NEWSLETTER

Australasian Society for Immunology Incorporated

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Bursa found!

Having consulted the collective memories of the elders of New Zealand Immunology, I believe I can now write the true account of what happened to the trophy, we know as the "BURSA", after it left Australia.

It was 1986, the year of the first combined ASI meeting. It was held in Queenstown, New Zealand. Despite the nasty stench of the "under-armed bowling incident" still being fresh in the minds of all New Zealanders, they gave freely of their hospitality and produced a conference which is now Immunological folklore. Enter David Nelson who at the social event, held at Coronet Peak overlooking Queenstown, first unveiled his trophy to the stunned assembly. It was typically Australian, brash and vulgar in its phallicness. A Bursa of Fabricius mounted in a shaft of perspex. He announced his intention to have this awarded as a trophy to the winner of a trans Tasman debate.

Two teams were duly formed, Professor Barbara Heslop leading the New Zealand team and Roland Scollay leading the Australians. Hugh McDevitt of MHC fame, being a non-interested party, was chosen as the judge. By all accounts the debate was ferocious with no quarter given. The New Zealanders took a dignified and rational approach whereas the Australians were obviously out to win at any price. At the conclusion the room was hushed as McDevitt rose to announce the winner. "I could not help but be impressed by the power and dignity of the New Zealanders' argument," he is reported to have said as he awarded the trophy to the people of Godzone. There were reports of an ugly reaction (some claimed it was a vote) from sections of the crowd.

The deflated Aussie contingent were each presented with packs of deer velvet extract (Stagvite), to lift their game for the remainder of the conference. All were seen to emerge late for breakfast the following morning with covert evidence that the potion was effective. Reports down the trans Tasman grapevine suggest all were warmly welcomed by expectant partners on their return, and it took weeks before the smiles left their faces. Surely this represents the first example of a 'win-win' outcome as a consequence of trans Tasman competition.

The trophy was carried in triumph back to Dunedin where it graced the office of Barbara until her retirement. It was fitting that it should pass to her prodigy Dr Margaret Baird where it has remained to this day. Margaret has been heard to bemoan on many occasions that the Australians seemed incapable, or unwilling to win it back. Such an object perched on her shelf had initiated embarrassing sniggers and snide remarks from the younger students who knew nothing of its history. It seemed to lift a huge weight off her shoulders when it was suggested that it be reinstated as a trophy for a limerick competition.

Yes we all agreed, an intellectually demanding competition such as a debate would unfairly favour New Zealand. Therefore we are supportive of Phil's proposal that we lower the bar, level the playing field and have a mindless limerick competition instead. Margaret for one argued strongly in favour of maximising the opportunity for our ANZAC allies to win it back.

Glenn Buchan

The legendary Bursa of Fabricius trophy

Contents

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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

You will know by the time you read this of the great success we had in tracking down the bursa of Fabricius award. If you cast back to the previous issue we published the letter from John Wells describing the limerick writing skill of the late David Nelson and the establishment of the said award. John left us with the puzzle of what happened to the award once it was offered as the prize for the losing team in a trans-Tasman debate.

Glenn our intrepid NZ ASI councillor conducted much unpaid research to complete the piece found on the front of this issue. We should note Glenn was equivocal as to the details of whether the award went to the winner of the debate, or to the loser as claimed by John Wells. If you read Glenn's words carefully they could be taken either way. Perhaps some Australians at the meeting will be able to send in more information about the judgement of Hugh McDevitt and the subsequent ugly reaction (or vote). Nevertheless, we must thank Glenn for his research and for finding a picture of the bursa award. For many of us this will be our first introduction to this most famous piece of bird anatomy. Australians also should not take any notice of the Stagvite myth promulgated in the article. Glenn obviously has shares in this company and intends to sell samples to unsuspecting delegates at upcoming conferences.

Which brings us to this years meeting. A quick scan of the details should convince you that you must be in Brisbane this year. Of the many highlights let us name a few –

1) The outstanding cast of local and visiting speakers.
2) The new debate to remember Kevin Lafferty. The topic in this inaugural contest is – "That Melbourne used to be the center of Australian immunological research". A topic of such rich potential it is difficult to see how the moderator, David Hume, will keep the protagonists from coming to blows.
3) The Annual dinner should never be missed and will provide an opportunity to air some of your limericks.
4) The Burnet oration from the Director of WEHI, Suzanne Cory
5) The venue at the beautiful grounds of the University of Queensland.

You will also find in this issue of the newsletter a series of interesting biographical articles about many of the visiting speakers at the meeting. Thanks to Judy Greer for collecting all this information.

For those of you wishing to enter the limerick contest we refer you back to the previous issue which contains a set of instructions on limerick construction from John Wells. At this stage we can only say that we prefer to publish examples of the anapestic rhythm, but will not be scathing of the dactyl contributions!!

