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Providing Health Benefits Using DNA Vaccines

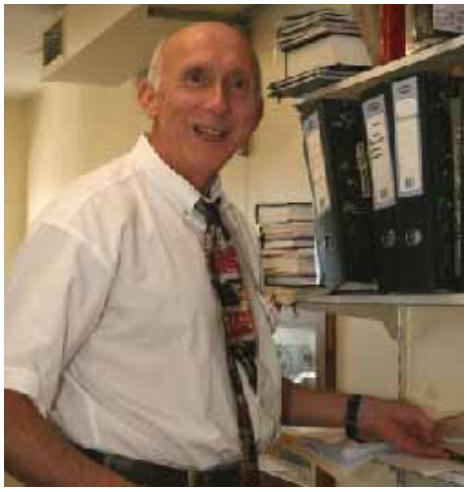
Oscar Haigh

Sir Albert Sakzewski Virus Research Centre (SASVRC),
Clinical Medical Virology Centre, University of Queensland,
and Royal Children's Hospital, Herston, Brisbane, Australia

Overview

Immunising people with disease-preventing vaccines is the second most effective intervention for preserving good health. Most vaccines currently in use principally rely on the elicitation of antibody-mediated immune responses to neutralise pathogens before they infect host cells. However, it is unlikely that such vaccines provide full sterilising immunity, especially against viruses, as it is extremely difficult to prevent some virions infecting host cells. To prevent disease caused by viruses, such as respiratory syncytial virus (RSV), human papillomavirus (HPV) and HIV, the generation of antigen-specific cytotoxic T-lymphocyte (CTL) responses is required to kill virus-infected cells. Similarly, cancer cells which present unique proteins that can be targeted by the immune system, i.e. immunogenic tumours are also likely to require such CTL responses.

The principal goal of the Viral Immunology Unit (VIU), headed by Professor Robert Tindle, is to devise immunisation strategies for various viral diseases and cancers, for which there is currently no vaccine or practical therapy available. DNA vaccines elicit immune responses frequently superior to those induced by conventional vaccines. Clinical trials have demonstrated immunogenicity and powerful immunostimulation by DNA vaccines, which refute the dogma that DNA vaccines are weak immunogens and limited stimulators of immune responses. The use of modern DNA vaccine delivery techniques provides simple methods to effectively deliver DNA to the appropriate tissue to stimulate immune responses. Plasmid DNA



Bob Tindle

is cheap to produce and purify on a large scale, and with current genetic engineering techniques highly complex, or simple and effective DNA elements can be produced. Upon immunisation, host cells take up the DNA plasmids and the encoded immunogens are subsequently expressed endogenously. These proteins are processed to produce immunogenic epitopes that are presented through the major histocompatibility complex class I (MHC-I) pathway or cross presented on class II molecules. DNA vaccines are highly stable and do not result in inhibitory vector-directed immune responses that are a problem using viral vector strategies. DNA vaccines can be exploited to express virus-like particle (VLP)-forming immunogens, which are amenable to secretion from cells to elicit antibody-mediated immune responses, or responses to exogenous antigen. We have learnt much about the constraints and requirements involved in particle formation from our studies.

In contrast, the inclusion of localisation signals that target immunogens to the proteasome can generate Th-1-type CTL responses, thus enhancing immunogenicity. Hepatitis B surface antigen (HBsAg) spontaneously self assembles with host lipid after translation, a process critical for VLP formation. HBsAg is highly immunogenic as a VLP vaccine, and when delivered as a DNA vaccine powerful CTL responses are generated. When HBsAg-based DNA vaccines are

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ASI Inc. COUNCIL

President
Dr David Tarlinton
Walter & Eliza Hall Institute of Medical Research
1G Royal Parade, Parkville Vic 3050
Ph: 61 3 9345 2615
Email: tarlinton@wehi.edu.au

Past President
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Kensington NSW 2052
Ph: 61 2 9385 2762
Email: m.davenport@unsw.edu.au

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Ph: 61 3 9345 2609
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Ph: 61 2 9295 8429
Email: P.silveira@garvan.org.au

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Dr Stuart Tangye
Ph: 61 2 9295 8455
Email: s.tangye@garvan.org.au

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Ph: 61 3 8344 5706
Email: berzins@unimelb.edu.au

Queensland
Dr Ashraful Haque
Ph: 61 7 3362 0414
Email: ashraful.haque@qimr.edu.au

South Australia & Northern Territory
Dr Michele Grimbaldeston
Ph: 61 8 8222 3083
Email: michele.grimbaldeston@health.sa.gov.au

Western Australia
Dr Alec Redwood
Ph: 61 8 9346 2512
Email: aredwood@cyllene.uwa.edu.au

Australian Capital Territory
Dr Stephen Daley
Ph: 61 2 6125 7605
Email: stephen.daley@anu.edu.au

New Zealand
Dr Anne LaFlamme
Ph: 64 4 463 6093
Email: anne.laflamme@vuw.ac.nz

FIMSA Councillor
Dr Guna Karupiah
Ph: 61 2 6125 4562
Email: guna.karupiah@anu.edu.au

Contact for Tasmania
Dr Greg Woods
Tel: 61 3 6226 4830
Email: g.m.woods@utas.edu.au

Non-Voting Councillors:

Newsletter Editor
Dr Simon Apte
Ph: 61 7 3362 0380
Email: Simon.Apte@qimr.edu.au

Journal Editor
Dr Gabrielle Belz
Ph: 61 3 9345 2544 Fax: 61 3 9347 0852
Email: belz@wehi.edu.au

Visiting Speakers Co-ordinator
A/Prof J. Alejandro Lopez
Queensland Institute of Medical Research
CBCRC/I, Post Office
Royal Brisbane Hospital Qld 4029
Ph: 61 7 3845 3794 Fax: 61 7 3845 3510
Email: Email: alejL@qimr.edu.au

Council Member of IUIS
Dr Franca Ronchese
Ph: 64 4 499 6914 ext 828
Email: fronchese@malaghan.org.nz

Honorary Archivist & Webmaster:
Dr Judith Greer
Ph: 61 7 3346 6018
Email: j.greer@uq.edu.au

Administrative Correspondence
Ms Judi Anderson
ASI Inc. Secretariat
PO Box 7108
Upper Ferntree Gully Vic 3156
Ph: 61 3 9756 0128 Fax: 61 3 9753 6372
Email: asi@21century.com.au

ASI Student Representatives
Ms Kate Parham
Ph: 61 8 8222 3727
Email: kate.parham@imvs.sa.gov.au
Ms Wai-Yan (Kiwi) Sun
Ph: 61 8 8222 3852
Email: waiyan.sun@imvs.sa.gov.au

Website

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

- Downloadable forms for ASI awards,
- Positions vacant pages,
- Jobs wanted pages,
- Upcoming conferences listings,

as well as a plethora of links to sites of immunological interest at home and abroad. If you'd like your lab home pages linked to the site, would like to advertise a job or conference, or have a favourite immunology-related site that doesn't currently appear on the ASI site, please email Judy Greer at j.greer@uq.edu.au

Email bulletin board

To subscribe to the ASI bulletin board, send an email to majordomo@explode.unsw.edu.au with the message: subscribe anz-imm.

EDITORIAL

It's been an unusual three months for medical researchers in Australia. Who would have imagined that the fleeting euphoria that exists after grant submission would be cut short by the news of a predicted reduction of 20% to the NHMRC budget? While the rationale behind the leaking of this information seems to have been a way of gauging public opinion, the magnitude of the public response and outrage was surprising indeed. Even more surprising was the announcement on Budget night that there would actually be a 4.3% increase in the NHMRC budget (as well as an increase in the ARC budget). There doesn't seem to be any doubt that this turnaround was due to the very well organised social media campaigns and good old fashioned public demonstrations. So here we may have the opportunity to learn an important lesson: if we are organised and we are vocal, people will listen. I'm sure we knew that already, we are trained observers after all, but actually getting away from the bench or desk and doing something about it is something novel for many of us. No doubt the thousands of researchers who took to the streets in their labcoats had an impact, but the truly inspiring demonstrators were the survivors who clearly and succinctly put forward the case of why medical research should be supported and cherished.

One such survivor in Brisbane was Danielle Tindle. Danielle, a Hodgkin's Lymphoma survivor, is the daughter of ASI member Professor Robert Tindle, and the story of how Prof. Tindle's cutting edge research on stem cells led to the treatment that saved Danielle's life is an inspiration at many levels *(see Australian Story, http://www.abc.net.au/austory/content/2005/s1355603.htm)*. Prof. Tindle has had an interesting career and our lead article this edition by Oscar Haigh details some of the work of the last few years within the Viral Immunology Unit at the Sir Albert Sakzewski Virus Research Centre, both of which are headed by Prof. Tindle.

We are also very pleased to publish in this issue a comprehensive history of the ASI by Honorary Life Member, Keven J. Turner. Keven has spent a great deal of time and effort carefully recording the events that have shaped our Society and I warmly congratulate him on his efforts. I was very surprised to learn from his history that next year will be the 50th anniversary of the genesis of ASI and the annual meeting. We have certainly come a long way, with our membership now around one thousand, and our Society continues to support its members and run very successful conferences while maintaining a balance sheet many businesses would be envious of. This, of course, is due to the enormous amount of work put into the Society behind the scenes by the members and, in particular, the Executive. This year two very important Executive positions will be coming up for election (Vice President and Honorary Secretary) as well as a number of Council positions. Our Secretary (Susanne Heinzel) has written an informative article for this edition that describes the work of the Council which I encourage you to read and to then consider how you may participate.

It was very sad to learn of the untimely death of Prof. Jürg Tschopp who had a long and close relationship with many Australian immunologists. Jürg's work on the inflammasome and subsequent findings and translation of work on IL-1β was an inspiration to all who became familiar with the work. An obituary by his friends and colleagues Andreas Strasser and Fabienne Mackay is printed in this edition.

Elsewhere in this edition you will find items highlighting the work of Stacey Walters and Bernice Tan who won the New Investigator Award and Poster Prize, respectively, at last year's ASI conference in Perth. It has been refreshing to read the concise and interesting descriptions by Stacey and Bernice, and also the articles by the other ASI prize winners that were published in the last edition. I encourage all students and supervisors to consider submitting similar pieces to the Newsletter; it is a great way to get exposure and you could even win $200!

Stacey Walters & Bernice Tan

Special congratulations must go to high profile ASI member Professor Ian Frazer who was recently elected as a Fellow of the Royal Society. This is a great recognition of Ian's contribution to Science and Public Health and we can all be proud of his achievement and appreciative of his continuing support for ASI.

Other features in this edition include reports on Day of Immunology activities and Travel Awards, and our continuing list of publications by ASI members for the preceding three months. Thank you to everyone who submitted their publications in the requested PMID format (which was amazingly 100%!). Please encourage any ASI members that you are aware of who have not submitted their publications to do so as we are hoping that this will become an important measure of ASI's collective impact. Which brings me nicely back to the start of this editorial; if by our collective action this year we were able to encourage the Government to go from a 20% reduction to a 4% increase in the NHMRC budget, then next year, is an increase of 24% not possible?

Simon Apte

Providing health benefits using DNA vaccines, cont.

modified to contain 'foreign' amino acid sequences from other pathogens or tumours, appended to HBsAg, the powerful immunogenicity of HBsAg can be harnessed to provide 'chimeric' DNA vaccines for a range of different diseases. In our lab we have demonstrated the effectiveness of this strategy, as we have demonstrated that fusion to HBsAg can enhance CTL responses to multiple antigens. CTL responses to epitopes of multiple pathogens can be elicited from a single HBsAg-based DNA vaccine simultaneously. Several approaches can been employed to generate HBsAg-based fusion immunogens: Individual epitopes, or groups of epitopes ('polyepitope'), may be inserted within the HBsAg molecule itself, either in the transmembrane or luminal regions, or in the external 'a'-determinant. Alternatively, epitopes/polyepitopes, fragments of proteins, or whole protein, may be appended as extensions to the N'- or C'- termini, or both, of the HBsAg molecule. Protein expression can be maximized from DNA vaccine by using eukaryotic codon optimisation of antigens in design of recombinant HBsAg DNA constructs.

Delivery of foreign antigens by HBsAg-vectored DNA vaccines

Many diseases and cancer are preventable by eliciting the appropriate immune response. A focus of our group's research involves the use of hepatitis B surface antigen (HBsAg) as a vaccine vector to deliver disease-specific epitopes or antigens, an idea originating in conjunction with Dr Hans Netter, now at Monash University. The concept was demonstrated to be effective in 2006, by Yvonne Woo. In her paper she demonstrated that a CTL response could be elicited to either an RSV or HPV epitope inserted into HBsAg to replace a native CTL epitope. This vaccine was effective at preventing RSV-associated lung pathology in a mouse model for RSV infection, as well as providing protection against tumour growth after tumour challenge with TC-1, a HPV-associated murine tumour cell line. These modifications to HBsAg did not abrogate its secretion from transfected cells.

Since then a number of scientists have been involved in this project, which has spanned a number of years. This project has focused on eliciting MHC-I-restricted CTL responses to protective epitopes of a number of diseases simultaneously. Through exhaustive studies, constraints on VLP formation were identified by the strategy of deleting native HBsAg epitopes and replacement with foreign epitopes, and this process in some cases did abrogate VLP formation. However, the lack of VLPs did not inhibit CTL responses to encoded epitopes especially when delivered as a DNA vaccine. In fact, a more recent 2009 publication from our lab demonstrated that appending a polyepitope to HBsAg can enhance CTL responses to epitopes within the polyepitope. This polyepitope contained CTL epitopes of a number of different diseases including: HPV, RSV, Influenza A (flu), human metapneumovirus (hMPV) and Epstein-Barr virus (EBV)), and pre-existing antibody responses in mice did not inhibit the CTL responses to a number of epitopes that were tested. CTL responses were elicited to all epitopes simultaneously, even in the presence of the powerful SIINFEKL epitope of ovalbumin.

This study used A2.1K^b mice, which express a transgene encoding alpha-1 and alpha-2 domains of HLA-A*0201 fused to the alpha-3 domain of H-2K^b. The CTL response to SIINFEKL delayed the growth of B16.OVA tumours in mice and murine epitopes afforded protection against TC-1 tumour challenge and inhibited RSV replication in the lungs of mice after viral challenge. These epitopes could be appended to the termini of HBsAg as a polyepitope, or inserted into HBsAg to replace native CTL epitopes.

This study has demonstrated that when using DNA vaccine delivery, HBsAg is a powerful vaccine vector which promotes CTL responses to epitopes of multiple pathogens simultaneously.

HBsAg-based vaccines for human neoplastic disease

HBsAg is an attractive vaccine vector for delivery of disease-related foreign epitopes. The capacity to elicit CTL responses compares favourably when rHBsAg vaccines are delivered by DNA – rather than virus like particle (VLP)-modalities. Human papillomavirus (HPV)-associated carcinoma is the second most frequent cancer causing death in women worldwide. A major feature of the HPV lifecycle is the immortalisation of the squamous epithelium and neoplastic growth, a result of HPV E6 and E7 oncogene expression. E6 and E7 oncoproteins are essential to maintain a transformed cell phenotype and are present in all stages of cervical intra-epithelial neoplasia (CIN), which make them ideal targets for immunotherapeutic therapy. Using splice overlap extension (SOE)-PCR the HPV-16 E6 and E7 oncogenes were fused to HBsAg (E7HBE6), which were mutated to eliminate oncogenicity. This immunogen delivered as a DNA vaccine prevented the growth of HPV-16-associated TC-1 tumours in all mice.

When the DNA vaccine was used as a therapeutic agent, a significant increase in survival and decreased tumour volume were demonstrated. In a TC-1 tumour metastasis model, where mice were inoculated with TC-1 intravenously, therapy was highly effective. Mice immunised with HBsAg-HPV DNA vaccines remained 100% tumour free compared to mice immunised with HBsAg DNA, of which 80% displayed lung tumours.

The results of this study have generic implications for the design and administration of DNA vaccines encoding chimeric antigens. The specific implications from this study include the design of HBsAg-based DNA vaccines delivering HPV antigens for protection against, and as a therapy for, HPV-associated squamous carcinomas. An effective therapeutic vaccine designed to treat HPV-associated cancers has the potential to dramatically reduce the burden of cervical carcinoma and its associated death rate.

Characterising immunoregulatory costimulatory ligands together with HBsAg

In 2003 two papers from VIU demonstrated that coexpression of HPV E7 and costimulatory molecules 4-1BB or receptor activator of NF-kappaB (RANK)/receptor activator of NF-kappaB ligand (RANKL), by dendritic cells (DC) specifically, enhanced CTL responses to E7. Enhanced CTL responses correlated with upregulated CD80/86 and MHC-II by DC. However, coexpression of CD40/CD40L did not enhance CTL responses. When plasmids expressing the costimulatory molecules were codelivered with E7-expressing plasmid, as opposed to coexpression from one plasmid, the adjuvant effects were eliminated. These studies have specific implications for the improvement of tumour-antigen-expressing DC vaccines.

A recently initiated follow-on study has been exploring novel design approaches for the delivery of costimulatory molecules along with foreign viral or cancer antigens, using HBsAg-VLP as a delivery platform. These molecules include CD70, 4-1BBL, RANKL, CD40L and GITRL. Combination of CD70 and HBsAg could almost double the number of antigen-specific CTL induced by immunisation.

These results have the potential to simplify (eliminate the need for boost immunisations) and/or enhance (increase efficacy) of existing Hepatitis B vaccine. Further research is required to develop to develop next generation HBsAg-based vaccines for a range of human infections and cancer.

Mechanisms of disease caused by human metapneumovirus and protection using a novel polyepitope vaccine

Human metapneumovirus (hMPV) is a newly discovered virus and is a significant respiratory pathogen. hMPV is identified from respiratory specimens of children suffering from clinical respiratory tract illness, and may exacerbate wheezing and asthma in young children. There is a body of evidence that suggests that coinfection of hMPV with RSV (a closely related virus) can result in more severe long-term sequelae than RSV infection alone. hMPV infection causes health problems in the elderly and in immunocompromised individuals, but is more significant in young children.

