Australasian Society for Immunology Inc.

NEWSLETTER

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Clinical and Translational Immunology: A new platform to publish your research

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Clinical & Translational Immunology is a joint initiative of The Australasian Society for Immunology (ASI) and Nature Publishing Group (NPG). This journal is an open access journal and is a companion title to *Immunology & Cell Biology* (published by NPG in partnership with the ASI). The changing landscape of the immunology field has resulted in an increasing focus on excellent clinical immunology and translational research, with a corresponding increase in submissions on these topics. The pioneering work undertaken by many Australian Immunologists highlights the translation of critical basic research to the clinic. Owing to the emergence of new robust approaches to investigating clinical disease, the development of new disease models that much more closely mimic the human setting (e.g. humanized mice) and translation of findings back into the clinic, ASI decided that a new journal is merited to host a venue for these studies. *Clinical & Translational Immunology* is aiming to publish the latest advances in biomedical research for scientists and physicians. The journal focuses on fields such as cancer biology, cardiovascular research, gene therapy, immunology, vaccine development and disease pathogenesis and therapy at the earliest phases of investigation. *Clinical & Translational Immunology* publishes articles on basic, translational, and clinical studies in all aspects of human immunology, including experimental models specific to human diseases. We have also published solicited reviews on timely topics in basic/clinical immunology. In addition, we also publish ground-breaking case reports and letters to the editor.

All content published in *Clinical & Translational Immunology* is open access and is freely available to researchers worldwide through the nature.com platform. We are delighted to announce *Clinical & Translational Immunology* was recently accepted in to PubMed Central. We expect all ASI members to support this exciting initiative and submit their research to *Clinical & Translational Immunology*. We also welcome any proposal to write comprehensive reviews or special features focusing specific topics/diseases/clinical settings. If you are interested in submitting any proposal please contact our editorial office: cti.office@wehi.edu.au

Please visit our website for more details: http://www.nature.com/cti/index.html

Since launching in late 2012, the journal has published a number of outstanding articles by world-renowned experts. A brief summary of these contributions is provided below.

Cancer: Late-stage melanoma patients respond to immunotherapy

Immunotherapy with a cytokine called interleukin-21 (IL-21) has shown modest efficacy in the treatment of malignant melanoma. However, IL-21 therapy can rapidly and potently induce natural killer and cytotoxic T cell activation in patients, implying that this cytokine may yet be useful in stimulating the immune response to cancers. Dale Godfrey and Jonathan Coquet, now at the Flemish Institute of Biotechnology in Ghent, Belgium, and his colleagues now report that IL-21 therapy in patients with malignant melanoma modulates the function of NKT cells, a

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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:

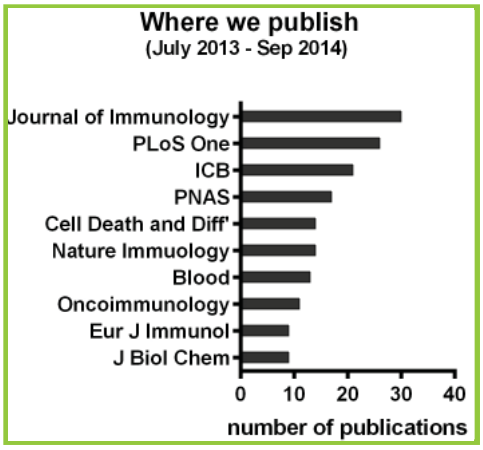
- Links providing members with free access to Immunology & Cell Biology, Nature Immunology, Nature Reviews Immunology
- Special offers for ASI members
- Download and upload forms for ASI awards
- Positions vacant page
- Online membership renewal
- Upcoming conference listings
- Women's initiative
- Twitter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

This edition we showcase interesting articles from our newer journal – Clinical and Translational Immunology. I hope you have time to look at the articles –I was particularly fascinated by the approach taken by Tuckweng Kok and colleagues to produce designer HIV antigens. It's great to see ASI's journals getting so much traction and congratulations to the Editorial teams of both ICB and CTI for guiding these journals so well.

It is timely to review our publication statistics for the last year. I have been compiling the publication list for four years now and the pattern of publication has remained fairly similar, with the top ten journals accounting for about 30% of our publications. It's great to see ICB in third place, but given that its impact factor is now so much better than PLOS One, I'd expect to see it in second place by the end of the New Year.



This is my last Edition as Newsletter Editor. I'd like to give special thanks to Judi Anderson (at the ASI Secretariat) who always does a sterling job putting the Newsletter together; and thanks to all the ASI members who contributed or assisted in different ways over the last four years. A big welcome to the incoming Newsletter Editor, Joanna Roberts, thanks for coming on board!

One thing you become aware of if you become involved with the organizational side of ASI is the huge amount of work the Council does behind the scenes. The Executive members, in particular, devote a lot of their own time and effort and they really deserve credit and thanks – well done!

Finally, a safe and happy holiday season to you all, I hope you come back refreshed and ready to write brilliant grant applications!

Simon Apte

2014 Eureka Prize

B-cell mystery busted at last

2014 Eureka Prize winning team.
LtoR: Steven Nutt, Lynn Corcoran, Phil Hodgkin, David Tarlinton
(Photo courtesy Australian Museum)

A team of Melbourne researchers has finally unravelled the workings of the rare, specialised cells in our blood that generate antibodies to fight infection and disease.

Known as antibody secreting cells (ASCs), they start life as B-cells in the bone marrow. Our immune system carefully manages them every step of the way to protect against immune deficiency and ensure that appropriate levels of the right antibodies are maintained.

For their elegant theory explaining how ASC cells are produced, Professor Philip Hodgkin's team at the Walter and Eliza Hall Institute of Medical Research has won the University of New South Wales Eureka Prize for Scientific Research.

To produce the antibodies essential for long-term protection against infection, B-cells develop into ASCs, budding off other types of immune cells along the way. Until now the lack of understanding of this process—how the resulting ASCs 'choose' which antibody to make, and how they survive for long periods—has been a barrier holding back the design of efficient vaccines and immune deficiency treatments.

"Philip Hodgkin's team took a unique approach to solve this problem, and have finally revealed how the different immune cells are made," Australian Museum Director and CEO Kim McKay said. "This is a step-increase in our understanding that will aid the global effort to develop immune deficiency treatments and vaccines."

The Australian Museum Eureka Prizes are the country's most comprehensive national science awards. The Eureka Prizes have been rewarding science since 1990—celebrating 25 years in 2014.

Clinical & Translational Immunology (cont)

Dale Godfrey

population with the potential to mediate the rejection of cancers. IL-21 enhanced NKT cell granularity, and modulated the expression of cell surface receptors and cytokines produced by NKT cells. In particular, IL-21 shifted the balance of Th1/Th2 cytokines produced by NKT cells. In addition, the authors note that a population of 'NKT-like' cells is expanded by IL-21 therapy and single out this population for further studies. These results demonstrate that IL-21 therapy is a potent modulator of the function of immune cells including, NKT cells.

See more details on this article at http://www.nature.com/cti/journal/v2/n10/abs/cti20137a.html

HIV: Designer antigens for elicitation of broadly neutralizing antibodies

Researchers have produced designer antigens that can elicit novel HIV antibodies which may have the potential to effectively prevent infection. The work, led by Tuckweng Kok and Peng Li at the University of Adelaide, Australia, exploited the fact that in rare cases HIV patients can produce neutralizing antibodies that bind to sites which exist only transiently as the virus fuses with cells. They created long-lasting versions of these sites in a cellular model by lowering the temperature to arrest fusion midway through. This allowed time to produce antibodies that selectively bound to cells that were in the process of being infected, and potentially reduce the ability of HIV to infect cells. Previous attempts to make vaccines that produce broadly neutralizing antibodies in patients

Tuckweng Kok

have failed. The new approach could help to produce broadly neutralizing antibodies or antiviral agents that reduce the risk of HIV transmission.

See more details on this article at http://www.nature.com/cti/journal/v3/n9/abs/cti201422a.html

Rheumatology: Cellular models of arthritis

Australian researchers have examined the validity of using cultured cells from blood to model cells in joints with rheumatoid arthritis. Rheumatoid arthritis is an auto-immune disease in which the immune system attacks the synovium, a thin membrane that lines joints. A team led by Leslie Cleland of the Royal Adelaide Hospital compared dendritic immune cells from the synovial fluid of inflamed joints with monocyte derived dendritic cells cultured from the patients' blood. Prostaglandin D-synthase, an enzyme which acts in the resolution of inflammation, was expressed the

Leslie Cleland

synovial dendritic cells but not by cultured dendritic cells from blood, unless treated with vitamin D. The cells also differed in other responses to vitamin D and the biological factor lipopolysaccharide. The common practice of using cultured cells from blood to study the dendritic cells that accumulate in arthritic joints warrants further investigation.

See more details on this article at http://www.nature.com/cti/journal/v3/n8/abs/cti201419a.html

Influenza: Learning how viruses find a welcoming host

Researchers in India have explored how viral variation and host genetics combine to determine susceptibility to influenza infection. Mutations in the influenza genome can render the virus more or less virulent but an individual's ability to generate an effective immune response against a given strain is also critical. Sumanta Mukherjee and Nagasuma Chandra of the Indian Institute of Science in Bangalore used a computational approach to examine human leukocyte antigen (HLA) genesin different populations. These highly variable genes affect how viral antigens are presented to the immune system. Comparing these data against genome and protein data from different viral strains revealed that immune 'response types' correlated with the likelihood of an infection or outbreak. In addition to predicting susceptibility, these data could also inform the design of more effective vaccines.

See more details on this article at http://www.nature.com/cti/journal/v3/n8/abs/cti201417a.html

Nagasuma Chandra

Eric Gowans

Kenneth Smith

Bitao Liang

Immunization: Enhancing the immune response to DNA vaccines

Researchers are exploring strategies for improving immune responses to DNA vaccines. Eric Gowans at The University of Adelaide, Australia, and colleagues inserted DNA encoding a model antigen into a virus-like membrane. Mice that inhaled this vaccine and then had it injected into their skin showed a robust immune response in mucosal surfaces including the vagina. These mucosal responses are key determinants of a vaccine's efficacy against sexually transmitted diseases. A second approach examined the effect of encoding a cytolytic protein in the DNA vaccine. This showed that an optimum balance between expression of the immunogen and the cytolytic protein increased immune responses, resulting from cross presentation of the immunogen. DNA vaccines are cheap to make and easy to store, making them ideal for use in developing countries, but it is currently difficult to get them to generate a sufficient immune response.

See more details on this article at http://www.nature.com/cti/journal/v3/n6/abs/cti201413a.html

Immunity: Genetics underlies disease prognosis

How a person responds to autoimmune and infectious diseases depends to a large extent on his or her unique genetic profile. In a review article, James Lee and Kenneth Smith from the Cambridge Institute for Medical Research in the UK highlight the previously unappreciated role that genetics plays in affecting disease outcome, in addition to its known effects on disease susceptibility. The authors focus on their recently published work, which showed that genetic variants in FOXO3, a gene that can modify inflammatory responses, affect the clinical outcome of several different diseases, including rheumatoid arthritis, malaria and Crohn's disease, a disabling form of inflammatory bowel disease. The authors argue that a better understanding of the role of genetics in determining the prognosis of autoimmune and infectious diseases could shed new light on disease biology, reveal new therapeutic targets and lead to personalized treatments for these conditions.