This Newsletter also reprints the excellent response from ASI president Jim McCluskey to the request by the government for feedback on National Research Priorities. Jim has made a very convincing case for protecting and nurturing our creative research engines in Universities and Research Institutes. We can only hope that sensible calls for higher remuneration in face of international 'competition', enhanced security and opportunities during early careers, and the need for more supportive infrastructures, will fall on receptive ears.

Once again we finish with an invitation to our members to send us material for publication in the Newsletter. Meeting reports, book reviews, opinion essays, cartoons, historical recollections should all be considered of potential interest to your fellow members.

Phil Hodgkin

Honorary Secretary's News

Nominations for State Councillors
Several State Councillors will have completed their current term at the end of this year. If you are, or know someone who is, the kind of person who would like to make a useful contribution to the Society and get to know its "inner workings" at the same time, then this is for you.

ASI is seeking nominations for the position of State Councillors (2003-2004) for ACT, NSW and WA. Only branch members can nominate for their branch Councillor position. I will be emailing the nomination forms shortly. If you do not receive the email then it is likely that we do not have your correct email address, in which event, please contact your current State Councillor, or me, for the forms.

Completed nomination forms are to be returned to me by 31 October (same time as your tax return to the ATO).

Postgraduate/Postdoctoral International Travel Prize
Congratulations to Nadine Crowe, Department of Pathology and Immunology, Monash Medical School, who is the recipient of the Postgraduate International Travel Prize. Nadine will use the award to travel to USA to attend the 2nd International Workshop on CD1 Antigen presentation and NK T cells.

***Immunology and Cell Biology* Publication of the Year**
The *Immunology and Cell Biology* Publication of the Year Prize has been awarded to Chris Jolly and Michael Neuberger for their paper "Somatic hypermutation of immunoglobulin k transgenes: Association of mutability with demethylation". (ICB 2001: **79**, 18). The prize is $800 worth of books and/or journal subscriptions from Blackwell Science.

Membership Directory
A reminder that the Membership Directory will, from this year, be produced as a PDF file and will be delivered by email as a confidential, not for disclosure, read-only document. A hard copy of the document will be mailed out to members who do not have access to email and may also be requested from the Secretariat.

That's it for now. We hope to see an enthusiastic response to the call for nominations for the State Councillor positions for ACT, NSW and WA. Cheers!

Geeta Chaudhri

ASI response to the National Research Priorities Taskforce

August 15, 2002
National Research Priorities Taskforce
Department of Education, Science and Training
Location 703
GPO Box 9880
Canberra ACT 2601

Dear Sir/Madam,

National Research Priorities

The Australasian Society for Immunology is the principal professional and scientific body serving the community of scientists involved in all aspects of immunology in Australia. Our mission involves fostering the discipline of immunology through promotion of research, scientific exchange and education. We support the translation of immunology research into medical and veterinary applications and have long embraced the importance of biotechnology in developing 'knowledge-based' Australian industry. Australian scientists have played a major role in advancing the science of immunology internationally. We have produced two Nobel Laureates, Sir Frank Macfarlane Burnet (1960) and Peter Doherty (1996) and many influential individuals such as Sir Gustav Nossal who have mentored the present generation of highly trained internationally competitive scientists actively engaged in immunology research.

We wish to endorse the concept of setting national priorities for research and the need for an active dialogue between the government, the community and key stakeholders involved in research. In this context we strongly endorse the submission made by Professor Peter Schofield on behalf of the Australian Society for Medical Research. We also wish to elaborate upon some broad principles that should help guide the setting of national priorities in research.

Fundamental research underpins most major innovations in science.
The connections between fundamental research and applied outcomes are often unexpected and not easily predicted. Research by its very nature involves unravelling and comprehending that which is not yet known or understood. The optimal pathway to solving complex problems such as understanding the causes of autoimmune diseases or developing a vaccine against HIV cannot be predicted with confidence and will depend upon a strong foundation of basic science that underpins more specialised and applied research programs in these areas. History shows that it is extremely unwise to try and predict the exact areas of basic science that will produce the critical breakthroughs leading to the practical outcomes. We strongly endorse the sentiment of the Wills review which stated that "curiosity driven, investigator-initiated, peer-reviewed, fundamental research is the foundation of our current success and it must remain so."

Significant advances in research, and the capacity to exploit these advances, requires a secure highly trained workforce of career scientists.
Innovative research is essentially a creative activity and depends upon the imaginative powers and instincts of the scientist. A critical principle in setting priorities for research is to back the best scientists with the most novel ideas and strongest track record possible. The human capital component of scientific research is a crucial predictor of future success and needs to be fully recognised in the setting of research priorities. The career track options for Australian scientists depend significantly on the Fellowship schemes operated by the major national competitive bodies, the NHMRC and ARC. Although these schemes have been very successful in identifying and supporting top scientists they fall significantly short in some important respects.

Firstly, the remuneration levels that are offered by comparable schemes in the USA and Europe are considerably higher than those offered in Australia. This places us at a distinct competitive disadvantage.

