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A Synopsis of Immunology Research, Past and Present, at The Queensland Institute of Medical Research

Michael Good

QIMR, which this year celebrates its 60th Anniversary, has a rich history in immunological research and related areas of microbiology and vaccine technology. Perhaps the Institute's first foray into detailed cellular immunology was in the 1970s and early 1980s when Denis Moss, Ihor Misko, Alan Rickinson and John Pope were able to show that regression of EBV-transformed B lymphocytes occurred in culture and was mediated by cytotoxic T cells. Over the subsequent 30 years this work spawned an enormous number of discoveries concerning immunoregulation, epitope discovery, multi-epitope design strategies for EBV and other pathogens and the development of experimental immunotherapies for EBV-related tumours, and more broadly for many other tumours as well. Early landmark publications were in *Nature*, *International Journal of Cancer* and *PNAS*. Many talented immunologists were trained in the Moss lab (EBV Biology Lab). Current QIMR Lab Heads who have been mentored by Denis Moss are Scott Burrows (Cellular Immunology Laboratory), Rajiv Khanna (Tumour Immunology Laboratory), Ihor Misko (EBV Immunology Laboratory), Chris Schmidt (Cancer Immunotherapy), Tom Sculley (EBV Molecular Biology Laboratory) and Andreas Suhrbier (Immunovirology Laboratory). These investigators have established active research programs in different fields of applied immunology. Khanna, Suhrbier, Scott Thomson (now at JCSMR) and Moss were inventors of a major piece of IP, the polytope technology (owned by the CRC for Vaccine Technology) which demonstrated that absolute minimal CD8+ epitopes can be stitched together and induce immune responses to each target epitope. Polytopes



Michael Good

can be delivered as naked DNA vaccines or vectored with various delivery technologies. Suhrbier has studied a number of different delivery technologies for vaccines and more recently, with Alex Kromyk (Sakzewski Institute), has been working on replication-deficient RNA viruses (replicons) as a means to deliver polytopes and other nucleic acid-encoded epitopes into cells for persistent antigen presentation.

A further lab (Dendritic Cells and Cancer) commenced in close collaboration with Chris Schmidt, when Alejandro Lopez was recruited from the Mater Medical Research Institute to QIMR in 2002. Alejandro, with Chris Schmidt and Andrew Nicol (Cell Therapy Lab, in conjunction with The University of Queensland), is developing cell based therapies for cancer at QIMR. The late Professor Greg Johnson and Emeritus

Professor Kay Ellem (former QIMR Deputy Director) were responsible for initiating cell-based therapy research at QIMR in the mid 1990s. Kay Ellem continues to work closely with Chris Schmidt and clinical collaborators in Brisbane, particularly with respect to new approaches to treating metastatic cancers with depot cytokine strategies. The labs of Denis Moss and Rajiv Khanna also have significant interest in cell-based immunotherapies (for nasopharyngeal carcinoma and Hodgkin's disease). Cell-based therapies received a major boost with an NHMRC Grant to establish a GMP facility (2003), Q-Gen, and the establishment of a clinical trials company (in collaboration with The University of Queensland), Q-Pharm (CEO: Professor Wayne Hooper).

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Website

The ASI web site (www.wehi.edu.au/collegiate/ASI/) 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 e-mail Judy Greer at j.greer@medicine.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

This issue leads with an invited piece by Michael Good recapping the many highlights of the immunology research being carried out at QIMR. In addition, Fabienne Mackay provides a review of the exciting immunology research being carried out at the Garvan Institute. I am keen to receive such reviews of the diverse and exciting immunology projects being carried out by members, to encourage collaboration and to highlight opportunities for young researchers. I hope others will feel free to contact me with suggestions for similar articles to highlight their research.

As Geeta's 'Secretary's News' and the numerous reports I have received (some on p11) attest, ASI has been extremely generous in funding many young immunologists to attend overseas meetings this year. The list of exciting speakers at the annual conference (p5-7) bodes well for another stimulating meeting. Finally, the Newsletter is pleased to include a profile of Dr Jie Zhong, who received the 2004 ICB paper of the year award (including an international airfare, and \$800 worth of vouchers) (p7). Don't forget the prize for best newsletter article of 2005!

Miles Davenport

**Contributions
sought for the
ASI Newsletter**

**You could win
\$100 !!**

**Deadline for the
next issue :
1st August 2005**

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

asi@21century.com.au

HONORARY SECRETARY'S NEWS

I am pleased to convey that ASI continues to strongly support travel awards enabling our student and early postdoctoral members to attend International meetings. For this year's awards preference was given to those applying to travel to the 3rd FIMSA Congress in Hangzhou, China. The successful applicants in the postdoctoral category were Xiao Song Liu, University of Queensland (attending the FIMSA Congress) and Ljubov Simson, JCSMR (attending the International Eosinophil Society meeting). In the postgraduate category, the winners were John Miles, QIMR (attending the FIMSA Congress), Itaru Anraku, QIMR (attending Cancer Vaccines), Cindy MA, Centenary Institute, Michele Teng, Peter MacCallum Cancer Centre and Joanna Groom, Garvan Institute of Medical Research (all attending Keystone meetings). In addition, the Di Yu, JCSMR and Martina Fuchsberger, WEHI each received

a grant-in aid to attend the 3rd FIMSA Congress. We congratulate the recipients and hope they have had or will have a productive meeting. No doubt we will be reading accounts of their travel, funded by the award, in this and future editions of the Newsletter.

I would like to take this opportunity to remind members that ASI offers a number of bursaries and awards (<http://www.wehi.edu.au/collegiate/ASI/>), so please check the website for eligibility criteria.

Also, if you haven't done so recently, I would encourage you all to visit the revamped ASI website and would like to take this opportunity to acknowledge our Webmaster, Judith Greer, for her continued efforts in this regard.

Geeta Chaudhri



ICB Online Manuscript Submission

Online manuscript submission for Immunology and Cell Biology now available via:

<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.

Chris Parish, Editor-in-Chief
Immunology and Cell Biology

LtoR: Jie Zhong, (FIMSA travel award recipient- Australasia), Xiao Song Liu (Postdoctoral award recipient), Chris Parish (Past-President), Phil Hodgkin (President), John Miles (Postgraduate award recipient), Martina Fuchsberger (Grant-in-aid recipient), Geeta Chaudhri (Honorary Secretary), Nick King (FIMSA Vice-President). (Di Yu, Grant-in-aid recipient, absent from photo)



Kay Ellem



Christian Engwerder



Geoff Hill



Anne Kelso

My own time at QIMR commenced in 1988 coming from a post doc at NIH, to continue my studies on malaria immunology after a PhD at WEHI with Gus Nossal. In 1992, we commenced studies looking at the immune response to group A streptococci (GAS) with particular reference to vaccine development and immunopathogenesis of rheumatic fever. Our laboratory has continued to study the immune response to malaria and GAS and was awarded an NIH grant last year to commence a clinical vaccine trial of a synthetic peptide vaccine to prevent GAS infection and rheumatic fever. Our malaria work has been to focus on factors regulating the cellular immune response to infection and identification of targets of cell mediated immunity. The CRC for Vaccine Technology commenced in 1993, with QIMR as the host partner, and I became its first Director.