See more details on this article at http://www.nature.com/cti/journal/v3/n5/abs/cti20148a.html

Immunity: Seeking out secrets of placental protection

The same mechanisms that protect the fetus from the mother's immune system could help keep autoimmune and inflammatory diseases at bay. A growing body of evidence suggests that placental cells promote maternal tolerance for fetal tissues that might otherwise be perceived as 'foreign'. Bitao Liang and colleagues at Celgene Cellular Therapeutics in Warren, New Jersey, USA, examined the role of cultured human 'placenta-derived adherent cells' (PDAC® cells), with a view toward developing these cells as therapeutic tools. Cell culture and animal model experiments both demonstrated that PDAC® cells can help restrict proliferation and activation of T-cell subsets associated with certain immune disorders. The authors found that this occurs through direct effects on T cells and also through factors secreted by PDAC® cells. These factors promote development of particular immune cells that help limit the overall immune response.

See more details on this article at http://www.nature.com/cti/journal/v3/n5/abs/cti20145a.html

Allergy: Fighting food-fuelled inflammation

Immune cells belonging to the subset responsible for food allergy-associated inflammation offers promising targets for potential therapeutics. Patients suffering from the painful symptoms of eosinophilic esophagitis (EoE) have few options except for dietary modification. Researchers led by Anil Mishra at Tulane University, USA, have identified a prominent role for innate natural killer T (iNKT) cells in EoE, thereby uncovering signaling pathways that might be blocked to halt this condition. The team observed greatly increased recruitment of iNKT cells in esophageal biopsies from EoE patients, and showed that EoE-like symptoms can no longer be induced in mice that lack these cells specifically.

Anil Mishra

Importantly, iNKT function depends on certain cell-surface proteins that can be effectively blocked by existing antibodies. Mishra and colleagues demonstrated that these antibodies prevent allergen-induced EoE in mice, and might therefore confer similar protection in humans.

See more details on this article at http://www.nature.com/cti/journal/v3/n1/abs/cti201313a.html

Multiple sclerosis: Seeking an early warning of autoimmunity

A molecule secreted by gut microbes may improve the diagnosis of multiple sclerosis (MS) and offer a window into the roots of this autoimmune disorder. Although broadly understood as a disease in which genes and environment interact resulting in the body attacking its own nervous system, scientists know little about the causes of MS or the environmental factors involved in its onset. However, a team led by Robert Clark at the University of Connecticut Health Center has discovered a molecule produced by human commensal bacteria that may offer both a clue to relevant environmental factors and a useful diagnostic tool. The researchers determined that the molecule, termed 'lipid 654', was consistently found at greatly reduced levels in the blood of MS patients relative to healthy individuals or patients with an unrelated neurological disorder. Furthermore, as lipid 654 specifically binds to an important human immune signaling protein, it could play a role in regulating the autoimmune response.

See more details on this article at http://www.nature.com/cti/journal/v2/n11/abs/cti201311a.html

Robert Clark

Pranela Rameshwar

Allergic diseases: Same cell therapy, opposite responses

Individuals with allergic inflammation of the nasal airways may respond differently to stem cell therapy than individuals with allergic asthma, a cell-based study shows. Pranela Rameshwar and her colleagues at the Rutgers University–New Jersey Medical School, USA, tested the effects of adding mesenchymal stem cells (MSCs) to blood samples from subjects with either allergic rhinitis, commonly known as hay fever, or allergic asthma. The researchers first extracted a subset of blood cells containing many important components of the immune system, including peripheral blood mononuclear cells (PBMCs). They then challenged the PBMCs to immune-triggering antigens such as ragweed, before introducing MSCs. The stem cells had a suppressive effect on the immune system in samples from asthma sufferers, but an immune-enhancing effect on samples from people with allergic rhinitis — despite the typical inflammatory response being similar in both rhinitis and asthma sufferers.

See more details on this article at http://www.nature.com/cti/journal/v2/n10/abs/cti20139a.html

Cancer therapy: Drugs rouse immune system against skin cancer

Immune-modulating therapies that stimulate a person's immune system to recognize and destroy tumor cells are showing great promise in fighting advanced melanoma skin cancer. Charlotte Ariyan and her colleagues at the Memorial Sloan-Kettering Cancer Center in New York City, USA, have reviewed the melanoma drugs that work by blocking critical checkpoint

Charlotte Ariyan

molecules that normally inhibit anti-cancer T cell responses. In clinical trials, these antibody drugs have dramatically improved survival rates in people with advanced melanoma. But the drugs also come with a host of immune-related side effects, such as tissue-specific inflammation, highlighting the delicate balance of maintaining a healthy immune system. Intriguingly, melanoma patients who experience side effects are more likely to respond to immunotherapy, suggesting that physicians can use adverse event profiles to predict who will respond and to guide therapy accordingly.

See more details on this article at

Immunology: Tracking health through mother's milk

By quantifying immune cell levels in breastmilk, researchers in Australia have found an indicator of the health of mothers and their babies. Breastfeeding babies receive numerous health benefits from their mothers, including factors that help them fight bacteria and viruses. Since the quantity of white blood cells found in breastmilk might offer a window onto infant and maternal health, Foteini Hassiotou and her colleagues at the University of Western Australia measured how these levels shift in healthy or infected

Foteini Hassiotou

nursing mothers and their babies. They found that white blood cell levels in milk reached a low baseline shortly after birth, but increased dramatically in response to infection in either infant or mother. After an infection cleared, milk immune cell levels returned to baseline, indicating that such measurements might offer a valuable diagnostic tool to assess health.

See more details on this article at http://www.nature.com/cti/journal/v2/n4/abs/cti20131a.html

Immunology: Existing drugs may treat systemic sclerosis

An exploration of a signaling protein's role in an untreatable inflammatory disease offers hope that available therapeutics may provide relief. Systemic sclerosis (SSc) manifests differently in individual patients, but is generally associated with both inflammation and accumulation of fibrous tissue. Both processes are potentially modulated by signaling factor interleukin-6 (IL-6). Steven O'Reilly and colleagues from the Institute of Cellular Medicine in Newcastle-upon-Tyne, UK, have reviewed the evidence linking excessive IL-6 activity to SSc. For example, SSc patients commonly exhibit elevated IL-6 levels in the blood and increased signaling activity at the skin, where fibrosis typically occurs. Experiments in a mouse model of SSC also indicate that reducing IL-6 signaling activity can mitigate symptoms. Several drug candidates for rheumatoid arthritis target this signaling pathway, and ongoing clinical trials should reveal whether SSc patients stand to benefit.

Steven O'Reilly

See more details on this article at http://www.nature.com/cti/journal/v2/n4/abs/cti20132a.html

We hope you will consider submitting your next manuscript to *Clinical & Translational Immunology* to showcase your next piece of research, and benefit from:

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*Research Information Network (RIN), 2014

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!

Upcoming Conferences

1st International Convention Immunopharmacology-Vaccipharma 2015
14–19 June 2015
Cuba
http://www.immunovaccipharmacuba.com

FIMSA2015
30 June–3 July 2015
Singapore
enquiry@sgsi.org.sg
www.sgsi.org.sg

8th Frontiers in Immunology Research 2015 International Conference
1–4 July 2015
Albufeira, Algarve, Portugal
hkan@firnweb.com
http://www.firnweb.com
http://twitter.com/Immunology_Conf
Abstract submission deadline: 30 March 2015

4th European Congress of Immunology
6–9 September 2015
Vienna, Austria
www.eci-vienna2015.org

The Walter and Eliza Hall Institute of Medical Research

WEHI Seminars on the Web: www.wehi.edu/seminars/

President's Column

It is difficult for me to believe that here I am, already writing my final President's column, when it feels like only a few weeks have passed since I first stepped into this position. But by the time you are reading this, ASI will have a new 'El Presidente', Chris Goodnow, and I will be lying on a beach somewhere, reflecting on all the things ASI Council has achieved under my presidency and wondering what to do with all my spare time. It has been a challenge at times to manage the role of ASI President simultaneously with all the other demands of medical research. But that said, I am very glad to have had this opportunity to take the reins of ASI for the last two years and I hope that some of the things that have been introduced have improved the member benefits and the running of the Society. I also encourage anyone who is interested in playing a more direct role in our Society to talk to me about it. It can be a very rewarding thing to do.

In my first newsletter I talked about how the things that are achieved under any given presidency are typically part of a continuum, building on the seeds planted by previous presidents and councils and carried through by subsequent president/councils. My own experience over the past two years reflects this. I am pleased to say that one of the key achievements has been to complete the ASI website upgrade, initiated by previous president David Tarlinton. This is now having a major impact on how we communicate with the membership. Associated with this website, we have: much greater involvement with social media including Twitter and Facebook; the ASI women's initiative and its various features to help the many female members of our Society; regular Immunology-related news stories; job opportunities and conference promotions; and the excitement of an occasional competition. ASI membership renewal, travel award applications and the ability to manage payments for various ASI-related activities such as branch-based meetings can all be conducted online as a result of this new website.

One of the things we envisioned with this website would be the opportunity to increase our sustaining member program, raising more money for the Society and giving sponsors greater exposure to the membership. I am pleased to say that this has been quite successful as ASI currently has seven sustaining members: Jomar Bioscience/E-bioscience; Miltenyi Biotec; Becton Dickinson; Elisakit.com; Stem Cell Technologies; the ARC Centre of Excellence for Advanced Molecular Imaging; Abcam Australia Pty Ltd, with promises of new sustaining members for next year. In these financially challenging times, it is increasingly difficult to attract sponsorship and support from companies who have to be careful how they distribute their limited funds, yet our Society depends on this support. So a request to all members – please be sure to visit these companies via our website and if you are talking to any of their representatives at conferences, let them know that members of our Society notice and appreciate their support.

The development and management of initiatives such as the new website has been largely facilitated by the ASI Project Officer(s) (previously Sarah Jones, now Sarah Fardy). This position also grew out of David Tarlinton's presidency and was approved at the 2012 Annual General Meeting. Sarah Jones took on this role early in 2013, and she was instrumental in getting the website up and running. Sarah resigned from this position to focus on her research career early in 2014 and Sarah Fardy took over and has continued to enhance and develop the website over the past 10 months. With the website now running smoothly, Sarah, who is most enthusiastic and never short of an idea, will be taking on additional initiatives that we hope will further enrich the membership experience. Many thanks to the two Sarahs for their efforts over the past 1½ years, for actually ensuring that these new initiatives happen, and for making the life of ASI Exec and Council a lot easier.