A murine model for natural hMPV infection was developed in the VIU to better understand cell-mediated immunity elicited by hMPV infection. hMPV-specific interferon-γ-secreting $CD8^+$ CTL responses were identified in the lungs and airways of mice and results from this study provided a rationale for immuno-intervention, as these responses may play a role in self-limiting infections. Epitopes were identified and when used as peptide vaccines, these epitopes generated effector and memory CTL responses that were associated with protection against infection. This study also included the identification of hMPV MHC-I-restricted CTL epitopes from previously infected human patients for use in vaccines. Nine of these epitopes were identified from patients with the most common MHC HLA super types and are conserved across all strains of hMPV. Interestingly there appears to be epitope similarities between these epitopes and those of RSV, making the idea of a vaccine targeting hMPV and RSV at the same time a possibility.

This study has shed light on the role of CTL in the lungs during self-limiting hMPV infection and provides a foundation for the development of an hMPV vaccine to elicit CTL responses. This study has resulted in the identification of novel human and murine CTL epitopes, the murine CTL epitopes of which can provide protection against infection in a murine model of infection. This study suggested that a vaccine eliciting CTL responses that target both hMPV and RSV antigens may be viable and could provide great health benefit in the elderly, immunocompromised and young children.

The work described herein is mostly from the last few years of which I was privy to. Professor Tindle's scientific career has been rather comprehensive and originated in zoology. Professor Tindle arrived at SASVRC as deputy director in August of 1996 from the then-called Centre for Immunology and Cancer Research (CICR) as a Lions Kidney and Medical Research Fellow, where he studied human papillomavirus immunobiology with Professor Ian Frazer. Prof. Tindle formed VIU on his arrival at SASVRC and in the many years before my arrival has published a number of articles in relation to peripheral tolerance generated by HPV tumour-associated antigen E7, and novel ways of eliciting CTL-mediated immunity to HPV tumour antigens. Prof. Tindle became the acting director of SASVRC in 2002 then was appointed Director in 2004. Bob has served SASVRC for 14 years and is now in the process of retiring.

During my time at VIU there have been many conscientious scientists who contributed to the research that I shall acknowledge: Karen Herd, Dr Yvonne Woo, Dr Michael Mather, Huayang Guo, Dr Kristy Edgtton, Dr Dekun Chen, Wen Jun Liu, Jason Cheong, Dr Melanie Barnes, Dr Scott Thomson and Bob at the helm. I should also acknowledge the Sir Albert Sakzewski Virus Research Centre, the home of VIU, which receives core funding from Queensland Health and philanthropic donations from the Sir Albert Sakzewski Foundation. SASVRC, and especially VIU, was a pleasant, productive and friendly atmosphere to work in, and I enjoyed my time there working with many great scientists including Bob.

ICB Online Manuscript Submission

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http://mc.manuscriptcentral.com/icb

All manuscript submissions to ICB should in future be made online via this web site to speed up the reviewing and acceptance of manuscripts.

Gabrielle Belz, Editor-in-Chief
Immunology and Cell Biology

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ASI Inc acknowledges the support of the following sustaining member:

• Jomar Bioscience

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!**

History of the Australasian Society for Immunology Inc.

Keven Turner

Dear Reader,

During a phone conversation I had with Keven Turner some time ago, the topic came up whether the history of ASI from its beginnings to where it is now had ever been documented and made available to our members. It soon became clear that, although people had documented certain elements or events, a complete history did not exist. So the idea of the 'History of ASI' was born.

Keven has spent the best part of the past two years collecting information, tracing documents that were almost impossible to find, talking to the people who 'were there when it happened', trying to extract as much information as possible about events that in some cases happened nearly 50 years ago. The product of his great efforts and persistence is published in the article below. An online version complete with the attachments as referred to in his document is also available from the ASI website.

I'd like to take this opportunity to express our deep thanks to Keven for taking on this task, which in many ways seemed to turn out to be much more cumbersome than I'm certain he would have ever anticipated at the beginning.

I hope you'll enjoy reading about the history of the Society!

Susanne Heinzel
Hon Secretary

Former ASI President, Phil Hodgkin (left) with Keven Turner (Photo: Alan Baxter)

Forward

In December 1991, to celebrate the 21st anniversary meeting of the Australian Society for Immunology Inc in Perth, the December issue of *Immunology and Cell Biology*, Volume 69, contained several articles describing the history of the Society and of immunology in Australia. These articles and their authors appear below.

- The early history of the Australian Society for Immunology. Derrick Rowley, pp. 307–308
- Australian Society for Immunology: the 1970s. Keven Turner, pp. 309–312
- Some highs of cellular immunology in the late 1960s, early 1970s: personal reflection Graham Mitchell, pp. 313–315
- Australian Society for Immunology in the 1980s. Christina Cheers, pp. 317–321
- The Australian Society for Immunology in the 1990s and beyond. Geoffrey Shellam, pp. 323–325

This publication builds on and enlarges the substance of these excellent articles, covering the period from inception to the conclusion of 2010.

Introduction

Two significant events, which were fundamental to the creation of the Australasian (formerly Australian) Society for Immunology, occurred in the late 1950s. These were the momentous decision by Sir Macfarlane Burnet in 1957 to change the research emphasis of the Walter and Eliza Hall Institute (WEHI) from virology to immunology and the appointment in 1959 of Derrick Rowley to the Chair of Microbiology at the Adelaide University. The immunological community in Australia owes a great debt of gratitude to these two scientists.

Macfarlane Burnet's action provided the environment for the development of outstanding immunologists such as Sir Mac himself, Australia's first Nobel Laureate in immunology, Gus Nossal, Don Metcalf, Jacques Miller, Alex Szenberg, Noel Warner, Ian Mackay and many others. Through their efforts, the WEHI established a reputation as the foremost centre for immunological research in Australia and one of the most outstanding on the world's stage – a position it still holds today.

With the upgrading of Microbiology in Adelaide University from a section of the Pathology Department to a full department, Derrick Rowley, an immunologist working in the Wright–Fleming Institute, London, was appointed inaugural Professor. Derrick arrived in Adelaide in January 1960 and Charles Jenkin followed towards the end of that year. At that time they were the only immunologists in Adelaide but over the intervening years, several other Research Fellows, post-graduate and graduate students

joined to make the Department one of the premier centres of immunology in the country.

Apart from these two major players, three other small groups of immunologists existed in the early 1960s: one directed by Frank Fenner at the John Curtin School of Medical Research in Canberra which included Stephen Boyden and Bede Morris, one directed by Neville Stanley in Perth and the other directed by Bill Halliday in Queensland.

The Early Years

In November 1962, Derrick Rowley invited the key immunologists from each of these four centres to Adelaide for a scientific meeting which, in reality, was the birth of the ASI. The meeting was attended by Sir Macfarlane Burnet, Gus Nossal, Gordon Ada and Alex Szenberg from Melbourne, John Dineen from Sydney, Stephen Boyden from Canberra, Neville Stanley from Perth and Milton Salton, Geoff Cooper, Otto Westphal (visiting Adelaide from Germany), Charles Jenkin, Keven Turner, Peter Reeves and PhD students from Adelaide.

Since the meeting was so successful, the decision was made to hold similar meetings annually, with the next meeting to be held in Melbourne, hosted by the WEHI group. David Nelson from Sydney and Ritchie Nairn from Melbourne joined the foundation members at this second meeting and, soon after, the decision was taken that anyone with an interest in immunology was entitled to attend. Informality was the keynote of the organization at this stage as it had no formal rules, no constitution and no membership fees. The only administrative matter that required consideration was the updating of a list of those who might be interested in attending future meetings. This informality was, however, an unlikely scenario for the future as even by the time of the third meeting convened in Canberra by Kevin Lafferty on 3 and 4 December 1964, the group had been styled the 'Australian Society of Immunologists' (ASI) and a 'Presidential Address' was delivered by Macfarlane Burnet.

From 1964 to 1969 the venue for these annual meetings rotated between Adelaide, Melbourne, Canberra and Sydney, with the local members accepting full responsibility for all aspects of the organization. Ian Mackay recalls that "these early informal meetings in the 1960s were not lacking in excitement. Particularly memorable were the stoushes between the John Curtin School of Medical Research at ANU and the Hall Institute on the significance of the thymus for early lymphopoiesis, and the B and T cell dichotomy, including Bede Morris's famous B…..T wordplay, tactfully referred to by Derrick as 'stimulating and hilarious' and as 'robust debate' ". The thymus has become an obsession with the more vigorous young members of the ASI who have made an award of a thymus (which in reality is a Bursa of Fabricius), encased in a rather prominent structure, to the presenter of the most hilarious poem at the annual dinners of the scientific conferences. Little has changed over the past 50 years!

In December 1969 a symposium on 'Aspects of Antibody Formation and Unresponsiveness' was held in Melbourne under the name 'The Australian Society of Immunologists'.

Perth became accepted as an additional venue, with its inaugural meeting being held in December 1970. During this meeting Neville Stanley, the Chairman of the Organising Committee, acting on information provided by Gus Nossal, spoke about the necessity for the Society to adopt a formal constitution. Seated in the tropical grove adjacent to Winthrop Hall with the song of kookaburras and parrots in the background, those present considered the two compelling arguments for this: (a) that it was necessary to fulfil the requirements for membership in the newly created International Union of Immunological Societies (IUIS) and (b) that it would assist in the process of obtaining subsidies and reduced airfares for members wishing to attend the first International Congress of Immunology to be held in Washington in August 1971. The motion to adopt a constitution, moved by Gus Nossal and seconded by Gordon Ada, was passed unanimously. The Organising Committee for the 1970 meeting in Perth, Neville Stanley, Michael Alpers and Keven Turner, was charged with the responsibility of drafting the first constitution, which was ratified by the remaining members of the Constitution Committee in time to meet the deadline of the end of March 1971 for submission to the IUIS. This constitution was further ratified by all members attending the annual meeting of the Society held in Melbourne in December 1971, which in reality became the first annual meeting of the properly constituted Australian Society for Immunology.

The changes incorporated in 1988 followed the Society becoming an incorporated body which allowed it to act as a body duly recognized in law, giving legal protection to Council and the membership of ASI. It also formalized the procedure for electing members, giving due status to membership of the ASI as well as defining the terms of office of councillors. This extensively modified constitution was unanimously accepted at the AGM held in February 1988. It provided for a Council comprising the President, Vice President or Immediate Past President, Honorary Secretary, Treasurer and representatives of all the States and Territories of Australia. It also gave the flexibility to affiliate with other societies with related interests, and created several categories of membership such as ordinary, honorary, sustaining, student and associate. There were more amendments in 1994, 2009 and 2010. The latest version of the ASI constitution is available from the ASI website (www.immunology.org.au).

Amalgamation with the New Zealand Society for Immunology

A significant event in the history of ASI was the amalgamation in 1991 of the Australian Society for Immunology with its New Zealand counterpart, the New Zealand Society for Immunology, to form the Australasian Society for Immunology.

In the mid-1960s, immunology was just beginning to be recognized in New Zealand as a separate research area or discipline but there were no structural meetings in New Zealand to provide a forum where they could speak to each other, except as a group within the Microbiology Society.

At that time, the Veterinary School was established in Massey University and there was much enlargement of academic institutions. In 1968 the School of Medicine was established in Auckland. In addition, there were major developments in biological research with the emergence of cell biology and molecular biology. It was the appropriate time to set up in New Zealand an immunology group or society to the benefit of all these parties with

similar or overlapping interests.

In 1973, John Marbrook and Doug Wilson with the help of Warren Jonas (Wallaceville, Upper Hutt) and Barbara Heslop (Dunedin) decided to organize an Immunology meeting in Auckland. This was supported readily by the Medical Research Council (now HRC) who provided a grant towards the cost of the meeting which they termed 'An Interdisciplinary Symposium on Immunological Topics'. This title was broad enough to include as many people as possible. The contributions of Ken Shortman and Al Cunningham from WEHI and Canberra respectively added much weight to the meeting and their participation was a forerunner of more extensive future collaboration.

The procedure for setting up the early meetings of the New Zealand Immunology Society (NZSI) entailed simply agreeing which centre should hold the meeting for the following year and choosing the President and organizer from that location. An Australian visitor was generally invited to attend these meetings.

In 1981, Jim Watson returned from the University of California at Irvine to take up the Chair of Microbiology in Auckland. He supported the feeling that it was time to establish joint meetings with the ASI. Consequently, the first combined meeting was held in Queenstown, NZ, in December 1985. This meeting was organized by Barbara Heslop, as the President in Dunedin, with the help of a committee consisting of Margaret Baird, Frank Griffen, Bruce Gibbons and Mark Bradley. It was generally accepted that this worked particularly well and consolidated the idea that the two societies should become more closely associated.

This led in early 1991 to the opening of discussions concerning the possibility of the two societies cementing the relationship either in terms of an established affiliation or as an amalgamation. In April 1991, Roger Booth, the President of NZSI, expressed uncertainty in the response of NZ members to amalgamation, particularly as it would require significant constitutional changes to the NZ Society.

In May of that year Geoff Shellam, the President of ASI, in correspondence with Roger Booth, accepted the problem facing the NZ immunologists and pointed out the relative merits of amalgamation re affiliation. These in particular concerned sweeping changes which he wished to make concerning the expansion of the role of State Branches of ASI and to ensure that such Branches should exist in all States and in New Zealand should it become amalgamated. These involved assistance in obtaining visiting speakers, strengthening organizational structures and in financial assistance together with giving the Branches a stronger role in the administration of the ASI. New Zealand would, under amalgamation, enjoy these privileges including the right to host annual scientific meetings of ASI every seven years in rotation with the State Branches. Moreover, affiliated, as opposed to amalgamated, members would not have voting rights and would be required to pay a capitation fee as did members of other affiliated organizations such as ASCIA.

Following this correspondence, Roger Booth advised in June 1991 that there was now almost unanimous support amongst NZ members to proceed with amalgamation. Meetings in July finalized the principles of amalgamation, including changes in the constitution and the name of the society. The ASI Executive insisted, however, that it would only be appropriate to change the name of the Society if the majority of members of the current NZ Society joined ASI. These changes were accepted by postal vote of a 75% majority of members of ASI and ratified at the AGM of the Society held in Perth in December 1991, the new Society being called the Australasian Society for Immunology.

Clearly, amalgamation with our New Zealand colleagues has strengthened the Society and the proposed benefits of the merger have been largely fulfilled.

Administration

During the 1970s the Australian Society for Immunology, notwithstanding its formalization by the creation of a constitution, was still a small affair run largely by voluntary labour. With the increase in membership and affiliation with other professional bodies in the 1980s, the Society appointed Fay Turner to the role of part-time Executive Officer in 1980 and through her dedication and professionalism laid the foundation for the administration which exists today. Eventually, however, the task proved too much for one person working part time and the business of the Society was passed to the Victorian Postgraduate Medical Foundation which acted as Secretariat from 1986 until it downsized in 2000 when the ASI Secretariat was taken over by Judi Anderson Secretarial Services.

The appointment of a secretariat, however, did not remove the need for the annual appointment of office bearers. A list of office bearers together with the venues of the annual scientific meetings and, where known, the Conference Chair can be viewed on the ASI website.

Conscious of the huge distances between Australian capital cities, in the early 1980s Council decided to establish State councillors to function primarily as a point of reference for Council distribution of information particularly relating to Annual Conferences. In 1991, Geoff Shellam, the then President, moved to create State branches of ASI to provide a forum for immunology throughout the year. These branches, which also include New Zealand, operate via a Management Committee comprising a Chairman and other such officers as is deemed necessary. The regional councillor is a member of the Management Committee but not necessarily its Chairman. The task of the Management Committee is to further the aims and objectives of ASI Inc. at the local level by (a) holding regular scientific meetings, (b) providing an organizational structure to facilitate the visit of ASI sponsored speakers, (c) encouraging an increase in membership in ASI by recruiting members locally and (d) co-ordinating all of the activities relating to holding the annual scientific meetings of ASI and the associated AGM when his/her city hosts these events. The move to consolidate the activities of State councillors has been very successful, providing a functional body in each State and in New Zealand to promote awareness of the discipline and form the necessary operating structures. State councillors are full members of Council of ASI Inc. enjoying full voting rights.

Burnet Oration

In recognition of the outstanding contribution of Sir Macfarlane Burnet to immunology, which culminated in the award of the Nobel Prize in 1960, Council created the

annual award of 'Burnet Orator' in 1986. The recipient of this honour, him/herself an outstanding immunologist, was required to present at the Annual General Meeting of the Society a major, general dissertation which related to his or her area of expertise. It was eminently appropriate that Gus Nossal presented the inaugural Burnet Oration at the AGM in Newcastle in 1986.

A list of Burnet Orators and the topics of their presentations is available from the ASI website.

Honorary Life Members

In 1980 Council decided to recognize the outstanding contribution of selected members, over several years, to the Society by creating Honorary Life Memberships. It was eminently appropriate to appoint, in 1981, Derrick Rowley the inaugural Life Member as he had played such an important role in creating the Society.

A list of Honorary Life Members, in the chronological order of their appointment, is available from the ASI website.

The ASI's Journal: *Immunology and Cell Biology;* Chris Parish

Immunology and Cell Biology has a long and illustrious history. It was founded as the *Australian Journal of Experimental Biology and Medical Science* in 1924 by the University of Adelaide. Over the next few decades the 'Adelaide Journal', also affectionately known as "Possum's Pages", became a well-respected international journal. This was due to many of Australia's leading biological and medical researchers at that time contributing manuscripts to the journal. In fact, between 1925 and 1972 Sir Macfarlane Burnet published over 90 papers in the journal.

During the 1970s and early 1980s there were frequent discussions amongst Australian immunologists about the possibility of establishing a new, Australian-based, immunology journal as immunology had become such a strong research discipline in Australia. The establishment during this period of a number of new international immunology journals, such as the *European Journal of Immunology*, the *Scandinavian Journal of Immunology* and *Cellular Immunology*, highlighted this point. In the mid-1980s Ieva Kotlarski, the Deputy Editor of the 'Adelaide Journal', approached the ASI Council with the proposal that the 'Adelaide Journal' change from being a general medical/biology publication to being a journal focusing on immunology and cell biology. It was proposed that the name of the journal be changed to *Immunology and Cell Biology (ICB)*, to reflect this change in content, and that it should become the official journal of the Australasian Society for Immunology. The journal would, however, continue to be owned by the University of Adelaide, with Blackwell Scientific Publications handling the publishing of *ICB*. It was also suggested that ASI should have the right to nominate members of the Editorial Board. The ASI accepted this proposal and even agreed to underwrite any financial losses if they occurred. Thus, the first issue of the new incarnation of the 'Adelaide Journal' was published in February 1987. Ieva Kotlarski became the first Editor-in-Chief of *ICB* and Derrick Rowley, the last Editor of the 'Adelaide Journal', continued as the Deputy Editor.