The Institute's immunology front expanded in 1992, when we were very fortunate to recruit Anne Kelso from WEHI. Anne, who undertook her PhD studies at the Microbiology Department of The University of Melbourne had worked closely with Gus Nossal and Don

Metcalf at WEHI after a post doc at Lausanne with Rob MacDonald, Teddy Brunner and Jean-Charles Cerottini studying cytokine-producing T cell clones. Anne, who is one of our (ASI's) former Presidents, and her work on regulation of cytokine expression, are very well known within the Society. Anne has played a major role in the International Union of Immunological Societies (IUIS) as Secretary-General (1998-2001) and in 2000 became the Director of the CRC for Vaccine Technology. Last year, Anne delivered the Burnet Oration at the Annual Scientific Meeting in Adelaide.

In 2001 Geoff Hill (a Wellcome Fellow) joined QIMR from the Mater Medical Research Institute and commenced a program of research into leukaemia focussing on ways to augment the graft versus leukaemia effect while minimizing the graft versus host component. He has been working closely with industry and has identified novel growth factors (including pegylated -G-CSF) as promising therapeutics. Geoff is a co-PI on a recently awarded NHMRC Program Grant entitled "Immunological therapies for cancer and autoimmunity".

In 2003, immunology research at QIMR was further boosted when Dr. Christian Engwerda was appointed to head the Immunology and Infection Laboratory. Chris's interests are in understanding host immune responses to malaria and leishmaniasis. In particular, his group is focused on defining the pathogenesis of these diseases. Chris is a Co-investigator on an NHMRC Program Grant entitled "Tropical Infectious Diseases: Pathogenesis and Vaccine Research".

Although QIMR is a large research institute, its aim to span from basic molecular and cellular biology and epidemiology to clinical research is a challenge. The latter cannot flourish unless there is excellence in basic research, but clinical research additionally requires significant clinical networking, and dedicated facilities and expertise in clinical trials. It is expensive but necessary if we are to translate fundamental knowledge into clinical outcomes. Immunological research lends itself very naturally to this span and the vaccine trials and immunotherapeutic trials being undertaken by the Institute would not occur if there was not an excellent grounding in basic immunology and clinical trials expertise embedded within QIMR.



Rajiv Khanna



Alejandro Lopez



Denis Moss



Christopher Schmidt

ASI2005 – Melbourne 4–8 December

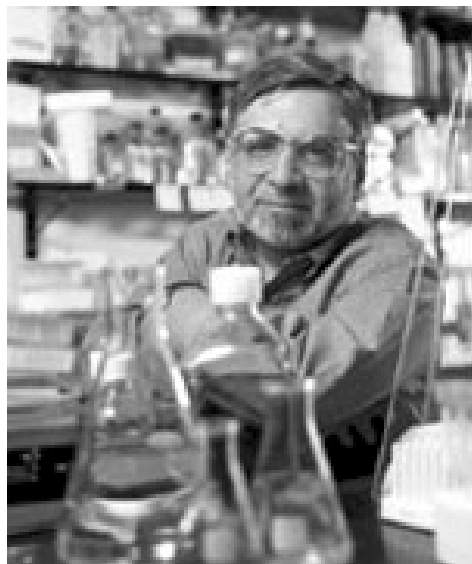
“A special focus on Genetics and the Immune Response”

Speaker Biographies

Professor Rafi Ahmed's research interests include determining factors that influence long term B cell and T cell immune memory to viral infections. His laboratory are currently examining the molecular basis of T-cell memory. The long-term goal of Dr. Ahmed's research is to understand the mechanisms of immunological memory and to use this information to develop new vaccines for the prevention and treatment of disease.

He is an internationally recognized expert on viral persistence and the immune response to viruses. Professor Ahmed holds the title of Georgia Research Alliance Scholar in Vaccine Research and is a Professor of Microbiology and Immunology in the Emory University School of Medicine. He received his Ph.D. in microbiology from Harvard University. Before coming to Emory in 1995, he was a Professor in the Department of Microbiology and Immunology at the University of California, Los Angeles School of Medicine.

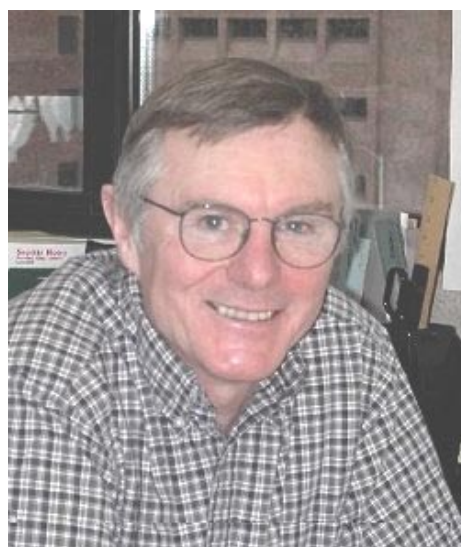
Source: Emory University webpage



Rafi Ahmed

Prof Michael Bevan (HHMI, Univ Washington, Seattle) has made major contributions in the field of T cell biology for a period spanning 3 decades. Some highlights include the original discovery of thymic positive selection in the 1970s. His laboratory was also instrumental in defining the endogenous nature of class I-restricted antigen processing and he originally described how professional antigen

presenting cells could present exogenous antigens through the class I-restriction presentation pathway by cross-priming. His more recent work has involved defining the role of ligand specificity in positive selection; identifying key genes that regulate T cell development, examining how T cells deal with intracellular bacterial and virus infections; and most recently, articulating how T cell help affects the priming of cytotoxic T lymphocytes and their long term survival as memory cells.



Michael Bevan

Professor Peter Doherty's research has had a long standing interest in the cellular immunity elicited after virus infection. After graduating from the University of Queensland in veterinary medicine, his interest in infectious disease led him to graduate studies at the University of Edinburgh, then returning to the John Curtin School for Medical Research at the Australian National University in 1971. There, he and Rolf Zinkernagel studied immunological responses to LCMV virus in different strains of mice, resulting in the “Altered-self hypothesis” and the idea of “MHC-restriction”. It was for this work that the two were awarded the 1996 Nobel Prize in Physiology and Medicine. After time heading up both the Wistar Institute in Philadelphia and a return to the JCSMR, Professor Doherty held the Michael F Tamer Chair of Biomedical Research at St Jude Children's Research Hospital, Memphis, Tennessee, from 1988 to 2002. In July 2002,

he returned from Memphis to Australia as Laureate Professor in the Department of Microbiology and Immunology at the University of Melbourne. He still runs active research programs at both the University of Melbourne and at St Jude Children's Research Hospital in Memphis. His research has resulted in over 300 peer-reviewed research articles. He has been awarded many other prestigious awards, including West Germany's Paul Ehrlich Prize (1983); the Albert Lasker Basic Medical Research Award USA (1995); and the 1986 International Gairdner Award for Medical Science, Canada. He was named Australian of the year in 1997 in recognition of his scientific achievements.

Source: St Jude Children's Research Hospital webpage



Peter Doherty

Prof Grant Gallagher in the Department of Oral Biology, UMDNJ, New Jersey. He received his Bachelor of Science (with first class honours) in Biochemistry in 1980, and his Ph.D. in human T-cell immunology in 1984, from the University of Strathclyde, Glasgow, Scotland. Prior to arriving at UMDNJ, he was a Reader in Genetic Immunology at the University of Glasgow.