Another significant change that has been introduced recently is the creation of a new Council position, the Deputy Treasurer. This was created to solve the challenging problem that ASI Treasurers are thrown in the deep end at the beginning of their tenure and it takes a considerable amount of time to get to know how to manage the finances of such a big and active Society. Our solution was to introduce the position of Deputy Treasurer, providing a year of training alongside the existing Treasurer to ensure a smooth transition at the end of the three-year Treasurer term. Assuming that this new position will have been approved at the AGM this year, I am very pleased to welcome ASI's first Deputy Treasurer, Kim Jacobson. After a year as Deputy Treasurer, Kim will take over from current Treasurer, John Stambas, immediately after the annual general meeting at the end of 2015.

While on the subject of new Council appointments, I am also very pleased to welcome Mainthan Palendira as ASI NSW Councillor, Joanna Roberts as ASI Newsletter Editor and Joanna Kirman as ASI Visiting Speaker Co-ordinator. This is also an opportunity to offer my thanks, on

behalf of ASI Council and membership, for the great service to our Society provided by the outgoing Councillors including: NSW Councillor Marcel Batten; Newsletter Editor, Simon Apte; and Visiting Speaker Co-ordinator, Alejandro Lopez. It is a big deal to give so much of your time to helping run this Society, so give these people a pat on the back when next you see them.

I am very enthusiastic about a new venture for our Society (driven by Sammy Bedoui, Anselm Enders, Su Heinzel and myself) involving two reciprocal meetings with the German Society for Immunology (Deutsche Gesellschaft für Immunologie). The first meeting will dovetail with the ASI annual scientific meeting in Canberra in 2015 and the reciprocal meeting will be held in Germany in 2016. The intention is that these meetings will provide new collaborative opportunities between the members of the two societies and I encourage members to register for the extra day of this meeting in Canberra next year. We already have a great lineup of potential speakers from Germany who will be attending and it promises to be a terrific event, including some valuable social time for the scientists from each country to interact. There will also be travel opportunities for ASI members to attend the meeting in Germany the following year. If this is successful, I envision that similar joint meetings between ASI and other Immunology societies could become a regular event on the ASI calendar. I hope that this is one of those things that will be part of the continuum – driven forward by Chris Goodnow and his successors.

One other thing worth mentioning, that I can't take too much credit for but will pretend was all my doing anyway … we have seen the profile of our two journals, *Immunology & Cell Biology*, and *Clinical & Translational Immunology*, growing very nicely. ICB reached a new high this year with an impact factor of 4.205, and CTI is continuing to attract new articles and has now been listed in PubMed Central, which should further enhance its profile. Many thanks and congratulations to Gabrielle Belz, Rajiv Khanna and the editorial team for their efforts in propelling these journals to new heights. Again, I encourage all members to get behind these journals, submit your work there, make sure you read them and cite appropriate papers from them, etc. All these things help boost these journals and this helps boost our Society.

Obviously I will remain heavily involved with ASI over the year ahead as an executive member (Past President), but the next President's column will come from Chris. I look forward to working with Chris and helping him bring his own style and vision to ASI, in conjunction with the other Executive team members: John Stambas (Treasurer), Stuart Berzins (Secretary), Sarah Fardy (Project Manager), Judi Anderson (Secretariat), and the great team of councillors who have worked with me over the past two years and undoubtedly will help Chris to keep our Society running.

So – thank you all – it has been a pleasure and I am very grateful to the membership for giving me the chance to lead ASI over the last two years.

Dale Godfrey
ASI President 2013–2014

Honorary Secretary's News

Results of Ballots for Vacant ASI Council Positions

Thanks to the members of ASI who nominated to fill vacancies on ASI Council as Treasurer, Newsletter Editor, Visiting Speaker Co-ordinator and NSW Branch Councillor. The results of the ballots were announced in earlier correspondence, but I would like to formally congratulate and welcome the new members of ASI Council, who will take up their positions on Wednesday 3rd December, 2014 at the ASI AGM held during the Annual Scientific Meeting in Wollongong.

The new Deputy Treasurer is Kim Jacobson. Kim will spend 2015 learning the ropes from the current Treasurer, John Stambas, and will serve as Treasurer from 2016-2018.

Joanna Roberts will take over as Newsletter Editor from Simon Apte. A huge thanks to Simon for his excellent work over many years.

Joanna Kirman has been elected as Co-ordinator of the Visiting Speaker Program. Joanna takes over from Alejandro Lopez, who has run the VSP with aplomb for many years and played a central role in developing the scheme into one of the most popular programs run by ASI for its members.

Mainthan Palendira takes over from Marcel Batten as Branch Councillor for NSW. Marcel had perhaps the busiest year of any ASI Councillor because she also served on the Organising Committee for this year's Annual Scientific Meeting in Wollongong, while maintaining a full time research career and having a baby. A well earned break awaits … until grant writing!

ASI International Travel Awards

Five awards of $3000 each have been awarded to ASI members for international travel to attend conferences and/or institutes. The winners of the postgraduate awards are Nicholas Gherardin, Emma Grant and Julia Marchingo. The winners of the postdoctoral awards are Alison Carey and Andreas Kupz. These are highly competitive awards and the winners are to be congratulated for their achievement. I should remind everyone that these awards are funded through your membership fees so please sign up when the renewal information appears in your email in the next few weeks.

Website

The ASI website (http://www.immunology.org.au/) goes from strength to strength under the stewardship of Sarah Fardy. It is now a valuable resource for members, providing news and information about Immunology and ASI-related activities, providing services such as payment facilities for conference and event registration, and a submission area for applications. Please contact Sarah (fardy.s@wehi.edu.au) if you have news, photos and/or articles you would like to see posted on the website, including if you need help preparing this information.

Stuart Berzins

ASI is now on Facebook and Twitter

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

Follow at:
https://twitter.com/ASImmunology
https://www.facebook.com/ASImmunology
And for even more immunology news,
https://twitter.com/DayofImmunology

Accounts managed by ASI member, Gabriela Khoury

The ASI Visiting Speaker Program

It is with great pleasure that I type my last report for the ASI-VSP program. I am very pleased that the program has achieved sufficient traction that we had three candidates willing to take the role of coordinating this successful activity of the society. I congratulate Jo Kirman (University of Otago, Dunedin, NZ) who has been elected to continue the program from 2015 and I am certain she will re-invigorate and strengthen it to new heights. I wish to thank all the ASI members who have enthusiastically supported this program in the last 10 years as well as the various ASI Councils throughout this period for making the program successful. Very importantly, we are also indebted to Judi Anderson from the ASI Secretariat who, for so many years, has helped maintain the continuity of this and many other activities of the ASI.

We have secured a record number of visitors for 2015 as you will see from the listing below. We do encourage members to continue to postulate their candidates for the program. At this point, visits are likely to take place from 2016.

Planned visits for 2014
Professor Frederic Geissmann
King's College, London, UK
Prof. Geissmann will visit Melbourne, Sydney and Canberra
This visit has been postponed for 2015
Hosted by Gabrielle Belz, WEHI

Professor Peter Ghazal
Personal Chair of Molecular Genetics and Biomedicine
University of Edinburgh, UK
December 1-5, ASI conference
December 8/9, Melbourne,
December 10/11, Perth
Hosted by Andrew Currie, Murdoch University, WA

2015
March
Professor Eric Vivier
Centre d'Immunologie de Marseille-Luminy, France
Details of the visit to be announced
Hosted by Gabrielle Belz, WEHI, Melbourne, VIC

Veterinarian and immunologist by training, Eric Vivier is Director of the Centre

Professor Eric Vivier

d'Immunologie de Marseille-Luminy since 2006. In 1993, after a post-doctoral fellowship at Harvard Medical School, he joined the CIML where he founded the Laboratory "Natural Killer Cells and Innate Immunity" in 1996. This research helped to elucidate the role of NK cells and more broadly to decipher the molecular mechanisms controlling their activation.

Professor of Immunology at the Faculty of Medicine, Hospital practitioner at the Timone Hospital and the Assistance-Publique Hospitals of Marseille, Eric Vivier opened the way for the development of new therapeutic strategies against cancer and inflammatory diseases. He is one of the scientific founders of the biopharmaceutical company Innate Pharma, a pioneer of global immunotherapy.

Eric Vivier is a member of the Institut Universitaire de France, member of the scientific committee of the LNCC (French National League against Cancer), scientific advisor for the Institute of Hematology-Immunology-Pulmonology (INSERM) and member of the expert committee for the European Research Council (ERC) Starting Grant. Professor Vivier will be spending six months Sabbatical period at the WEHI and would visit various branches during this period.

Selected publications in the last 4 years

Vivier E., Ugolini, S. Poster on NK cells: receptors and functions, **Nature Reviews Immunology**, 2010, 10: 12

Vivier E., Raulet D.H., Moretta A., Caligiuri M.A., Zitvogel L., Lanier L.L., Yokoyama W.M., Ugolini S. Innate or adaptive immunity? The example of Natural Killer cells. **Science,** 2011, 331: 44-49.

Narni-Mancinelli E., Vivier E. NK genesis: a trick of the TRAIL. **Immunity**, 2012, 36: 1-3.

Vivier E., Ugolini S., Blaise D., Chabannon C., Brossay L. Targeting Natural killer cells and natural killer T cells in cancer. **Nature Reviews Immunol.** 2012, 12: 239-252.

Jaeger B.N., Vivier E. When Natural Killer cells overcome their lack of education. **J. Clin. Invest.** 2012, 122:3053.

Spits H., Artis D., Colonna M., Diefenbach A., Di Santo J.P., Eberl G., Koyasu S., Locksley R.M. McKenzie A.N.J., Mebius R.E., Powrie F., Vivier E. Innate Lymphoid Cells: a proposal for a uniform nomenclature. **Nature Reviews Immunol.** 2013. 13:145-149.

Kerdiles Y., Ugolini S., Vivier E. T cell regulation of Natural Killer cells. **J. Exp. Med.** 2013, 210: 1065-1068.

Pradeu P., Jaeger S. Vivier E. The Speed of Change: Towards a Discontinuity Theory of Immunity. **Nature Reviews Immunol.** 2013, 13: 764-769.

Vivier E., Ugolini S., Nunès J.A. ADAPted cytokine secretion in Natural Killer cells. **Nature Immunology**, 2013, 14:1108-1110.

Daëron M, Vivier E. Coincidence detection of antibodies and interferon for sensing microbial context**. Nature Immunology**, 2014, 15: 316-317.

Sun J.C., Ugolini S., Vivier E. Immunological Memory within the Innate Immune System**. EMBO J.**, 2014; 33(12):1295-303.

Narni-Mancinelli N., Vivier E. Perforin, granulysin and granzymes: an anti-bacterial tritherapy
provided by killer lymphocytes. **Cell**, 2014;157(6):1251-2.

Crouse J, Bedenikovic G, Wiesel M, Ibberson M, Xenarios I, Von Laer D, Kalinke U, Vivier E, Jonjic S, Oxenius A. Type I interferons protect T cells against NK cell attack mediated by the activating receptor NCR1. **Immunity**. 2014;40(6):961-73.

