



N E W S L E T T E R

## Australasian Society for Immunology Incorporated

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### Infection and Immunity Lab – University of Auckland

John Fraser

I've always considered myself a bit of an immunological usurper. Edelman and Porter's crude antibody structure was about the only immunology I remember learning as a student, although to be honest, immunology wasn't an important part of the biology curriculum of either Victoria or Auckland Universities where I did my undergraduate and graduate years during the late '70s and early '80s. The first immunology paper that caught my eye was a 1980 review by Ellis Reinherz and Stuart Schlossman<sup>1</sup>, describing the separation of T3 positive lymphocytes into two mutually exclusive populations – T4 and T8. To me, the review revealed more about the combination of technologies than the underlying biology; the ability to grow and clone T lymphocytes using growth factor containing conditioned media; the ability to immunize mice with clonal cells to make monoclonal antibodies; sorting cells using a new technique called fluorescence activated

cell sorting (FACS) and showing that the T8 cell clones were cytotoxic while the T4 cells were not. This struck me as novel, interesting and very powerful.

I joined Jack Strominger's lab at Harvard as a Fogarty Fellow in 1983 – the best career decision I've ever made! Jack was studying Major Histocompatibility Complex proteins and determining the MHC class I crystal structure had been assigned to a young PhD student, Pamela Bjorkman. I was given the project of cloning alloreactive human CTL and looking at their fine specificity towards MHC class I and class II. This was an unproductive project since we could never expand the human T cell clones sufficiently to do much with them, so I switched to working on the T cell Receptor that had just been discovered by Mark Davis and Tak Mak. Jack Strominger was and is a superb scientist and mentor, having trained over 300 postdocs and



John Fraser

graduate students over six decades. He had an uncanny knack of knowing what might be interesting before anyone else. Now age 86, he proudly tells me that he deliberately used passive mentorship, meaning he left people alone to pursue side avenues. Jack has remained a dear friend since I left his group nearly 30 years ago. I was one of those postdocs who pursued a side-avenue that became my mainstream research.

*cont.p4*



Fraser group (LtoR) Weilin Hou, Shirin Valikhani, John Fraser, Richard Sequeira, Jeong Choi, Dr Ries Langley, Fiona Clow, Sarvenaz Taghavi, Dr Fiona Radcliff (absent Hyun-Sun Jin, Stefan Hermans)

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### Website

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

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

as well as a plethora of links to sites of immunological interest at home and abroad. If you'd like your lab home pages linked to the site, would like to advertise a job or conference, or have a favourite immunology-related site that doesn't currently appear on the ASI site, please email Sarah Jones at [jones.s@wehi.edu.au](mailto:jones.s@wehi.edu.au)

### Email bulletin board

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

## EDITORIAL

So many paradoxes, so few vaccines.

I was very happy to read that the Federal Government was putting a stop to the payment of vaccination incentives to parents who, without a legitimate medical reason, chose to not vaccinate their children. Under the previous system, conscientiously objecting parents could still claim the incentive payment. Yes, I was concerned that some children were at increased risk of infection, but what really irritated me was the Yes-Minister-esque logic of paying people to *not* do the thing you are paying them to do. In reality, the simple message that vaccination is the safest and most effective means of protecting our children against a range of awful diseases is being constantly diluted by the paradox of vaccine success.

The basis of the paradox of vaccine success is that the greatest incentive to vaccinate (which is the fear of disease) is lost when vaccines successfully remove the experience of the

disease from the public's consciousness. Unfortunately, when there is no fear of disease, the fear of vaccination can gain traction.

An uninformed parent's fear of vaccination is not irrational; the problem is that misinformation is probably easier to gain than accurate information. This would certainly be true in the absence of government-supported vaccine information. The real problem with the misinformation is that it is so well presented, convincing and emotive.

I was really only alerted to the scale of the problem while preparing for a subject I have been teaching on Scholarship of Research. For this particular subject I set Andrew Wakefield's 1998 *Lancet* paper as the core text for dissection. At the risk of digressing, I strongly urge you to revisit that paper and the aftermath (see BMJ): you will be astounded at the scale of the slow-motion train-wreck. Anyway, as part of my preparations I read

many studies on autism and inevitably ended up reading many compelling blogs written by parents of children with autism. I have to say that I can understand how intelligent people not trained in scientific method could be easily swayed by such information.

So the move by the Federal Government (and supported by ASI!) to stop paying undeserved incentives is a really important and necessary demonstration of the unambiguous support of vaccination.

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Would you like to participate in the running of ASI? There are several important positions becoming vacant in December (see the Honorary Secretary's report), one of which is the position of Newsletter Editor. If you would like any advice on what's involved in the Editor's job, please contact me.

*Simon Apte*

## Be a part of ASI's new look and feel

### 1. Enter the competition for ASI's best scientific image.

Help to make the new website visually outstanding by sending us your scientific image for display on the website. **The best image will win \$100.**

### 2. Join the new ASI Communications Committee.

This group, comprising a volunteer from each ASI branch, will be vital in keeping ASI members connected and informed. The group will collect and distribute information to ASI members via the new website and social media.