Prof. Gallagher has been concentrating on defining genetic markers in human cytokine genes, (esp. IL-10 and TNF) and

Speaker Profiles, cont.

human defensin genes and applying these to the investigation of malignant, autoimmune and infectious diseases, including periodontal disease in man, and he works closely with the New Jersey Center for BioDefense <http://biodefense.umdnj.edu>. His group collaborates with Dr Sergei Kotenko (NJMS Department of Biochemistry) in the exciting pursuit of novel homologues of human IL-10 and their receptors.



Grant Gallagher

Katia Georgopoulos is at the Cutaneous Biology Research Center at Massachusetts General Hospital. Very early on, she became committed to the idea that, by identifying the transcription factors responsible for the expression of markers on early lymphocyte precursors, she could work her way backwards to identify the elusive precursors of the haematopoietic lineage and the mechanisms by which they are directed to specific fates. That project led to the identification of Ikaros and its related family members, and forms the foundation of her continuing research into the transcriptional control of differentiation in the haematopoietic system.

Associate Prof Dale Godfrey (Dept Microbiology and Immunology) has worked in the field of T cell development, and more recently NKT cell development and function, for nearly 20 years. His early research investigated the influence of thymic stromal cells and antigens in the regulation of T cell development. From here, his focus moved to the early stages of CD4-CD8- 'double negative' thymocyte differentiation, and played a key role in defining the now well-accepted

DN1 to DN4 pathway that defines key control points including the timing of TCR-beta gene rearrangement and 'beta-selection'. Over the past decade, his primary interest has shifted towards CD1d-dependent, glycolipid antigen reactive, NKT cells. In this field, he has made many important contributions including mapping the developmental pathway leading to NKT cell production, defining the way that these cells respond to antigenic challenge, and demonstrating the central role that these cells play in immune regulation associated with prevention of type-1 diabetes and promotion of tumour rejection.

Chris Goodnow is at the John Curtin School of Medical Research. He has continued to produce outstanding research from B cell tolerance and self-nonsel self discrimination using the HEL system to the study of checkpoints in B and T cell development, in immune responses and autoimmunity using chip technology, and to finesse further the role of AIRE. He has pioneered and founded the Medical Genome Centre in establishing ENU mutagenesis screening for large scale functional genomics. He is also CSO for Phenomix Corp.

John F. Kearney, Professor in the Department of Microbiology at University of Alabama Birmingham (UAB), completed his Ph.D. studies in immunology at the University of Melbourne, Australia in 1973. He joined the AUB microbiology faculty in 1977 and continued his studies on B cell differentiation. His recent research has focused on the development and activation of marginal zone B cells with his laboratory describing many of the unique immunological properties of these cells. In particular John's work has described selective B cell recruitment into the MZ compartment based on specificity and the rapid differentiation of these B cells into effector cells in response to particular classes of antigens and in association with a particular class of dendritic cell.

Peter Parham is currently a Professor at Stanford Medical School. He has spent much of his career investigating the biology, genetics, and evolution of Major Histocompatibility Complex (MHC) class I molecules, natural killer (NK) cell receptors, and other immune system molecules. He has made many major contributions to elucidating how the continual battle between vertebrates and viruses has driven the diversification and divergence of MHC class I molecules and NK cell receptors. His work on

comparative genetics has helped place our understanding of these molecules and receptors in an evolutionary context.

Steven Porcelli (Professor, Dept Microbiology and Immunology, Albert Einstein College of Medicine) has had a long standing interest in understanding the mechanisms of specific antigen recognition by T lymphocytes, and the activities of these cells in host defense against infections and in autoimmune diseases. In the area of antimicrobial immunity, his studies are largely focused on the functions of a group of novel antigen presenting molecules known as the CD1 family. These proteins resemble MHC class I molecules in their structure, but have many similarities with MHC class II molecules in terms of their patterns of cell-type specific expression and intracellular trafficking. In 1989, he reported the first examples of T cell recognition of CD1 molecules, and in 1992 published the first demonstration of foreign antigen presentation by CD1. He and his colleagues then went on to identify the first known bacterial lipid antigens that are recognized by human T cells. More recently, his laboratory has established the basic mechanisms involved in the intracellular trafficking of the CD1 proteins, and has begun to explore the importance of this to the presentation of lipid antigens to T cells. He also studies the functional properties of CD1-restricted Natural Killer T cells, and their involvement in the regulation of immune responses.

Jeffrey V. Ravetch, M.D., Ph.D. is currently the Theresa and Eugene Lang Professor at the Rockefeller University and Head of the Leonard Wagner Laboratory of Molecular Genetics and Immunology. Following postdoctoral studies at the NIH with Phil Leder where he identified and characterized the genes for the human IgM antibody and the DNA elements involved in switch recombination, in 1982 Dr. Ravetch joined the faculty of Memorial Sloan-Kettering Cancer Center and Cornell Medical College. His laboratory cloned the first genes for Fc receptors, identified the SHIP inhibitory receptor signaling pathway and contributed significantly to understanding the mechanisms of antibody mediated effector responses, establishing the FcR pathways as fundamental components of the immune response. In addition to his studies on antibody receptors, Dr Ravetch has made fundamental contributions to the genetics of the malaria parasite and with the identification

of the first cytokine, IP-10, established this class of molecules as novel mediators of inflammation. He has published over 149 papers in the highest profile journals in molecular biology, immunology and molecular parasitology. Dr Ravetch has received numerous awards for his research and has contributed extensively to the scientific community by serving as a member of the Scientific Advisory Boards of the Cancer Research Institute, the Irvington Institute for Medical Research and the Damon Runyon Foundation. He has been active in biotechnology for the last decade, having served as a consultant or member of the Scientific Advisory Boards of Millennium Pharmaceuticals, Exelexis Pharmaceuticals, Regeneron Pharmaceuticals, Medimmune, Genentech and Novartis. He founded MacroGenics in 2000 with Leroy Hood.

Prof Alexander Rudensky is in the Dept Immunol, UWash, Seattle. Sasha received his PhD in the Gabrichevsky Institute for Epidemiol and Microbiol, Moscow. He was a research fellow with the late Charlie Janeway at the Yale Medical School. He is an Associate Investigator with the Howard Hughes Medical Institute. Sasha's research is focused on molecular mechanisms of generation of CD4 T cell receptor ligands, the complexes of MHC class II molecules and peptides derived from endogenous and exogenous proteins, and their relevance to T cell immunity. Prof Rudensky's group is also investigating the role of self-peptide: MHC class II complexes in the development of CD4 T cells in the thymus and in their selection in the periphery. Other major interest in the laboratory is development and biology of regulatory CD4, CD25 T cells and their role in regulation of autoimmunity and immunity to infection. In particular, he revealed the link between Foxp3 and Treg's.



Alexander Rudensky

Prof Edward K Wakeland holds the Edwin L. Cox Distinguished Chair in Immunology and Genetics, Univ of Texas Southwestern. Ward is a doyen of immunogenetics. More recently he has used mouse genetics to delineate the genetic basis for autoimmune disease pathogenesis and in particular systemic lupus erythematosus (SLE), which shows a profound loss of immunologic tolerance to nuclear antigens. Ward has used genetic manipulation of the lupus-prone NZM2410 murine model of SLE to dissect SLE pathogenesis into a series of discrete stages, characterising each sub-phenotype and the genes associated with each. He is also interested in genetic dissections of autoimmune diabetes and the analysis of a variety of polymorphisms in normal immune functions. The use of microarray technology in combination with genetic fine mapping to identify polymorphic genes with potent immunologic effects is a major new thrust within the laboratory.