Secondly, there is a serious bottleneck for young Australian scientists wishing to make the transition after their postdoctoral training into a Fellowship scheme, or a comparable opportunity, along the pathway to an independent scientific career. Many of these scientists are located overseas as part of their training experience and are a crucial component of the Australian 'brain-drain'. The national research priority exercise should examine ways of enhancing career security for scientists, improving transitional opportunities in early career development and improving remuneration, especially of our top research scientists.

Selecting excellence in science is best done by expert peer review and should be benchmarked to the highest international standards.
Australia's research effort should adopt principles that recognise quality as the first priority. This goal is unlikely to be achieved by prescribing highly specific priority outcomes without rigorous peer review of research proposals. Specific research initiatives often run a serious risk of encouraging mediocre research just to expend flagged funds and meet activity targets. We recommend that quality be a major national priority for Australian research effort.

Research needs to be resourced with adequate infrastructure that includes access to a broad technology portfolio as well as support at the 'coalface'.
Innovation and discovery in research requires adequate infrastructure and access to state-of-the-art technology. Research innovation is generated from a cocktail of creative energy and high technology. The infrastructure underpinning high quality research involves many layers and a major review of Australian research infrastructure and its availability should be an important part of assessing research priorities. Two major problems arise with research infrastructure in Australia. Firstly, infrastructure funding is well below what is required for international competitiveness. Cost recovery practices have snowballed in many institutions. This is also true for external bodies including government and regulatory groups that are driving internal administration hours and research costs up dramatically. The provision of reasonable infrastructure in many centres has shrunk so that a 'user-pays' culture can render an average research grant a liability before the first experiment has been completed.

Secondly, the allocation of infrastructure funding to directly support research grants is currently made to host institutions rather

than to specific investigators. This can lead to deployment of infrastructure funds according to priorities set by institutions rather than primary investigators. These problems are faced by all universities and many research institutes where infrastructure funding is precarious and even less defined than in the universities. We believe that research infrastructure should be better directed to support the research grants with which they are linked. However the mechanism for linking infrastructure funding with grants must avoid a simple re-distribution that triggers a zero-sum institutional clawback from investigators. We recommend a review of the mechanisms for allocation of research infrastructure funding associated with grant support.

Australia's Universities are chronically under resourced and require greater support if they are to remain places of innovation and discovery.

It is widely recognised that Australia's universities are struggling to maintain their role as places of innovation and discovery. Growing student numbers, unmanageable teaching commitments, ageing buildings, redirection of research infrastructure support, progressive devolution of administration to scientists and expanding compliance requirements are endemic complaints in our higher education institutions. There is a strong perception that the more established research institutes are now outstripping the universities in their research funding and quality. The universities are the source of our future researchers and they need to be cherished and supported. A major national research priority should address the optimal mechanism for rehabilitating Australia's universities as key centres of innovation and discovery.

The role of Australia's teaching hospitals in health research should be restored as much as possible.

As a result of funding cutbacks and restructuring of health services Australia's teaching hospitals have experienced a dramatic erosion of their historical role in medical research. This reduction in research activities, and the focus on services, will ultimately *reduce* the quality of health care and diminish our capacity to innovate and develop new therapies/diagnostics in clinical centres. We are at risk of creating a generation of health care professionals with little exposure to research and with poorly developed critical skills required to deal with new problems in medicine. We recommend a review of the role of teaching hospitals and health centres in medical research and an exploration of mechanisms to maintain their importance as centres of high quality scientific research.

Australia's biotechnology industry needs nurturing with special emphasis on protection of intellectual property and commercialisation.

Government initiatives have helped enormously in cultivating Australia's biotechnology industry however for many scientists the steps involved in protecting intellectual property and commercialising their research remain onerous. Universities and institutes have improved their support in this area however specialised advice and funding support for the protection of intellectual property and subsequent commercialisation are still needed. We recommend that the education and support of scientists in protection of IP and its development should be a national research priority.

Thank you for the opportunity to address these concerns to the National Research Priority Setting Taskforce.

James McCluskey
President
Australasian Society for Immunology

Upcoming Lectures & Conferences

December 8 – 12, 2002	**32nd Annual Scientific Meeting of ASI held in conjunction with the meeting of the Society for Cytokynes, Inflammation and Leukocytes. Brisbane, Queensland, Australia Website: www.ccm.com.au/ASI2002/**
December 13 – 15, 2002	4th ESH Euroconference on Immunobiology of Transplantation: From Basic Science to Practical Medicine. St Louis, Paris, France Website: www.esh.org Email: ghyslaine@esh.org
February 13 – 15, 2003	Hematopoietic Stem Cells: Research and Clinical Applications. Paris, France Website: www.esh.org Email: ghyslaine@esh.org
April 2 – 5, 2003	37th Annual Meeting of the European Society for Clinical Investigation: The Pathophysiology of Diseases: from bench to bedside. Verona, Italy Website: www.esci.eu.com

