting in Wollongong
Hosted by Andrew Currie, Murdoch University, WA

Professor Peter Ghazal

Peter Ghazal received a BSc in Biochemistry and Marine Sciences from University of Wales (1982) and a PhD in Genetics (Prof. Bishop) from the University of Edinburgh (1985). In 1986 he was awarded a visiting training fellowship to study at the National Institutes of Health where he successfully developed *in vitro* transcription assay systems for investigating the human cytomegalovirus enhancer and published some of the first studies identifying and revealing multiple transcription interactions with enhancer control regions. In 1989 he joined the Scripps Research Institute as a Senior Research Fellow (Prof. Nelson) to continue his emerging interest in host-pathogen interactions and in 1990 was appointed a faculty member, first as an Assistant Professor and then promoted in 1995 to Associate Professor in the Department of Immunology. In 1993 he was awarded a Scholar of the American Leukemia Society in recognition of his work in the field of host transcriptional regulation of DNA viruses. While at Scripps he further established one of the first microarray facilities in the US and was the first to publish on viral whole genome expression. In 2000 he accepted a readership at the University of Edinburgh and in 2001 was awarded personal Chair in Molecular Genetics and Biomedicine during which he established the Scottish Centre for Genomic Technology and Informatics and in 2007 the Division of Pathway Medicine and was also founding member of the Centre for Systems Biology at Edinburgh.

He has successfully pioneered systems level and mechanism based analyses of host protection pathways aimed at understanding immunity in early-life. His recent questions have led to elucidating the connection between innate immunity and how it regulates sterol/lipid metabolism in the interferon antiviral defence. He has also led a range of collaborative clinical investigations conducted in the UK and in Africa, using a systems biology approach to understand neonatal sepsis, and deciphering the molecular systems immunology of childhood pneumonia and vaccine responses. He has been a recipient of the Chancellors, Beacon and Pfizer Innovation awards and is presently Chair of the Virus Scientific Advisory Board for the Wellcome Trust Sanger Institute, and a member of the Scientific Advisory Board for the NIH Human Immunology Project Consortium.

Selected Key publications:

1. Preckel, *et al. Impaired immunoproteosome assembly and immune responses in PA28-/- mice*. **Science** 286: 2162-2165, 1999.
2. Wang *et al. Rapid antibody responses by low-dose, single-step, dendritic cell-targeted immunization.* **Proc.Natl. Acad. Sci. USA** 97: 847-852, 2000.
3. Monier *et al Annexation of the interchromosomal space during infection.* **Nature Cell Biol**. 2: 661-665, 2000.
4. Benedict *et al Lymphotoxins and cytomegalovirus cooperatively induce interferon-β establishing host-virus détente.* **Immunity.** 15: 617-626, 2001
5. Wilson *et al Complete genome sequence and lytic phase transcription profile of a Coccolithovirus.* **Science** 309: 1090 – 1092. 2005.
6. Nouvre *et al. The systems biology graphical notation*. **Nature Biotechnol**. 8:735-41.2009.
7. Blanc *et al* Host defense against viral infection involves interferon-mediated down-regulation of sterol biosynthesis. .**PLoS Biol**:9:e1000598. 2013.
8. Fliss *et al Viral mediated redirection of NEMO/IKKg to autophagosomes controls the inflammatory cascade*. **PLoS Pathog**.8: e1002517.
9. Hambleton *et al. Stat2 deficiency and susceptibility to viral illness in humans*. **Proc. Natl. Acad. Sci.USA** 110:3053-8. 2013
10. Blanc *et al. Stat1 directly couples macrophage synthesis of 25-hydroxycholesterol to the interferon antiviral response*. **Immunity**. 38(1):106-18. 2013

2015
April
Associate Professor David Masopust,
University of Minnesota, Department of Microbiology, Minneapolis, Minnesota, USA
A/Prof. Masopust has confirmed he will visit NSW, NZ, Qld and Vic.
Hosted by Thomas Gebhardt, Department of Microbiology and Immunology, University of Melbourne

April/May
Professor Daniel Altmann
Imperial College, London, UK
Prof. Altman has confirmed he will visit Sydney, Brisbane and Townsville.
Hosted by Natkunam Ketheesan, James Cook University, Townsville

Professor Daniel Altmann heads the Human Disease Immunogenetics Group at the Hammersmith Campus, Imperial College. Key research interests are the immunology of autoimmune diseases and of bacterial infections. His work is centred on the use of molecular and cellular immunology approaches to investigate interactions between HLA class II molecules, antigenic peptides, CD4 T cells and NK cells in disease.