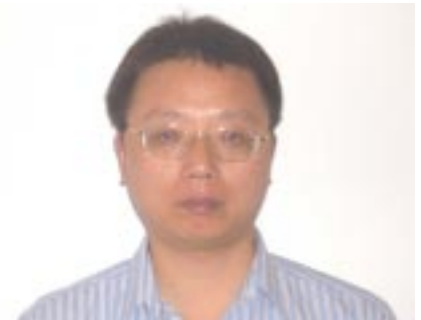


Edward K Wakeland

2004 ICB Publication of the Year Award Winner

Zhong, J., Matsumoto, K., De Kluyver, R., Fernando, G.J., Leggatt, G.R., and Frazer, I.H. 2004. Human growth hormone presented by K14hGH-transgenic skin grafts induces a strong immune response but no graft rejection. *Immunol Cell Biol* 82:577-86

Congratulations to Dr Jie Zhong, the recipient of the 2004 ICB Publication of the Year Award.



After finishing his PhD study with Dr Christina Cheers at the Department of Microbiology and Immunology, University of Melbourne in later 2001, Jie joined Professor Ian Frazer's group at the Centre for Immunology and Cancer Research, University of Queensland for his first postdoctoral position. From then on, his research interests focussed on the mechanisms for the regulation of immune responses to peripherally presented antigens, which it is hoped will lead to the development of effective immunotherapy for epithelial tumors.

To achieve the above goal, Professor Frazer's group has established a skin transplantation model in which skin expressing relevant tumor or viral antigens as a transgene under the control of K14 promoter is transplanted to wild type recipient animals. Jie's study has shown that some secreted antigens expressed by graft skin keratinocytes can induce effective immune responses which result in the rejection skin expressing the target antigen, and that in addition to CD8 T cells, local environment factors are required for the process of graft rejection. Identifying the key determinants for the induction and maintenance of effective immune responses against antigen-expressing skin cells and the way to break tolerance are his future research goals.

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Basic Aspects of Tumor Immunology II Conference Report

My inaugural trip to the US started from San Francisco (SF) where I stayed with a former PhD student, Nicole Haynes from our lab who's doing a post-doc with Jason Cyster's group at UCSF. During this time, I also visited several immunology labs at UCSF and also managed to get a tour of Amgen and Genetech. From SF, I flew into Seattle; 'city of rain', where I visited the labs of Dr Phil Greenberg and Dr Stan Riddell located at the Fred Hutchinson Cancer Centre with three other work colleagues. I gave an oral presentation at Dr Greenberg's lab meeting concerning my PhD studies with genetically engineered T cells, which was a terrific experience. My talk was well received and raised future ideas which will be pursued on my return to the lab. Following this, our group spent the rest of the day speaking with various members of Dr Greenberg's and Dr Riddell's lab about their various projects before being given a tour of their GMP facilities. I've also spoke with Drs Greenberg and Riddell concerning potential post-doctoral opportunities with their laboratories. The projects investigated areas of cancer research that I am very keen to pursue a post-doctoral position in.

Following Seattle, our little contingent flew to Denver and travelled 9000 feet upwards to Keystone, Colorado to attend the Tumor Immunology conference. The aim of the meeting (as set out in the conference book) was to 'bring together experts from academia and industry to elucidate the basic immunology that could make it possible to trigger and sustain an immune response capable of mediating the complete destruction of tumor cells'. I think this aim was well and truly achieved by the end of the conference!

Attending this five day conference was a fantastic experience. To be able to listen and interact with some of the world's top cancer researchers such as Steve Rosenberg, Nick Restifo, Phil Greenberg and Richard Flavell, all in the same location was definitely an opportunity not to be missed. The fact that every conference delegate had to wear big unfashionable nametags meant that I could put faces to famous names that I see so often splashed across top journal articles.

The conference opening address was given by Professor Rafi Ahmed who gave an engaging lecture on memory CD8 T cells and ended with Dr Crystal Mackall telling us about our favourite cytokines, IL-7 and IL-15 and its uses in immunotherapy. In between Rafi, and Crystal, the conference organizers managed to cram in 69 oral presentations and 300 posters! Talk about immunology heaven and cerebral hell!

The standout talks for me were the ones given by Dr Steve Rosenberg and Dr Nick Restifo. Dr Rosenberg presented data from his latest clinical trials where he achieved 50% objective responses in melanoma cancer patients whom were lymphoablated prior to adoptive transfer with tumor-specific T cells. Dr Restifo presented data in preclinical animal models investigating the mechanism by which lymphoablation improved the anti-tumor efficacy of adoptively transferred T cells. Having heard so much about Dr Rosenberg's work, it was a privilege to be introduced and discuss my work with him. Other topics that were discussed at the conference included T-regulatory cells, Toll-like receptors, dendritic cells and mechanisms of tumor escape. In addition to attending scheduled talks, our small group managed to organize a meeting over lunch with four other prominent scientists in the immunotherapy field working on genetically engineered T cells. This meeting resulted in a flurry of ideas being exchanged and discussion on future clinical trials being proposed at the different cancer centres. The idea of holding an international scientific meeting between these groups was also proposed.

Following the end of the conference, our group separated and I headed to New York where I visited the Memorial Sloan-Kettering Cancer Centre (MSKCC) and met with Dr James Allison who heads the Immunology Department as well as Dr Marcel Van den Brink and Dr Renier Brentjens. Everyone I met was very kind and I really appreciate them giving up their valuable time to chat to me and show me around their laboratories. I also

had the opportunity to meet with post-docs working in the different labs at MSKCC and gained insight into life as a post-doc in the US.

So 10 flights later, I've finally made it back to Melbourne. The trip was excellent though I couldn't say much about the flying! I have learnt so much from the conference talks and the many discussions I had with other scientists. Visiting all the different labs was a worthwhile experience and it also made me appreciate how well my current lab at the Peter Mac is set up. In my first week back, I've been frantically trying to get through my ever-growing pile of journal articles cited by the various conference speakers before I get swamped with experiments although I probably need to attend another conference just to understand T-regulatory cells!

Attending this conference would not have been possible without the wonderful financial support from ASI, through the post-graduate travel scholarship. I would like to extend my deep appreciation to the organization as it meant I didn't need to survive solely on bagels and bad coffee! In addition, I would like to acknowledge the financial support from my lab. Participating in a major tumor immunology conference has been an unbelievable experience and I strongly encourage all PhD students to travel to a major international conference during their studies.

*Michelle Teng
Peter MacCallum Cancer Centre*



LtoR: Mike Kershaw, Michele Teng, Jenny Westwood, Phil Darcy

Day of Immunology – 29 April 2005



Following an initiative of the incoming president of the Federation of Immunological Societies (EFIS) Prof. Stefan Kaufmann (Berlin), the 28 European members of the Federation initiated “The Day of Immunology” on April 29th, 2005 (<http://www.dayofimmunology.org/>). The idea behind is to raise the public awareness about the achievements of the discipline and its contribution to the general well-being of Humankind. Every society organised various forms of celebrations including public forums, wide news coverage and scientific meetings where the major advances of immunology were announced. In particular, the

contribution of vaccination programs for the eradication of infectious diseases and its ongoing value in public health. Depending on the location, the society emphasized the national distinguished immunologists, starting with Pasteur, Koch, Behring and Metchnikoff, following with more contemporary figures including the 20 Nobel laureates whose major contribution was in the field of Immunology. An interesting idea that could be mirrored down-under. No shortage of major immunologists in Australia who have made significant contributions worth publicising. An exercise that might also help reinforcing our plea for improved funding for health and medical research in Australia, as part of the nation-wide campaign promoted by the ASMR. In this context, we are expected to contact our local politicians before October requesting that they support the “Grant” report recommending an increase in the Health and Medical Research Council budget 2006 (<http://www.asmr.org.au/Campaign/campaign.html>).