Despite initial excitement over the establishment of *ICB* and ASI gaining its 'own' scientific journal, submission of papers to *ICB* steadily declined during the next few years. Australasian immunologists were not willing to submit their papers to *ICB* and few immunologists in other countries showed much interest as well.

By 1992, when Chris Parish took over as the Editor-in-Chief, the submission rate had declined to an alarming level such that it was difficult to obtain enough quality articles to fill each of the six issues published annually. It was clear that drastic measures were needed. Immediately after taking up the position, Chris Parish introduced a new category of manuscript, the Theoretical Article, and wrote a personal letter to almost 200 immunologists worldwide inviting them to contribute theoretical papers to the journal (this was the era before email!). A considerable number of high profile scientists eventually submitted papers. Chris also wrote an article for the ASI Newsletter in which he ranked Australasian research institutes for their support for the journal. Most major research institutes undertaking immunological research scored very poorly and were strongly encouraged to lift their game.

The most important innovation that Chris introduced, however, was the Special Features. A simple formula for Special Features was developed which proved to be very successful. The first Special Feature was published in 1993 in the October issue of *ICB* and covered 'Recent Developments in Veterinary Vaccines'. Since then, *ICB* has usually published three Special Features each year and by the end of 2010 had published 59 Special Features containing 300+ articles.

There is no doubt that the Special Features increased the visibility of the journal, with the impact factor of *ICB* climbing above 2 for the first time in 2000. However, over the next five years the *ICB* impact factor and the rate of manuscript submissions remained static, with the receipt of enough high-quality papers for publication continuing to be a serious issue. One encouraging feature during this period, however, was that consistently 75–80% of unsolicited articles submitted to *ICB* originated from non-Australasian laboratories, indicating the international nature of the journal. In addition, this period established *ICB* as consistently one of the leading scientific journals in the Asia-Pacific region. This high regional status resulted in the Nature Publishing Group (NPG) approaching the Editor-in-Chief in 2005 and proposing that *ICB* be published by NPG. The ASI Council enthusiastically embraced this proposal and in 2007 publication of the journal was transferred from Blackwell Publishing Asia to NPG.

The move to NPG dramatically increased the visibility of *ICB*. There was also an increase in the number of issues each year from 6 to 8 and a revamped and more international Editorial Board was appointed. Several new article types were also immediately introduced, the most important being 'News and Commentary' articles that have a similar format to the well known 'News and Views' articles in *Nature* journals. Carola Vinuesa agreed to act as the inaugural N&C Editor and Stuart Tangye joined her as an additional N&C Editor soon after. By the end of 2010 already over 80 N&C articles had been published by *ICB*. Initially these articles discussed high impact papers recently published by other journals, such as *Nature Immunology* and *Immunity*, but as the quality of *ICB* manuscripts improved, N&C articles began to feature *ICB* articles.

A new article type, the 'Outstanding Observation', was established in 2007 with the aim of giving ICB a unique identity to separate it from other immunology journals. This new manuscript category captures research articles in immunology which describe striking observations that have extremely important conceptual implications but do not delineate the underlying molecular mechanisms involved. At the time, it was hoped that the new article type would combat the worrying trend amongst the top scientific journals to refuse to publish novel findings if they did not contain a detailed description of molecular mechanism, even when the observations reported obviously had far reaching implications for the field. At the time of writing (October 2010), the 'Outstanding Observation' articles have already been warmly received by the immunology community, with 19 extremely high-quality articles in this category being received and published by *ICB*.

The net result of all these changes was a dramatic improvement in the *ICB* impact factor and ranking. The 2009 impact factor reached 4.200, which represented a >200% increase over the 2005 value. The ranking of *ICB* within the cohort of 'Immunology' journals also improved dramatically. In 2005 *ICB* was ranked 76th of 115 'Immunology' journals, whereas in 2009 the *ICB* ranking had jumped to 28th of 128 recognized 'Immunology' publications. The *ICB* performance was also impressive when compared with other immunology society-based journals. Thus, *ICB* had a much higher ranking than the *Scandinavian Journal of Immunology* (90th, Scandinavian Society for Immunology), *Immunology* (47th, British Society for Immunology) and *International Immunology* (45th, Japanese Society for Immunology) and was approaching the ranking of the *European Journal of Immunology* (24th, European Federation of Immunological Societies) and the *Journal of Immunology* (22nd, American Association of Immunologists). Other criteria also indicated that the stocks of *ICB* were on the rise.

- **Ownership of *Immunology and Cell Biology***

When the 'Adelaide Journal' became *Immunology and Cell Biology* in 1987 it still remained the property of the University of Adelaide. By the early 1990s, however, there was a strong view amongst ASI Council members that, since *ICB* was the official journal of ASI, the Society should own the journal. As a gesture of support for the journal, in 1992 ASI incorporated a compulsory hard copy subscription to *ICB* in its membership dues. This practice continued until 2007 when NPG replaced the hard copy subscription with an electronic one, as well as free electronic access to a range of *Nature* journals.

When Geoff Shellam (1991–1992) and Roland Scollay (1993–1994) were serving as the ASI President, informal ownership negotiations began with the University of Adelaide. Negotiations were complicated by the fact that Blackwell Scientific Publications were keen to purchase the journal for a tidy sum and that Blackwell Scientific was willing to consider joint ownership with ASI. Both of these arrangements were not acceptable to ASI as they would result in *ICB* being associated with the same publisher indefinitely. In 1997 the ASI established a subcommittee, comprised of Anne Kelso, Geoff Shellam and Chris Parish, to negotiate a deal with the University of Adelaide. It took another two years to broker a deal but, thanks largely to the efforts of Anne Kelso, in 1999 the University of Adelaide transferred the ownership of *ICB* to ASI for the princely sum of $1!

- **Impact of the 'Adelaide Journal'/*ICB* on the Field of Immunology**

Over the last 86 years numerous important immunology papers have been published by the journal, many of these classic papers being published before the 'Adelaide Journal' became *Immunology and Cell Biology*. In fact, it could be argued that, based on this performance, *ICB* is the second oldest immunology society associated journal in the world, only eclipsed by the *Journal of Immunology* that was founded by the American Association of Immunology in 1913. A list highlighting some of the most important immunological publications can be found on the ASI website.

- ***ICB* Future Prospects**

The future of *Immunology and Cell Biology* looks very bright. The journal has now become firmly established as a leading publication in the field of immunology. Due to its high stature, *ICB* has also remained very financially viable, despite the global financial crisis in 2008–2009, the ASI now receiving $50,000–$80,000 per annum from NPG as their share of the journal's income.

A number of changes are planned for the journal in the near future to handle the substantial increase in submitted papers. In 2012 the number of issues published each year will increase from 8 to 10, with monthly issues being a likely possibility in the next few years. The editorial make-up of the journal has changed in 2011, with the Editor-in-Chief being assisted by three new Deputy Editors. Chris Parish has retired as the Editor-in-Chief and Gabrielle Belz has been appointed as the new Editor-in-Chief, although Chris will continue as one of the Deputy Editors during 2011. With the revamped editorial arrangements, increased rates of manuscript submissions and increasing numbers of issues, *ICB* is poised to become even more prominent in the field of immunology in future years.

Special Interests Groups (SIG)

As the ASI developed it became apparent that the discipline was very diversified, covering a range of specific interests that were unique to various groups of immunologists. Accordingly, Council considered during an Executive Committee Meeting in 1991, the possibility that these interest groups should form their own specialist bodies while still remaining within the orbit of the ASI. The first of these was the Clinical Immunology Group (CIG) which predated this 1991 meeting since it was formed in 1982. The Mucosal Immunology Group was formed in 1992, the Infection and Immunity Group in 2008 and the Tumour Immunology Group, known as the Tumour Immunology Workshop, in 1998 following a 'one-off' meeting in 1996. Attempts to activate members of ASI with special interests in other related fields such as Behavioural Immunology, Reproductive Immunology, and Neuroimmunology to form SIGs have not been successful to date. Unfortunately, the formation of the Cytokine Research Association independent from the ASI prevents this active and important aspect of immunology from being included in the ASI SIGs.

It was proposed during the Executive Committee Meeting of 1991 that recognition of the SIG could take the form of limited financial assistance from ASI and the assistance of the Secretariat in providing

names of potential members of that special interest group to facilitate interaction. Special interest groups would be encouraged to conduct meetings as satellites of the annual national ASI meetings, which might influence the selection of some invited ASI speakers. SIGs would forward a report of their activities annually to Council and these would be published in the Newsletter.

- **The Clinical Immunology Group (CIG); Tony Basten**

When ASI was established, immunology as a recognized clinical speciality did not exist. There were, however, two immunopathology units located in Melbourne at the Walter and Eliza Hall Institute and the Alfred Hospital headed by Dr Ian Mackay and Professor Richie Nairn respectively. The former was more clinically orientated with the focus on autoimmune liver disease, while the latter dealt more with immunopathology *per se*. The practice of allergy was separate and overseen by the Australian College of Allergists.

The early 1970s saw the development of clinical immunology services across the country, some of which encompassed immunopathology testing and/or allergy. In recognition of the need for a formal training program spanning clinical immunology and allergy, the Royal Australasian College of Physicians and the Royal College of Pathologists of Australasia established three diplomas, one each in immunopathology and clinical immunology (including allergy) with the third (and most popular) being a conjoint diploma from both colleges.

The focus of ASI during this period was on promoting basic immunology as one of Australia's strongest research disciplines, rather than its clinical aspects or for that matter allergy. Consequently, the annual scientific meeting did not cater for the interests of the broad church of clinicians involved in the applied aspects of the field. Nevertheless, the Council of ASI as early as 1972 did move to establish a subcommittee to liaise with the Royal Colleges over provision of training courses in clinical immunology. Convened by Richie Nairn, this subcommittee included Ian Mackay, David Nelson, Ron Penny and John Sands (representing the Colleges) and by the next annual meeting had prepared a comprehensive report on training requirements. Following acceptance of the report by ASI, it was converted into a full standing committee and accorded executive powers to negotiate with the Colleges and government on clinically related matters. In further support of this decision, Council resolved during its meeting in 1976 that consideration should be given to holding the next workshop on allergy and that an invitation should be extended to members of the College of Allergists to attend both the workshop and scientific meeting of ASI. They would also be invited to join the ASI if they felt it would be an appropriate body. It was resolved at the Council Meeting of 1981 to discuss the potential co-operation between the College of Allergists and the ASI.

Despite these initiatives, some clinically focused senior members of the Society felt that their interests were not being adequately catered for and, headed by Roger Dawkins, set up a discrete Clinical Immunology Group in 1982. This led to a vigorous debate among the immunological community resulting in the merging of the fledgling CIG with the ASI's standing committee in 1983 with the name of CIG being retained. The new CIG rapidly took responsibility for representing the speciality of clinical immunology (now incorporating allergy) during negotiations with government and the Colleges over the training programmes, fee setting for immunopathology tests and quality control of diagnostic laboratories – all recognized functions of other clinically oriented speciality societies. The formal title of CIG was established at the AGM of the ASI in 1984 as the Clinical Immunology Group of the ASI, a title that would appear on its letterhead for all correspondence. The CIG was requested to report to ASI at the annual Council Meeting and the AGM and to forward copies of relevant correspondence to the Secretary of ASI.

In retrospect, the initial retention of CIG under the umbrella of ASI was the right strategy to adopt while the clinical speciality matured; however, ultimately and due in no small part to its success, CIG became the launching pad for an independent entity in the form of the Australasian Society for Clinical Immunology and Allergy (ASCIA). This concept of amalgamating the CIG with the Australasian College of Allergy was discussed during the AGM of the ASI in 1991, a feat requiring even more tact and diplomacy than was needed for the CIG and taking the best part of five years. Importantly, both societies are now flourishing in parallel and between them are catering well for the expanded range of activities and personnel involved in the field. In the case of ASCIA, it has brought clinical immunology and allergy together and provided a respectable professional home for the latter; it has also ensured that the clinical discipline is properly represented at government and College levels to the benefit of both societies.

- **Mucosal Immunology Group Special Interest Group**

A brief, but comprehensive, history of the Mucosal Immunology Group was published by its founder, Allan Cripps, in the ASI Inc. Newsletter of December 2010 and is reported in part here. (Ed.)

Early in 1992, the ASI raised the concept of establishing special interest groups with discussions occurring between Geoff Shellam and Allan Cripps about the possibility of an SIG in mucosal immunology.

With support from Roger Booth who chaired the ASI organizing committee for the Auckland meeting in 1992, the Mucosal Immunology Special Interest Group (MI-SIG) was formed in December 1992. A Symposium on Mucosal Immunology was held and Jerry McGhee from the University of Alabama at Birmingham and the then President of the International Society for Mucosal Immunology gave an ASI plenary lecture. The prominence given to mucosal immunology at the Auckland ASI meeting was a great launch for the MI-SIG. Over 50 people attended the first AGM and the membership was established. The principal goals of the MI-SIG developed at this meeting area as follows:

(1) To provide a forum for mucosal immunologists to meet through workshops and symposia to advance the research of mucosal immunology through debate and collaboration;
(2) To be recognized as a specialist group within the ASI and to create a formal association with the International Society for Mucosal Immunology; and
(3) To organise a network of Australian and international researchers in the field of mucosal immunology.

Over the years the MI-SIG has continued to provide a forum for mucosal

immunologists and colleagues with associated interests to meet at ASI symposia and workshops as well as a number of mini-symposia organized around international visitors.

At the eighth International Congress of Mucosal Immunology (ICMI) held in San Diego in 1995, Allan Cripps and his MI-SIG colleagues won the bid to host the ninth ICMI in Sydney in January 1997. Allan and the late Graham Jackson were appointed by the MI-SIG to co-chair the 9ICMI organizing committee. This meeting, with over 1000 delegates, was the high spot for the MI-SIG. The success of this meeting and the international acclaim that it brought for Australian researchers in the mucosal immunology field demonstrates without a doubt the value of strong special interest groups within the ASI.

The MI-SIG has made a very substantial contribution to the ASI community over the past two decades through workshops, symposia and more recently full-day satellite meetings. It has also supported young researchers through awards and travel grants to attend conferences. Allan retired as the MI-SIG Chair at the end of 2009 having served in this role for 15 years of the MI-SIG's 18-year existence.

- **Infection and Immunity Group Ashley Mansell**

The Infection and Immunity SIG was officially accepted by the ASI executive in October 2008 following a proposal to '… provide a forum and focus for researchers from across different fields of interest to interact and collaborate on the common interest of immune recognition and response in both immunological directions: innate and adaptive'. The aims of the SIG were to provide an opportunity to further enhance and develop research within ASI to understand the 'ritualistic dance' between host and pathogen interactions.

A committee was formed, with Ashley Mansell as the inaugural chair (and Victorian representative) in addition to representatives from nearly all ASI state branches: Queensland (Matt Sweet), NSW (Nick Gorgani), South Australia (Susanne Heinzel, replaced by Erin Curry), Western Australia (Andrew Currie) and New Zealand (Roslyn Kemp). Infection and Immunity also launched their website in early 2009 (www.iiasi.org).

While Infection and Immunity was a relatively new SIG, it gained immediate popularity amongst ASI members and had attracted almost 60 affiliate ASI members by ASI2009. Continued expansion and interest from ASI members attracted almost 100 members within a year. The Infection and Immunity SIG Workshop organised by Matt Sweet (Queensland representative) at ASI2009 Gold Coast attracted over 80 participants, attracting the highest attendance of all the SIG workshops organised, again demonstrating the popularity of the SIG. The program for the workshop was bolstered by the involvement of Paul Kaye (UK), one of ASI2009's international invited speakers who generously gave up his time to also speak at the SIG. He was ably supported by national invited speakers Chris Engwerda, Richard Ferrero, Michael McGuckin, Andrew Brooks and Mariapia Degli-Esposti. A similar workshop was held at the ASI2010 Perth meeting.

Infection and Immunity also organised a very successful joint session at ASI2009 with the Mucosal Immunology SIG which was headed by Brian Kelsall and Philip Hansbro. This co-operation between the SIGs has continued such that the joint session is an ongoing feature of the SIG workshops at ASI annual meetings.

Despite its recent beginning, the Infection and Immunity SIG has become involved in local branch activities and organization of ASI events as a means of promoting and highlighting the research, collaborative efforts and profile of the SIG. Infection and Immunity is actively playing a role in the organization of current ASI annual meetings and will continue to provide a forum for ASI members with an interest in host:pathogen interactions and infection and immunity. Infection and Immunity SIG currently has 96 ASI members as affiliate members (2010).

- **Tumour Immunology Group; Joe Trapani**

The Tumour Immunology workshops (TIW) of ASI commenced formally in 1998, following an initial 'one-off' meeting in 1996 organised by Bruce Robinson and held in association with the ThymOz meeting of that year. The 1996 meeting was seen as highly useful by immunologists interested in cancer, as it provided a new forum dedicated to their topic of interest. The idea of a meeting devoted to 'immunology and cancer' was driven from the belief, prevalent at the time, that the broader ASI community only infrequently dealt with the topic and the related issue of immune-based cancer therapies. Given the controversy and lack of consensus on the immune response to cancer over the previous several decades, perhaps this was not surprising!

The early 1990s saw a major rekindling of interest in tumour immunology, driven largely by two factors: first, molecular and cellular immunology techniques had unequivocally demonstrated that certain human malignancies (particularly melanoma) are immunogenic and that circulating cytotoxic T cells directed against tumour antigens could be isolated and expanded, and, second, the first dendritic cell vaccines were being applied to human disease (particularly cancer), providing the hope of a cellular adjuvant that might prove effective in augmenting the response of vaccinated patients to synthetic tumour antigens with which the DCs had been pulsed.

The first 'official' TIW was held in association with the 1998 Melbourne ASI conference, and was jointly organised by Geoffrey Pietersz, Mark Smyth and Joe Trapani at the suggestion of Bruce Robinson and Ian MacKenzie. The conference worked well, as the workshop attracted well over 100 registrants and several international guest speakers. This meeting was also the occasion of the inaugural Gordon Ada oration, which to today recognises an Australian tumour immunologist considered to have made important contributions to the field. At the Melbourne 1998 meeting, Professor Gordon Ada presented the first of these orations, on the topic of AIDS, the immune response and cancer development.