Multiple sclerosis has been a particular focus of interest within the Altmann lab. Working with the UK MS Tissue Bank they have

Professor Daniel Altmann

gained a better understanding of patient T cell responses to myelin epitopes, HLA-C/KIR genotypes and the relationship of these to disease. They have also generated 'humanised,' spontaneous models of MS, which serve better to bridge the translational gap between findings in the EAE model and the clinical disease setting. Their work on MS is supported by the Wellcome Trust, BBSRC and MS Society.

A second area of research addresses issues of T cell immune responses to bacterial infection. The group has been a recipient of an NIH-NIAID multi-million dollar research grant to define and characterise immune epitopes from anthrax (Bacillus anthracis) and plague (Yersinia pestis). The project is part of an international endeavour to define microbial epitopes for the Immune Epitope Database (www.IEDB.org). Through another NIH-NIAID-funded research programme, his group is currently mapping the CD4 and CD8 T cell epitopes of Burkholderia pseudomallei as part of an international consortium. Current research funded by the Medical Research Council (MRC) also focuses on molecular analysis of toxic shock and on regulatory T cell control of acute infection.

Selected Key publications:

Altmann, D.M., Douek, D.C., Frater, A.J., Inoko, H., Hetherington, C.M. and Elliott, J.I., 1995. T cell responses of HLA-DR transgenic mice to human myelin basic protein and other antigens in the presence and absence of a human CD4 transgene. *J. Exp. Med.* ,181, 867

Elliott, J.I. & **Altmann, D.M**., 1995. Dual TCR T cells in autoimmune disease. *J. Exp. Med.* 182, 953

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Ingram RJ, Metan G, Maillere B, Doganay M, Ozkul Y, Kim LU, Baillie L, Dyson H, Williamson ED, Chu KK, Ascough S, Moore S, Huwar TB, Robinson JH, Sriskandan S, **Altmann DM**. 2010. Natural exposure to cutaneous anthrax gives long-lasting T cell immunity encompassing infection-specific epitopes. *J Immunol* 184(7):3814-3821

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Boyton RJ, Reynolds CJ, Quigley KJ, **Altmann DM**., 2013. Immune mechanisms and the impact of the disrupted lung microbiome in chronic bacterial lung infection and bronchiectasis. *Clin Exp Immunol*. 171(2):117-23.

Boyton RJ, **Altmann DM**. 2012 Immune regulation in idiopathic bronchiectasis. *Ann N Y Acad Sci.* 2012 Dec; 1272:68-72.

Nicholas R, Dahdaleh D, **Altmann DM**, Malik O. 2013. Tuberculosis in London: not unexpected. *Lancet.* 381 (9862):201-2

Altmann D, Aseffa A, Bash M, Basta N, Borrow R, Broome C, Caugant D, Clark T, Collard JM, Djingarey M, Goldblatt D, Greenwood B, Griffiths U, Hajjeh R, Hassan-King M, Hugonnet S, Kimball AM, LaForce M, MacLennan C, Maiden MC, Manigart O, Mayer L, Messonnier N, Moisi J, Moore K, Moto DD, Mueller J, Nascimento M, Obaro S, Ouedraogo R, Page AL, Perea W, Pluschke G, Preziosi MP, Sow S, Stephens D, Stuart J, Thomson M, Tiendrebeogo S, Trape JF, Vernet G. 2013. Priorities for research on meningococcal disease and the impact of serogroup A vaccination in the African meningitis belt. *Vaccine.* 2013 Mar 1; 31(11):1453-7.