The Walter and Eliza Hall Institute of Medical Research – Seminars

October 23	Dr Irina Caminschi (Immunology Division) – FIRE and CIRE/DC-SIGN: Novel cell surface molecules differentially expressed on dendritic cell subsets
October 30	Dr David Tarlinton (Immunology Division) – Maintaining balance in a time of absolutes: The B cell response to antigen

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

Speaker Profiles

Burnet Orator

Professor Suzanne Cory

Director, the Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia

The Burnet Oration was commenced in 1986 to commemorate the work of Sir F. Macfarlane Burnet. The Oration is a highlight of the Annual Scientific meeting each year, and is sponsored by CSL Ltd. Burnet was the director of WEHI for more than 20 years, and ASI is therefore delighted that Professor Suzanne Cory, the current director of WEHI, will give this year's lecture.

Professor Cory's research, which has led to 141 papers and reviews, has had a major impact on the understanding of immunology and the development of cancer.

At the time of commencing her PhD studies in Cambridge, the Medical Research Council Laboratory of Molecular Biology was home to five Nobel prize winners, including Dr Francis Crick, the Head of her Department. Her pioneering studies on DNA structure during her PhD training were expanded and further developed during her postdoctoral period in Geneva, where her longstanding collaboration with Dr Jerry Adams was initiated.

Following their return to Melbourne in 1971, Cory and Adams joined the Hall Institute and initially addressed a central puzzle regarding the immune response: how the body makes the myriad antibodies needed to fight diverse infectious agents. Recognising that the genes were the key, they exploited the emerging technology of genetic engineering in 1976 to isolate antibody genes - the first mammalian genes cloned in Australia. This pioneering introduction of gene cloning technology to Australia led them to uncover the fact that antibody genes are encoded as bits and pieces which can re-combine in a myriad ways, thereby creating much greater diversity with which to fight infection. Their subsequent penetrating analysis of these genes helped to change the face of immunology.

Professor Suzanne Cory

In 1981, their attention turned to the nature of the genetic accidents that cause cancer. Their laboratory showed that damage to chromosomes can activate cancer-promoting genes. By introducing these aberrant genes into mice, they were able to clarify steps in cancer development. They tracked down the genetic mutation which leads to Burkitt's lymphoma, a malignancy of antibody-producing cells called B lymphocytes. The transgenic mice their team developed for this work provided the means to study the early stages of the disease and test for synergistic mutations.

More recently their group made the ground-breaking discovery that certain genes promote cell survival by inhibiting programmed cell death. This opened an entirely new way of thinking about cancer development. Cory's laboratory is currently investigating the biochemistry and interactions of this family of genes. The work Cory and her colleagues have done on Bcl-2, a gene responsible for the most common type of lymphoma, follicular lymphoma, produced a paradigm shift in genetics. Previously it had been thought that all cancer-provoking mutations removed the brakes on cell division. However, Bcl-2 allows cells to survive under hostile conditions and thereby accumulate further mutations. This work is of great clinical importance as Bcl-2, and related genes discovered since, protect tumours against normally lethal doses of irradiation or chemotherapy.

Visiting Speakers

Professor Shizuo Akira

Osaka University, Japan

Professor Akira heads the Department of Host Defense, Research Institute for Microbial Diseases at Osaka University. His main research interests are molecular mechanisms of host defense, cytokine signaling and identification of functional roles of a given gene by gene targetting. Current work in his laboratory includes:

1. In vivo roles of the signaling pathways via Toll/IL-1R family. Toll/IL-1R family receptors play important roles in host defense. We are now studying the role of Toll/IL-1R family signalings in immune response and infection by generating the mice lacking Toll/IL-1R family or the downsteam signaling molecules such as MyD88 and IkB kinases.

2. In vivo roles of STAT family. JAK-STAT signaling pathway plays a major role in the effector functions of cytokines. We have generated STAT3 and STAT6 KO mice. Due to early embryonic lethality of STAT3 KO mice, we are now studying the role of STAT3 in various tissues by conditional gene targeting.

3. Roles of C/EBP family in immune responses. C/EBP family of transcription factors harbors a basic and leucine zipper (bZIP) domain in the C-terminal region. We are now studying the role of each member in host defense by gene targeting.

4. In vivo roles of DAP kinase family. DAP kinase family induces apoptosis. We are now studying the molecular mechanisms of apoptosis mediated by these kinases

Dr Wayne Hancock

Children's Hospital of Philadelphia, USA

Wayne Hancock completed his medical and doctoral degrees and a pathology fellowship in Australia, was introduced to and enthralled by the world of

Dr Wayne Hancock

experimental pathology during a post-doc with Ramzi Cotran in Boston, and has moved peripatetically through the worlds of macrophage biology, cytokines and in vivo studies ever since. He has peered over the shoulders and managed to irritate, stimulate or otherwise provoke most of the senior figures in transplant immunobiology in the USA over the last 2 decades, and has co-authored many papers in conjunction with those he considers the pick of them. Nowadays, as a professor of pathology at U. Penn and the Children's Hospital of Philadelphia, he is proud to claim card-carrying credentials in the areas of chemokine biology and costimulation, wishes he knew more about how to regulate NF-kB, worries about being spread too thin but paradoxically is always looking for new collaborators, associates and fellows, and just wants to understand how things work.