J. Alejandro López

3rd Australian B Cell Dialogue (ABCD)

It is anticipated that this conference to be held August 16 & 17 at the Centenary Institute, Sydney, will have a broad scope reflecting the diverse interests of the B cell research community. Topics will include the molecular and cellular regulation of B cell development and responses as well as clinical aspects of B cell and antibody function.

Meeting will commence at 2pm on Tuesday, August 16 following a welcome lunch. Conference dinner will be held Tuesday evening, with the meeting itself finishing at 5pm on Wednesday August 17.

Information on registration and abstract submission will follow in the next month or so.

CI Organising Committee for ABCD:
Robert Brink, Chris Jolly, Pablo Silveira,
Stuart Tangye



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ASI Visiting Speaker Program

Visit by Professor Redwan Moqbel

The itinerary for the visit by Professor Redwan Moqbel from Alberta, Canada has now been finalised:

Sydney, July 8–11
Melbourne, 12–14
Brisbane, 15–19
Perth, 20–25

Please contact the local ASI branch councillor for details of each visit.

Professor Moqbel's Research Interests:

1. Intracellular mechanisms regulating the release of cytotoxic mediators stored in granules and vesicles (exocytosis) in inflammatory and immune cells. This includes studies in eosinophils, neutrophils, basophils and cytotoxic T-cells. The aim is to identify targets for inhibition of granule and vesicle docking and exocytosis. We have recently identified VAMP-7, a member of the SNARE family of docking proteins, as a key player in regulating the

fusion and secretion of eosinophil and neutrophil granules.

2. Differences in generation and release of the superoxide radical between human eosinophils and neutrophils
3. Potential role of the eosinophil in regulating the development of the allergic-type (Th2) immune response but downregulating the Th1-type response. This study focuses on our novel observation that eosinophils constitutively express indoleamine 2,3-dioxygenase (IDO), which appears to target tryptophan for oxidative metabolism, resulting in a biologically-active catabolite, kynurenine. The latter, has been shown to target Th1 cells for apoptosis while allowing Th2 cell proliferation.
4. IFN γ -induced (0-4 hrs) signal transduction pathways leading to IDO expression in eosinophils.
5. Role of KDAF, a secreted factor from airway epithelial cells in modulating airway tissue remodelling in asthma.

6. Putative anti-tumour activity of human eosinophils, particularly oral squamous carcinomas where eosinophils may indicate positive prognosis. Our novel data show that eosinophils may utilize pathways similar to cytotoxic T-cells and NK cells.
7. Use metabonomic analyses (expression of oxidative and halogenated metabolites) of body fluids from asthma and other obstructive airway disease conditions to provide accurate clinical classification of asthma phenotypes.

Visit by Professor Richard Locksley – **CANCELLED**

Unfortunately, and due to personal reasons, Prof. Locksley cancelled his trip to Australia this year. We are considering the possibility of having him touring next year.

Call for Suggestions

Once again, we call for names of top ranking overseas immunologists that any member, willing to organise the tour, wants to propose as an ASI Visiting Speaker. Candidates should be proposed by May 15 or November 15 every year.

J Alejandro Lopez

Comments on ASI from Members

On the Membership Information Update form which accompanies the membership renewal, members are asked to comment on whether ASI meets the member's expectations for a Scientific Society. Twenty-two comments were received which simply said that the member's expectations were met, or words to that effect. In addition, the following more substantive comments were received:

Perth meeting fine, but Council to note comments made from floor at AGM re future role of ASI.

Excellent!

Meets expectations. Would be useful to get more conference notifications/information.

Publish annual ASI conference abstracts in *Immunology & Cell Biology*. PhD dissertations would similarly be useful.

Yes. Good job done by many willing and friendly volunteers.

ASI is an excellent organization which meets my needs very well.

ASI does well – good conference, published abstracts, great newsletter, good communication network within state societies.

ASI meets my expectations for what a scientific society should provide.

More student scholarships to ASI & scholarships for research technicians who tend to get overlooked!

I would like to see some more emphasis on Veterinary Immunology.

ASI is informative and the Annual National Conference is a credit to the Society.

More student travel grants to attend conferences.

ASI meets my expectations & I would like to express my sincere thanks for offering me support to attend the ASI Adelaide conference with a student travel award.

Yes. Good website, good newsletter, good journal (dull cover), good email communication of jobs, seminars & conferences, good social life (apparently – I just read the newsletter ...), good links to past doyens and contemporary gurus. Good value!

ASI is an excellent society that has met my needs, although more scholarships would be great!!

Any possibilities for a student night (PhD) in each state?

Online renewal with secure payment facility. More frequent but smaller symposia on selected topics.

Keystone B Cell Symposium Conference Report

The ASI postgraduate travel award allowed me to attend the Keystone B cell symposium – “B cell development, function and disease” – which was held in Steamboat Springs, Colorado from 28 March to 3 April 2005. Having attended the 12th International Congress of Immunology in Montreal last year, which had some 7000 participants I was really excited about attending a Keystone meeting, which had fewer than 500 attendees and was dedicated to all facets of B cell research.

Each day began by waking up to snow-capped mountains, which made it a little easier dealing with frosty mornings and an 8am start! The morning plenary sessions went from 8am to 11am, and involved all delegates. Attendees decked out in full snow gear were a familiar sight at these morning plenary sessions as they were followed by a 3-hour break so that people could take full advantage of the “ski-in ski-out” option at the Sheraton. This break also provided for a nice opportunity to meet with other conference delegates over lunch. Two concurrent workshops were held each afternoon, followed by the evening plenary sessions, which meant the days were particularly long, but there were just enough coffee breaks and sugar hits to get through them all, even though Starbucks coffee was all there was on offer!

All areas related to B cells were covered in plenary presentations of cutting edge research into B cell development, activation, signalling, function as well as B cell-related diseases (autoimmunity, immunodeficiency, and malignancy). I particularly enjoyed Louis Staudt’s talk on “Molecular profiling of human lymphomas and myelomas”. He and his group are using microarray analysis (amongst other techniques) to define the molecular targets for the treatment of cancer, in particular diffuse large B cell lymphomas (DLBCLs), which make up 40% of non-Hodgkin’s lymphomas. Using gene profiling Staudt *et al* were able to categorise DLBCLs into three separate groups: activated B cell-like (ABC), germinal centre B cell-like (GCB), and primary mediastinal B cell lymphoma (PMBL). Furthermore, they found that activation of the NF- κ B pathway is essential for the survival of ABC and PMBL DLBCLs, and inhibition of this pathway by addition of an I κ B kinase inhibitor was toxic to cell lines derived from ABC and PMBL, but not GCB

DLBCLs. Thus, inhibition of the NF- κ B pathway may provide for new therapies for the treatment of DLBCLs and other lymphomas that rely on the NF- κ B pathway.