The TIW has continued to flourish since that seminal first meeting, having complemented every ASI meeting to the present day. The 'timing' of this series of meetings could not have been better, given the massive amount of activity in this area of research, and the plethora of associated clinical trials over the past decade. The TIW has no formal standing committee and each workshop is organised by an *adhoc* committee of interested scientists and clinicians from the ASI host city. In general, the TIW has occupied the greater part of the opening

day of each ASI meeting. CSL Limited has generously provided financial support for the TIW since its inception. Along with modest registration fees, CSL's support has typically enabled at least two renowned international speakers to present their work at TIW and to cover a separate topic at the associated ASI meeting. Apart from Gordon Ada, other Ada orators have included Ian Frazer, Denis Moss, Chris Parish, Chris Schmidt, Bruce Robinson, Ian MacKenzie, Jonathon Cebon, Mark Smyth, Peter Hersey and Joe Trapani. Mac Burnet would be very pleased to have seen the TIW become such a feature of ASI, given his seminal contribution as an architect of the cancer immune surveillance.

Association with other organizations both internationally and nationally

With its growth in membership and function, the Society felt the need to become associated with other organizations with which it shared professional interests, particularly in immunology. Foremost of these is the International Union of Immunological Societies (IUIS).

- **IUIS**

IUIS was founded at a meeting in Brugge, Belgium, on 5 May 1969 by the representatives of ten Societies. The Australian Society of Immunology was not represented but expressed support and later was accepted as a founding member after it had created a constitution.

There are currently 54 Member Societies of IUIS, many of which belong to one of four Regional Federations encompassing Europe, Latin America, Africa and Asia-Oceania.

International Congresses of Immunology (ICI) are held in different locations every three years under the auspices of IUIS. The first ICI was held in Washington in August 1971 and the third in Sydney in July 1977 where Geoff Cooper functioned brilliantly as General Secretary. This Congress, which 600 registrants attended, marked Australia's coming of age immunologically. The 16th ICI will be held in Melbourne in 2016 following a successful bid by a committee chaired by Jose Villadangos.

Australasian immunologists have, since its inception, given strong support to IUIS and to ICIs in particular, being well represented in attendance and on the scientific programs. Both Gus Nossal (1986–89) and Peter Doherty (2007–10) have held the offices of President of IUIS following appointment as Vice-President in 1983–86 and 2004–07 respectively, Anne Kelso held that of Secretary General for the triennium 1998–2001 and Nick King was elected IUIS Treasurer in 2010. In addition the Australasian Society has been represented by elected councillors since the inception of IUIS.

- **FIMSA**

The Federation of Immunological Societies of Asia–Oceania (FIMSA) is a non-profit organization founded in 1992 to advance, by holding workshops and educational programs and holding congresses every 3–4 years, the science of immunology in the Asia–Pacific region. All immunological societies and associations within the Asia–Pacific region who are members of IUIS are eligible to become members of FIMSA. The ASI is a founding member of FIMSA and hosted and organized the first FIMSA Congress which was held in Adelaide from 1 to 5 December 1996.

- **ASMR**

The Australian Society for Medical Research (ASMR), established in 1961, is the peak professional society representing Australian health and medical research. ASI is one of the 57 affiliated professional societies and Medical Colleges which together comprise 100,000 Australians actively engaged in health and medical research within the ASMR network.

- **ANZCCART**

The Australian and New Zealand Council for the Care of Animals in Research and Teaching (ANZCCART) was established to inform scientists and teachers of the technical and ethical issues relating to the use of animals in research and teaching. ASI is a full member of ANZCCART.

- **ASCIA**

The Australian Society for Clinical Immunology and Allergy (ASCIA) was formed in 1990 by merging the Clinical Immunology Group of ASI with the Australian College of Allergy. While the CIG was a Special Interest Group of ASI, ASCIA emerged as a separate and highly successful Society with its own constitution and governance although both bodies maintain and foster the close and trusting relationship expressed at the inaugural meeting of ASCIA. Many members of ASI are also members of ASCIA and both Societies attempt to hold their annual scientific meetings to coincide if possible.

ASI Inc. Newsletter

The ASI Newsletter began informally as a quarterly news sheet sent out by Fay Turner when she was appointed Executive Officer in 1980. When the Society's business was handed over to the Victorian Postgraduate Medical Foundation in 1984, Dick Briggs temporarily took responsibility for the Newsletter with the help of the then current Honorary Secretaries. Dick expanded it and accepted paid advertisements. It was then administered by a series of editors, who like the *ICB* Editor-in-Chief are non-voting member of Council.

The newsletter has become a forum for discussion of ASI news and views, particularly those presented in the President's Report, publicizing forthcoming immunological seminars lectures and conferences and local or international meetings, providing information on major events held by the various branches, reviewing books, and advertising job vacancies and fellowships. It is published quarterly and plays an important role in the effective running of the Society.

Summary

From the early informal gathering in Adelaide in 1962 of eleven practising immunologists and a few PhD students, ASI Inc. has grown dramatically into a vigorous society of 1012 (as of December 2010) members from both Australia and New Zealand. In so doing ASI Inc., together with its own scientific journal, has earned its just place amongst the leading international immunology societies.

This rapid expansion of numbers for a relatively small country reflects the emergence of the discipline, or rather our recognition of it, as playing a central role in most aspects of medical and veterinary science. In the 1960s and early 1970s we were struggling to understand the nature and characteristics of antibodies and the role of B and T cells in regulating the immune response. Today Australians are researching widely diverse aspects such

as molecular immunology, lymphocyte traffic, MHC restriction, monoclonal antibody therapies, immunogenetics, cytokines and chemokines and speculating on how these new tools and concepts might be applied to the control and eradication of disease. Pity the poor veterans of my era to whom these studies constitute a foreign language.

The Society is honoured that three of its most outstanding members, Sir Frank Macfarlane Burnet, Peter C. Doherty and Rolf Zinkernagel have been made Nobel Laureates. Macfarlane Burnet and Peter Medawar were co-recipients of the 1960 Nobel Prize in Physiology or Medicine for demonstrating acquired immune tolerance, research that provided the experimental basis for inducing immune tolerance, the platform for developing methods of transplanting solid organs. Peter Doherty's research focuses on how the body's immune cells protect against viruses. He and Rolf Zinkernagel, the co-recipients of the 1996 Nobel Prize in Physiology or Medicine, received their award by demonstrating how T cells recognize target antigens in combination with major histocompatability complex (MHC) proteins. These three outstanding members of ASI Inc. should serve as role models for current and future members of the Society.

Acknowledgements

I express my appreciation to many colleagues who assisted in providing relevant information, patiently putting up with my persistence and unreasonable demands for instant attention in providing same. In particular thanks are due to Susanne Heinzel and Judith Greer for their numerous, mostly successful attempts to provide information from almost non-existent archives. Thanks are also due to Geoff Shellam for providing a comprehensive collection of documents concerning the period when he functioned as President and for his support. The sectional authors, Tony Basten, Chris Parish, Allan Cripps, Ashley Mansell and Joe Trapani, made my task much easier by producing excellent reviews of their areas of particular interest and I am appreciative of their support. Finally, I express my sincere thanks to the many colleagues and friends who supported me during the exciting years of membership in ASI Inc. of which we should all be proud.

The following documents can be viewed on the ASI website (www.immunology.org.au)

Appendix 1
Constitution of the Australasian Society for Immunology

Appendix 2
Office bearers of ASI and meetings

Appendix 3
Burnet Orators and their topic of presentation

Appendix 4
Honorary Life Members of the Society

Appendix 5
Some of the most important immunological publications that appeared in *Immunology and Cell Biology*

Fay & Keven Turner
(Photo: Simon Apte)

Volunteers wanted

to assist the Newsletter Editor:

* Someone to co-ordinate the publication list

* Someone to gather/ report international news items

Contact the Editor:
Simon.Apte@qimr.edu.au

ASI COUNCIL – WHAT IT IS AND WHAT IT DOES

As an ASI member you'd have had some dealings with the ASI Council, be it through applications for awards, the visiting speaker program, emails from the Secretary, reading the reports from the Executive in the newsletter or possibly some other occasion. I'd imagine that many of you would have wondered at some stage during your membership how the Council is structured and what it means to be a member of the ASI Council or Executive.

The members of ASI voting council are elected by membership. As it happens, there are a number of Council positions coming up at the end of the year, including two positions on Executive (Hon Secretary and Vice President) and the NSW Branch Councillor.

In this article I've tried to shed some light onto the governance of ASI, as this is the mandate given to the Councillors by the membership through the elections.

To understand how the Council operates it's probably best to first introduce the composition/structure of the Council. The ASI Council is made up by the 'office bearers' which are the President (currently Dave Tarlinton), the Vice or the Past President (depending on which part of the cycle we are in, currently this is the Past President, Miles Davenport), the Treasurer (Pablo Silviera) and the Secretary (myself). Collectively the office bearers are also known as the 'Executive'. Additionally we have seven 'Branch' Councillors (often, but incorrectly – as our NZ members quite rightly like to point out – also referred to as 'State' Councillors) representing WA, SA/NT, Vic/Tas, ACT, NSW, NZ and Qld. Together, these 11 positions form the voting Council and each of these positions is elected by ASI membership. The term for each of those positions is three (3) years, except for the position of President, which is a total of four (4) years on executive: one year before (vice-president) and after (past-president), and the 2-year presidential term.

Additionally to the voting Councillors, we have an array of non voting Councillors who offer their time and expertise to the Society. These include (in no particular order): the Newsletter Editor (Simon Apte), the Visiting Speaker Program co-ordinator (Alejandro Lopez), the website administrator (Judith Greer), the Day of Immunology co-ordinator (Delia Nelson), the meeting co-ordinator (Bernadette Saunders), the ICB Editor in Chief (Gabrielle Belz) and the FIMSA (Guna Karupiah and Nick King) and IUIS (Franca Ronchese) representatives. Our thanks go out to these individuals who do an enormous amount of work in the background.

The mandate given to the voting Council is defined in the ASI Constitution and I've attached an extract of the Constitution at the end of this article. The full Constitution can be viewed and downloaded from the ASI website.

The Council is ultimately responsible for the Society and its members. It remains in Council's hands to ensure that the Society is financially viable and to make decisions on how to redistribute membership fees and other income for the maximum benefit to our members. It is also responsible to advance our discipline and to support and engage our members wherever possible.

With being elected onto ASI Council, the Councillor assumes responsibility for the smooth operation of the Society. This includes day-to-day tasks but also involves decision making on financial and other activities. With the Society growing from strength to strength, we are responsible for increasing financial assets. The Society organises some big events, evidently the biggest one being the annual scientific meeting which often has a budget in excess of $500,000. While these events are usually organised by local organising committees, it remains the duty of the Council to ensure that money is spent sensibly, budgets are reasonable and assets of the Society safeguarded at all times.

ASI Council meets twice a year, at the annual Council meeting (ACM) usually just prior to the scientific meeting and then also in May or June for the mid year Council meeting. During these meetings Council receives reports from its voting and non voting councillors, makes decisions on the expenditure and spendings throughout the year and makes plans for the years to come. While all major decisions are made during these council meetings, for simplicity many of the day-to-day tasks are delegated to the Executive to deal with between the meetings. Therefore, with accepting the mandate of being member of ASI Executive, one also accepts responsibility not only for the specific position being filled, but also for playing a major part in the decision making of general matters (and, with that, for a quite substantial time commitment). Likewise, with acceptance of the position as a Branch Councillor, one also accepts membership of ASI voting Council with all its responsibilities and rewards.

Being an ASI Councillor can open up many opportunities. Council positions are staggered so that any new Councillor will always join a group of people with one or two years in the job who are willing to help and share their experience. It is a great way to network and learn more about the immunology done in Australia/NZ. It's a great addition for anybody's CV and one not only gets a chance to 'meet the locals' but Councillors also get to interact with the invited visiting speakers throughout the year and at the annual meetings.

During my time on Council, first as SA/NT Branch Councillor and then a few years later as Hon. Secretary, I've had the chance to meet and work with some fantastic people. It has been a great opportunity to learn from the best and to form some great collaborations and wonderful friendships. As one of our past presidents recently said to me: 'My time on Council was one of the most rewarding things that I have done throughout my career.' And I couldn't agree more.

Susanne Heinzel
Hon. Secretary

The mandate given to the voting Council as defined in the ASI Constitution:
'13. Council
13.1. The affairs of the Society shall be managed by a Council constituted as provided in Rule 14.'

It goes then on to explain that *'council shall control and manage the business and affairs of the Society' 'exercise all*

such powers and functions.... ...other than those powers and functions that are required by these rules to be exercised by general meetings' and *'subject to these rules, the regulations and the Act, has power to perform all such acts and things as appear to the Council to be essential for the proper management of the business and affairs of the Society'.*

It also states:
15.2. The Council may delegate to the Executive Committee the power to carry out the day-to-day business of the Society. The Executive Committee shall be answerable to Council and shall report to Council annually or as otherwise requested by Council. Notwithstanding the foregoing, the Council may put budgetary limits on expenditure by the Executive and before making major expenditures the Executive must obtain Council approval.

BIG Annual Retreat

The Brisbane Immunology Group will hold its Annual Retreat at the Sea World Resort, Gold Coast from August 18–19, 2011. Please note that accommodation options at the resort are limited, so register online as soon as possible to avoid disappointment.

Check out http://www.qimr.edu.au/big/annual_retreat/annual_retreat.html for details on sponsors, meeting venue, accommodation, invited speakers and registration information.

Last date to register is JULY 8, 2011.

Quick Fire Immunology Series at QIMR

In an effort to build the profile of immunology at QIMR, Ash Haque (ASI State Councillor, Qld), and his colleagues from Chris Engwerda's Lab organised what was hopefully the first in an ongoing series of special lunchtime events. Speakers were given just ten minutes to impress the audience with their angle on the virtues of immunology. Geoff Hill got the ball rolling with his talk entitled "Immunology is not gobble-dee-gook" (which was in response to comments by an eminent local biochemist), followed by Chris Engwerda, Corey Smith, Michelle Wykes, Kelli MacDonald, Denise Doolan, and Ash Haque. The event was extraordinarily well patronised, not just because of the great immunology, but possibly due to the free gourmet burgers prepared by the Engwerda Lab!

Geoff Hill:
Immunology is not gobble-dee-gook
(Photo: Alan Baxter)

LtoR: Fiona Amante, Fabian Rivera, Shannon Best: Chefs extraordinaire from the Engwerda Lab
(Photo: Simon Apte)

Corey Smith
(Photo: Simon Apte)

Gourmet burger chefs Patrick Bunn (aka Tom Cruise) and Ash Haque
(Photo: Simon Apte)

Kelli MacDonald:
All roads lead to immunology
(Photo: Simon Apte)

Chris Engwerda
(Photo: Simon Apte)

Bursa of Fabricius at the Centre of Trans-Tasman Scandal

There is a new rift in the Trans-Tasman relationship; and for a change, it's not about rugby or cricket, or Centrelink, funny accents, Eskys, the number six, Russel Crowe, thongs, Pavlovas, race horses, or sheep. No, this time it is serious, it has to do with the most prized giblet in history – The Bursa of Fabricius Award. Kiwis Jo Kirman and Anne La Flamme won the Award at last year's ASI conference in Perth with this:

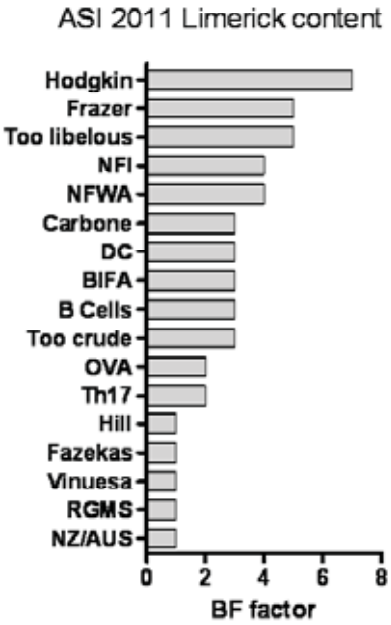
We propose a brand-new debate:
New Zealand is not a state
it's true that we share
the Queen and her heirs
but John Howard we did not create

The Kiwis claim that in the spirit of the great underarm bowling incident of 1981, the Aussies have cheated them out of enjoying their prize by hiding the trophy at the last minute. This is not supported by the photographic evidence of the last known sighting, which clearly shows John Fraser (NZ) beginning to sequester the trophy away from Lindsay Dent (Aus). This is supported by a photo that's recently emerged that appears to show Anne La Flamme menacing Lindsay Dent with the Bursa. Personally I think a far more entertaining way of stopping Anne and Jo from enjoying the trophy would have been to let AQIS handle it at the airport.

The limerick competition has long been regarded as a weather vane for what's hot in immunology. A quick analysis of the data (see graph) indicates that Phil Hodgkin still leads the field with a Bursa of Fabricius (BF) factor of seven, closely followed by Ian Frazer at five. It was good to see that Ovalbumin and Th17 were lower this year and I am reliably informed that Barbara Fazekas is relieved to also be lower this year.

So as it stands, the Bursa is still missing. I will leave you with this classic Ode to The Bursa penned by Nick King and Lyn Corcoran in 2003.

I do want the B. of Fabricius
I can taste it and it is delicious
My best friend agrees
It needs batteries
But that might make my husband suspicious.



Graph Legend.
NFI= unintelligible;
NFWA=not funny without alcohol;
BIFA=bits of Ian Frazer's anatomy

The Last Known Sighting with Lindsay Dent and John Fraser
(Photo: Alan Baxter)

Mystery Disappearance:
The coveted Bursa of Fabricius
(Photo: Alan Baxter)

Anne La Flamme with intent?

THE ASI VISITING SPEAKER PROGRAM 2011

Forthcoming speakers

August:

Dr Pam Schwartzberg

National Human Genome Research Institute, NIH, Bethesda, MD, USA

Visit co-ordinated by Stuart Tangye (Garvan Institute)

Pam is an MD and a Senior Investigator in the Genetic Disease Research Branch of NHGRI, NIH. Her research interests focus on studying signal transduction in T cells, in particular determining the roles of signaling molecules that affect T cell function and their ability to respond to infection. This has been achieved by generating novel strains of knock-out mice, combined with state of the art technology such as 2 photon imaging, microRNAs and deep sequencing. Over the past 10 years, Pam's lab has made substantial contributions to our understanding of the functions of the adaptor protein SAP, the kinases Itk, Btk and Rlk, and the cytoskeletal protein WASp in lymphocyte development, function and differentiation. This has included providing important insights for the requirement for the generation of specific lineages of lymphocytes, their differentiation to specific T helper lineages (Th1, Th2, Th17, TFH) and their acquisition of effector function.