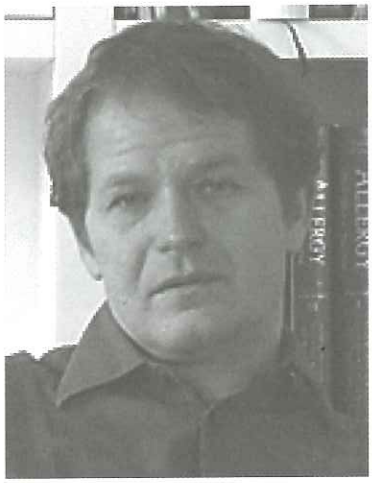
Professor Manfred Kopf

Swiss Federal Institute of Technology, Zurich, Switzerland

Professor Kopf has been full Professor of Molecular Biomedicine at the ETH Zurich since August 01, 2001.

He was born on January 04, 1960, and grew up in Freiburg, Germany, where he studied Biology. He did his diploma and doctoral thesis at the Max Planck Institute for Immunobiology in the laboratory of novel laureate Georges Köhler. From 1995 to 2001, he continued his career as an independent scientific member of the Basel Institute for Immunology, Switzerland.

His research focuses on the immune system and the cellular and molecular mechanisms of host defense against various pathogens including parasites, bacteria, and viruses. Experiments are designed to understand gene function in a complex organism with particular emphasis on molecules involved in inflammation and cellular communication during immune responses. Lately his group investigated pathogenic mechanisms of asthma and autoimmune heart inflammation. In 1995, his studies on the role of cytokines in infectious diseases were awarded with the Otto Hahn medal and the Hans Spemann prize.



Professor Manfred Kopf

Professor Alberto Mantovani

Istituto di Recerche Farmacologiche "Mario Negri", Milan, Italy

Professor Mantovani is well-known for his contributions to the field of leukocyte biology, including major ones in the following areas:

Chemokines: original description on Monocyte Chemotactic Protein-1 as tumor-derived chemotactic factor; characterization of new chemokines and their role in pathophysiology. IL-1/Toll: endothelial cell activation by IL-1 and cytokines; identification of the type II receptor as a decoy anti-IL-1 molecule, a concept now extended to molecules in the TNF receptor and IL-18 receptor families. Pentraxins: cloning (cDNA and genomic, mouse and human), structural and functional characterization of the first long pentraxin PTX3.

He has conducted research at the Chester Research Institute, Surrey, England, and at the National Institutes Health, Maryland, USA. Currently, Professor Mantovani is the Chief of the Lab. Of Immunology and the

Professor Alberto Mantovani

Head of the Dept. of Immunology and Cell Biology, at the Istituto di Ricerche Farmacologiche "Mario Negri", Milan. He is also a Full Professor of General Pathology, at the School of Medicine, Univ. of Brescia, Italy.

Dr Diane Mathis

Section on Immunology and Immunogenetics, Joslin Diabetes Center , and Harvard Medical School, Boston, USA

Dr Mathis' lab works in the fields of T cell differentiation and autoimmunity, with a special emphasis on exploiting the most advanced transgenic and gene-targeting technology to engineer new mouse models.

Studies on T cell differentiation focus on 1) selection of the T cell repertoire, in particular the mechanisms of positive and negative selection and lineage commitment; and 2) cellular and molecular influences on naive and memory T cell survival in the periphery.

Studies on autoimmunity explore the immunological mechanisms of diabetes, rheumatoid arthritis and APECED. Major questions tackled are what initiates these diseases, how is their progression regulated, and what are the final effector mechanisms. In addition, modern genetic and genomic approaches are used to identify disease-modifying genes in both human patients and mouse models.

Dr Diane Mathis

Dr Matthew Mescher

Dr Matthew Mescher

Director, Center for Immunology, University of Minnesota , USA

Dr Mescher's research interests include: cytotoxic T lymphocyte (CTL) activation, signal transduction and immunotherapy

The CTL plays an important role in immune defense by directly binding to and killing tumor or virus-infected cells. Dr. Mescher's laboratory focuses on cell surface receptor interactions and signaling pathways involved in activation of CTLs, using novel methods for producing artificial lipid membrane constructs from purified membrane proteins to sort out these complex signaling events. Molecules known to be involved in CTL binding and signal transduction, such as ligands for CD8 proteins and integrins, can be selectively introduced into these membranes and their specific role in CTL binding, response, and membrane-cytoskeletal interactions can be studied. This work on the molecular basis of T cell activation has important implications for the development of novel therapeutic approaches for activating tumor and virus-specific CTL responses. Artificial membranes made in his laboratory for in vitro studies of T cell activation augment CTL response in mice in an antigen-specific manner. They are now trying to determine how antigen-bound artificial membranes, particularly membrane-coated latex microspheres, mediate CTL enhancement and produce therapeutic effects. These findings would allow for further exploration of the potential for this approach to immunization and disease therapy.