Afternoon workshops were entirely devoted to more specific topics such as somatic hypermutation, Ig class switching and VDJ recombination, tolerance, B cell subsets, plasma cells, germinal centres and the specifics of the B cell immune response. Even the odd Australian voice was heard amongst these presentations – ex-pats John Kearney (University of Alabama, Birmingham) and Michael McHeyzer-Williams (TSRI, San Diego) as well as Aussie residents, Stuart Tangye (Centenary Institute, Sydney), Carola Vinuesa substituting for Chris Goodnow (JCSMR, Canberra), David Tarlinton, Lyn Corcoran and Nick Huntington (WEHI, Melbourne).

Although Shiv Pillai’s “Lymphocyte Rap” deserves a mention as being one of the most memorable moments, the highlight of the conference was the poster sessions - held from 7.30pm to 10pm each evening, with drinks to facilitate the lively discussions. Unlike poster sessions of other conferences I have participated in, the attendance was close to 100% (I suppose there is little else to do in the evenings on a mountain in Colorado?). Seventy or so posters were on display during each session, which meant all posters could be viewed by all and received equal interest. The poster sessions provided for a good opportunity to interact with other students, post-docs as well as internationally renowned lab heads - all equally approachable, enthusiastic and happy to talk about science, the world and everything else in between.

The organising committee of Harinder Singh, Mark Shlomchik and Riccardo Dalla-Favera did a fantastic job in organising the conference and the quality of the work presented, whether it was in a plenary session, workshop or poster session, was of an extremely high standard. They were even kind enough to keep most of Saturday free so we could get in a few more ski runs! Well done to the international B cell community for making such an interactive and stimulating B cell meeting. Thank you ASI for giving me the opportunity to attend this conference!

Cindy Ma
Centenary Institute

FIMSA Report

This year FIMSA was held in the zen-tastic Hangzhou, one of the cradles of Chinese civilization. Hangzhou is a special place where its 2200 years of cultural history is slowly inching into the shadow of a budding economic metropolis. The whole place is peppered with cab drivers whose mild and humble exteriors are just a facade for the highly trained F1 drivers that lie beneath. The whole cab experience is made all the more exciting due to the fact that these orange metal harbingers of death lack functional seatbelts.

The FIMSA meeting produced many highlights for me including back-to-back keynotes by Rolf Zinkernagel and Peter Doherty, brilliant symposium from Mark Davis, Anne Kelso, Andrew McMichael, Jonathan Cebon and Rongfu Wang and genuinely refreshing workshops on issues such as Chinese medicine and SARS. In addition, the fact that it was mid April did not appear to thwart the meeting’s Christmas flavor. We were randomly serenaded with *Santa Claus is Coming to Town* in the lobby and Pran Talwar’s unplanned eruption of *Jingle Bells* at the closing ceremony was simultaneously entertaining and disturbing.

My plan was to return from China in a supreme state of zen, quit my PhD and get some sort of full-time professional zen master job but the whole time I was over there I didn’t even get a peek of cosmic reality and I still have no idea of the sound one hand clapping makes. All this blasted immunology keeps filling up my spare brains cells and I can’t get transcendently enlightened. I guess nirvana is going to have to wait now till after I finish my PhD.

My thanks are with ASI for their generous financial assistance.

John Miles
Queensland Institute of Medical
Research

ANNOUNCEMENT

ASI in 2005 is in **Melbourne**

(jointly with Int HLA & Immunogenetics Workshop)



Invited plenary speakers

**P. Doherty, P. Parham, E. Wakeland,
S. Mallal, C. Goodnow, A. Rudensky,
R. Ahmed, K. Georgopoulos, G. Gallagher,
S. Porcelli, D. Godfrey, M. Bevan,
J. Trapani, J. Kearney, J. Ravetch**

Other features

Postgrad Training workshop- organised by R. French/R. Slattery

Tumour Immunology workshop

Diabetes Consortium Session with J Nerup, S Rich, A
Pugliese, E Thorsby, L Harrison, P Concannon

To register, submit abstracts or find further information,
visit the ASI2005 web site at <http://www.asi2005.org.au/>

**ASI membership forms can be downloaded from the ASI website:
www.wehi.edu.au/collegiate/ASI/**

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

ASI Councillors' News

Queensland News

Professor Ian Frazer from the Centre for Immunology and Cancer Research at the Princess Alexandra Hospital in Brisbane was awarded the prestigious **Curtin Medal** on March 31. With this prize, the John Curtin School of Medical Research highlights significant contributions to the field by Australian scientists. Previous awardees include Nobel Prize Queenslander Peter Doherty. This year's Award recognised the importance of the work by Prof. Frazer and his team on the development of a prophylactic vaccine for the infection with papilloma virus, the recognised cause of cervical carcinoma. The vaccine has been highly effective in the initial studies, it is currently evaluated in large field clinical trials in many countries and is licensed to major pharmaceutical companies for its commercialization. Congratulations to Ian.

As part of our interest in supporting ASI members from regional centres, ASI sponsored the visit of Prof. Ranjeny Thomas to the James Cook University (JCU) on May 16. Also in Townsville, Rene Robb received this year's ASI Award from the JCU consisting of a yearly membership to the ASI. This award is given to the third year student obtaining the highest marks in the Immunology course. Congratulations.

The organisation of the BIG (Brisbane Immunology Group) meeting on August 18-19 at the Sea World Nara Resort is well advanced. The Jonathan Sprent Oration will be delivered this year by Prof. Jacques Miller and a prominent group of interstate immunologists will strengthen the program. They include: Prof. Mark Smyth, A/Prof. Frank Carbone, Dr Mariapia Degli-Esposti and Dr Natalie Borg. This year the BIG Icon will be Prof. Anne Kelso. Local invited speakers include Heiner Korner, Tom Gonda, Tony Manderson, Ranjeny Thomas, Anand Gautam, Jeff Gorman and Jean-Pierre Levesque. As an innovation to the program, this year features sessions on "Emerging Concepts in Immunology" and "Hot Technologies". ASI is strongly sponsoring the meeting by offering an exceptional 10% discount on the registration fee to all its current financial members. In addition, ASI will offer attractive cash prizes for best oral and poster presentations. This is promising

to be another sensational meeting. Make sure your membership is up-to-date by the time of the registration deadline (**July 15th**) and spread the rumour wide and loud. (<http://www.qimr.edu.au/big>).

*J Alejandro Lopez
Councillor*

Victorian News



Dear IgV members,
Since the last newsletter, the activities of your local IgV committee have predominantly been occupied with preparations for the annual ASI 2005 conference; which are well underway. The scientific committee has worked hard to put an exciting and extensive program together with a number of top ranked international and local speakers confirmed. For more information on invited speakers, see the ASI-HLA 2005 flyer in this edition of the ASI newsletter. Details for registration abstract submissions can be found at the ASI 2005 web site: <http://www.asi2005.org.au/> We encourage all members to attend what will be an excellent meeting. Also a reminder that the annual IgV meeting at Beechworth will not be organised this year with the ASI-HLA 2005 meeting being the main immunology meeting organised for local IgV members to attend.

IgV tumour/techniques workshop

The next event scheduled for local members is the annual IgV techniques workshop. This year will see the program extended to include a half-day tumour workshop and a half-day techniques workshop. The day's events are scheduled for Friday July 8 and will be hosted at the University of Melbourne's Microbiology and Immunology Department. Details of registration and program will be available on the IgV website: <http://www.microbiol.unimelb.edu.au/micro-new/IgV/>

ASI visiting speaker program

Victoria will be hosting an ASI visiting speaker from July 12-14, 2005. Professor Redwan Moqbel is director of the pulmonary research group, in the Department of

Medicine, University of Alberta, Edmonton, Canada. His interests centre on the role of the immune response in allergies and asthma. It is envisaged that Prof Moqbel will visit a couple of centres in Melbourne and will be available for interaction with ASI members. Information regarding talks and potential interaction will be emailed to members as they become available. We encourage all members to support this program and make it successful.