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Sustaining Membership

ASI Inc acknowledges the support of the following sustaining members:

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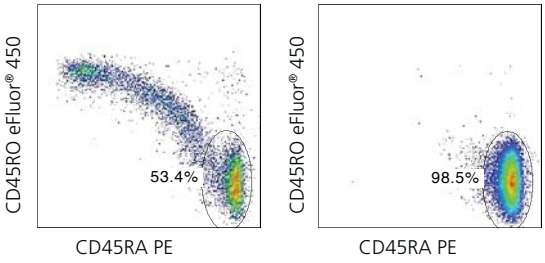

Enrich T cell biology
Fresh human PBMCs were enriched for Naive CD4+ T cells with the MagniSort Human CD4 Naive T cell Enrichment kit (cat. no. 8802-6814-74). Cells before enrichment (left) or after enrichment (right) were stained with Anti-Human CD45RO eFluor 450 (cat. no. 48-0457) and CD45RA PE (cat. no. 12-0458). Viable cells were used for analysis. Data shown is representative of average performance.

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Human CD8 T cell Enrichment Kit	8804-6812-74	Human CD8 Positive Selection Kit	8802-6832-74
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Human CD4 Naive T cell Enrichment Kit	8804-6814-74	Mouse CD4 Positive Selection Kit	8802-6841-74
Human CD8 Memory T cell Enrichment Kit	8804-6815-74	Mouse CD8 Positive Selection Kit	8802-6842-74
Human CD8 Naive T cell Enrichment Kit	8804-6816-74	Mouse CD90.1 Positive Selection Kit	8802-6843-74
Mouse T cell Enrichment Kit	8804-6820-74	Mouse CD90.2 Positive Selection Kit	8802-6844-74
Mouse CD4 T cell Enrichment Kit	8804-6821-74		
Mouse CD8 T cell Enrichment Kit	8804-6822-74		
Mouse CD4 Memory T cell Enrichment Kit	8804-6823-74		
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ASI Councillors' News

N.Z. News

Immunologists from around New Zealand gathered in the flat fertile farming centre of Palmerston North for some short cold winter days of immunology at NZ ASI 2014 from July 2 – 4. Welcomed to the town with a mihi whakatau from a distinguished maori elder (kaumatua) and warm words from the Vice-Chancellor of Massey University, one hundred national scientists then got down to business presenting and listening to a diverse range of talks from immunology research projects around the country. More than forty scientists gave presentations on their work over the two day meeting. Themed on 'One Health', researchers at the conference were encouraged to consider how immunology interfaces with the environment, animal and human health and the crossovers between these domains. Sessions were often co-chaired by young post grad students and grown-up scientists, which worked beautifully. Lymphocyte differentiation, nutrition and tuberculosis vaccine strategies were features of the plenary talks given by Jane Oliaro (Melbourne), Leon Knippels (Netherlands) and Martin Vordermeier (United Kingdom). Graham Le Gros provided an entertaining overview of the past, present and future of New Zealand immunology research as the 2014 Watson Orator.

Media coverage of the meeting helped raise the profile of immunology for the wider public. Threats of detention in Palmerston North for those who did not complete the Manawatu Trade Passport meant that the passport box was bursting in the closing ceremony when the google nexus 7 prize was drawn. This was followed by the presentation of the Buck Award (best post graduate presentation) to Ryan Kyle, the Heslop Award (best post-doctoral presentation) to Lindsay Ancelet and the One Health award to Sotaro Ochiai. (Buck Award runner up; Edward Taylor)

The meeting was enthusiastically supported by trade sponsors. At the early morning AGM breakfast, the Aucklanders accepted the mantle for organising next year's meeting for the thriving network of NZ immunologists – roll on 2015.

Organising Committee: Natalie Parlane, Neil Wedlock, Joanna Roberts (chair), Axel Heiser, and Allison McCarthey. NZ ASI was hosted by Massey University and the Crown Research Institute, AgResearch Ltd.

Report by Joanna Roberts

S.A./N.T. News

The next upcoming event for the SA/NT branch is the 10th Annual Adelaide Immunology Retreat (AIR-10). The retreat is aimed at giving PhD students, Honours students, ECRs and Research Assistants the opportunity to present their work and interact in a relaxed environment and will be held on 15-16 August in Hahndorf. We are looking forward to welcoming Prof. David Tarlinton (WEHI) as our invited national speaker and our invited local speaker, Prof Sarah Robertson (Robinson Research Institute). Look out for a full meeting report in the next edition of the ASI newsletter.