Dr Ethan Shevach

Cellular Immunology Section, National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, USA

The research efforts of the Cellular Immunology Section are focused in the area of immune regulation in the pathogenesis and treatment of organ-specific autoimmune disease. It is widely accepted that the development of autoimmune disease involves a breakdown in the mechanisms that control self versus non-self discrimination. The primary mechanism that leads to tolerance to self-antigens is thymic deletion of autoreactive T cells. However, some auto-reactive T cells may escape thymic deletion or recognize antigens expressed only extrathymically. T cell anergy and T cell indifference/ignorance have been proposed as the primary mechanisms used to control these potentially harmful populations; however, these passive mechanisms for self-tolerance may not be sufficient to completely control potentially pathogenic cells. Evidence has accumulated over the past 10 years for an active mechanism of immune suppression in which a distinct subset of cells suppresses the activation of autoreactive T cells that have escaped passive mechanisms of tolerance induction. Our major goal is to further the understanding of the mechanism of action of these regulatory cells in preventing autoimmunity. We have identified a unique population of regulatory CD4+ T cells which co-express CD25 which are capable of not only suppressing the induction of autoimmune disease in vivo, but also the disease induced by passive transfer of cloned autoantigen-specific effector cells (see Figure). These CD4+CD25+ T cells appear to be members of a unique lineage of cells that acquire CD25 expression during differentiation in the thymus. Recently, we have established an in vitro model system that mimics the function of these cells in vivo. The CD4+CD25+ population can readily suppress polyclonal and antigen-specific responses by a novel cytokine-independent, cell contact-dependent, mechanism. The antigen specificity and precise mechanisms of suppression utilized by the CD4+CD25+ cells are the subjects of ongoing investigations.

While regulatory cells play a major role in preventing the induction of autoimmune disease, cytokines appear to be the major mediators that are responsible for the destruction of the involved organ. A second focus of our studies is the role of cytokine networks, bridging the innate and acquired immune systems, in the pathogenesis of organ-specific autoimmunity, particularly experimental allergic encephalomyelitis (EAE), an animal model of multiple sclerosis. Inflammatory immune responses are primarily mediated by CD4+ Th1 T cells, which produce interferon-gamma (IFN), while CD4+ Th2 populations, which produce IL-4, mediate antibody responses but not organ-specific tissue destruction. However, we have recently demonstrated that IFN is not required for disease pathogenesis, but that it may actually exert a profound protective effect. The protective effect of IFN is mediated by its capacity to regulate the production of certain T cell derived chemokines which mediate migration of neutrophils and macrophages into the target organ thus facilitating exacerbation of disease. In contrast to IFN , IL-12 was shown to be essential for the induction of both experimental EAE and collagen-induced arthritis. We have also characterized a unique CD4+ T lymphocyte which is capable of producing IL-10, but whose IL-10 producing capacity is tonically suppressed by the constitutive production of IL-12. This cell population may play a unique role in the normal homeostatic processes which regulate the susceptibility of an individual animal to autoimmune disease. Our goals for the future include the design of several therapeutic protocols for the manipulation of cytokine/chemokine networks in autoimmunity that will be aimed at inhibiting not only the induction of disease, but also the modulation of established disease.

Dr Ethan Shevach

Dr Timothy Springer

Center for Blood Research, Harvard Medical School, Boston, USA

Dr Springer's work focuses on integrins, Ig superfamily cell adhesion molecules (CAM's), and selectins.

Integrins are the most sophisticated adhesion molecules known. Like many surface molecules, integrins can transmit signals into cells. However, integrins also transmit "inside-out signals." Other receptors transmit signals that impinge on the cytoplasmic and transmembrane domains of integrins. In less than a second, these signals are transmitted to integrin extracellular domains, which undergo conformational movements that enable ligand binding. Thus, integrins can rapidly stabilize contacts between lymphocytes and antigen-presenting cells, and between leukocytes in the bloodstream and endothelium at sites of inflammation. Integrins also mediate cell migration within the body, which involves highly regulated interactions with the actin cytoskeleton and extracellular ligands. Dr Springer's lab is developing a three-dimensional picture of integrins and their ligands, to understand how they bind to one another, the moving parts of the integrin machines and how they are linked together, and the connections to other signaling molecules.

The lab also focuses on selectins and a4 integrins that have a unique function in the vasculature. Their receptor-ligand interactions mediate rolling of leukocytes on endothelium, an adhesive modality that enables surveillance for signs of inflammation. The lab is characterizing the molecular and cellular properties that enable such a transient form of adhesion under the high forces experienced by cells in blood vessels.