*Frank Alderuccio
Councillor*

A.C.T. News

Our calendar of events started this year with a talk from Gordon Ada on the history of Immunology in Australia, on 6 April. In addition to providing an excellent overview on the subject, Gordon also kindly donated his award money for the Best Contribution to the Newsletter in 2004, towards the drinks. Coming up we have a Branch-sponsored visit and seminar by Jacques Miller on 27 July and Frank Carbone on 30 August. The previously advertised seminar by the ASI Visiting Speaker, Richard Locksley, on 12 August has had to be cancelled, as he will not be coming to Australia at this stage.

We are planning a joint retreat with the NSW Branch for September 22-23. This will be at Wiseman's Ferry, Hawkesbury River (about 1.5 hours north of Sydney CBD). Although a fair drive for ACT members, we believe that this will be an enjoyable and productive program. More details will be circulated closer to the time as they are finalized.

Finally, we have a newly formed ACT committee, comprising of Edward Bertram, Carola Vinuesa and myself, which is involved in the organization of ACT branch events. If you have any suggestions or ideas for Branch activities, please do let one of us know. We look forward to an active year ahead for the ACT ASI Branch.

*Guna Karupiah
Councillor*

New Zealand News

The New Zealand branch of ASI currently stands at 73 members spread fairly evenly across the entire country. The councillor for ASI NZ has shifted recently from Otago to Auckland with John Fraser at the University of Auckland taking over from Sarah Hook from Dunedin. Sarah did an excellent job keeping us all informed (usually by email) and up to date with ASI news and events but with the meeting being held in Auckland next year, it was thought more appropriate that the representative shift to Auckland. I would like to thank Sarah for her efforts over the past few years; only hope I can bring to the position the same enthusiasm and dedication. Auckland will be host to the ASI meeting in 2006 and organisation is already underway. Auckland last hosted the ASI meeting in 1992 – 12 years ago. Time flies when you're having fun.

The annual Immunet meeting is planned for November 24–25 at the University of Otago and this year it will be bigger than ever. It will run concurrently with the NZ Microbiological Society, the NZ Biochemistry and Molecular Biology Society and the NZ Proteonomics Society all joining forces. Information can be found at <http://osms.otago.ac.nz/immunet>. Australians would be most welcome to attend.

Notable events over the past few months have been the return of Dr Ian Hermans from the Cerundulo lab at Oxford to a Sir Charles Hercus Fellowship. The Hercus fellowship is provided by the Health Research Council of New Zealand and replaces the Wellcome Trust Senior Fellowship providing five years' support to returning scientists. Ian will be continuing his work at the Malaghan Institute on Valpha14 NK cells and recognition of CD1 restricted antigens.

On another note, it is always good to see immunologists taking important positions in NZ science. Dr Jim Watson, formally a president of ASI, is now the president of the Royal Society of New Zealand.

*John Fraser
Councillor*

N.S.W. News

As always, the first few months of the year have been quiet in terms of ASI activities. Things are now getting going. In particular the Centenary Institute has extended an invitation to all ASI members to join in a series of Immunology workshops, broad topics presented by inspiring speakers including Chris Parish, Charles Mackay, Barbara Fazekas, Jon Sprent and Tony Basten. NSW members have received the program. Please come along to as many meetings as you can.

On July 11 we will welcome Professor Redwan Moqbel, ASI visiting speaker, in Sydney. His seminar in the Centenary Institute will be preceded by finger food lunch. Members and guests will have opportunity to meet him after his talk.

Plans for the branch meeting are in progress. We have secured The Retreat at Wisemans for September 22 and 23; two full days this year. We will join with ACT members for this meeting. We hope the meeting will be as successful as last year (55 delegates). The focus is to give opportunity for new postgraduate and honours students to present 'work-in-progress' and to promote social and collegial interactions between members.

We must acknowledge and congratulate local ASI members who have received the following awards: Tri Phan - ASI Postgraduate International Travel Award; Kim Good, Julie Wheway, Anthony Ryan and Katherine Jackson - ASI student bursaries. We also congratulate and welcome back Professor Jon Sprent and look forward to his contributions to ASI in NSW.

*Helen Briscoe
Councillor*

Sustaining Membership

ASI Inc acknowledges the support of the following sustaining members:

- Jomar Diagnostics
- Dynal Biotech Pty Ltd

UPCOMING LECTURES & CONFERENCES

15th Combined Biological Sciences Meeting
August 26, 2005
Scarborough, WA, Australia
Website: www.cbsm.uwa.edu.au
Email: newberry@cyllene.uwa.edu.au

17th Annual Conference of the Australasian Society for HIV Medicine
August 24–27, 2005
Hobart, Tasmania, Australia
<http://www.ashm.org.au/conference2005>

New Approaches to Vaccine Development
8–10 September, 2005
Berlin, Germany
Website <http://www.vaccine-berlin2005.org/>
Email: info@vaccine-berlin2005.org
Abstract submission 15 June–15 July 2005

7th Latin American Congress of Immunology
October 2–6, 2005
Cordoba, Argentina
Deadline for Abstract Submission:
June 27
Website: www.finlay.edu.cu/alai Link
ALAI Cordoba 2005

III European Asthma Conference
October 20–23, 2005
Athens, Greece
Deadlines:
Early registration: July 10.
Advance registration: August 10.
Receipt of abstracts: July 20
Website: www.immunopathology.org
Email: athens2005@mail.ru

2006 Midwinter Conference of Immunologists
January 28–31, 2006
Pacific Grove, California, USA
Website: www.midwconfimmunol.org
Email: kim.gurney@buy.net

International Conference on HLA-G
July 10–12, 2006
Paris, France
Website: <http://www-dsv.cea.fr/hlag>
Email: VGAUDIN@dsvidf.cea.fr

**The Walter and Eliza Hall Institute
of Medical Research**

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

SUPERVISORS

The perfect supervisor, like the perfect man, is a six-foot Nordic blonde named Sven with an Associate Diploma in massage. Of course, that's just a common stereotype, and most of us have to put up with a supervisor who is smart but short, or one who will massage you, but with whom you then have to undergo the tedium of sexual harassment proceedings.

My supervisor is, of course, a top bloke, who may possibly read this and suddenly realise what a catch of a PhD student I am, but others aren't so lucky. I took a rough survey of PhD students about their supervisors (rough for m – several people cried and one is still AWOL) and a couple of categories immediately became apparent. The two most common were...

1) Doctor Who? – Also known as a “mocktor.” Only heard of by email and occasionally telephone. Popular opinion has it that this supervisory position has been contracted to an off-shore call-centre, where someone bored is paid 50c an hour to reply to emails with things like “Hey, great work” and “Sure, I'm just reading that now.”

2) Doc. Trinaire – Likes to apply great theories thickly, with a trowel, without considering the practical side. The following statements are – seriously! – attributed to supervisors who fall into this category:

“I was thinking, you should probably do 8 mice per group, and...(carry the one)...15 groups. We don't have the budget for that. Finish it by July.”

“Well done! That's great. Can you re-do it all in blue?”