Celis-Gutierrez J, Boyron M, Walzer T, Pandolfi PP, Jonjić S, Olive D, Dalod M, Vivier E, Nunès JA. Dok1 and Dok2 proteins regulate natural killer cell development and function. **EMBO J**. 2014;33(17):1928-40.

Marçais A, Cherfils-Vicini J, Viant C, Degouve S, Viel S, Fenis A, Rabilloud J, Mayol K, Tavares A, Bienvenu J, Gangloff YG, Gilson E, Vivier E, Walzer T. The metabolic checkpoint kinase mTOR is essential for IL-15 signaling during the development and activation of NK cells. **Nat Immunol.** 2014;15(8):749-57.

Viant C, Fenis A, Chicanne G, Payrastre B, Ugolini S, Vivier E. SHP-1-mediated inhibitory signals promote responsiveness and anti-tumour functions of natural killer cells. **Nat Commun.** 2014;5:5108.

cont. next page

Assistant Professor Alex Shalek
MIT, Cambridge, USA

March 16. Auckland
March 18. Wellington
March 21. Melbourne
March 25. Brisbane
Hosted by Alexander Smith, Malaghan Institute, Wellington, NZ

Dr Shalek's work has been multidisciplinary, drawing from chemistry, physics, and nanotechnology to conceive of new high-resolution tools for the investigation and manipulation of cells and cell populations. From embryonic stem cells to immune cells through tumour cells and neurons, Dr Shalek and collaborators have been at the cutting edge of understanding fine, single-cell transcriptional processes and variability that until recently were only observable at the population level.

This has forced the revision of some ingrained pre-conceptions and mental constructs used in, amongst other fields, immunology. Indeed, as their single-cell transcriptomics experiments have shown, immune cells present a much higher diversity of responses to stimuli than previously thought – be it in the fraction of responding cells, the level of response, or the temporal and spatial dynamics thereof. As such, even the most "pure" cell-surface-marker-sorted population of immune cells may potentially present wildly varying reactions to immune challenges, a heterogeneity that is important at the system level to ensure rapid and robust responses (or non-responses) to stimuli. Even a tiny minority sub-population can drive a transcriptional response strong enough to show up at the population level.

Assistant Professor Alex Shalek

Much like the precociously-reacting bone-marrow-derived dendritic cells that they have described as reacting to bacteria-derived stimuli, Dr Shalek and colleagues are the flag-bearers for these new single-cell technologies which, despite their relative immaturity, already show exciting and paradigm-shifting results, and which also serve as an important reminder of the care that must be taken when interpreting findings at the cell population level. Soon, the trees will no longer hide the forest.

Dr Shalek has recently been appointed as assistant professor at the MIT Chemistry Department, where he will continue his work on new nanotech and chemical biology technologies that will aid in understanding cell heterogeneity, cell-to-cell interactions and cell ensemble decision-making, in both healthy and diseased states. This will lead to a more integrated view on how cells collectively perform systems-level functions.

Selected publications in the last 3 years:

Robinson, J.T., Jorgolli, M., Shalek, A.K., Yoon, M.H., Gertner, R.S., and Park, H., "Vertical Nanowire Electrode Arrays as a Scalable Platform for Intracellular Interfacing to Neuronal Circuits," **Nature Nanotech**. 7, 180, (2012).

Gat-Viks, I., Chevrier, N., Wilentzik, R., Eisenhaure, T. Raychowdhury, R., Steuerman, Y., Shalek, A.K., Hachohen, N., Amit,, I., and Regev, A., "Deciphering Molecular Circuits from Genetic Variation Underlying Transcriptional Responsiveness to Stimuli," **Nature Biotech**., 31, 342, (2013).

Yosef, N., Shalek, A.K., Gaublomme, J.T. , Jin, H., Lee, Y., Awasthi, A., Wu, C., Karwacz, K., Xiao, S., Jorgolli, M., Gennert, D., Satija, R., Shakya, A., Lu, D.Y., Trombetta, J.J., Pillai, M., Ratcliffe, P.J., Coleman, M.L., Bix, M., Tantin, D., Hongkun Park, H., Kuchroo, V.K., and Regev, A., "Dynamic Regulatory Network Controlling Th17 Cell Differentiation," **Nature**, 496, 461, (2013).

Shalek, A. K., Satija, R., Adiconis, X., Gertner, R. S., Gaublomme, J. T., Raychowdhury, R., Schwartz, S., Yosef, N., Malboeuf, C., Gnirke, A., Goren, A., Hacohen, N., Levin, J., Park, H. & Regev, A. Single-cell transcriptomics reveals bimodality in expression and splicing in immune cells. **Nature** 498, 236, (2013).

Gifford, C.A., Ziller, M.J., Gu, H., Trapnell, C., Donaghey, J., Tsankov, A., Shalek, A.K., Kelley, D.R., Shishkin, A.A., Issner, R., Zhang, X., Coyne, M., Fostel, J.L., Holmes, L., Meldrim, J., Guttman, M., Epstein, C., Park, H., Kohlbacher, O., Rinn, J., Gnirke, A., Lander, E.S., Bernstein, B.E., and Meissner, A., "Transcriptonal and Epigenetic Dynamics during Specification of Human Embryonic Stem Cells," **Cell**, 153,1149, (2013).

Suva, M. , Rheinbay, E., Gillespie, S.M., Patel, A.P., Chi, A.S., Riggi, N., Wakimoto, H., Rabkin, S.D., Matuza, R.L., Rivera, M.N., Rossetti, N., Beik, S., Kasif, S., Wortman, I., Shalek, A.K., Rozenblatt-Rosen, O., Regev, A., Louis, D.N., and Bernstein, B.E., "Reconstructing and Reprogramming the Developmental Hierarchy of Glioblastoma," **Cell**, 157, 580, (2014).

Lohr, J.G., Adalsteinsson, V.A., Cibulskis K, Choudhury, A.D., Rosenberg, M., Cruz-Gordillo, P. Francis, J., Zhang, C.Z., Shalek, A.K., Satija, R., Trombetta, J.J., Lu, D., Tallapragada, N., Tahirova, N., Kim, S., Blumenstiel, B, Sougnez, C., Lowe, A., Wong, B., Auclair, D., Van Allen, E.M., Nakabayashi, M., Lis, R.T., Lee, G.S.M., Li, T., Chabot, M.S., Ly, A., Taplin, M.E., Clancy, T.E., Loda, M., Regev, A., Meyerson, M., Hahn, W.C., Kantoff, P.W., Golub, T.R., Getz, G., Jesse S. Boehm, J., Love, J.C., "Whole exome sequencing of CTCs as a window into metastatic prostate cancer," **Nature Biotechnology**, 32, 479, (2014).

Shalek, A.K., Satija, R., Shuga, J., Trombetta, J.J., Lu, D., Gennert, D., Chen, P., Gertner, R.S., Gaublomme, J.T., Yosef, N., Schwartz, S., Fowler, B., Weaver, S., Wang, J., Wang, X., Ding, R., Raychowdhury, R., Friedman, N., Hacohen, N., Park, H., May, A.P., and Regev, A., "Large-Scale Single-Cell RNA-Seq Reveals Strategies for Regulating Cell-to-Cell Dynamic Variability through Paracrine Signaling," **Nature**, 510, 363, (2014).

Patel, A.P., Tirosh, I, Trombetta, J.J., Shalek, A.K., Gillespie, S.M., Wakimoto, H., Cahill, D.P., Nahed, B.V., Curry, W.T., Martuza, R.L., Louis, D.N., Rosenblatt-Rosen, O., Suvà, M.L., Regev, A., and Bernstein, B.E., "Single Cell RNA-seq highlights intratumoral heterogeneity in primary glioblastoma," **Science**, 344, 1396, (2014).

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. Further details to be announced.
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. Further details to be announced.
Hosted by Natkunam Ketheesan, James Cook University, Townsville

May

Prof. Hai Qi

School of Medicine, Tsinghua University, Beijing, China

Prof. Hai Qi will be attending the 6th ABCD – Australian B cell Dialogue meeting on May 21–22 in Melbourne and will visit various branches. Details of the visit to be announced

Hosted by Cindy Ma, Garvan Institute, Sydney

Professor Hai Qi

"Operation of the immune system critically depends on highly dynamic intercellular communication among multiple cell types, frequently in the form of physical cell-cell interactions. Germinal centers (GCs) are highly organized tissue micro-domains in which humoral immune memory is generated. I try to understand how:

- cellular interactions critical for GC formation are molecularly orchestrated
- qualitative and quantitative properties of such interactions are translated into cell fate decisions
- lymphoid tissues and GC micro-domains are spatiotemporally patterned, and
- such patterns facilitate productive yet prevent unwanted immune activation.

To approach these questions, we utilize genetic, biochemical, cell biological, live cell imaging, and intravital 2-photon tissue imaging methods."

Selected publications in the last 5 years:

Dan Liu, Heping Xu, Changming Shih, Zurong Wan, Xiaopeng Ma, Weiwei Ma, Dan Luo, and Hai Qi. T-B cell entanglements and ICOSL-controlled feed-forward regulation of germinal center reaction. **Nature**, 2014 Oct 15. doi: 10.1038/nature13803.

Coco Chu, Yifeng Wang, Xu Zhang, Xinya Ni, Junxia Cao, Wan Xu, Zhongjun Dong, Pengfei Yuan, Wensheng Wei, Yuanwu Ma, Lianfeng Zhang, Longyan Wu, and Hai Qi. SAP-regulated T cell-APC adhesion and ligation-dependent and -independent Ly108-CD3ζ interactions. **Journal of Immunology**, 193(8):3860-71, 2014.

Qi H, Chen X, Chu C, Liu D, Ma W, Wang Y, Wu L, Yan H, Yan J. Tfh cell differentiation and their function in promoting B-cell responses. **Adv Exp Med Biol.**;841:153-80, 2014

Hai Qi, Dan Liu, Weiwei Ma, Yifeng Wang, Hu Yan. Bcl-6 controlled TFH polarization and memory: the known unknowns. **Current Opinion in Immunology**, 28:34-41, 2014

Junjiao Yang, Yuan Zhang, Pengfei Yuan, Yuexin Zhou, Changzu Cai, Qingpeng Ren, Dingqiao Wen, Coco Chu, Hai Qi, and Wensheng Wei. Complete decoding of TAL effectors for DNA recognition. **Cell Research**, 24:628-631, 2014

Xindong Liu, Xin Chen, Bo Zhong, Yaoqi Alan Wang, Xiaohu Wang, Fuliang Chu, RozaNurieva, Xiaowei Yan, Ping Chen, Laurens van der Flier, Hiroko Nakatsukasa, SattvaNeelapu, Wanjun Chen, Hans Clevers, Qiang Tian, Hai Qi, Lai Wei, and Chen Dong. Transcription factor Achaete-Scute homologue 2 initiates T follicular helper cell development. **Nature**, 507:513-518, 2014

Hai Qi, Xin Chen, CoCo Chu, Peiwen Lu, Heping Xu, and Jiacong Yan. Follicular T-helper cells: controlled localization and cellular interactions. **Immunology & Cell Biology**, 92:28-33, 2014.