Dr Timothy Springer

Whenever possible, connections between basic research and disease are made. Such diseases include inherited defects of integrins in leukocyte adhesion deficiency, ICAM-1 as the cellular receptor for rhinovirus, and SDF-1 as the natural ligand for the HIV coreceptor CXCR4. This work may lead to clinical treatments for autoimmune and vascular diseases.

Dr Susan Swain

Dr Susan Swain

Director, the Trudeau Institute, Saranac Lake, USA

Dr Swain's work focuses on defining the pathways of T cell and B cell differentiation and identifying factors that regulate such development. In particular she has been interested in developing in vitro assays in which the details of differentiation can be determined and in vivo assays in which the events can be visualized. Her lab has studied in detail the differentiation of naive cells into primary effectors, including determining the factors that promote their activation and proliferation and determine what cytokines they will produce. Now the main focus is on determining how effector expansion and development of long lived resting memory are regulated and what determines memory cell persistence. Of particular interest are the factors which promote or block the programmed cell death of effectors by apoptosis which is responsible for curtailing responses.

As a related topic, Dr Swain has been interested in the factors governing the development of anergy/tolerance rather than effector function in murine AIDS model and in bacterial superantigen models. A subproject involves studying how these processes are altered in aging with resulting immune defects.

ASI Membership Directory

The ASI Membership Directory has recently been forwarded to all members with an email address on the database. For those members without an email address, or where this or previous emails have "bounced back", a hard copy is included with this issue of the newsletter.

If you have an email address, but have not received your Directory in pdf format and do not have a hard copy enclosed, please email Judi Anderson at the ASI Secretariat (asi@21century.com.au) to arrange for your copy to be forwarded to you.

Please remember that the Membership Directory only contains information for members who indicated on either their membership application or renewal form that they wished to have their details published in the Directory

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An invitation and a request to all ASI members

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

- Our Student Page is specifically designed for 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.

The Editors

ASI Councillors' News

Queensland News

Queensland's immunology enjoyed some pretty good stimulation on multiple levels during the last few months. Firstly we had the BIG conference, the 3rd annual meeting of the **B**risbane **I**mmunology **G**roup where 113 immunologists from all over the state and beyond gathered at the Noosa Lake Resort from the 29-30th of August 2002 for a great mixture of scientific and social (in some cases late night) exchange. This meeting is a forum for both established and early-carrier scientists and in particular encourages students to present their data in oral and poster presentations. Moreover, a number of 'heavy weights', Profs Tony Basten from the Centenary Institute Sydney, Chris Goodnow from JCSMR Canberra, Michael Good from QIMR Brisbane, Nilabh Shastri from UC Berkeley and Jonathan Sprent from the Scripps Research Institute San Diego infused this meeting with stunning science. The meeting organizers were bold enough to break the normal mould of talk and question time (which admittedly, can be quite tedious sometimes) and experimented with two novel forms of information delivery and assessment: Round table discussion groups targeted individual presentations for an in depth-analysis with a positive spin, and the HotBits session provided serious & entertaining discussions about currently controversial topics in immunology. Let's see what kind of surprises next year's BIG meeting will come up with and make sure that you do not miss them.

Secondly, Prof Nilabh Shastri from UC Berkeley gave in his QIMR institute seminar a wonderful example how work in immunology can rattle established textbook thinking in molecular science, and even more showed that 'hard-core' immunology (i.e. the ins and outs of MHC class I antigen presentation) can be made palatable to a wide audience of scientists (including even epidemiologists!). Apart from giving seminars at QIMR and the BIG meeting, Nilabh presented in Adelaide and Melbourne, as part of the ASI international speaker program. After this intensive 4-lectures-in-4-days tour (including the unexpected cancellation of the last Qantas flight out of Melbourne), Nilabh had at least one day at the BIG meeting to see some of the beautiful Australian landscape and not just meeting rooms.

Thirdly, the UQ Centre for Immunology and Cancer Research (CICR) has arrived in its new research building at the Princess Alexandra Hospital in Brisbane. The building was officially opened by Premier Peter Beattie in mid July and was celebrated with a scientific symposium featuring local and international speakers. A particular highlight was the second Dr Jian Zhou Memorial lecture delivered by Professor Paul Lambert. His lecture on papillomavirus oncogenes and models for cervical cancer in mice was both thought provoking and enjoyable for the large audience. The social highlight was the post symposium party featuring a live band, food, drinks and several sore heads the next day (according to insider information).

Finally, the Mater Medical Research Institute (MMRI) hosted the 4th DC symposium on 15-16th August 2002. The meeting was attended by 109 participants, with a nearly even ration of Brisbane- and interstate-based scientists. The program included 23 "stimulating" presentations on maturation of the immune function. The inaugural address by Prof Pat Holt from the TVW Telethon Institute for Child Health Research was dedicated to the immune function during early childhood as a determinant of susceptibility to persistent immuno-inflammatory diseases and the regulation of airway mucosal DC function in the late phase asthma response. Other talks focussed on the molecular contributions of DC to the immune response, the basic cellular evidence for DC in different tissues and animal models and evidence for the role of human DC in health and disease. The presentations generated passionate discussions and interactions with many delegates requesting an invitation for next year to continue the debate (if interested, please contact thansen@mmri.mater.org.au).