These findings are not only important for advancing basic science, but also have clinical relevance since several of these genes are mutated in human primary immuno deficiencies – i.e. SAP in X-linked lymphoproliferative disease; BTK in X-linked agammaglobulinaemia, and WASp in Wiskott-Aldrich syndrome.

The importance of Pam's work is evidenced by many of her recent publications that have appeared in high-impact journals, her frequent invitations to be a plenary presenter at international conferences, as well as being awarded the American Association of Immunologists (AAI) BD Biosciences Investigator Award in 2008 – this award recognizes outstanding, early-career research contributions to the field of immunology. Pam is an excellent role model for clinical immunologists/scientists, and also for the many female members of ASI. Pam has visited Australia previously as an invited plenary speaker at the ASI2007 annual conference held in Sydney, and she has collaborations with several research groups in Australia (ie in Sydney, Canberra and Melbourne). Her research interests overlap with those of many labs in Australia and NZ (i.e. lymphocyte development, Th cell differentiation, immune deficiencies, role of cytokines, mouse models/gene-targeting, cell signaling etc).

Selected Publications from the last three years:

E. K. Deenick, A. Chan, C. S. Ma, D. Gatto, P. L. Schwartzberg, R. Brink and S. G. Tangye. 2010. Follicular helper T cell differentiation requires continuous antigen presentation that is independent of unique B cell signaling. Immunity 33:241-253.

J. L. Cannons, J. Z. Wu, J. Gomez-Rodriguez, J. Zhang, B. Dong, Y. Liu, S. Shaw, K. A. Siminovitch and P. L. Schwartzberg. 2010. Biochemical and genetic evidence for a SAP-PKC-theta interaction contributing to IL-4 regulation. J Immunol 185:2819-2827.

J. L. Cannons, S. G. Tangye and P. L. Schwartzberg. 2010. SLAM Family Receptors and SAP Adaptors in Immunity. Annu Rev Immunol.

J. L. Cannons, H. Qi, K. T. Lu, M. Dutta, J. Gomez-Rodriguez, J. Cheng, E. K. Wakeland, R. N. Germain and P. L. Schwartzberg. 2010. Optimal germinal center responses require a multistage T cell:B cell adhesion process involving integrins, SLAM-associated protein, and CD84. Immunity 32:253-265.

J. Gomez-Rodriguez, N. Sahu, R. Handon, T. S. Davidson, S. M. Anderson, M. R. Kirby, A. August and P. L. Schwartzberg. 2009. Differential expression of interleukin-17A and -17F is coupled to T cell receptor signaling via inducible T cell kinase. Immunity 31:587-597.

J. A. Readinger, G. M. Schiralli, J. K. Jiang, C. J. Thomas, A. August, A. J. Henderson and P. L. Schwartzberg. 2008. Selective targeting of ITK blocks multiple steps of HIV replication. Proc Natl Acad Sci U S A 105:6684-6689.

H. Qi, J. L. Cannons, F. Klauschen, P. L. Schwartzberg and R. N. Germain. 2008. SAP-controlled T-B cell interactions underlie germinal centre formation. Nature 455:764-769.

R. Horai, K. L. Mueller, R. A. Handon, J. L. Cannons, S. M. Anderson, M. R. Kirby and P. L. Schwartzberg. 2007. Requirements for selection of conventional and innate T lymphocyte lineages. Immunity 27:775-785.

October:

Professor Emil R. Unanue, MD

Washington University School of Medicine, St Louis, USA

Visit co-ordinated by José Villadangos (WEHI)

"We examine antigen processing and presentation by the antigen presenting cells (APC), and the interactions of CD4 T cells with the peptide-Major Histocompatibility complex (MHC) proteins. The MHC molecules constitute a protein system that rescues peptides from extensive intracellular degradation. The class II-MHC molecules, which we study, bind primarily to peptides derived from the vacuolar digestion of internalized proteins. The APC uses MHC-molecules to present antigenic determinants to the T cell system.

"We examine the processing and the features of peptides that allow for their binding to and selection for class II-MHC molecules. For this we use the protein hen-egg white lysozyme (HEL) and the listeriolysin O protein, the major virulence protein of Listeria monocytogenes. We are trying to identify the intracellular vesicles that contain class II-MHC and their interaction with vesicles that bear the internalized protein antigen. We correlate our biochemical findings with the response of T cells. At the present time we examine: the biochemistry of peptide selection, the T cell response to various peptide-MHC complexes, conformational isomers of peptide-MHC and post-translational modifications of peptides.

"At present, a major focus centres on the immunopathogenesis of autoimmune diabetes mellitus. Our studies on autoimmune diabetes are attempting to identify the antigens from beta cells that activate both B

and T cells. We combine biochemical analysis involving mass spectrometry with cellular studies. Where is the antigen presentation first taking place responsible for disease initiation? Which APC present diabetogenic antigens? What are the antigens? How are the beta cells recognized and how are they affected by the immune process? Which T cells cause diabetes? These are some of the fundamental questions that are asked."

Selected Publications from the last 3 years:

Atibalentja DF, Murphy KM, Unanue ER. Functional Redundancy between Thymic CD8{alpha}+ and Sirp{alpha}+ Conventional Dendritic Cells in Presentation of Blood-Derived Lysozyme by MHC Class II Proteins. J Immunol. 2010 Dec 22.

Yang CW, Strong BI, Miller MJ, Unanue ER. Neutrophils influence the level of antigen presentation during the immune response to protein antigens in adjuvants. JImmunol 2010 185(5):2927-34.

Mohan JF, Levisetti MG, Calderon B, Herzog JW, Petzold SJ, Unanue ER. Unique autoreactive T cells recognize insulin peptides generated within the islets of Langerhans in autoimmune diabetes, Nature Immunology 2010 11: 350-354.

Belizaire R, and Unanue ER. Targetting protein antigens to distinct subcellular compartments reveals unique molecular and proteolytic requirements for MHC class I amd II presentation. Proc.Natl. Acad. Sci USA 2009 106: 17463-17468.

Suri A, Levisetti, ML, Unanue ER. Do the peptide-binding properties of diabetogenic class II molecules explain autoreactivity? Curr Opinion Immunol 2008 20: 105-110.

Date	City
3–4 October	Sydney
5 October	Canberra
6 October	Adelaide
7 October	Melbourne
10 October	Brisbane

New Investigator Prize

Stacey Walters, Garvan Institute, Sydney

BAFF, a B cell activating factor of the TNF family, was originally known to be essential for B cell survival and maturation (1 & 2). However, there was some previous published data showing BAFF might have role for T cells where BAFF transgenic (BAFF-Tg) mice were found to have an increase in $CD62L^{low}$ and $CD44^{hi}$ memory effector T cells in both the CD4 and CD8 T cell pool (3). Also, T cells stimulated with anti CD3 showed increased proliferation in the presence of BAFF (4). These observations led us to become interested in the role of BAFF on T cells.

We went on to demonstrate in a murine model of islet allograft transplantation, that over-expression of BAFF could directly control T cell dependent immunity, in that the majority of BAFF-Tg mice accept the islet allograft permanently. A series of experiments revealed this was due to BAFF promoting a ~3 fold expansion of $Foxp3^+$ Tregs (5). Further to this, our data did not support a T cell intrinsic mechanism for the expansion of Tregs in that the BAFF dependant expansion of peripheral Tregs was shown to be B cell dependent.

Through further experimentation we found that BAFF was not enhancing Treg survival, proliferation or conversion but rather BAFF-Tg mice were found to have a ~3 fold increase in thymic Tregs. The observed thymic Treg expansion was lost in the absence of B cells and interestingly B cell null $\mu MT^{-/-}$ mice exhibited a decreased frequency and number of thymic Tregs compared to wild type mice. Collectively these data indicate a role for B cells in thymic Treg production. Interestingly, histological analysis of BAFF-Tg mice revealed large clusters of B cells as well as scattered B cells in the thymus, where as wild type mice had only small scatterings of B cells in the thymus and no clusters were ever observed. Very generally, positive selection of thymocytes occurs at the double positive stage and is mediated in the cortex of the thymus by cortical epithelial cells, whereas negative selection of thymocytes occurs in the medulla region via interactions with DCs and medullary thymic epithelail cells.

We then went on to show the B cells in both BAFF-Tg and wild type mice were residing in the medulla of the thymus, suggesting that thymic B cells may be involved in the negative selection of thymocytes. A notable feature of the thymic B cells in BAFF-Tg mice was the increased frequency of cells that were $B220^{Hi}$ $CD1d^+$. Combining data from BAFF-Tg, wild type and $\mu MT^{-/-}$ mice we were able to show that the expansion of thymic Tregs directly correlated to the amount of thymic B cells present. Indeed in BAFF-Tg mice thymic B cells increased with age as did thymic Tregs and this correlated with suppression of the graft rejection response; resulting in ~80% allograft acceptance in 16 week old BAFF-Tg mice versus 100% graft rejection in 6 week old BAFF-Tg mice. In contrast, aged wild type mice did not show increased thymic B cells or Tregs and always rejected an allograft. Together these data lead us to believe there is a direct relationship between B cells, thymic Tregs and control of T cell immunity; however I think I will be kept rather busy in the next few months trying to nut all this out and find the ever elusive "mechanism".

Last but not least I would like to thank the ASI for giving me the opportunity to present my work in the Young Investigator session.

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Jürg Tschopp (1951–2011)

Andreas Strasser & Fabienne Mackay

It is with profound sadness that we have to inform the members of ASI that Professor Jürg Tschopp, a close colleague of many scientists in Australia and an outstanding scientist, unexpectedly died on March 22nd. He suffered a heart attack while doing what he loved most, practicing sport in his beloved Swiss Alps with his family. Jürg loved to escape to the rarefied air of the high peaks of the Valais to be with his family after busy periods of work or travel giving seminars around the globe.

Jürg was from Basel, Switzerland. He was an outstanding young athlete, nationally ranked in the decathlon, and never lost his athleticism and competitive spirit as anyone who ever went skiing, running, or hiking with him soon noticed. After a PhD in biophysics with Prof. Engel at the Biocentre of the University of Basel, Jürg moved to the Scripps Research Institute as a postdoctoral fellow with Hans Mueller-Eberhard where he discovered that complement pores are formed by C9 multimers.

This understanding of the complement system led him to study other lytic pathways upon his return to Switzerland at the University of Lausanne. He characterised cytoplasmic granules within cytolytic T cells (CTL) and discovered perforin, the major lytic protein, as well as a family of proteases known as granzymes. Jürg's interest in studying the function of perforin *in vivo* led to the generation of perforin-deficient mice, which in 1995 still was a remarkable endeavor. Analysis of these mice revealed a second lytic pathway employed by CTL, that was dependent on the then recently identified death-inducing ligand, FasL, and its receptor Fas (CD95, APO-1). This discovery turned Jürg's interest toward the TNF family of ligands with the corresponding family of receptors (TNF-R family) and mechanisms of apoptotic cell death. For these projects, Jürg combined his talent in the study of molecular mechanisms with his ever-lasting keen interest in bioinformatics. This began his most prodigious period of research that included the discovery of viral and mammalian forms of FLIP, the physiological regulators of Caspase-8 and therefore of death receptor-mediated apoptosis. He aptly demonstrated that c-FLIP did not only inhibit Fas-induced cell death, but could also activate non-apoptotic signalling pathways, proposing that Caspase-8 might be involved in cell growth as well as cell death processes; genetic studies confirmed this paradigm shift. He was also first to implicate the kinase RIP1 as an important player of the caspase-independent cell death program, known today as necroptosis, and to provide both a model and supportive evidence to unravel the long-standing molecular mystery of how TNF-TNF-R1 signalling can induce either NF-κB activation (promoting cellular survival and activation) or cell death (the so-called complex I and II model).

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Using a bioinformatics approach, Jürg discovered several additional members of the TNF and TNF-R ligand and receptor families, including APRIL, BAFF and TRAIL receptors, respectively. BAFF is now recognised as an essential survival and differentiation factor for peripheral B cells and is being targeted in several ongoing clinical trials for the treatment of certain autoimmune diseases. The numerous cell death regulators identified in Jürg's laboratory eventually resulted in the formation of three biotechnology companies, testifying to his eager entrepreneurship.

One of Jürg's most striking traits was his constant attraction to unexplored fields of biology. At the summit of his productivity on the TNF/TNF-R families and cell death regulation, he already developed his future research focus by designing a theoretical model, entirely based on predictions of protein-protein interactions, that proposed pro-IL-1β activation by Caspase-1 in a molecular complex, now termed "inflammasome". Since then, he dedicated most of his thoughts and efforts to tackle this idea, which, after minor adjustments, was described in 2002. The "inflammasome" was undoubtedly the crowning achievement of Jürg's career. This molecular machine consists of numerous intracellular sensors, known collectively as NLRPs (NACHT, LRR and PYD domains-containing proteins) that, when activated, associate with the adaptor protein ASC and Caspase-1 to convert the interleukin-1β precursor into a pro-inflammatory cytokine. Nobody could have imagined the myriad of physiological and pathological triggers of this pathway, including monosodium urate crystals, asbestos and anthrax. This elegant pathway suggested that autoimmune manifestations in patients with genetic mutations of NLRP3 could be due to IL-1β overproduction. Fortunately an IL-1β receptor antagonist (Anakinra) that had been sitting on the shelf for ~10 years could be tested immediately in these patients, resulting in rapid and spectacular improvement of their symptoms. This drug and other IL-1β̃IL-1β receptor antagonists are now being used or tested in numerous inflammatory pathologies, ranging from gout to type 2 diabetes. To witness the translation of one's research into effective medical therapy is the dream of all medical scientists, and to observe the rapid evolution of research on the "inflammasome" into novel therapeutic strategies is perhaps the most appropriate valediction of Jürg Tschopp's legacy.

Jürg's mind worked like that of a chess grand master. He had a keen ability to recognise patterns and possessed an uncanny instinct for predicting molecular relationships. One of Jürg's trademarks was to reduce complex questions to models so simple that they

could only be right or wrong, and therefore experimentally validated or discarded. He would joke that the half-life of models in his laboratory was about two weeks.

Jürg had several strong connections to Australia and Australian Immunology. In particular he had a big influence on the careers of John Silke, James Vince and Marthe D'Ombrain (all currently working at WEHI), who worked for some time in his laboratory in Lausanne, and on Fabienne Mackay (Chair of Immunology, Alfred Hospital, Melbourne) who collaborated extensively with Jürg on the discovery of BAFF and April and their receptors. Fabienne recalls that Jürg was not just a wonderful mentor and an inspiration for many years but also a person who truly cared about others and would go out of his way to offer support and hospitality. Fabienne has been a regular visitor in Epalinges and the privileged guest of Jürg's laboratory retreat in an isolated chalet with breathtaking views of the Alps where scientific presentations were delivered in front of a roaring fire, a place, which in itself spoke of Jürg's personality – simplicity and greatness of nature.

Jürg generously supported many research projects on apoptosis, immunology and inflammation in Australia by providing cytokines and antibodies, often before these reagents were commercially available and even afterwards to allow cost savings. Moreover, Jürg was a frequent visitor and intellectually highly generous contributor to conferences in Australia, also because his brother-in-law and family are Australians living in Geelong. He loved coming to Australia, particularly to interact with family and friends. I (Andreas) will never forget that on one visit he not only agreed to transport for our family a baby pram to Switzerland but delivered it to the door of my wife's sister, notably a 200 km drive from his home!

On a personal note, I (Andreas) am devastated as Jürg was my oldest friend in science. I first met him at track and field competitions in high school. Later, he was one of my instructors at the Biocentre of the University of Basel, teaching us undergraduate students column chromatography. At that time we also played together in the soccer team for our department at university.

Perhaps most endearing was Jürg's collegial nature, his generosity not only with reagents but also of his creative mind. He was very willing to help other scientists, particularly young students and postdocs, to improve their work and possessed the rare attribute to be able to genuinely enjoy great scientific discoveries made by others, even his competitors. Therefore one of the highest plaudits for Jürg was that even his fiercest competitors would all readily acknowledge that he was a "great bloke" and not just a great scientist. Perhaps a lesson from his life should be that, particularly during the currently difficult times with funding, we should enjoy each other's scientific successes more and be generous rather than trying to stifle our competitors, who in many ways are also amongst our best friends.

In essence, Jürg Tschopp was a consummate scientist, a deep thinker on a broad array of issues, a great humanitarian and a highly civilized man, something that has always been distinguished by its rarity. I will remember him as a daredevil skier ever ready to be challenged by a new double-black diamond or even better an off-piste run, an attribute that was clearly also evident in his science, always ready to tackle new areas of research and difficult problems. The scientific community has lost a wonderful mind. Jürg's outstanding contributions, friendship, mentorship and collaborative spirit will be sorely missed. Our thoughts and condolences go to Jürg's wife, Erna, his two children and wider family and his numerous present and past co-workers from his wonderful laboratory in Lausanne.