I would like to thank the AIR-10 organising committee: Erin Lousberg, Susan Christo, Natalie Stevens, Tessa Gargett, Iain Comerford, Natasha Kolesnikoff, Houng Taing, Shamika Moore, Anita Kral and Nicholas Hauschild. I would also like to acknowledge the generous support of our sponsors: Jomar, UniSA, Geneworks, BD Biosciences, VWR, John Morris, ELISA Kits, Promega, ACRF Cancer Genomics Facility, Eppendorf, Genesearch and The Hospital Research Foundation (QEH). Without their generous financial support, the event could not be held.

Cara Fraser
Councillor

N.S.W. News

ASI2014 Wollongong
www.ASI2014.org

This year's ASI Annual Scientific meeting in Wollongong is shaping up to be fantastic. We have a gorgeous venue and amazing speakers including Nobel Prize winner Bruce Beutler. This year the meeting is being held in conjunction with 10th International Human Leukocyte Differentiation Antigen Workshop (http://asi2014.org/workshops/hlda/), the 12th Autoimmunity Workshop and the Transplant Society of Australia and New Zealand are sponsoring a workshop on Tregs in human trials.

Please note that the timing of this year's ASI Annual Scientific Meeting will be one day different to previous years: Workshops take place on the MONDAY, 1st December. The main meeting begins 5pm MONDAY and concludes early FRIDAY afternoon.

Transportation in the form of buses has been arranged to get people to and from Sydney Airport to the conference site at the beginning and end of the meeting. Please book your seat when registering online. It is also possible to get there using the Sydney train system, or by driving ~80 minutes. Further details regarding travel can be found on the website: asi2014.org/travel-information/

Marcel Batten
Councillor

Below: Beautiful Wollongong beach

Victorian News

This year's IgV Winter Seminar was a great success. It was held at The Castle Hotel, a first for this forum, which made for a relaxed and convivial atmosphere lubricated by Belgian beers and warm nibbles. A large audience heard Professor Antonio Lanzavecchia (in town for the 20th International AIDS Conference) talk about his group's work on "The bright and dark side of somatic mutations". This fantastic work and Antonio's engaging style provoked excellent discussion and interactions, including with representatives of Miltenyi Biotec, whose sponsorship made this great night possible. Congratulations are due to the IgV committee, especially Charles Hardy and Melissa Call for helping to organize this event and raising the bar (tab) for future Winter Seminars.

The next fixture on the Victorian/Tasmanian ASI calendar is the 2014 IgV Annual Meeting, which will be held on 1st & 2nd September at the Novotel Forest Resort Creswick, near Ballarat. As usual, we have fantastic line-up of invited speakers: Dimmy Zotos, Tania de Koning-Ward, Anne Kelso, Melissa Call, Mireille Lahoud, Brendan Jenkins, Tom Brodnicki, Sammy Bedoui and Richard Ferrero. As always, this meeting will be a terrific opportunity for students to present their work and mingle with other immunologists. The IgV Committee also uses this venue to award student bursaries to the ASI Annual Conference and other prizes. I hope to see you there!

Further details on these and other local ASI events can be found on the Victorian/Tasmanian Branch page on the new and improved ASI website (http://www.immunology.org.au/regional-branches/victoria-tasmania-branch/). We keep this page up-to-date on these events and others of interest to the community, including upcoming seminars and symposia. It is also a convenient way to renew your ASI membership ahead of the 2014 ASI Annual Conference to be held from 1st-5th December in Wollongong.

Daniel Gray
Councillor

Queensland News

This report on the Winter Course in Advanced Immunology has been provided by Ray Steptoe:

July 14–18 saw the second running of the Winter Course in Advanced Immunology hosted by UQ Diamantina Institute (UQDI) and this year sponsored by the Queensland branch of ASI. Held at the Translational Research Institute (TRI) on the campus of the Princess Alexandra Hospital, the course was aimed at providing 'leading edge' insights into selected areas of immunology for undergraduate and early postgraduate students. The course was structured around a series of lectures and interactive sessions in the morning and a laboratory project run in the afternoons. The course was rounded up with a presentation of the project by the students on the Friday afternoon followed by a reception for attendees.

A total of 26 students attended the lectures and interactive sessions which, after reviewing the immune system, covered topics as diverse as immunology to parasitic infections, the germinal centre reaction, targeting DC for immunity, cancer immunosurveillance and therapy, genetic manipulation for immune research, autoimmunity and tolerance, microscopy and flow cytometry, the use of high throughput sequencing in immune research. Lecturers included Rob Brink (Garvan Institute) who visited for the day, Chris Engwerda (QIMR), Kristen Radford (Mater Research), Graham Leggatt, Ray Steptoe, Emma Hamilton-Williams, James Wells, Roberta Mazziera, Steve Mattorollo, Brendan O'Sullivan, Tony Kenna, Helen Benham(all from UQDI).