Seung Goo Kang, Wen-Hsien Liu, Peiwen Lu, Hyun Yong Jin, Hyung W Lim, Jovan Shepherd, Daniel Fremgen, Eric Verdin, Michael B A Oldstone, Hai Qi, John R Teijaro, and Changchun Xiao. MiR-17~92 family microRNAs are critical regulators of T Follicular helper cell differentiation. **Nature Immunology** 14:849-57, 2013.

Heping Xu, Xuanying Li, Dan Liu, Jianfu Li, Xu Zhang, Xin Chen, Shiyue Hou, Lixia Peng, Chenguang Xu, Wanli Liu, Lianfeng Zhang, and Hai Qi. Follicular T-helper cell recruitment governed by bystander B cells and ICOS-driven motility. **Nature** 496:523-527, 2013.

Hai Qi. From SAP-less T cells to helpless B cells and back: dynamic T-B interactions in germinal center development. **Immunological Reviews** 247:24-35, 2012.

Second Semester

Prof. Dirk Busch

Technische Universität München, Germany

Details of the visit to be announced

Hosted by Steven Turner, University of Melbourne, VIC

After studying medicine in Mainz and Freiburg (1993) and completing his doctorate (1993), Prof. Busch commenced his clinical training in infectious pediatrics (Würzburg, 1993-1996). A German

Professor Dirk Busch

Research Foundation scholarship gave him the opportunity to study under Prof. Eric Pamer at Yale University (1996-1999). He qualified as a lecturer in 2003 and completed his residency in medical microbiology and epidemiology of infection (2005) at TUM. Prof. Busch heads up the "Antigen-Specific Immunotherapy" clinical co-operation group (Helmholtz Zentrum München and TUM) and the IAS focus group "Clinical Cell Processing and Purification". He has held the position of director of TUM's Institute for Medical Microbiology, Immunology and Hygiene since 2009.

Professor Busch's research is focused on antigen-specific T cells and the development of new technologies to make immune cells usable for diagnostic and cell therapy applications. He has published over 180 peer reviewed papers making several seminal contributions to the field which include: understanding T cell fate decisions upon activation, understanding how heterogeneity of T cell effector function is regulated and contributes to immune protection and more recently how T cells can be utilized for immunotherapy. Prof. Busch conducts research into infection immunology with the goal of identifying therapeutically useful defense mechanisms. His work centres on antigen-specific T cells and the development of new technologies to make immune cells usable for diagnostic and cell therapy applications.

Selected publications in the last 5 years:

Graef P, Buchholz VR, Stemberger C, Flossdorf M, Henkel L, Schiemann M, Drexler I, Höfer T, Riddell SR, Busch DH. Serial transfer of single-cell-derived immunocompetence reveals stemness of CD8(+) central memory T cells.

Immunity. Jul 17;41(1):116-26, 2014.
Stemberger et al., Lowest numbers of primary CD8+ T cells can reconstitute protective immunity upon adoptive immunotherapy. **Blood**, pii: blood-2013-12-547349, 2014.
Nuemann et al., Clec12a is an inhibitory receptor for uric acid crystals that regulates inflammation in response to cell death. **Immunity**. 40:389, 2014.
Weissbrich et al. Adoptive immunotherapy: New assay for the identification of T cells with optimal avidity. **Oncoimmunology**. 2:e26199, 2013.
Nauerth et al., TCR-ligand koff rate correlates with the protective capacity of antigen-specific CD8+ T cells for adoptive transfer. Sci Transl Med. 5:192ra87, 2013.
Buchholz et al., Disparate individual fates compose robust CD8+ T cell immunity. **Science**. 340:630-5, 2013.
Neuenhahn and Busch. Whole body analtomy of human T cells. **Immunity**. 38(1):10, 2013.
Buchholz et al., The origin of diversity: studying the evolution of multi-faceted CD8+ T cell responses. **Cell Mol Life Sci**. 69:1585-95., 2012.
Verschoor et al., A platelet-mediated system for shuttling blood-borne bacteria to CD8α+ dendritic cells depends on glycoprotein GPIb and complement C3. **Nat Immunol**. 12:1194, 2011.
Buchholz et al., CD8+ T cell differentiation in the aging immune system: until the last clone standing. **Curr Opin Immunol**. 23:549, 2011.
Neuenhahn and Busch. The quest for CD8+ memory stem cells. **Immunity**, 31: 702, 2009.

December

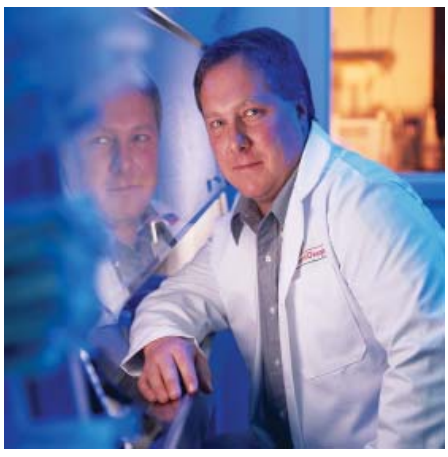
Prof. Ralph Tripp

Professor and Georgia Research Alliance Chair of Vaccine & Therapeutic Studies, University of Georgia, Athens, GA, USA

Prof. Ralph Tripp will attend the ASI conference in Canberra and will visit several branches.

Details of the visit to be announced

Hosted by Reena Ghildyal, University of Canberra, ACT



Professor Ralph Tripp

"My overall research interest is to develop translational disease intervention strategies for important human pathogens and emerging infectious diseases of zoonotic origin. My labs investigate the mechanisms of immunity, the virus-host interface and disease pathogenesis to influenza virus to understand the dynamics of host response to infection and to provide new strategies for resolving disease. I trained in the field of viral immunity studying immune evasion of adenoviruses with Dr Linda Gooding at Emory University, and then T cell immunology and viral immunology with Laureate Professor Peter C. Doherty at St. Jude Children's Research. Subsequently, I led a research team in vaccine studies for human viral diseases in the Respiratory and Enteric Viruses Branch at the CDC, and now at the Animal Health Research Center (AHRC) at the Univ Georgia which is BSL2/BSL3+ biocontainment facility."

Selected publications in the last 3 years:

Powell JD, Dlugolenski D, Nagy T, Gabbard J, Lee C, Tompkins SM, Tripp RA. Polymerase Discordance in Novel Swine Influenza H3N2v Constellations Is Tolerated in Swine but Not Human Respiratory Epithelial Cells. **PLoS One**. 2014 Oct 16;9(10):e110264.
Tripp RA, Mark Tompkins S. Antiviral effects of inhibiting host gene expression. **Curr Top Microbiol Immunol**. 2015;386:459-77.
Perwitasari O, Johnson S, Yan X, Howerth E, Shacham S, Landesman Y, Baloglu E, McCauley D, Tamir S, Tompkins SM, Tripp RA. Verdinexor, a novel selective inhibitor of nuclear export, reduces influenza a virus replication in vitro and in vivo. **J Virol**. 2014 Sep 1;88(17):10228-43.
Fox JM, Sage LK, Poore S, Johnson S, Tompkins SM, Tripp RA. Drug analog inhibition of indoleamine 2,3-dioxygenase (IDO) activity modifies pattern recognition receptor expression and proinflammatory cytokine responses early during influenza virus infection. **J Leukoc Biol**. 2014 Sep;96(3):447-52.
Phan SI, Chen Z, Xu P, Li Z, Gao X, Foster SL, Teng MN, Tripp RA, Sakamoto K, He B. A respiratory syncytial virus (RSV) vaccine based on parainfluenza virus 5 (PIV5). **Vaccine**. 2014 May 23;32(25):3050-7.
Sage LK, Fox JM, Mellor AL, Tompkins SM, Tripp RA. Indoleamine 2,3-dioxygenase (IDO) activity during the primary immune response to influenza infection modifies the memory T cell response to influenza challenge. **Viral Immunol**. 2014 Apr;27(3):112-23.
Jorquera PA, Choi Y, Oakley KE, Powell TJ, Boyd JG, Palath N, Haynes LM, Anderson LJ, Tripp RA. Nanoparticle Vaccines Encompassing the Respiratory Syncytial Virus (RSV) G Protein CX3C Chemokine Motif Induce Robust Immunity Protecting from Challenge and Disease. **PLoS One**. 2013 PMID: 24040360
Fouchier RA, Kawaoka Y, Cardona C, Compans RW, García-Sastre A, Govorkova EA, Guan Y, Herfst S, Orenstein WA, Peiris JS, Perez DR, Richt JA, Russell C, Schultz-Cherry SL, Smith DJ, Steel J, Tompkins SM, Topham DJ, Treanor JJ, Tripp RA, Webby RJ, Webster RG. Gain-of-Function Experiments on H7N9. **Science**. 2013 PMID: 23926190
Fouchier RA, Kawaoka Y, Cardona C, Compans RW, García-Sastre A, Govorkova EA, Guan Y, Herfst S, Orenstein WA, Peiris JS, Perez DR, Richt JA, Russell C, Schultz-Cherry SL, Smith DJ, Steel J, Tompkins SM, Topham DJ, Treanor JJ, Tripp RA, Webby RJ, Webster RG.Gain-of-Function Experiments on H7N9. **Science**. 2013 PMID: 23926190
Fouchier RA, Kawaoka Y, Cardona C, Compans RW, Fouchier RA, García-Sastre A, Govorkova EA, Guan Y, Herfst S, Kawaoka Y, Orenstein WA, Peiris JS, Perez DR, Richt JA, Russell C, Schultz-Cherry SL, Smith DJ, Steel J, Tompkins SM, Topham DJ, Treanor JJ, Tripp RA, Webby RJ, Webster RG. Avian flu: Gain-of-function experiments on H7N9. **Nature**. 2013 PMID: 23925229
Turner TM, Jones LP, Tompkins SM, Tripp RA. A Novel Influenza Virus Hemagglutinin-Respiratory Syncytial Virus (RSV) Fusion Protein Subunit Vaccine against Influenza and RSV. **J Virol**. 2013 PMID: 23903841
Sage LK, Fox JM, Tompkins SM, Tripp RA. Subsisting H1N1 Influenza Memory Responses are Insufficient to Protect from Pandemic H1N1 Influenza Challenge in C57BL/6 Mice. **J Gen Virol**. 2013 PMID: 23580424
Fouchier RA, García-Sastre A, Kawaoka Y, Barclay WS, Bouvier NM, Brown IH, Capua I, Chen H, Compans RW, Couch RB, Cox NJ, Doherty PC, Donis RO, Feldmann H, Guan Y, Katz JM, Kiselev OI, Klenk HD, Kobinger G, Liu J, Liu X, Lowen A, Mettenleiter TC, Osterhaus AD, Palese P, Peiris JS, Perez DR, Richt JA, Schultz-Cherry S, Steel J, Subbarao K, Swayne DE, Takimoto T, Tashiro M, Taubenberger JK, Thomas PG, Tripp RA, Tumpey TM, Webby RJ, Webster RG. Transmission studies resume for avian flu. **Science**. 2013 Feb 1;339(6119):520-1. PMID: 23345603
Bakre A, Mitchell P, Coleman JK, Jones LP, Saavedra G, Teng M, Tompkins SM, Tripp RA. Respiratory syncytial virus modifies microRNAs regulating host genes that affect virus replication. **J Gen Virol**. 2012 Nov;93(Pt 11):2346-56. PMID: 22894925
Meliopoulos VA, Andersen LE, Brooks P, Yan X, Bakre A, Coleman JK, Tompkins SM, Tripp RA. MicroRNA regulation of human protease genes essential for influenza virus replication. **PLoS One**. 2012;7(5) PMID: 22606348
Choi Y, Mason CS, Jones LP, Crabtree J, Jorquera PA, Tripp RA. Antibodies to the central conserved region of respiratory syncytial virus (RSV) G protein block RSV G protein CX3C-CX3CR1 binding and cross-neutralize RSV A and B strains. **Viral Immunol**. 2012 Jun;25(3):193-203. PMID: 22551066