“Well, I thought looking after 2 honours students would make you less lonely.”

“Just put, you know, *everything* into the ethics application and we'll work out the experiments later”

The number for Lifeline is 13 11 14.

Others included (in order of prevalence):

3) The Doctor is always In – It's a war-zone out there. But don't worry – Frank Burns is always ready to lend a hand.

4) Doctor Charisma – If the Fonz had a doctorate in Immunology...

5) Doctor Zeias – (Original ref: *Planet of the Apes*) – Doesn't believe your data, no matter how compelling, unless it fits with the dogma.

Motivational Message #2, 2005 –

1 in 20 people meet their life partner in the lab.

...actually I made that up, but I'm sure it's true.

Next issue – Poverty.

*See ya,
Anne Fletcher
Part time student rep
Full time git
And the rest all goes to my PhD*

35th ASI Meeting –

BD Science Communication Session:

The BD Science Communication Session and Award is open to postgrad students and postdoctoral investigators with up to 3 years research experience after award of PhD who have been paid up members of the ASI for 2004 and 2005. As this session is aimed at a non-scientific audience, you may wish to submit a second strictly scientific abstract on the same work for consideration in the rest of the program as well.



Medical Research Funding: The Challenge

We need your help during 2005, to ensure that medical research in our country remains competitive and translates to better health outcomes for all Australians.

The much welcomed doubling of the NHMRC budget (\$613.7 million over five years) instigated by the Howard Government in response to the 1999 Health and Medical Strategic (Wills) Review, is now complete. The Investment (Grant) Review of Health and Medical Research released in December of last year is the first report card on performance flowing from this investment and has been extremely positive. The Government's decision to invest in this sector has been validated by both health and economic returns to the Australian community and they should be congratulated.

The Investment Review recommended a number of reforms to the medical research sector and further strategic investment to develop better health outcomes. Currently neither the Government nor the opposition have committed support for these recommendations. It is now the responsibility of the Australian community to present a coherent case to both Government and the private sector (industry and philanthropic), pin-pointing the precise details of how further medical research investment will make a difference.

While Australia performs highly in medical research, there is insufficient funding to translate very many exciting discoveries into health practice or products which could deliver both health and economic gains to Australia. Further investment would allow:

- Translation of discoveries into health policy and practice.
- Targeting of important health issues including.
- Development of our scientific workforce to cover ALL areas of health and ensure that we retain our medical researchers in Australia.

This investment is crucial to ensure that Australians continue to reap the benefits of medical research.

It is up to all of us to impress the critical importance of this issue on our politicians. The medical research community and patient groups are collectively involved in a campaign to influence the federal 2006 budget process. The agenda for the budget is set in October 2005. We have until then to make our case. I strongly urge you all to discuss these issues in relation to your own research area with your local member through both face-to-face meetings and through letters. In addition you need to write to the Health Minister (Tony Abbott), the Treasurer (Peter Costello) and the Prime Minister regarding these issues. All the facts, sample letters and relevant contact details are available at <http://www.asmr.org.au/Campaign/campaign.html>. You must ACT NOW!

The future of health and medical research in Australia is at stake!

A/Prof Bronwyn Kingwell
President, The Australian Society for Medical Research

The BAFF project at the Garvan Institute

Group head: Fabienne Mackay, Garvan Institute, 384 Victoria Street, Dalinghurst NSW 2010. f.mackay@garvan.org.au

The BAFF program started at Biogen Inc. in Boston USA where Fabienne Mackay cloned the mouse BAFF gene in parallel with a Swiss group, which cloned the human counterpart of this gene (1). Soon after Fabienne Mackay's laboratory generated BAFF transgenic mice and showed that over-expression of this factor in mice led to the development of autoimmune symptoms similar to lupus in humans (2). The BAFF project was then exported to the Garvan Institute in Sydney, where the exact mechanisms and biology of BAFF were further uncovered.

Dr Mackay's group showed in 2000 that BAFF was in fact a very important survival factor for B cells and essential for B cell maturation (3). This work was confirmed by the analysis of BAFF-deficient mice in which B cell maturation was impaired. Dr Mackay's research also showed that BAFF transgenic mice, as they age, develop a secondary pathology similar to Sjögren's syndrome (SS) in humans and characterised by the inflammation of lacrimal and salivary gland (4, 5). In addition, in collaboration with Professor Tom Gordon from the Flinders Medical Centre in Adelaide, Dr Mackay's group showed that elevated levels of BAFF could be detected in patients with various rheumatic diseases such as rheumatoid arthritis (RA), Systemic lupus erythematosus (SLE) and SS (4). This work established a link between dysregulated BAFF production and autoimmunity in humans.

Recent work this year showed that BAFF transgenic mice lacking TNF develop lymphomas (6). This observation is very interesting as it may have ramifications in the clinic. From our mouse studies, we would predict that high levels of BAFF, combined with suppressed TNF function, will lead to both enhanced survival of B cell lymphomas and compromised anti-tumor immunity.

Our work showed that about 20–25% of RA patients have high serum BAFF levels (4), and one concerning side effect of anti-TNF treatment in RA patients is the development of lymphomas. Work in our laboratory is investigating the contribution of BAFF to B cell lymphomas in RA patients taking anti-TNF therapy. The association of BAFF with autoimmune diseases and tumorigenesis has led to widespread efforts by the pharmaceutical industry to develop agents that neutralize BAFF.

This year as well, the BAFF project took a new turn with data showing effects of BAFF on T cell function, activation and differentiation, another aspect that may contribute to autoimmunity in BAFF transgenic mice (9). In addition, through collaborations, the role of BAFF in B cell immune tolerance was dissected using the newly established model of hen egg lysozyme (HEL)-specific knock-in BCR expressing B cells from Dr. Robert Brink at the Centenary Institute (7). The mechanism of cell survival induced by BAFF in B cells was further characterized in collaboration with scientists at the Rockefeller University in New York who showed that BAFF plays a

role in preventing the translocation of protein kinase C delta (PKC δ) into the nucleus, a process essential for cell death (8).

Discovery of the BAFF/APRIL system has provided a wealth of new information about the immune system. Through the analysis of BAFF and its biology, critical information on B cell maturation, differentiation and immune tolerance have emerged. Recent work suggests that the role of BAFF extends beyond B cell biology, as this factor has a role in regulating the function of T cells and tumor cells. These new findings have important ramifications for future therapeutic applications and extend the field of clinical possibilities to T cell-mediated diseases and lymphoid cancers. Targeting of the BAFF/APRIL system appears to offer more possibilities than first anticipated.

Selected publications:

- 1 Schneider P. *et al* (1999). **J. Exp. Med.** vol. 189: 1697–1710.
- 2 Mackay F. *et al* (1999). **J. Exp. Med.** vol. 190: 697–710.
- 3 Batten, *et al* (2000). **J. Exp. Med.** vol. 192: 1453–1465.
- 4 Groom, J., *et al* (2002). **J. Clin. Invest.** Vol. 109: 59–68
- 5 Mackay F, *et al* (2003). **Ann. Rev. Immunol.** vol. 21: 231–264.
- 6 Batten M. *et al* (2004). **J. Immunol.** Vol. 172: 812–822.
- 7 Thien, M. *et al* (2004). **Immunity.** 20: 785–798.
- 8 Mecklenbraeucker I., *et al* (2004). **Nature.** 431: 456–461.
- 9 Ng, L. *et al* (2004). **J. Immunol.** 173: 807–817.



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