The laboratory project was held in the purpose-built SPARQed student engagement

Students presenting the outcomes of their laboratory project at the Winter Course in Advanced Immunology at TRI

Enjoying refreshments after the Winter Course

facility at the TRI campus and was fully–subscribed at the 18 student maximum. Thanks to Jennie Tyler and Zaied Bhuyan for pulling that together. Students attended from UQ, Griffith University, QUT and University of the Sunshine Coast, with one clinical trainee escaping the clutches of winter and making the trip from Canberra.

Generous sponsorship was provided by BD Biosciences, Millenium Science and ASI and, as a result, in addition to a UQ Diamantina Institute Honours Scholarship (awarded to Melissa Braun), we were able to provide prizes of a Registration to the upcoming Brisbane Immunology Group Annual Retreat (awarded to Juliette Stephens) and a 1-year membership to ASI (awarded to Masato Bui) to outstanding students.

If you are interested in attending the Winter Course in Advanced Immunology in 2015 at TRI, contact Ray Steptoe:
r.steptoe@uq.edu.au.

W.A. News

The second half of 2014 looks to be a busy time for WA ASI with plenty of interesting activities lined up.

By the time this is published we will have completed our bi-annual student and post-doc symposium with the Combined Biological Sciences Meeting. This year we secured a keynote talk by our very own ASI President, Prof. Dale Godfrey, covering his exciting work on innate-like T cells. Dale will also present at our regular Branch seminars. The symposium will run with an Infection and Immunity theme with excellent talks covering both areas, and more. Invited speakers include: Dr Lea-Ann Kirkham (UWA), Dr Scott Fisher (Harry Perkins) and Dr Connie Jackaman (Curtin) as well as four selected student speakers.

In early October, we will have a double-header seminar looking at alternative career pathways in immunology, with talks by Dr Christine Bundell (Pathwest) and Dr Kathy Davern (Monoclonal Antibody Facility). Come and join us to see what life is like outside the wire.

In late October, we will have a special double-header seminar on Nutrition and Immunity with two exciting local speakers giving an update on some interesting studies in this area.

On November 14th we will host a joint lunch seminar session with Telethon Kids, featuring Dr Helen Goodridge (Cedars-Sinai Medical Center, USA) and her interesting work on macrophages and innate immunity.

In late November/early December (to be finalized), we are hosting Professor Peter Ghazal (Division of Pathways Medicine, University of Edinburgh) as part of the Visiting Speaker Program and Guest of the CRE for preterm birth outcomes at UWA. Peter's group is at the forefront of using systems biology tools to study human infection and immunity. Peter will present a Branch seminar and be available to meet with local ASI groups. Please contact me if you would like to schedule a meeting with Peter while he is in Perth,
a.currie@murdoch.edu.au).

Finally, we will close out the year with a Sundowner and mini student symposium on December 18th. Come and join us to hear from some new researchers in immunology and share a drink or two with your colleagues.

I hope that you can join us for some or all of these activities in 2014.

Andrew Currie
Councillor

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For up-to-date information on all things ASI, including conferences, travel scholarships, prizes, visiting speakers and general immunology news.