Andreas Strasser
The Walter and Eliza Hall Institute of Medical Research
1G Royal Parade
Parkville Vic. 3050 Australia
Phone: +61 3 9345 2555
Fax: + 61 3 9347 0852
Email: strasser@wehi.edu.au

Fabienne Mackay
Department of Immunology
Faculty of Medicine, Nursing and Health Sciences
Central Clinical School
Alfred Hospital
Commercial Road
Melbourne Vic. 3004 Australia
Phone: +61 3 9903 0712
Fax: +61 3 9903 0731
Email: Fabienne.Mackay@monash.edu

Upcoming Conferences

5th Vaccine & ISV Annual Global Congress
October 2–4, 2011
Seattle, USA
www.vaccinecongress.com
customerservice-vaccine11@elsevier.com

5th Asian Congress on Autoimmunity (ACA 2011)
November 17–19, 2011
Singapore
Online abstract deadline:
Wednesday, June 1
Reduced registration rates end July 27
aca@kenes.com
www.kenes.com/autoimmunity

5th Congress of the Federation of Immunological Societies of Asia Oceania (FIMSA 2012) –Translational Immunology in Health & Science
March 14–17, 2012
New Delhi, India
fimsa@fimsa2012.com
www.fimsa2012.com

V World Asthma & COPD Forum
April 21–24, 2012
New York, USA
info@wipocis.org
www.wipocis.org

15th International Congress of Immunology
August 22–27, 2013
Rome, Italy
ici2013@triumphgroup.it
www.ici2013.org

The Walter and Eliza Hall Institute of Medical Research
WEHI Seminars on the Web:
www.wehi.edu/seminars/

ASI Councillors' News

Victorian News

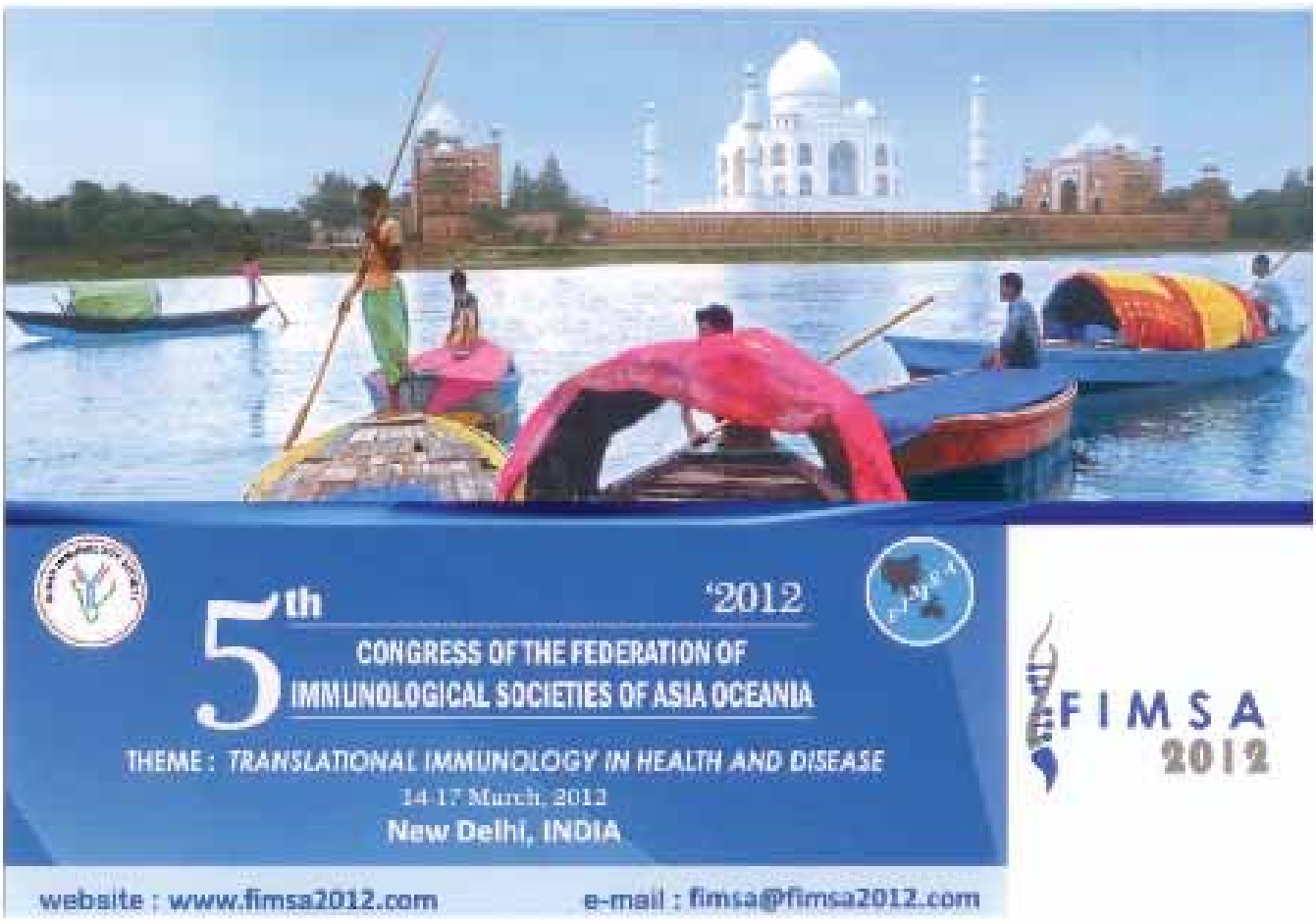
The Immunology Group of Victoria
A branch of the Australasian Society for Immunology

After a hectic start to the year for the many researchers who were preparing grants and fellowship applications, the past month or two has been dominated by discussions about possible budget cuts to NHMRC medical research funding. This possibility came as a bit of a shock given the growing public and government support for medical research in recent years. We have been fortunate that colleagues (especially at WEHI) initiated a very effective public campaign called 'Discoveries need Dollars' to highlight the public benefits of funding medical research. The campaign has involved public rallies, email campaigns and stories in newspapers and on television and radio about the value of medical research and the potential damage to the sector that could result from budget cuts. At the time of writing, there is some optimism that the government will continue its current funding support and that funding levels will be at least maintained in the budget.

A brighter story concerns the International Day of Immunology held on April 29. There has been a lot of great work done by our local DoI committee to raise awareness of Immunology through public and school activities associated with this day. Perhaps partly as a result of the funding debate, media outlets were keen to help promote the day by interviewing local representatives, such as Gus Nossal and Anne Kelso, about different issues in Immunology. The many events on the day also included a featured article published in the *Voice* supplement of *The Age* newspaper, discussions about current issues in Immunology broadcast on local and national radio shows, an evening public lecture delivered by Professors Liz Hartland, Brendan Crabb and Anne Kelso to a very receptive audience of 130 people (an extremely good turnout on a Royal Wedding night!), and a variety of educational activities involving primary and secondary school students.

The involvement of students in the DoI has become a priority for our local DoI organisers. As one example, this year 85 VCE secondary school students and teachers travelled from Melbourne, Bendigo and Ballarat to participate in a full day Immunology program at the Gene Technology Access Centre (GTAC). This was so popular, a repeat program was scheduled in May to accommodate some of the many schools that missed out on the day. The organisers expect even greater interest next year given the positive feedback received from the teachers and students who took part in the day. The annual DoI has taken on a life of its own in Victoria and the committee organising the DoI events is to be congratulated for raising the profile of the day, and for increasing public awareness and understanding of the importance of Immunology – and immunologists!

Stuart Berzins
Councillor



N.Z. News

NZ ASI/Immunet Meeting 2011

Registration has closed for the upcoming NZ ASI branch meeting to be held at the new Alan MacDiarmid building, Victoria University of Wellington from June 30 to July 1. Our keynote speakers will include Paola Castagnoli (Singapore Immunology Network, Singapore), Kiyoshi Takeda (Osaka University, Japan), and Ranjeny Thomas (University of Queensland, Australia). We are expecting another exciting meeting with well over 100 of our members participating.

Day of Immunology Celebrations

Wellington

This year, because the Day of Immunology was on the same day as the Royal Wedding, we decided to hold two separate events in Wellington. First, we had a series of short public lectures to celebrate the Royal Wedding entitled "A Marriage of Convenience: Partnering with Microbes for Better Health." These lectures took place at Victoria University of Wellington and were followed by a "wedding" reception. The second event was a quiz night on May 5 called "Plagues and Pestilence". With this event we endeavored to nourish the public with immunology in the guise of pizza and crisps. Both events were hugely successful and were filled to capacity.

Dunedin

Roslyn Kemp and Alex McLellan organized the celebrations in Dunedin. On April 28 there was a public lecture by Dr Nikki Turner, Director of the Immunisation Advisory Centre, on "Vaccination: Not Just a Shot in the Dark". The lecture was held at 5pm in Hutton Lecture Theatre, Otago Museum, Dunedin and was preceded by refreshments and lively debate.

Anne LaFlamme
Councillor

Graham Le Gros, Joanna Kirman, Anne La Flamme, presenters at DoI 2011

Jo Kirman giving lecture at DoI 2011 public lecture

Anne La Flamme giving lecture at DoI 2011

DoI quiz night

Dr Joanna Kirman (left) & Dr Anne LaFlamme at DoI quiz night

S.A./N.T. News

This year is an exciting time to be in Adelaide as an immunologist. We are gearing up to host the 41st ASI Annual Meeting to be held at the Adelaide Convention Centre, 11-15 December (2011). The organizing committee has been working hard to ensure that our meeting will be a success. We have secured top international speakers (Lisa Coussens, Richard Flavell, Michael Karin, Paul Kubes, Alberto Mantovani, Claudia Mauri, Michel Nussenzweig, Ed Palmer, Shugeru Saito, Joachim Schultze and Megan Sykes) and the planning for the Tumour Immunology (co-ordinator: Dr Cara Fraser), Infection and Immunity (co-ordinator: Dr Erin Lousberg), Transplantation (co-ordinator: Prof Toby Coates) and Prograd (co-ordinator: Dr Lindsay Dent) workshops are well underway and they promise to be a continuing exciting addition to this year's meeting. Our student reps Kiwi Sun and Kate Parham have helped to organize the student functions and have set up a Facebook page for the meeting. For all those social networkers out there, please visit the page and keep up to date on what's happening. The Facebook link is: https://www.facebook.com/group.php?gid=131570183544771. I would like to thank all of the committee members for their continuing efforts in the planning of ASI Adelaide 2011, especially our Convenor, Dr Claudine Bonder who is working tirelessly to ensure smooth sailing toward a terrific conference event.

On another note: we have just formed the committee for the 7th Adelaide Immunology Retreat (AIR) for PhD students, Honours students and research assistants to be held in late August this year. Our AIR7 committee members are Cara Fraser, Erin Lousberg, Iain Comerfold, Lachlan Moldenhauer, Sarah Brice, Anastasia Yu, Kate Parham, Kiwi Sun, Susan Christo, Siti Noordin and Sally Sun. An advertisement of the exact date and call for abstracts will be sent out by email to all SA/NT ASI members in June. Please support this event if you are a supervisor by encouraging your students and staff to attend as it is a great opportunity for them to give an oral presentation to their peers in a relaxed environment. Another incentive is that there will be three prizes conferred for the Best Presentations given by a PhD Student, Honours Student and Research Assistant (one in each category). We are looking forward to another great AIR event this year. For queries or more information, I can be contacted by email at michele.grimbaldeston@health.sa.gov.au. We look forward to seeing you there!

Michele Grimbaldeston
Councillor

Poster Prize Winner

Bernice Tan, Garvan Institute, Sydney

I was fortunate enough to have the opportunity to participate and to present my work at ASI annual meeting in Perth in the form of a poster. It was an enriching experience being presented with high quality talks and posters.

I am a third year PhD student working under the supervision of A/Prof. Shane Grey at the Garvan Institute, Sydney. Our laboratory focuses on Type 1 diabetes and transplantation. Type 1 diabetes is a disease where pancreatic islets are infiltrated with immune cells, which attack and destroy insulin producing pancreatic beta cells leading to a loss of glucose regulation. One of the mechanisms that cause beta cell destruction is the secretion of inflammatory cytokines by the immune infiltrate. Cytokines such as tumour necrosis factor alpha (TNFα) contribute to the pathogenesis of type 1 diabetes by impairing pancreatic beta cell function and causing beta cell apoptosis. However, the molecular processes that are induced in pancreatic beta cells by TNFα are not well understood. In order to better understand the effects of TNFα on pancreatic beta cells, our group used a microarray approach to identify early immediate response genes expressed in mouse islets following TNFα stimulation. From the microarray, we saw BIRC3 but not the other BIRC family members are regulated in mouse islets in the presence of TNFα. BIRC3 is an interesting gene because it has been shown to be associated with the TNF signaling pathway and also play a role in regulating apoptosis in other cell types.

My PhD project aims to understand the role of BIRC proteins in pancreatic beta cells and understand the signaling processes in pancreatic beta cells under inflammatory stress with cytokines such as TNFα. So far, we found differential basal mRNA expression of BIRC family genes in isolated primary BALB/c islets and MIN6 pancreatic beta cells. Interestingly, under conditions of inflammation, BIRC3 was induced in MIN6 cells, primary mouse islets and human islets, following stimulation with TNFα. We then went on to examine how BIRC3 is regulated in pancreatic beta cells. We found blockade of gene transcription *in vitro* with actinomycin D, suppressed BIRC3 expression, suggesting that BIRC3 is regulated at the level of transcription. Analysis of the proximal promoter region revealed a region rich in putative transcription factor binding sites for NF-κB, STAT, p53 and AP-1. This is interesting because cytokines such as TNFα, IL-1β and IFNγ are known to signal through transcription factors that bind these sites. In order to further study the BIRC3 promoter activity with cytokines, this region of the promoter was cloned and placed upstream of a luciferase reporter. MIN6 cells transfected with the BIRC3-reporter and stimulated with TNFα displayed identical induction patterns to BIRC3 mRNA expression kinetics in mouse islets and MIN6 cells, indicating the BIRC3 promoter region contains cytokine responsive elements. Subsequent work also showed that blocking of NF-κB activation suppressed BIRC3 expression, demonstrating that NF-κB is a major regulator of BIRC3 transcription. In addition, we found over-expression of BIRC3 in MIN6 cells was sufficient to induce activation of an NF-κB reporter, and NF-κB activation was further potentiated in the presence of TNFα. With the view that BIRC3 is important for TNFα-mediated NF-κB signaling in islet cells, we accessed NF-κB signaling in BIRC3 knockout islets. Surprisingly, BIRC3 knockout islets showed normal NF-κB activation by western blot and TNFα-induced expression of A20, a canonical NF-κB regulated gene, compared to islets from WT littermates. However, BIRC3$^{-/-}$ islets showed reduced expression CCL2 and CXCL10 expression with TNFα. There are evidences showing that CCL2 and CXCL10 genes are co-regulated by not only NF-κB but also by p38 and JNK. We propose that although BIRC3 alone may be sufficient for activating NF-κB, in the presence of TNFα, BIRC3 may be providing a positive feedback mechanism on NF-κB signaling. In the absence of BIRC3, islet cells may still have normal NF-κB signaling. We are now working on the hypothesis that in pancreatic beta cells, BIRC3 may play a role in regulating other TNF-induced signaling pathways such as p38 MAPK, and JNK.

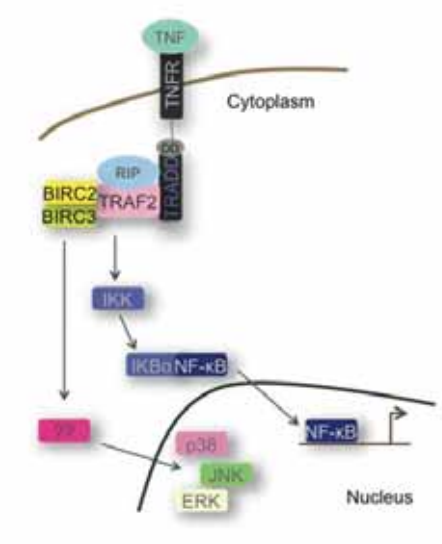
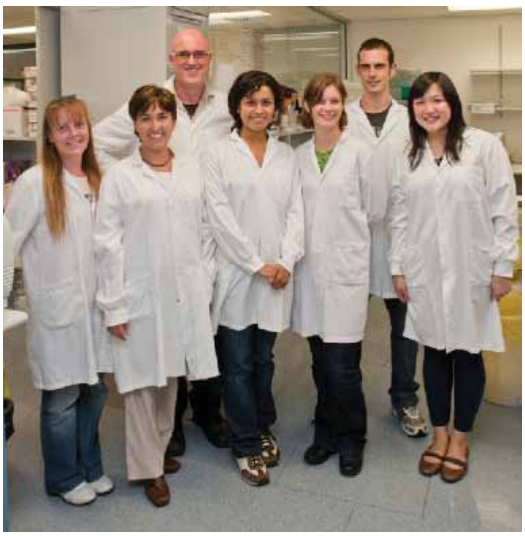


Figure 1
A diagram showing the hypothetical TNF signaling pathways in pancreatic beta cells



Members of the Lab 54 lab: (LtoR) Stacey Walters, Dr Eliana Marino, A/Prof. Shane Grey, Jeanette Villanueva, Elisabeth Malle, Nathan Zammit and Bernice Tan

Lastly, I would like to take the opportunity to thank my supervisor for his mentorship throughout the course of my PhD. This award would not be possible without him. The award came as a pleasant surprise despite my abstract falling in the miscellaneous category. The prize was definitely a pat in the back and a form of recognition to my work. Thank you ASI and the generous sponsors!

International Day of Immunology 2011, Melbourne

Angela Chan and Claerwen Jones, University of Melbourne

On Friday 29th April, secondary students and their teachers, the media and members of the public joined with immunologists to participate in a series of activities around the theme "Your Body At War!" to celebrate International Day of Immunology in Melbourne.

There was great media interest in the lead up to the International Day of Immunology. The Committee worked with journalists to prepare a front-page article in the *Voice* supplement of *The Age* discussing immunisation rates, following the retraction of Andrew Wakefield's paper linking vaccination with autism. The article featured expert commentary by Sir Gustav Nossal, Laureate Prof. Peter Doherty and Prof. Anne Kelso and was followed by broadcasts on local and national radio, including Einstein A Go-Go on 3RRR (Anne Kelso, 17/4/11), the Adam Spencer Breakfast Show on ABC 702 radio (Gustav Nossal, 29/4/11), and ABC News Radio (Anne Kelso, 29/4/11).

A full day Immunology program was held at the Gene Technology Access Centre (GTAC) for 90 VCE Biology (Year 12) students from nine schools. Students travelled from Melbourne, Geelong and Ballarat to participate in the day. Assoc. Prof. Andrew Lew and Prof. Peter Doherty treated students to a rousing introduction to Immunology. A range of activities in the lab gave the students a strong foundation in Immunology in preparation for the Immunology component of their Biology course. This included the "Your Body at War" exhibition – a stunning collection of informative posters about the immune system; "Putting Immunology under the microscope" – a microscopy workshop where students looked at immune cell involvement in infection, cancer and autoimmune disease; and "Bonding with your antigens" – where students performed an ELISA to learn about antibodies and their applications. The students then listened to inspiring career talks by PhD student Dimitra Zotos (WEHI), Industry scientist Brent McKenzie (CSL) and award-winning biomedical animator Drew Berry (WEHI). Feedback comments from students and teachers included: "It was excellent. Everything about the day was wonderful"; "Great variety of tasks and amazing selection of speakers"; "Very interesting and engaging. Helped me consider a path in medicine". The day was such an overwhelming success that a second Immunology program was run at GTAC for students from another nine schools on Friday 20th May, with Prof. Phil Hodgkin and Sir Gustav Nossal giving the opening address.