Immunology & Cell Biology Publication of the Year Awards 2013

Two *Immunology & Cell Biology* Publication of the Year Awards have been established for outstanding publications, submitted by first authors, who are financial members of the Australasian Society for Immunology Inc. in the year of the article's publication. Competing articles can be an Original Article, Outstanding Observation, Theoretical Article or Brief Communication. The ASI President together with members of the ASI Executive, judge the most outstanding original research articles based on scientific excellence. The winner of the Chris and Bhama Parish ICB Publication of the Year Award is awarded a AU$1000 scholarship provided by the Nature Publishing Group and the runner-up is awarded a AU$500 scholarship provided by Thermo Fisher Scientific.

An outstanding series of papers were submitted for consideration for the *Immunology & Cell Biology* Publication of the Year Awards by the judging committee. The scientific excellence of the works was high. It is a great pleasure to announce the winners of the awards for 2013:

Chris and Bhama Parish ICB Publication of the Year Award: Kristie Jenkins, Centre for Innate Immunity and Infectious Diseases, Monash Institute of Medical Research, Monash University, Australia.

Thermo Fisher Scientific Publication Award: Yashar Seyed-Razavi, Department of Anatomy and Developmental Biology, School of Biomedical Sciences, Monash University, Australia.

The winning paper by Dr Jenkins is an Original Article entitled 'Mitochondrially localised MUL1 is a novel modulator of antiviral signaling' and was published in April 2014.[1] In this paper, Dr Jenkins and colleagues tease apart the pathway that allows the immune system to detect and respond to viral infections and to eliminate that infection while sparing massive tissue destruction in the process. A critical arm of the antiviral response is launched by the retinoic acid-inducible gene I (RIG-I) protein (RIG-I), which activates the antiviral response by viral RNA and then associates with the mitochondrial antiviral signaling (MAVS) protein to induce inflammatory cytokines. The team identified that the mitochondrial

Dr Kristie Jenkins, recipient of the 2013 Chris and Bhama Parish ICB Publication of the Year Award

E3 ubiquitin protein ligase 1 (MUL1) interacts with MAVS and catalyzes RIG-I post-translational modifications to inhibit RIG-I-dependent cell signaling. Intriguingly, depletion of MUL1 resulted in increased activation of this pathway, highlighting that MUL1 is a novel regulator of this pathway, potentially limiting the collateral damage that might occur during the 'clean-up' process associated with pathogen clearance.

Dr Jenkins completed her PhD characterizing chicken Toll-like receptors that might be involved in viral infection. This project, undertaken collaboratively through the University of Melbourne and CSIRO-Australian Animal Health Laboratory (Geelong), was sponsored by a Rural Industries Research and Development Corporation Scholarship. Dr Jenkins subsequently took up a postdoctoral position at the Monash Institute of Medical Research within the Centre for Innate Immunity and Infectious Disease where her work focused on the innate immune response to viruses. Dr Jenkins is currently a research scientist working within the Genome Engineering team at the CSIRO Australian Animal Health Laboratory in Geelong identifying ways to improve disease resistance and production traits in poultry.

Dr Seyed-Razavi, the recipient of the 2013 Thermo Fisher Scientific Publication Award

She maintains an intense interest in the innate immune response, small RNA biology and the use of transgenic approaches to delineate cell fate determination during development.

Dr Yashar Seyed-Razavi's paper 'Membrane nanotubes in myeloid cells in the adult mouse cornea represent a novel mode of immune cell interaction', published in January 2013, is the winner of the Thermo Fisher Scientific Publication Award for 2013.[2]

Dr Seyed-Razavi's study was completed as part of his PhD undertaken with Professor Paul McMenamin and Dr Holly Chinnery at the School of Biomedical Sciences, Monash University. This work focused on understanding cell–cell and neuro-immune interactions in the homeostatic and injured murine cornea. It was discovered that these interactions could occur through membrane nanotubes that provide a means by which intercellular organelle transfer could occur. In contrast to previous observations, Seyed-Razavi et al. observed that cell–cell contact was not a requirement for the formation of membrane nanotubes but that these could be formed de novo in myeloid-derived cells found during inflammation and viral infection in the eye. This work elegantly highlighted how the novel nanotubular networks connect

the nervous and immune systems to play an important role in the early stages of the innate immune response in the mammalian cornea. Dr Seyed-Razavi is currently a postdoctoral fellow at the Schepens Eye Research Institute, Massachusetts Eye and Ear in Boston, focusing on the interplay and modulatory role of nerves in the local and infiltrating myeloid-derived cells in the cornea.

The award-winning papers of Drs Jenkins and Seyed-Razavi highlight the excellence of the work published in *Immunology & Cell Biology*. My very best congratulations are extended to the awardees on their success. I also thank our sponsors Nature Publishing and Thermo Fisher Scientific for continuing to support outstanding science and scientists. It is hoped that the outstanding quality of these awarded publications will also encourage others to consider *Immunology & Cell Biology* as a key journal for their cutting-edge research.

Gabrielle Belz
Division of Molecular Immunology,
Walter and Eliza Hall Institute of Medical Research,
Melbourne, Victoria, Australia
Email: belz@wehi.edu.au

Notes:

1. Jenkins K, Khoo JJ, Sadler A, Piganis R, Wang D, Borg NA et al. Mitochondrially localised MUL1 is a novel modulator of antiviral signaling. Immunol Cell Biol 2013; 91: 321–330.
2. Seyed-Razavi Y, Hickey MJ, Kuffová L, McMenamin PG, Chinnery HR. Membrane nanotubes in myeloid cells in the adult mouse cornea represent a novel mode of immune cell interaction. Immunol Cell Biol 2013; 91: 89–95.

Editorial published in Immunology & Cell Biology Volume 92 no. 10, the November/ December 2014 issue.

Therapeutic Monoclonal Antibodies to Snake Venom

Joint project between BioCSL Ltd and WEHI Immunology

A **PhD scholarship** is available for the above project.

Aims:

Isolate antibody secreting cells to snake venom from hyper-immune horses
Generate monoclonal horse anti-venom antibodies using recombinant DNA technology.
Characterise for neutralisation and affinity
Determine cross-reactivity amongst snake species
Test in venom challenge experiments.

Details:

Approach will be to isolate ASC from venom-boosted horses, recovering cells that secrete desired antibodies. Individual antibody genes will be recovered and recombinant, monoclonal horse antibody made in vitro. These hMAbs will then be screened for efficacy in venom neutralisation, in binding to specific proteins in the venom and for cross-reactivity to venom from multiple species, ranging from terrestrial to sea snakes. Mouse monoclonal antibodies will be made in parallel and these will be available as adjunct reagents for characterising the hMAbs.

Student:

Applicants must have an H1 and should major in Immunology. The award consists of a stipend equivalent to an Australian Post-graduate Award and registration as a PhD student at University of Melbourne.

Supervisors

WEHI: Profs. David Tarlinton, Andrew Lew
BioCSL: A/Prof Steve Rockman

Contact: tarlinto@wehi.edu.au; lew@wehi.edu.au

ASI Councillors' News

N.Z. News

In the last few months, NZ ASI has sponsored a visit from Professor Nick King to Dunedin. Nick gave a fantastic seminar and also had a chance to interact with both staff and students at the University of Otago.

An overdue congratulations to Dr Laura Green who won the 2014 Zonta Science Award. This provides Laura with prize money of $15,000, a further $3,000 towards overseas travel and a pounamu medal especially designed by Upper Hutt jeweller Neke Moa. There was also immunology success at the NZ Society for Oncology annual scientific meeting – PhD student Andy Highton won the student award for lab-based research for his work on vaccinating against colorectal cancer.

We have two major upcoming events – the Gut Health Network Satellite Meeting of the NZ Society for Gastroenterology, featuring Professor Charles Mackay. In addition, the 2015 NZ ASI annual meeting will be held in Auckland July 3–5, and the organizing committee is chaired by Dr Ries Langley (r.langley@auckland.ac.nz).

Congratulations to Jo Roberts, who will be taking over as Editor of the ASI newsletter in 2015, it's great to have some more NZ input into ASI. Finally, Anne LaFlamme (previous NZ Councillor) has organized our official NZ ASI logo (above).

Roslyn Kemp
Councillor

A.C.T. News

The main event of the ACT Branch in the last few months was the annual retreat together with the NSW branch. As usual, the retreat was held at Peppers Craigieburn Conference Centre and Resort in Bowral. At the retreat we heard keynote lectures from Lynn Corcoran (WEHI), Wolfgang Weninger (Centenary Institute), Thomas Gebhard (Uni Melbourne) and David Tscharke (ANU). Besides the presentations by the invited speakers, we had plenty of excellent talks by students and postdocs. The judging panel awarded the prize for best presentations by Honours students to Rhea Lindell-Innes (Uni Sydney) and the second prize to Rob Wilson (Garvan). The awards for PhD students were given to Tessa Campbell (Uni Sydney) and the second prize to Jin Yan Yap (ANU). The award for the best presentation by a postdoc was given to Julia Ellyard (ANU). This award was kindly sponsored by Jomar Bioscience.

I also would like to thank the many people who helped organize the event, particularly Yogesh Jeelall, Marcel Batten (NSW Councillor) for always answering my questions, and Maria Fernandez for organizing the judging and, of course, all the judges. Lastly, I want to thank our generous sponsors Becton Dickinson, Jomar Bioscience, Miltenyi, Australian Biosearch, Life Technologes and Sigma Aldrich – without their support this meeting would not have been possible.

Anselm Enders
Councillor

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Queensland News

2014 Brisbane Immunology Group Retreat

The BIG Annual Retreat saw 136 Queensland and interstate immunologists descend on Mantra Legends at Surfers Paradise on 21–22 August 2014. Sadly the weather did not come to the party for our sun-seeking interstate visitors, however the calibre of the speakers, the food and the discussions in the bar into the wee hours more than made up for it.