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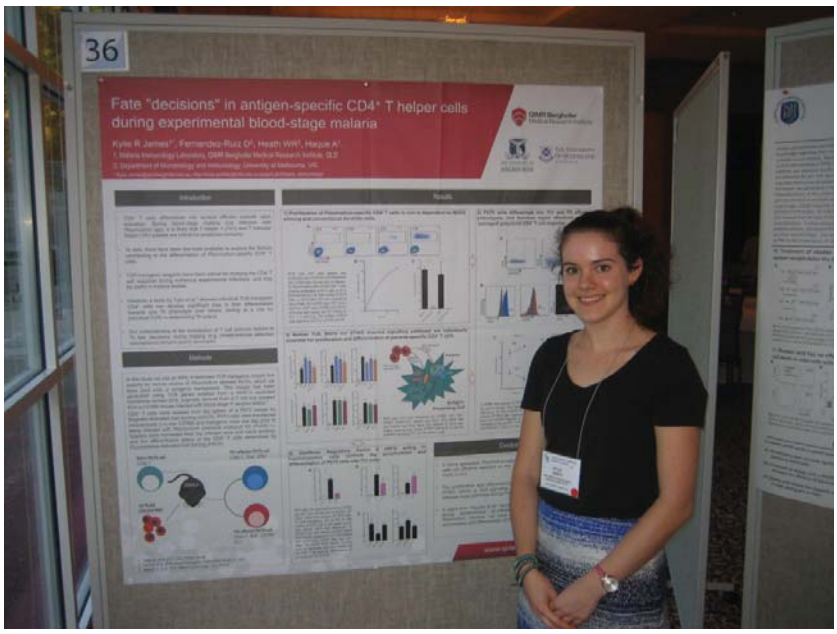
Accounts managed by ASI member, Gabriela Khoury

TRAVEL AWARD CONFERENCE REPORTS

Gordon Conference in Immunochemistry and Immunobiology 2014

Kylie James
QIMR Berghofer Institute, Queensland

Surrounded by the picturesque woodlands of Newry, Maine, this June I had the privilege of attending the Gordon Research Conference in Immunochemistry and Immunobiology. With a consortium of only 165, there was unprecedented opportunity to mingle with leading and emerging researchers with a common goal of generating new ideas for studying and modulating the immune system and how this might be applied to human health.



The conference was preceded by a research seminar for students and post-doctoral researchers. There was emphasis on involvement and contribution, so we all had the opportunity to present our work in the form of oral presentation or poster, and provide feedback on each other's work. The quality of work discussed and the enthusiasm for science at this seminar was inspiring and contagious. I particularly enjoyed hearing about novel technologies for studying the immune response developed at Massachusetts Institute of Technology. We also received invaluable advice from a mentoring panel consisting of Mark Davis, Miriam Merad and Brian Chow. Highlights of this seminar were discussing the future of medical research with Mark Davis over breakfast and his suggestions for critical skills, as well as discussing how to maintain a work/life balance with Brian Chow.

After the seminar, the big names in immunology started rolling in. We were treated to largely unpublished data from Federica Sallusto, Ruslan Medzhitov, Art Weiss, Yasmine Belkaid, Rafi Ahmed and Jim Allison to name a few. I also had the opportunity to present a poster of my PhD work to this new audience, and was very fortunate to explain my project to Dan Littman, Peter Ghazal and Juan Carlos Zuniga-Pflucker. I received encouraging feedback and useful advice on my studies of *Plasmodium*-specific $CD4^+$ T cell responses in mouse models of blood-stage malaria.

During our spare time each day, we were invited to participate in adventure activities such as paddle boarding, archery and geocaching, or simply hang out by the hot tub. This provided the perfect backdrop for networking and collaborating, while also enjoying the beautiful location of the conference.

After the conference, I traveled to 'The Big Apple' where I attended the 2014 Ross Prize in Molecular Medicine Seminar. From the heights of 7 World Trade Centre, the prize was awarded to Prof. John O'Shea for his contribution to our understanding of the role of T cells in host defenses and autoimmune disease. I enjoyed hearing from John O'Shea and the other speakers about how their research has made its way into the clinic and is now saving lives.

I would like to sincerely thank ASI for awarding me an international travel award that made this trip possible. I returned to Australia with a fresh perspective on my project and a long list of new friends and future collaborators.

Emerging Concepts and Targets in Islet Biology

April 6–11, 2014, Colorado, USA
Dr Sumaira Z Hasnain
Mater Research Institute, University of Queensland

Around the world in 30 days
I would like to thank ASI for awarding me the travel grant which enabled me to attend and present my findings at the prestigious Keystone Meeting on Emerging Concepts and Targets in Islet Biology (Keystone, Colorado) and visit collaborators around the world. Until recently my research had mostly been focussed on inflammation within the intestine; however our recent work has suggested that the role of the immune response in the chronic intestinal infection and inflammation is similar to that observed in type 2 diabetes. As a novice in the diabetes field, the support from ASI has been pivotal. It allowed me to present my work at a conference with experts in islet cell biology and gain more knowledge at this critical time in my career.