VCE Biology students "Putting Immunology under the microscope" at GTAC (Photo: Katrina Ferguson, Monash University)

In the evening, a public lecture series was held at the University of Melbourne. Dr Irina Caminschi (WEHI) chaired the evening and gave a great introductory talk setting the stage for the war between men and microbes! Prof. Elizabeth Hartland (Dept of Microbiology and Immunology, The University of Melbourne) followed, discussing how bacterial pathogens disarm inflammatory responses by blocking innate signalling pathways in an interesting talk entitled "*Bacterial diarrhoea: infection by stealth"*. Prof. Brendan Crabb (Burnet Institute), in his thought-provoking talk "*Fighting malaria; and the evolution of humans"*, spoke about the coexistence of the malaria parasite and homo sapiens over the last 200,000 to 400,000 years and the evolutionary selective forces wrought upon the human genome by this disease. Finally, Prof. Anne Kelso (WHO Collaborating Centre for Reference and Research on Influenza) gave an excellent talk on "*The continuing challenge of influenza"* describing the 2009 H1N1 influenza pandemic and explaining the role of the World Health Organisation's Global Influenza Surveillance Network in monitoring future pandemic viruses. A very receptive audience of 130 people attended the evening seminar, which was a great turnout for a Friday night that coincided with the Royal Wedding! Light refreshments followed the talks, allowing audience members a further chance to chat with the lecturers. The talks can be heard on the following weblink: http://harangue.lecture.unimelb.edu.au/Lectopia/Lectopia.lasso?ut=1448&id=113511#

Although April 29th has now come and gone, International Day of Immunology events are still not over! The Committee is running a competition for primary school students, which closes on Friday 1st July. This competition encourages primary school children to think about what happens when they get sick with a virus, and depict the battle between the body's immune cells and the invading virus as a collage (grades 1-3), or as a short video or digital story (grades 4-6). Winning entries will receive some incredible prizes for the students and

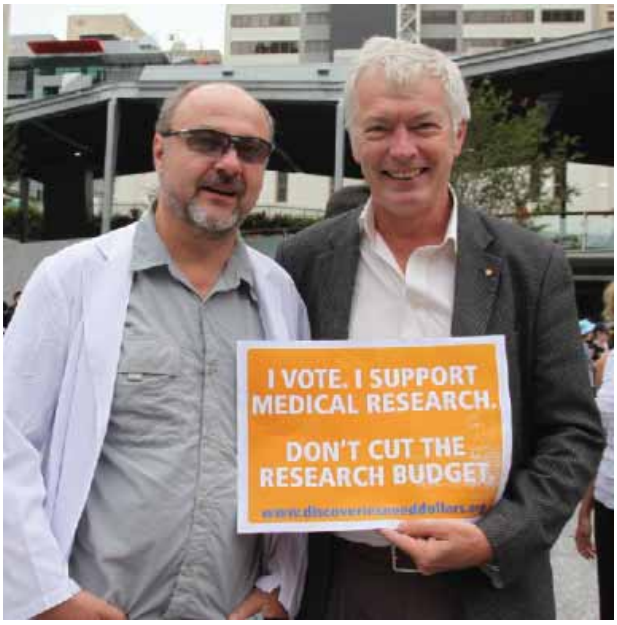
their classroom. ASI members are asked to promote this competition to their local primary schools. Participating schools will be sent out information packs to inspire and educate! Further details can be found at the following weblink: http://www.immunology.org.au/wdi.html

This year's Day of Immunology has been an outstanding success thanks to the generous support of our speakers and our sponsors and the tireless efforts of committee members and GTAC staff, particularly Tony Chiovitti and Brian Stevenson. The Committee would like to gratefully acknowledge the support from the following organizations: Australasian Society for Immunology, Immunology Group of Victoria, Walter and Eliza Hall Institute of Medical Research, The University of Melbourne, Burnet Institute, Peter MacCallum Cancer Centre, Monash University, GTAC, Bio-Rad, CSL, BD, Life Technologies, Interpath Services, SPP Medical and Legal Books, Australian Geographic, Officeworks.

The Day of Immunology committee is looking for new members for 2012 as we continue to showcase Victoria's contribution to medical research and encourage new initiatives in science communication. Participation in the committee provides a wonderful opportunity to network with fellow immunologists from across Melbourne research institutes and universities and provides an opportunity to get experience in event organizing, communication and media relations, sourcing event sponsorship, and working as part of a dynamic "bring science to the public" committee! Interested people should contact Claerwen Jones at cmj@unimelb.edu.au.

"Bonding with your antigens":
Jess Reiseger assisting VCE Biology students perform an ELISA at GTAC".
(Photo: Katrina Ferguson, Monash University)

Discoveries Need Dollars rally, Brisbane, 19th April 2011



Above: Andreas Suhrbier and Michael Good

Right: The rally in Brisbane

(Photos: Mimi Kersting, QIMR)

Queensland Day of Immunology 2011

Merja Ruutu, Diamantina Institute

It all started overseas. Weird things happen in conferences: people meet each other, start talking over the drinks, one thing leads to another … That is how I realized Queensland doesn't celebrate the Day of Immunology, after bumping into Chris Schmidt in Japan. And I decided that something needs to be done to that shameful fact.

However, soon I realized that it is quite hard to introduce new things into people's minds, and raising interest for the concept of the Day of Immunology was challenging. But in Finland we have a thing called 'sisu'. That could be translated to 'bloody hard will'. With that we pushed Russians from our border during WWII and made Nokia one of the leading companies in the mobile phone business; and with 'sisu' I would make Day of Immunology happen.

I had strong support from Chris and Alejandro Lopez and money from ASI with the help of State Councilor, Ash Haque. With a few really awesome volunteers, we made it happen.

Our DoI was held at PA Hospital on 27th April. We had an immunology quiz created by students and RAs; we had a corner where you were able to dress as an immunologist and have photos taken. Dr Sandrine Roy brought a brightfield microscope and interesting slides with her and we were able to see, at a microscopic level, the havoc that diabetes does to your pancreas and arthritis to your joints.

We had great lay talks in different areas of immunological research. Professor Andreas Suhrbier from QIMR started by telling us hard facts about vaccination. His colourful presentation made us shake with laughter. In the end, we had no doubt as to what he was thinking of us if we didn't get our vaccinations. Assoc. Prof. Maher Gandhi from QIMR revealed how dangerous kissing can be and how miracles do happen through immunologists' hands. Dr Andrew Cotterill and Prof. Ranjeny Thomas talked about diabetes and arthritis and what happens when the immune system goes haywire and starts a civil war in our body. All talks were really interesting and gave us both information and entertainment.

It was quite a challenge to organize the DoI; however, the first time is always the hardest. It may not be perfect no matter how you plan it. But you have to start somewhere and, with practice, you will succeed. One day. Stay tuned for that.

Professor Andreas Suhrbier giving his vaccination talk

Dr Merja Ruutu

ASI STUDENT NEWS

The past few months have been an uneasy time for scientists with the threat of cuts to medical research funding in the May budget! In response, the scientific community has rallied with a number of grassroots campaigns launched, notably the Discoveries Need Dollars initiative (www.discoveriesneeddollars.org) which has organised rallies in a number of capital cities. Hoards of scientists (including ourselves!) took to the streets and steps of Parliament House (in Adelaide) to make our voices heard! I hope many of our fellow ASI student members took the opportunity to fight for our future, as any cuts to medical research funding will impact early career researchers greatly! Hopefully, by the time this goes to press, anxiousness will have eased, with the government listening to our pleas and making the right decision (fingers crossed!).

On a lighter note, we are now half way through 2011 and, as PhD students, the speed at which this year is passing is not appreciated. After a 5-day Easter/ANZAC day long weekend (or a mini holiday) it is a great opportunity to return to the lab refreshed and ready to knuckle down and produce some amazing data to share with our peers at the 41st Australasian Society for Immunology meeting in Adelaide. With only six months until the festivities begin, organisation of the student function is well underway, with the venue chosen as the Adelaide Rowing Club, and our focus now turned to entertainment!

Just to remind people that there is ASI Student Facebook which all members are welcome to join. We want to maximise the use of it for better networking amongst us, so we will set up some Facebook discussions based on different research areas (e.g. B cells, T cells, DCs). Members are encouraged to introduce themselves and participate in discussions covering a number of topics including research areas, the social function, collaboration opportunities and destinations for post-doc studies. Any discussion topics which are not available can also be set up by request. Please feel free to contact us!

Kate Parham and Kiwi Sun
ASI Student Representatives 2011

Contributions sought for the ASI online immunology quiz

As part of World Day of Immunology events, we have developed an online immunology quiz (see http://www.immunology.org.au/immquiz1.html) on the ASI website. This quiz is targeted at the general public, but it would be good to add a few more questions (especially some with an Australian flavour), and maybe even add an "Advanced Level", with questions that undergrad students might find useful for revising for exams. All that's needed now are the questions and answers.

If you would like to contribute any multiple choice questions for either the general quiz or an advanced version, please send them to Judith Greer at j.greer@uq.edu.au.

Rally at Parliament House, Adelaide

Travel Award Conference Reports

14th International Congress of Immunology

Kobe, Japan, 22–27 August 2010

Zheng Lung Ling
University of Sydney

I was extremely fortunate to be awarded the ASI International Travel Grant to allow me to attend the 14th International Congress of Immunology in Kobe, Japan. Words could not describe how excited I was about the prospect of attending my first major international conference of this magnitude, and also Japan had always been a destination that I dreamt of visiting. Furthermore, I had the privilege of going with my supervisor, Professor Nick King, and two of my fellow PhD students from the lab, Amanda Yeung and Rachael Terry.

Upon arriving in Kobe in the evening, our first impression was how humid, hazy, and warm Japan was at the time of the year. Although having grown up in a tropical country like Malaysia before moving to Australia and accustomed to the hot and humid climate, I was overwhelmed by how sticky and unpleasant it was! By the time we made our way to our hotel, we were sweating like we had just been to a sauna. However, a couple of days later, the haze in the form of water vapour dissipated; but the heat from direct sunlight was immense throughout our trip. Perhaps we should not be complaining, as that could be the reason why the airfare was relatively cheap at the time.

At the registration desk, we were hit by the fact that The International Congress of Immunology was indeed in a different league to the average conference we had been attending in the past when we were overwhelmed by the sheer volume of abstracts in the form of several kilograms worth of books and thousands of attendees flooding the Convention Centre. As a result, we were in a dilemma of whether to spend the evening strolling the streets of Kobe, or to go through the abstracts so that we could decide which sessions to attend the next day. Tough!

The conference itself was packed with quality contents from all aspects of immunology, including infection and immunity, tolerance/autoimmunity, development/differentiation of immune cells, lymphocyte regulation, and clinical immunology, with each category further divided into even more sub-categories. Deciding which talks to attend was very difficult. I was particularly drawn to the lunchtime lectures (partly for the free lunch for those with shallow pockets) which were presented by some of the renowned immunologists, such as Professor Foo-Yew Liew from University of Glasgow, who spoke of the role of IL-33 and IL-35 in infection and autoimmune diseases, where IL-33 has a pro-inflammatory property in infection and inflammation, and can induce a Th1 to Th2 response shift. Another interesting lunchtime lecture was delivered by Professor Shimon Sakaguchi on a broad review on regulatory T cells in tolerance and immune homeostasis. The lecture included the origin of regulatory T cells, their mechanisms for immune regulation, and also various approaches and parameters in immune therapy and their success.

Other than the plenary talks and lunchtime lectures, the conference was packed with numerous symposia of excellent quality. Of interest was the talk by Professor Adrian Hayday about oligo-clonal lymphocytes, which respond to stress antigens and enhance Th2 responses. The talk also discussed novel communication pathways between epithelial cells and resident lymphocytes in the skin and gut. There was also a talk by Professor Shigekazu Nagata about the clearance of apoptotic cells by phagocytes, and failure to clear apoptotic cells or properly degrade their cellular components could result in severe autoimmune diseases such as severe anaemia and chronic arthritis.

The poster sessions featured walls and walls of countless posters each day throughout the duration of the conference. There were simply too many of them to go through with reasonable detail, and one could only scan the titles and hope to be captured by keywords of interest. As my project is currently revolving around cell-derived microvesicles, I managed to find, among many other interesting ones, a poster by Lisa Ayers from Oxford, UK, about methodologies used in microvesicle detection; and Tamer Kahraman from Turkey whose poster was about increased microvesicles levels in Behcet's Syndrome and asthma patients. It was suggested that I could use a novel label for microvesicle detection, and Lisa was particularly interested in how I processed my electron microscope specimens.

Also during the conference I was deeply impressed by the courage of some of the young Japanese scientists to deliver oral presentations despite the fact that English was far from a familiar language to them. It was amazing how some went to the extent of memorising every syllable and gave a full 20 minute presentation. This is something that I will never be able to do in front of an audience.

By the end of the conference, I had more or less fulfilled my objectives of attending this conference which were, firstly, to present my novel research and exchange ideas and opinions; secondly, to broaden my perspectives by attending various presentations that were not directly related to my project; and thirdly, to explore future career possibilities around the globe. Overall the event organisers did a fantastic job organising and managing an event of

this magnitude and made sure that it ran smoothly.

When the conference concluded, we could not resist the temptation of staying back a few days to visit the attractions that Tourism Japan had to offer, despite the fact that we all had so much to do back in the laboratory at home. It is no wonder that Japan has always been one of the top holiday destinations for tourists around the world. The castles that we managed to visit and the countless temples, gardens, and parks were simply amazing. We travelled along the south coast by the famous Japanese bullet trains, and had the opportunity to visit the Hiroshima Castle (although it was a rebuild), Himeji Castle (original! But under restoration), Osaka Castle (another rebuid), and what was left of the Imperial Palace Garden in Tokyo. We also managed to squeeze Nara, Kobe, and Kawaguchi-ko Lake near Mt Fuji into our agenda in the extremely short period of time that we had left, but the scenery was simply stunning, even though it was off-season, which means there was no snow on the peak of the mountain and it was covered by clouds most of the time. One could only stare at postcards and imagine what the scenery would look like in flesh.

Walking along the vibrant and colourful streets really immersed us into the modern culture of Japan. There were endless attractive restaurants, confectionaries, and street foods tempting us to try as much as our stomach and pockets allowed. There was just so much to see and experience! As you would imagine, we did not have the time to immerse ourselves in what Japan had to offer, rather, we had a quick glance at what Japan was like, and we were EXHAUSTED and hot tempered towards the end of our trip from the heat and rushing around and also minimal hours of sleep; but overall it was an awesome experience. We were already missing Japan by the time we were on our way to the airport.

I would like to sincerely thank ASI for providing me the opportunity to witness and be part of such a major event at the ICI conference. Without the support of the travel grant from ASI I would never have the opportunity for such an amazing experience at this stage of my life.

Keystone Symposium – Immunologic Memory, Persisting Microbes and Chronic Disease

Banff, Alberta, Canada, February 6–11, 2011

Sarah Moneer
University of Melbourne

Earlier this year, I had the privilege to attend the Immunologic Memory, Persisting Microbes and Chronic Disease Keystone symposium in the picturesque town of Banff.

My journey began with a 22-hour flight to Calgary, followed by a 1½ hour bus ride from Calgary to Banff. After checking in at the front desk (surprisingly, with an Aussie receptionist), I had barely enough time to dump my luggage in my room, change into some fresh clothes and dash to the conference centre before the beginning of the Welcome and Keynote Address. I'll be honest – after being awake for over 24 hours, crossing two continents and shifting from Australian summer to Canadian winter, much of that opening keynote speech was a blur. Future ITA winners please note: when travelling to a conference on the other side of the world, it is advisable to arrive the night before.

Following a good night's sleep, my conference experience improved significantly. Being such a specialised meeting, the conference was much smaller and the program more relaxed than the hustle and bustle I had grown accustomed to at the annual ASI meetings. There were no concurrent sessions running, so one was able to attend all of the presentations without being forced to choose. The program also allowed ample recreation time for conference attendees to explore the many wintery wonders of Banff.

The first session of the conference was opened by the University of Melbourne's own Professor Frank Carbone, who spoke about his group's research into anti-viral T cell memory and protection in non-lymphoid tissues. True to its name, the symposium had a strong focus on memory T cell subsets, differentiation and transcriptional regulation in a setting of chronic infection. The talks were both enlightening and incredibly educational. John Wherry and David Brooks introduced me to the role of T-bet and Bimp-1 in memory T cell differentiation; Rafick Séckaly impressed upon me the role of PD1 in regulating T cell activity; and Bob Seder stressed the importance of examining polyfunctionality when determining the quality of a T cell response. B cells were not to be neglected, however, with Andrea Cerutti, Falk Nimmerjahn and Susan Moir giving fascinating presentations about the regulation and quality of antibody responses in infection.

Sunrise over the Rockies

A special mention must be made for Dr Rafi Ahmed, an incredibly prominent T cell biologist at the Emory University School of Medicine in the United States and deliverer of the final Keynote speech. I lost count of the number of presenters who acknowledged Rafi and his group in their presentations. Rafi's talk was, in fact, my favourite of the entire conference. He demonstrated that antibodies generated to the conserved stem of hemagglutinin (versus the polymorphic globular head) could bind all H1 variants and limit infection, thereby potentially overcoming the issue of antigenic drift and variations between different seasonal flu strains in vaccine design.

The conference was not all work and no play. During our various recreational breaks I had the chance to explore the town, go cross-country skiing on a breathtaking trail near the hotel (or castle, rather – it was HUGE) and walk along the icy trail by frozen waterfalls in Johnston Canyon. Being surrounded by the Canadian Rockies and endless rows of pine trees draped in blankets of snow was truly a memorable experience.

So, thank you ASI for granting me this international travel award and enabling me to attend this spectacular conference. I would highly recommend attending this meeting to all T cell enthusiasts who don't mind a little cold.

Sarah in snowy Banff

Keystone Symposium – Stem Cells, Cancer & Metastasis Meeting

Colorado, USA, March 6-11, 2011

Edwin Hawkins
Peter MacCallum Cancer Centre, Melbourne

There is always that point when buried deep in the bowels of Los Angeles International Airport immigration, after a 15 hour flight wedged between a few people who really should have bought an extra seat, you still need binoculars to see the front of the queue and less than 45 minutes to your connecting flight, you stop and think to yourself, "Is this really all going to be worth it?" But quickly after arriving at the Keystone resort in Colorado, USA, it all seemed worthwhile. I found this Keystone conference to be something quite special, and I encourage those students and post-docs who have yet to attend one to do so. Previously, I have attended large international conferences and become consumed by the sheer numbers of other attendees which makes movement between sessions impossible and access to any of the invited speakers non-existent.