One of the highlights of the meeting was the Jonathan Sprent Oration by Prof. Carola Vinuesa. Carola gave us a very honest, entertaining and inspiring account of her career trajectory so far. In addition to her many stunning research highlights, Carola is extremely passionate about supporting and promoting women in research and her discussion on practical ways this can be achieved was inspiring to us all, but particularly the female early/mid career researchers. We were also very privileged to hear from Liz Hartland on Fas signalling in gut infection, Ian Cockburn on Live cell imaging of T cell responses to plasmodium, Cindy Ma on Hyper IgE syndrome and Katherine Kedzierska on Immunity to new strains of influenza virus. The "hot topic" of RIPK1 and necroptosis was covered with an excellent presentation by John Silke. Back on the agenda for this year was the BIG ICON lecture, awarded to a Queensland immunologist who has substantially contributed to the discipline. This year's worthy recipient was Prof. Geoff Hill from QIMR Berghofer, who epitomised this award with a beautiful bench-to-bedside translational story describing the role of IL-6 in GVHD.

There were also many excellent presentations by local speakers and the high quality of the postgraduate and ECR sessions made judging a difficult task. Congratulations to Marcela Montes de Oca (QIMR Berghofer) who was awarded the prize for the best postgraduate student presentation and Ran Wang (Mater Research-UQ) who won both the poster prize and the draw for students who asked questions during the meeting.

Far North Queensland immunologists also had a strong presence at the meeting and the ASI Queensland branch was pleased to be able to provide travel bursaries to students and ECRS- Sandip Kamath, Margaret Jordan, Xuyen Dinh and Adrian Gemiarto, to support their attendance.

A big thankyou to all of the organising committee – Rajiv Khanna, Matt Sweet, Ray Steptoe, Alejandro Lopez, Andreas Lopata, Danielle Stanisic, Jennifer Freeman, Ken Loh, Connor O'Meara, Sumaira Hasnain and especially Mandie Quince, and also to our invited speakers, sponsors and local participants who all contributed to making this such a fun and interactive meeting.

Kristen Radford
Councillor

S.A./N.T. News

10th Adelaide Immunology Retreat (AIR-10) 2014 Report

Now in its 10th year, the Adelaide Immunology Retreat (AIR) for PhD students, Honours students and research assistants has continued to grow and was once again a great success. This year we extended the scope of the retreat to include a session dedicated to Early Career Researchers which we hope to continue in future years. The retreat was held at The Old Mill, Hahndorf on 15 and 16 August and was opened by our national invited speaker, Professor David Tarlington (WEHI, Vic). Prof. Tarlington shared with us his personal scientific journey in his presentation 'Making Memories for a Lifetime'. On the second day of the retreat our local speaker Professor Sarah Robertson (Director, The Robinson Research Institute) presented her work on the fascinating relationship between the immune system and pregnancy. The high calibre of presentations did not end there, with excellent talks by Early Career Researchers, Honours students, PhD students, and research assistants covering a diverse range of topics which included reproductive immunology, vaccination, allergy, neurobiology and sepsis to name a few. Overall the standard of the presentations was exceptional.

Congratulations go to the following award recipients: Kate Parham (Best PhD Presentation), Ernesto Hurtado (2nd prize, PhD Presentation), Wouter Tonnis (3rd prize, PhD Presentation), Erin Andrew (Best Honours Presentation), Duncan McKenzie (Best RA Presentation) and Tessa Gargett (Best Early Career Researcher Presentation). There were also plenty of opportunities for interaction between the delegates and invited speakers. After some free time to explore the German village of Hahndorf, the delegates reconvened for a 'blind wine tasting' supported by the generous donation of wine by O'Leary Walker Wines and Murray Street Vineyards. This was followed by the retreat dinner at the German Arms Hotel.

I would like to thank the AIR-10 organizing committee members, Susan Christo, Natalie Stevens, Erin Lousberg, Nicholas Hauschild, Shamika Moore, Natasha Kolesnikoff, Anita Kral, Houng Taing, Tessa Gargett and Iain Comerford, for all of their hard work and enthusiasm for the meeting. Also a BIG thank you to all of our sponsors, Enzo Life Sciences, Sapphire Bioscience, Jomar, Uni SA, VWR, Olympus, ELISA Kits, John Morris, ACRF Cancer Genomics Facility, Eppendorf, Scientifix, Promega, Geneworks, BD Biosciences, Robinson Research Institute, Sigma, Adelab Scientific, MicroAnalytics Genesearch, Epitope Technologies, Thermofisher and Australian Biosearch.

Finally, we would like to once again especially thank The Hospital Research Foundation which provided the most substantial support for the second year in a row with their sponsorship of lunch on both days and the retreat dinner. Without the generous financial support of all of our sponsors the event each year could not be held.

Cara Fraser
Councillor

Group photo at The Old Mill, Hahndorf, SA

Prize winners LtoR: Natalie Stevens (Question Prize); Nicole Wittwer (Question Prize); Kate Parham (Best PhD Presentation); Tessa Gargett (Best Early Career Researcher Presentation); Ernesto Hurtado (2nd prize PhD Presentation); Erin Andrew (Best Honours Presentation); Duncan McKenzie (Best RA Presentation); Wouter Tonnis (3rd prize PhD Presentation); Invited National Speaker, Prof. David Tarlignton; SA/NT State Councillor, Dr Cara Fraser

Victorian News

In September, the IgV hosted its Annual Retreat at the Novotel Forest Resort in Creswick. The meeting was a great success, with many outstanding talks in a vibrant and relaxed atmosphere. This program included a fascinating talk by Prof Mariapia Degli-Esposti from the University of Western Australia on recently published work defining unexpected roles for NK cells in autoimmune pathology. As always, a highlight of the Retreat was the high calibre of the presentations from students and early-career postdoctoral researchers. In an extremely competitive field, student prizes were awarded to Nick Gherardin and Tim Johanson and the postdoctoral prize went to Christoph Thelemann. Another highlight was the trivia night. Everyone had a ball, especially ASI President, Dale Godfrey, who demonstrated an amazing breadth of knowledge (just ask him about Miss Tessmacher). Congratulations to the organisers of this Retreat, in particular Meredith O'Keeffe, for putting together such a strong program and well-organised meeting. A big thanks also goes to the sponsors of this meeting for providing essential support, but also for their interactions and presentations.

Please stay tuned for the announcement of the 2015 dates for the next Retreat, which is shaping up to be a big one ahead of the 2016 ICI conference (when there will be no IgV Retreat or ASI Annual Conference). It will be an "all-in" affair, with invited national and international speakers, so make sure you come along!

We are all looking forward to a great ASI Annual Meeting in Wollongong, shortly after which, the Visiting Speaker Program will bring Prof Peter Ghazal to Melbourne for a talk on 8th December. These events are sure to end the year off on a high note, with great opportunities to see some of the best immunology research on offer.

Daniel Gray
Councillor

Sustaining Membership

ASI Inc acknowledges the support of the following sustaining members:

- Abcam Australia
- ARC Centre for Excellence in Advanced Molecular Imaging
- BD Biosciences
- ELISAkit.com
- Jomar Bioscience
- Miltenyi Biotec Australia
- Stemcell Technologies Inc

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TRAVEL AWARD CONFERENCE REPORTS

EMBO Conference on Innate Lymphoid Cells

29 September – 1 October 2014, Paris, France

Cyril Seillet
Walter & Eliza Hall Institute of Medical Research, Melbourne, Victoria

Thanks to the Postdoctoral International Travel Awards form the ASI, I had the privilege to attend to one of the most exciting conferences I have been to during my young career. The EMBO Conference on Innate Lymphoid Cells (ILC) that was held in Paris from September 29 to October 1 was the first international meeting gathering all leading researchers of this emerging field. The study of ILC is a budding field in immunology, with a major impact on our understanding of the early events occurring during an immune response. These cells are, moreover, highlighting the importance of immune cells, not only to protect the organism against pathogens, but also at steady state for the proper tissue homeostasis. This congress was a unique opportunity to gather all major players in the research area and discuss about recent advances and the future directions of an exponentially growing field.

The scientific program was ambitious and had been divided into three main parts. The first part of the congress was dedicated to the development, where a major outbreak has been done recently with the identification of a common precursor for all ILC. The second part focussed on the role of the ILC in tissue homeostasis and integrity. Finally the last day concentrated on the activation and function of the ILC during inflammation. The end of the meeting was the occasion to consider the opportunity to reconvene this meeting every 2-3 years. The next one should be in England, but Australia is already in the running to organize the third conference that will without doubt become bigger and bigger. Beside the scientific aspect of the meeting, the venue was great at the Pasteur Institute, and at lunch we savored delicious French cuisine.

I then visited the CPTP institute in Toulouse to give a seminar on the "The transcriptional regulation of the innate lymphoid cells". It was a good opportunity to present the work I have done during my post-doc at WEHI, and initiate new collaborations with teams interested in investigating the role of these new cell subsets in others pathological models.

I can't thank the ASI enough for supporting this trip, as attending this congress was a unique opportunity to meet the incipient ILC community and see the bigger picture of ILC research.

Participants at the EMBO Conference, Paris

ICB & CTI Online Manuscript Submission

Online manuscript submission for *Immunology & Cell Biology* and *Clinical & Translational Immunology* now available via:

http://mts-icb.nature.com/
http://mts-cti.nature.com/

All manuscript submissions to ICB and CTI should in future be made online via these websites to speed up the reviewing and acceptance of manuscripts.

Gabrielle Belz, Editor-in-Chief
Immunology & Cell Biology
Clinical & Translational Immunology

Investigating disease progression in amyotrophic lateral sclerosis: A window into life at the University of British Columbia, Vancouver

July – November 2014

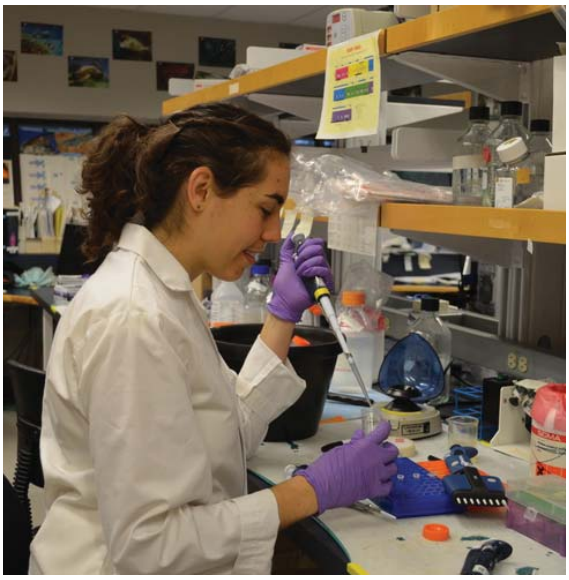
Rachael Bartlett

Illawarra Health and Medical Research Institute, University of Wollongong, NSW

I arrived in Canada on a rainy July morning, and proceeded to get lost in both downtown Vancouver and Stanley Park before the day had ended. Things only got better from there! Vancouver was to become my home from July to November, firstly to present my PhD research on the DAMP (or alarmin) extracellular ATP and its receptor P2X7 in neurodegeneration, and secondly to continue my research at the University of British Columbia (UBC).