Journey and Location: I flew to Denver Airport and had to take the Colorado Mountain Express to the Keystone Resort. As the highest point in the USA, the journey offered unmatched views of snow covered mountains (see below) and pine trees. The two hour journey took us to the altitude of 12,408 feet and then down to 9,280 feet as we reached the Keystone Resort.

Conference: The conference started on April 6 at the Keystone Resort in Colorado. Due to the snow, the Keystone Lodge runs buses across the street to the Conference Centre, making it easier for the delegates to get to the conference on time. The first day of the conference started with an inspiring keynote address from Prof. C Ronald Kahn (Joslin Diabetes Centre, Harvard Medical School, USA). He spoke about his recent study which drills down the signalling pathways that are involved in metabolism and can be potential targets for metabolic disease. All the talks on the first day mentioned stress in the Beta-cells during diabetes, which is my area of interest. The poster session was held in the evening (7-10pm) after the conference talks which gave everyone an opportunity to engage investigators from all over the globe.

On the second day of the conference, I had the opportunity to present my research as a poster. I had continuous traffic to my poster; several leading Beta-cell biologists approached me at the poster to hear about our work. I found this interaction incredibly beneficial, as I got some ideas on new directions that I can take our research. It was also really nice to know that other people were interested in the research that we were conducting and thought it would lead to novel therapies. The conference continued till April 11 and one of the sessions that initiated a large amount of debate was the workshop on "Human Islet Procurement and Distribution". This is a challenge faced by everyone in the field.

On the third day of the conference, I was fortunate enough to be one of eight early career researchers to be invited to the Career Development Workshop Luncheon. We had many opportunities to ask the panel (Randy S Levinson, Editor at Nature Publishing Group, USA; Janice M Sowinski, City of Hope, USA; Dina A Andrews, Amgen Inc, USA) questions in this informal environment. The workshop (i) exposed us to the breadth of scientific careers that are available, (ii) encouraged me to discuss my career options with scientific leaders, and (iii) develop mentorship relationships outside of my own institute.

Collaborations: After the conference, I travelled to San Francisco to meet one of our collaborators, Dr David Erle. We discussed in detail the project we are working on together, looking at the role of a protein disulphide isomerase (Agr2) in a spontaneous model of colitis as well as during nematode infection. It was a great way for me to meet the researchers in his lab as well as look at the facilities at the University of California, San Francisco (UCSF). After visiting San Francisco I had the opportunity to travel to the UK to meet a postdoctoral researcher, Dr Indrajit Das who is currently working at the University of Cambridge. Dr Das did his postgraduate studies at Brisbane and we have been collaborating on several projects after he moved to Cambridge.

I also visited the University of Manchester, and my collaborators Prof. David Thornton and Prof. Richard Grencis, to discuss our on-going work on intestinal infections. We have previously discovered a pivotal role of mucosal barrier components as effectors that facilitate worm expulsion, and demonstrated how the worm manipulates the immune response to exert its effects on the mucosal barrier in order to promote its own survival within the host. The effector molecules are present within the secretory cells (goblet cells) of the intestine and are large heavily glycosylated proteins known as mucins. Our current project is investigating the role of immune-mediated glycosylation during worm expulsion. After the trip to the UK, I headed back home to Brisbane which concluded my around the world trip.

Overall, I had an extremely productive and worthwhile trip and I sincerely thank ASI for the funding which has enabled me to not only attend a conference but also allowed me to keep in touch with our collaborators around the world.

FIMSA2015

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FIMSA2015 aims to facilitate interactions between members of its societies and to exchange knowledge in basic and clinical immunology to advance the science of immunology in the Asia-Pacific region. The congress will bring together scientists from the region for this purpose.

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(Federation of Immunological Societies of Asia Oceania)

30 June - 3 July 2015

Sands Expo and Convention Centre, Singapore

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Publications List

Congratulations to ASI members who have published their following work in the last three months

Ana-Sosa-Batiz, F., Johnston, A.P., Liu, H., Center, R.J., Rerks-Ngarm, S., Pitisuttithum, P., Nitayaphan, S., Kaewkungwal, J., Kim, J.H., Michael, N.L., Kelleher, A.D., Stratov, I., Kent, S.J., Kramski, M., 2014. **HIV-specific antibody-dependent phagocytosis matures during HIV infection**. Immunol Cell Biol.

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