Norbert Kienzle
Councillor

W.A. News

During the past few months the WA speaker program has been quite active.

In June, Dr Michael Lotze from the University of Pittsburgh, gave a joint Danny Hill/ASI seminar entitled "The Acute and Chronic Immune Response in Cancer - Views of a DC Chauvinist" which promoted quite a lot of interest and useful discussions.

During July, we had a brief visit to Perth by Dr Paul Crocker (Wellcome Trust Biocentre, School of Life Sciences, University of Dundee, UK) who presented an update on his work in the field of Siglecs in a talk titled: "Characterisation of new CD33-related Siglecs, a major family of potential inhibitory receptors on the innate immune system".

In Augest, Dr Christophe von Garnier, a visiting Research Fellow at the Institute of Child Health Research in Perth gave an interesting presentation on his recent work on "Synthetic peptide-based allergy vaccines" in both mouse models and in human trials.

During October, the WA branch will host visits to Perth by Dr Frank Carbone (University of Melbourne, Dept of Microbiology and Immunology) and Prof. Anne Kelso (QIMR), who will be coming to present seminars and for discussions with local immunologists. We look forward to their visits.

Tony Scalzo
Councillor

Sustaining Membership

ASI Inc acknowledges the support of the following sustaining members:

- Bioquest Limited
- Dynal Pty Ltd

Victorian News

Several recent events held by IgV have been a great success. The first of these was the IgV Graduate Careers Forum on June 26th at AMREP, Alfred Hospital. This evening was enjoyed by all that attended and thanks in particular to committee member Rachael Keating who put this night together. Thanks also to IgV/CRC/ and Monash University for their support. The second recent and great success was our regular IgV Techniques Workshop on July 5th at the Department of Microbiology and Immunology, University of Melbourne. Thank you to all the invited speakers who participated, the Department for hosting the Workshop and associated lunch, and Frank Alderuccio for putting the Program and day together. Much appreciation to ABI and QIAGEN for providing support and interesting presentations. The formula is working well and we are more than happy to hear from members and companies for bright ideas about new techniques/equipment to showcase.

Lastly, we are holding the 2002 Annual IgV meeting at Beechworth on October 6-8th. www.beechworth.latrobe.edu.au The Scientific Program has been circulated and features a special invited speaker Ian McKenzie, who is retiring from the ARI Directorship this year; and others invited speakers include Peter Simpson, Michael Kershaw, Phil Bird, Joe Trapani, Mauro Sandrin, Chris Parish, Ian van Driel, Jenny Rolland, Eugene Maraskovsky, and David Haylock. It is sure to be a fabulous meeting of high interest to all immunologists and I encourage all group leaders to attend with their students. Again the meeting will be subsidised by IgV and student prizes for the major ASI conference will be made available. For registration forms see: http://www.microbiol.unimelb.edu.au/micro/IgV/

Mark Smyth
Councillor

Contributions sought for the ASI Newsletter

Deadline for the next issue

1st November 2002

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

asi@21century.com.au

N.Z. News

In July Immunologists from Dunedin, Christchurch and Wellington gathered at the Malaghan Institute for the annual Immunet meeting. The first day was an intensive overview of each group's current research, with rapid 15 minute overviews. We even squeezed in an AGM where the sole representative from Auckland (John Fraser) suffered a momentary lapse of sanity and volunteered Auckland as the venue for the 2007 ASI conference. This was immediately endorsed by the whole gathering and we retired to an Italian restaurant to reflect on a solid day's endeavours. Day 2 was spent in an attempt to develop a strategy to ensure Immunology retains a strong presence in the never ending restructuring of science and research in New Zealand.

We are pleased to welcome back to New Zealand Drs Jo Kirman (DNA vaccines, tuberculosis) and Alex McLellan (Dendritic cells and activation of cytotoxic T cells) from their Postdocs. Both Jo and Alex have been on the local speaking circuit already.

Dr Margaret Baird has returned from sabbatical leave in Sydney and Oxford.

The older members of the New Zealand immunological fraternity are currently engaged in gathering data to disprove the scurrilous misinformation published in the last edition of the ASI newsletter. We feel confident that we have the real oil on where the Holy Grail of Australasian Immunology has resided over the last two decades. Yes, the Bursa, the trophy that was awarded only to those of the most supreme oratory skill, is somewhere in God's own [see page 1].

Glenn Buchan
Councillor

Apology

Apologies to the authors of the Obituaries in the July issue of the newsletters whose names were omitted from their contributions. Chris Jolly was the author of the Cesar Milstein obituary and Len Harrison of the Thomas Mandel obituary and we thank them for providing these tributes.