Three days after I arrived I had the privilege of attending and presenting at the inaugural conference and workshop on Molecular Origins of Protein Misfolding and Neurodegenerative Disease. This conference was held with sweeping views of downtown Vancouver, and covered mechanisms of misfolding, neuroinflammation and neurodegeneration in diseases such as amyotrophic lateral sclerosis (ALS), Alzheimer's disease and Parkinson's disease. I was lucky enough to hear presentations by a number of inspiring researchers, including Chris Dobson, Joseph Beckman, Danny Hatters, Neil Cashman and Ted Allison. With only 35 speakers, the majority of whom were principle investigators, I was particularly honored to be given the opportunity to present my research to this audience. Furthermore, with an emphasis on group discussions, this workshop gave me the opportunity to get to know a number of leading researchers in the field, all working toward the common goal of understanding how proteins misfold and neurodegeneration proceeds. Together with organized extracurricular activities, including dinners, hikes, bike rides and fireworks, these discussions resulted in me receiving some great feedback on my work and making a number of connections which may potentially lead to postdoctoral opportunities.

Following the conference I moved into a basement apartment to begin four months of work in the laboratory of Dr Neil Cashman, a clinical neurologist and neuroscientist based at the Brain Research Centre at UBC. Dr Cashman's laboratory is largely focused on investigating the role of propagated misfolding of proteins in ALS and Alzheimer's disease, and the development of therapeutics capable of blocking these processes. During my time there, I made use of systems developed in this laboratory to investigate the possible role of the DAMP receptor P2X7 in propagating misfolding of ALS-linked superoxide dismutase 1. This research is now well underway, and I will be taking back what I've learnt to establish these techniques in my home laboratory at the Illawarra Health and Medical Research Institute (University of Wollongong) and continue this line of investigation.

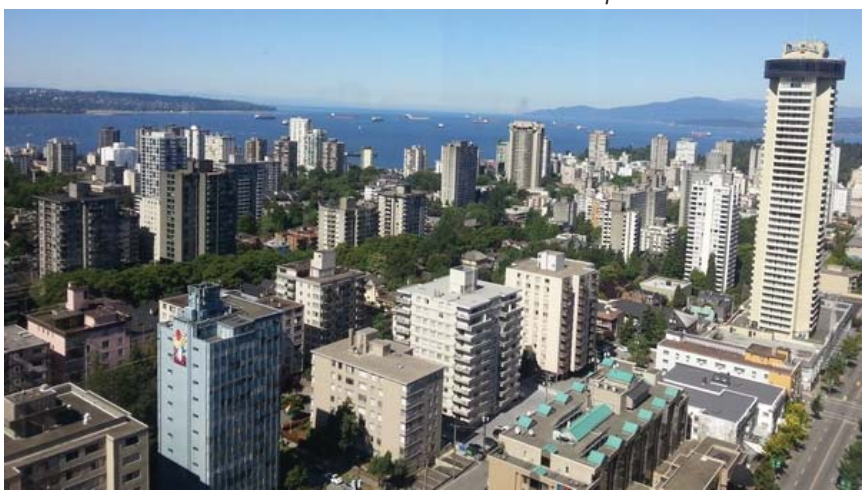


Rachael working in the lab at UBC

New techniques are not the only thing I will return home with. In addition, I received some great input on my work, fresh ideas and renewed motivation from my peers. Also, I discovered a new-found love of coffee, that my Australian vocabulary was at times akin to another language, and that the average Canadian does not find squirrels as captivating as I do (together with my coffee-induced hyperactivity earning me the nickname Squirrel). I found myself falling in love with the city of Vancouver which, unlike my Australian hometown of Wollongong, has such distinct seasons. I experienced the summer, where the city seemed to come alive with people and events, and the aptly named fall, where the leaves went from green to vibrant hues of red, orange and yellow. This was followed by weeks of rain which, if I believe the locals, will continue to fall on and off (but mainly on) for the next six months or so!

I would like to sincerely thank my host Dr Cashman and the ASI for funding, which helped to make this amazing adventure possible. I will return home with fantastic memories, extra skills, fresh ideas, new friends and collaborators, and possible post-doctoral openings. I would encourage any and all fellow PhD students to seek out any opportunity to work in a laboratory overseas – it is rewarding and inspiring, both personally and professionally.

Below: View of downtown Vancouver



Keystone Symposia: Cell Death Signaling in Cancer and the Immune System

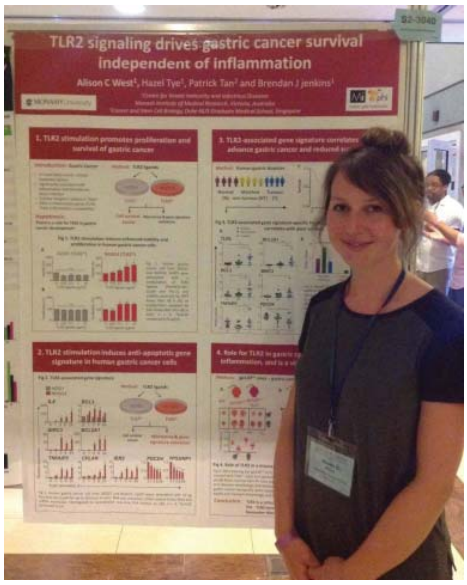
28 October – 2 November, 2014, São Paulo, Brazil

Alison West

MIMR-PHI Institute of Medical Research, Victoria

In October 2014 I had the enormous privilege of traveling to São Paulo, Brazil to attend the Keystone Symposia: Cell Death Signaling in Cancer and the Immune System, thanks to the ASI International Travel Award. As is the case for all Keystones, the location was spectacular and the science even more so!

The conference was held at the Casa Grande Hotel, a 5-star resort in the beachside suburb of Guarujá. The view from the conference centre was a beautiful 6km long white beach, complete with coconut trees, beach vendors selling coconuts and ice cream and umbrellas as far as the eye could see. The beach was packed everyday, but considering the greater São Paulo region is home to almost as many people as in all of Australia, it wasn't so busy! The weather was perfect which helped the very global conference delegates get over their jetlag quickly, and also facilitated great pool-side networking – it was common to see impromptu meetings held on deck chairs with a laptop in one hand and a cocktail in the other. During the conference we had the chance to experience Brazilian hospitality with a boat tour of the huge harbor and a trip to a fascinating fortress overlooking the ocean. There were also a few caipirinha's (the national drink of Brazil) enjoyed on the last night along with a live samba band!



The data presented at the meeting was cutting edge and inspiring. The majority of data was unpublished, and it was refreshing to see so many groups around the world challenging the dogma of traditional cell death signaling pathways. It became apparent that there were no rules for the process of cell death, and that each cell was wired to respond in highly selective ways to each stimulus. The quality of the data was so high that the counterintuitive, non-canonical signaling pathways previously hypothesised suddenly became a real phenomena with physiological relevance. I also learnt a lot about the different types of cell death – apoptosis, necroptosis, necrosis, pyroptosis and autophagy, and it was fascinating to hear the arguments about whether or not these modes of death truly existed, and if so, did they really matter? Australia's own Andreas Strasser and David Huang were amongst the heavy-hitting presenters which included Doug Green, Vishva Dixit, Scott Lowe, David Andrews, Thirumala-Devi Kanneganti, Seamus Martin and Shigekazu Nagata to name a few.

Overall it was a fantastic, 'boutique' conference with a small number of delegates. The poster sessions were lively and many collaborations were formed during the course of the meeting. I would like to thank ASI for the opportunity to present my work at this conference and I look forward to the next update on this field!

Contributions sought for the ASI Newsletter

You could win $200 !!

Deadline for the next issue: 1st February 2015

Please email your contributions to the Secretariat by the above date.
asi@21century.com.au

FIMSA2015

"Frontiers in Immune Modulation"

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.

6th Congress of the FIMSA
(Federation of Immunological Societies of Asia Oceania)

30 June - 3 July 2015
Sands Expo and Convention Centre, Singapore

Keynote Speaker:

Tasuku HONJO, Japan

Confirmed Speakers:

Gabrielle BELZ, Australia
Su BING, China
Xuetao CAO, China
Shubhada CHIPLUNKAR, India
Gennaro DE LIBERO, Singapore
Sidonia FAGARASAN, Japan
Nick GASCOIGNE, Singapore
Florent GINHOUX, Singapore
William (Bill) HEATH, Australia
Stefan KAUFMANN, Germany
Bernard MALISSEN, France
Diane MATHIS, United Kingdom
James McCLUSKEY, Australia
Caetano REIS e SOUSA, United Kingdom
Koyasu SHIGEO, Japan
Charles D SURH, South Korea
Zhigang TIAN, China
Carola VINUESA, Australia

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For more information, please visit
www.sgsi.org.sg or email to enquiry@sgsi.org.sg

Publications List

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

Anyaegbu CC, Lake RA, Heel K, Robinson BW, Fisher SA. **Chemotherapy enhances cross-presentation of nuclear tumor antigens**. *PloS one* 2014; **9**(9)**:** e107894.

Bartlett R, Stokes L, Sluyter R. **The P2X7 receptor channel: recent developments and the use of P2X7 antagonists in models of disease**. *Pharmacological reviews* 2014; **66**(3)**:** 638.

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Bhattacharyya T, Ayandeh A, Falconar AK, Sundar S, El-Safi S, Gripenberg MA, Bowes DE, Thunissen C, Singh OP, Kumar R *et al.* **IgG1 as a Potential Biomarker of Post-chemotherapeutic Relapse in Visceral Leishmaniasis, and Adaptation to a Rapid Diagnostic Test**. *PLoS neglected tropical diseases* 2014; **8**(10)**:** e3273.

Brennan RM, Burrows JM, Elliott T, Neller MA, Gras S, Rossjohn J, Miles JJ, Burrows SR. **Missense single nucleotide polymorphisms in the human T cell receptor loci control variable gene usage in the T cell repertoire**. *British journal of haematology* 2014; **166**(1)**:** 148.

Bunting MD, Comerford I, Kara EE, Korner H, McColl SR. **CCR6 supports migration and differentiation of a subset of DN1 early thymocyte progenitors but is not required for thymic nTreg development**. *Immunology and cell biology* 2014; **92**(6)**:** 489.

Cantacessi C, Giacomin P, Croese J, Zakrzewski M, Sotillo J, McCann L, Nolan MJ, Mitreva M, Krause L, Loukas A. **Impact of experimental hookworm infection on the human gut microbiota**. *The Journal of infectious diseases* 2014; **210**(9)**:** 1431.

Carter SA, Kitching AR, Johnstone LM. **Four pediatric patients with autosomal recessive polycystic kidney disease developed new-onset diabetes after renal transplantation**. *Pediatric transplantation* 2014; **18**(7)**:** 698.

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