But this conference was an exception. A commitment from organisers to keep delegate numbers small in combination with truly spectacular locations means you would struggle to find a better way to spend six days. This was considered a large Keystone meeting with just over 400 delegates, however the feeling of the meeting was still very intimate and the effort by senior delegates to attend and interact at poster sessions was excellent. The theme of this Keystone meeting was Stem cells, Cancer and Metastasis and was nestled at the Keystone resort about two hours out of Colorado. Being an immunologist who now masquerades as a cancer biologist, it is nice to realise that the key questions that underpin the biology of both problems remain the same. That is, understanding and appreciating how cells grow, die and differentiate enables you to "wing it" about 90% of the time when talking off topic.

The scientific highlight of the meeting for me were the herculean efforts of Sean Morrison to dissect out the true "stemness" of cells that allow cancer cells to regenerate tumours. Professor Morrison presented a massive study where single human melanoma cells from separate patients were transplanted into large cohorts of recipient mice. Once these cohorts presented with tumours, single cells were again isolated and transplanted into subsequent large cohorts of mice. Microarrays were then performed on the tumours at every stage to determine whether the molecular signature was maintained due to a single cancer stem cell or if divergent populations were produced. The size of the studies and the experimental design of this work was truly staggering and had a significant impact on how I now think about the function of cancer stem cells. Furthermore, the commitment to presenting large portions of unpublished data was extremely refreshing.

The other highlight of the meeting was the snow. The organisers leave a 6-hour break from 11am to 5pm every day to brave the slopes. This, combined with the fact Keystone has had its best season in 10 years, 13km^2 of ski-able terrain, 135 runs (some as long as 6km), meant I was more than prepared to gamble the health of my body against the cost of America's hospital system in order to have a good time. And to be honest, it was worth every potential $10,000 denomination of damage. Although you might have received a different answer from the group of delegates on crutches and casts that accumulated at the rear of the seminar room as the conference progressed. But, that feeling of catching a snowcat to 12,000 feet (see photo) and snowboarding on untouched snow was something extremely special that I will never forget, even if I did almost kill another delegate from the Garvan Institute by attempting to snowboard underneath a tree, bumping it slightly and subsequently

initiating a mini two-metre avalanche in his path. Oh well, with the pressure on the NHMRC to cut the budget, it would have just meant one less grant to fund (Sorry Simon!).

The lowlight of the conference was walking 50 metres at 9,400 feet of altitude in the Keystone village. Yes, as a prelude to old age and retirement villages, even the simplest of tasks at high altitude seems difficult. The small walk to pick up beer and groceries on the first day ended up feeling like the entire journey from all three *Lord of the Rings* movies jammed into one 10 minute blockbuster. The adventure of this trip was then rounded off when I pulled out my crispy US dollars acquired in Australia before my trip and was subsequently accused of trying to purchase my beer with counterfeit money. Now, from my extensive knowledge of action films (although from my recollection the film *Boyz 'n' The Hood* was not set in a ski resort), I knew there was a very high chance that my friend behind the counter was surely packing a wide array of firearms, so I declined to argue with him. Instead, I left the store, emptied my wallet into the nearest muddy pile of snow, jumped up and down on the contents for a minute or two and returned a few hours later. Success.

After six great days at Keystone, it was back to the real world and time to prepare for visits to labs in Boston and London. Upon arrival in Boston I was quickly informed what a terrible winter they were having this year. In fact, they had resorted to measuring the amount of snow they had received that year in units of the basketball player Shaquille O'Neal. For example, in conversation multiple times I heard: "Yeah, we've had 1 Shaq worth of snow this year" in a thick Boston accent. Now, this roughly translates to 2.16 metres of snow, but there was definitely something cooler about saying 1 Shaq. Boston is an extremely comfortable city and not too dissimilar from Australian centres such as Melbourne. There is a definite smell of academia in the air with Harvard, MIT, Massachusetts General Hospital and all their subsidiaries scattered around the city. The take home message for anyone considering visiting Boston for a post doctoral placement is that if you can deal with the Shaq related units of snow each year, the access to technology and potential to collaborate with some of the best labs in the world is quite special.

In summary, it really was a fantastic trip and I felt extremely privileged (usually when pimping it out in Keystone) to receive the opportunity to take such a trip. In reality, without the continued financial support of ASI, trips like this would be far more difficult for post-docs. So thank you to the ASI for the opportunity to attend a great conference and have a fantastic post-doc tour. I encourage all ASI members who are eligible to apply for the next round of funding and wish you all good luck with your applications!

40th Keystone Symposium – Immunoregulatory Networks

Breckenridge, USA , April 2011

Eric Tu

Department of Biochemistry & Molecular Biology, University of Melbourne

I was fortunate to receive an ASI International Travel Award which gave me the opportunity to attend Keystone Symposia: Immunoregulatory Networks, and visit some of the most renowned labs in the field of immunology. The conference was held from 1-6 April at Beaver Run Resort, a major ski resort in Colorado, USA, attracting around 400 attendees. There were morning and night sessions each day and the interval between 11:30am to 5pm was especially reserved for attendees to ski and enjoy facilities at the resort. However, just like many other attendees, I suffered from serious high altitude sickness during the entire conference and missed out on the opportunity to ski at such a fantastic place, which was really a pity.

The conference was a regulatory T cells (Tregs)-centric meeting, and focused on how regulatory T cells interact with other cell populations and utilise different cytokines to prevent autoimmune diseases and regulate immune responses. High-quality speeches were given at this conference by many well-known immunologists, no doubt attracting a lot of talented post docs and students. Vigorous discussions always ensued after each talk which demonstrated the novelty and significance of science being presented in this meeting. Some great talks of the meeting for me included:

- Diane Mathis's (Harvard University) keynote address on the role of Tregs in tissues. A high percentage of Tregs (60% of CD4 T cells) is found in adipose tissue and these Tregs have distinctive gene profiles and TCR repertoires compared to Tregs in the spleen and lymph nodes. Importantly, Tregs in adipose tissue are fully functional and have been shown to be essential in suppressing inflammation triggered by obesity, which is linked to the development of insulin resistance.

- Dario Vignali's (St Jude Children's Research Hospital) presentation of his results on a new Treg population that produces the inhibitory cytokine, IL-35. He showed that treatment with IL-35 induced a regulatory population in both naïve human and murine T cells. These IL-35-induced Tregs display comparable or improved suppressive capacity over natural Tregs and mediate suppression via IL-35, but not TGFβ or IL-10. Most importantly, IL-35-induced Tregs neither express nor require Foxp3 for their regulatory functions.

- Wanjun Chen's (NIH) talk that TGFβ is not only required for the generation of induced Tregs in the periphery and natural Tregs in the thymus, but is also required for the development of $TCR\alpha\beta^{+}CD8\alpha\alpha^{+}$ intestinal intraepithelial lymphocytes (IELs). Strikingly, his group has discovered that TGFβ can also induce the re-expression of repressed CD8α in lineage-committed peripheral CD4 T^{+} cells.

- Following Wanjun Chen's talk, Hilde Cheroutre (La Jolla Institute for Allergy & Immunology) presented work from his lab which demonstrated that a new regulatory population, $CD8\alpha^{+}CD4^{+}$ IELs, were converted from $CD4^{+}$ T cells in a TGFβ-dependent process. $CD8\alpha^{+}CD4^{+}$ IELs express regulatory and also cytotoxic phenotypes. Moreover, the presence of $CD8\alpha^{+}CD4^{+}$ IELs correlates with less or no disease in the colitis model.

- Jeffrey Bluestone (UCSF) presented findings on the association between the instability of Foxp3 in Tregs with the onset of autoimmunity. At the peak of inflammation in EAE, there is a high percentage of Tregs losing their Foxp3 expression. In contrast to that, the population of unstable Tregs decreases and an increase in the percentage of Tregs that stably express Foxp3 is found during the recovery stage.

A poster session of 2½ hours was set up each day after dinner and around 50 posters were presented at each session. Last year I attended the 14th International Congress of Immunology in Japan and I was overwhelmed by hundreds of posters presented in the poster session daily. In comparison, I much preferred the session at Keystone since I was able to interact more with other scientists and was able to seek out the posters that I was highly interested in. I presented a poster on a portion of my PhD project titled: "TGFβ-induced autoantigen-specific $Foxp3^{+}$ regulatory T cells promote regeneration of tissue in fully-established autoimmune diseases". During the poster presentation, I was given valuable exposure and feedback which greatly aided in the formulation of ideas for my thesis and design of future experiments. I was pleasantly surprised by the number of people who were interested in my area of research. I was also given the opportunity to speak with some other researchers about their fantastic work.

Prior to the conference, I travelled to Washington DC where I visited Ethan Shevach at NIH, who is no doubt one of the most respected researchers in the Treg field. There I presented an hour-long talk to his lab members and received many good suggestions on advancing my work. I was extremely grateful for Dr Shevach and his lab members' hospitality. Whilst at NIH, I also had the chance to visit Kristin Tarbell and Wanjun Chen to talk about potential post doc projects and showcase my work to their lab members. I was really amazed by the depth of knowledge and comprehension of people in NIH. Although most of them worked on something totally different to me, the questions they asked reflected a deep level of understanding and gave me some new insights about own my work.

Following the conference, I made my way to San Francisco where I visited a few labs at UCSF, which was another highlight of the trip. I was excited when Qizhi Tang invited me to attend the joint lab meeting of the Tang and Jeffrey Bluestone's labs, where I learnt about the research currently conducted in their labs. After the lab meeting, I presented my work to the UCSF tolerance group, which consists of Qizhi Tang's, Jeffrey Bluestone's,

Mark Anderson's and Abul Abbas's labs. Although I had already presented my work in front of other scientists quite a few times, it was extremely nerve-racking to speak in front of so many renowned immunologists. Fortunately, my presentation went smoothly and received much positive feedback. It was also very beneficial for me to meet with the members of those labs who shared their research findings with me and also gave me a better understanding on the lab environment and life in the US.

Overall, this trip has certainly given me a lot of exposure as a scientist and has been a wonderful learning experience. The Keystone meeting was highly beneficial to my study and expanded my knowledge in immunoregulation. Apart from the meeting, visits to those famous labs were important steps in developing my career as a researcher. During this trip, I was thrilled to find out there were so many people who were highly interested in my work and also labs that are keen to receive me after the completion of my PhD. Of course, none of these could come true if it was not for the invaluable help and funding from ASI, for which I am extremely grateful.

ASI Secretariat
PO Box 7108,
Upper Ferntree Gully,Vic. 3156
Australia
Tel: +61 3 9756 0128
Fax: +61 3 9753 6372
Email: asi@21century.com.au
Office hours:
8.30am – 4.30pm

Keystone Symposium – B cells: New Insights into Normal versus Dysregulated Function

Whistler, Canada , April 12–17, 2011

Dominique Gatto
Garvan Institute of Medical Research, Sydney

Travel journal
I am not a diary person, my last attempt at keeping a journal ended nearly as soon as it began. Yet, I set out to my trip to the B cell Keystone symposium "New Insights into Normal versus Dysregulated Function" in Whistler, Canada, with the intent of diligently keeping a daily record of my experiences to be able to remember and share them on my return.

Tuesday April 12
After a long journey I arrived in Whistler, a mountain town approximately 2 hours drive from Vancouver, known for hosting the Winter 2010 Olympics. The pretty scenery with lakes, snow-coated mountains and fir tree woods during the bus drive from Vancouver and the winter atmosphere in Whistler village was a re-discovered and refreshing sight for my "Australia adapted" eyes so used to admiring the ocean.

The opening of the conference, held in the Fairmont Chateau Hotel, was preceded by refreshments, and just over 400 immunologists gathered for the welcome and Keynote address. The strength of Australian immunology in the B cell field was highlighted by a numerous delegation of Australian scientists and, most notably, by an Australian immunologist (one of the ones who "saw the light" and left the "dark side" after spending a few years in the US, according to the introduction by David Rawlings), Christopher Goodnow, giving the Keynote address.

Chris Goodnow's talk started with a bit of history on some of the discoveries that not only led to Nobel prizes but also had significant "return on investment", like the use of monoclonal antibodies as drugs. In particular, he discussed the discoveries by Burnet and Medawar on clonal selection, which formed the basis of monoclonal antibodies and the understanding of the generation of immunity vs tolerance. The mechanisms underlying the decision of lymphocyte activation vs tolerance are still poorly understood and this was one of the main themes of the conference. Prof. Goodnow presented new insights from his lab on this process, which included the role of new molecules, identified by the powerful ENU genetic screens, such as ATP11c, Card11 and DOCK8, as well as mechanisms of regulation of the B cell receptor in tolerance induction. This inspiring talk ended with a vision of where we hope to be in another 50 years after the Burnet and Medawar Nobel prize, namely in a position not only to understand how lymphocytes select (or not) to mount the correct response and are activated or tolerised but, more importantly, to be able to switch the response to cure disease.

Wednesday April 13
We woke up to an unbelievably white morning; it was snowing, a sight that got many conference attendees excited, even some Swiss-born like myself. But as today's program promised a full day of interesting talks, little opportunity was left to enjoy the white delight.

A personal highlight of this first day was the session on germinal centre biology. In particular, a Japanese group presented a novel BCL6 reporter mouse strain with data indicating that antigen-engaged B cells upregulated BCL6 before clustering in GCs and T cells expressed BCL6 before interacting with B cells. In the evening plenary session, Facundo Batista provided the first evidence for a role for a cytoskeletal motor protein, Dynein, in moving B cell receptors on the plasma membrane and showed data suggesting a function for iNKT cells in providing help to B cells.

After being spoiled with "Lite Bites", which for non-American standards were closer to a full dinner, the poster session took place. Despite the full day, the session was very well attended and many interested attendees asking questions came by at my poster until late in the night.

Thursday April 14
The program again offered an interesting variety of talks based on both mouse and human research. In the morning

plenary session Andrea Cerutti presented findings suggesting that human splenic neutrophils regulate innate B cell memory by undergoing functional reprogramming in response to bacterial signals. In a talk from Michael Cancro's lab, a novel population of innate-like B cells (ABCs, "Age-associated B cells") was described, confirming the results from a study presented the previous day. This population of B cells present in both mice and humans was shown to expand with age and be associated with the development of autoimmunity. Another presentation that caught my interest described a novel mouse reporter strain for IgE, which offered a new tool to follow IgE responses and demonstrated that, contrary to previous belief, IgE+ cells were present in germinal centres.

While question time had usually been very friendly at this meeting (in contrast to the highly entertaining but rather aggressive questions/comments from leading immunologists at the previous B cell conference), a heated disagreement took place between Claudia Berek and Bertrand Huard on whether to call the newly discovered population of cells producing APRIL and mediating survival of plasma cells in the bone marrow "eosinophil" or "myeloid precursor". It remains unclear to me whether the difference was due to the markers used to define this population or a difference between mice and humans.

Friday April 15

The morning plenary session offered a great line-up of speakers and very interesting presentations around the theme of the germinal centre reaction and B cell memory. However, what most attendees were probably most looking forward to today was the opportunity to go skiing or snowboarding during the long lunch break. The conditions could not have been more optimal since it had been snowing the last few days and the sun was shining. Those who did not enjoy the afternoon on the skis had the chance to try and spot a bear by going for a walk in the woods. In fact, Whistler and Blackcomb Mountains support a population of up to 50 Black bears that have adapted to feeding, mating, and hibernating amongst ski area habitats (see picture). Unfortunately (or fortunately …) I cannot share the experience of meeting one.

Saturday April 16

Much of the talks on this last day revolved around the role and manipulation of B cells in human autoimmunity and immunodeficiency, with interesting presentations on BAFF inhibition in SLE (Anne Davidson), immununopathogenesis of B cells in HIV infection (Susan Moir) and the human response to H1N1 influenza virus (Patrick Wilson). As a special guest, Shiv Pillai performed his famous lymphocyte rap, an interpretation on the function of the immune system that can even be found YouTube.

The good balance of presentations based on the study of mouse models and talks showing human data was one of the big strengths of this meeting, which offered a varied yet focused array of fascinating talks around the theme of normal vs dysregulated B cell function. I am sure that, like me, many young immunologists will return to their daily lab routines motivated and inspired by this meeting and I can only recommend this meeting series, for its topics and the excellent platform its size offers for discussions and interactions. The wonderful surroundings clearly contributed to enjoyment of the trip which, for many lucky attendees like myself, will continue with a little exploration of this part of Canada. However, I am afraid my writing of a travel journal, which only just started, will also end with this part of the journey…

Last but not least, I would like to thank ASI for supporting my attendance to this conference and continuing to give young researchers the opportunity to travel to international conferences.

Whistler Black Bear

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41st Australasian Society for Immunology Annual Meeting

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Registration details will be available at www.asi2011.org
Abstract Submissions close September 2011.
A number of abstracts will be selected for oral and poster presentations.

CONFERENCE THEMES:

immune regulation and functional genomics, regulatory lymphocytes (B & T cells), mast cells, multiphoton microscopy and leukocyte trafficking, innate immunity, inflammation, autoimmunity, reproductive immunology, tumour immunology, transplantation and more...

CONFIRMED INTERNATIONAL SPEAKERS:

- David Artis, University of Pennsylvania, USA
- Lisa Coussens, University of California, San Francisco, USA
- Richard Flavell, Howard Hughes Medical Institute, Yale, USA
- Paul Kubes, University of Calgary, Alberta, Canada
- Alberto Mantovani, University of Milan, Italy
- Claudia Mauri, University College London, United Kingdom
- Ed Palmer, University Hospital, Basel, Switzerland
- Shigeru Saito, University of Toyama, Japan
- Joachim Schultze, LIMES Institute, Bonn, Germany
- Megan Sykes, Columbia University Medical Centre, New York, USA

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MEETING SECRETARIAT:

Mike Pickford
• ASN Events • 3056 Frankston-Flinders Rd
• (PO Box 200) Balnarring Victoria 3926 • email mp@asnevents.net.au

Publications List

Congratulations to ASI members who have published their following work in the last three months (articles with an ePub date between January and March 2011)

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