To enter the competition and have the chance to have your image displayed on the website and used in ASI promotional material, submit your image and contact details to [jones.s@wehi.edu.au](mailto:jones.s@wehi.edu.au)

To register your interest in becoming a member of the ASI Communications Committee, email [jones.s@wehi.edu.au](mailto:jones.s@wehi.edu.au) with 2–3 lines describing yourself and why you're interested.

**The image competition and Communications Committee applications close on 1/10/2013.**



### University of Auckland, Infection & Immunity Lab, cont.

While working on the T cell Receptor, I noted that some commercial preparations of staphylococcal protein A were contaminated with a potent T cell mitogen—staphylococcal enterotoxin A (SEA), a food poisoning toxin. Thinking this might make the subject of a grant proposal for my planned repatriation to New Zealand in 1988 to the Department of Immunobiology at the University of Auckland headed by Jim Watson, I discovered that SEA cross-linking MHC class II and T cell Receptor together causing a toxic cytokine storm. This began an interest in the virulence and pathogenicity mechanisms of *Staphylococcus aureus* and *Streptococcus pyogenes* that continues to this day. *S. aureus* is a major threat to global health. Its wide distribution, broad spectrum of infection and increasing antibiotic resistance makes it the classic superbug. It is only a matter of time before a strain of *S. aureus* arises that resists all known antibiotics.

The crucial question my lab is addressing is what are the minimum immune components that provide efficient defense against this organism? This is a question that really has no good answer since we still don't understand what actually kills the organism. For example, it is quite capable of surviving in phagocytic cells. Not surprisingly most of the staphylococcal virulence factors target innate mechanisms such as complement, chemokine production, myeloid cell function and opsonophagocytosis. Our goal is to identify those virulence factors that are most critical for infection. This is a daunting task since there are over 150 virulence factors. Our current interest is in defining the functional role of the universally expressed SSLs (staphylococcal superantigen-like proteins). These factors share the superantigen structure but have very different (and multiple) functions that disrupt opsonophagocytosis.

*Streptococcus pyogenes*, another superantigen producer also remains an interest of our group because of its importance to New Zealand and Australia where it continues to cause high levels of rheumatic fever in young indigenous people of both countries. A more recent project is assisting to develop a vaccine against Group A streptococcus that has investment from both the New Zealand and Australian governments.

I have been a proud and active member of the ASI since 1990 when the first Auckland

meeting was held. I don't think I've missed an ASI meeting since 2002. The second Auckland meeting 16 years later was one that I had the pleasure to convene. It's a wonderful organization, more like a family than a society. Although I'm removed from the everyday lab science since I became Dean of Faculty in early 2012, we have a team of excellent postdocs to drive the science and to supervise graduate students. Our lab is fortunate to have funding from an HRC programme grant in collaboration with my long-time friend and collaborator Ted Baker a structural biologist from Auckland and Greg Cooke, a microbiologist from the University of Otago and also from the Maurice Wilkins Centre—a national Centre of Research Excellence. I eagerly look forward to early December where I see and socialize with my old Australian colleagues and talk immunology.



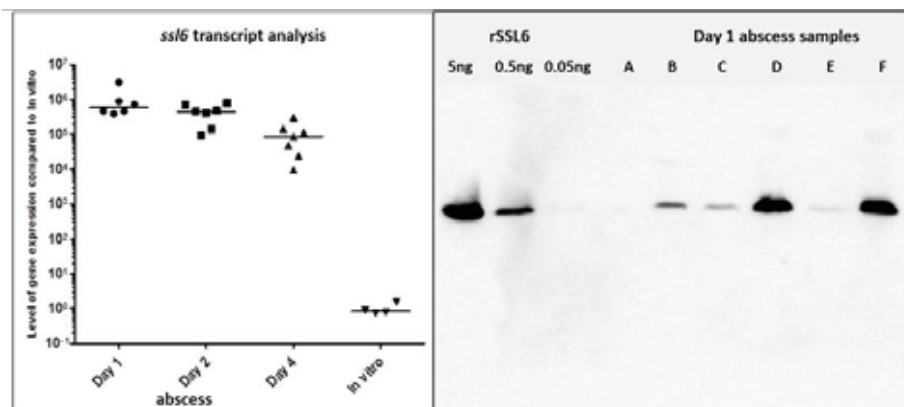
**Dr Reis Langley**

I was fortunate enough to carry out my PhD studies in the Immunology Laboratory of John Fraser conducting much of the pioneering characterisation of the Staphylococcal Superantigen-Like (SSL) protein family. It was during this period we discovered these

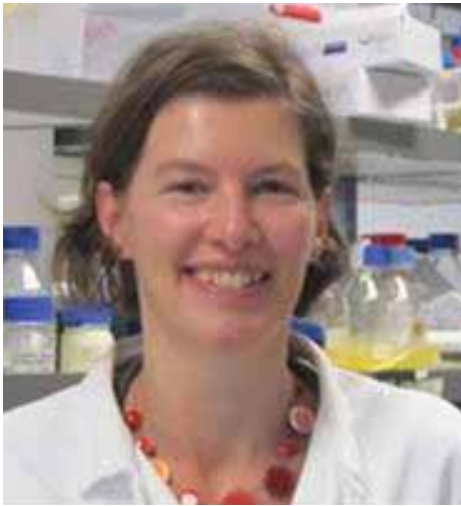
proteins were not 'new superantigens' and began to reveal that they in fact had various functions in immune evasion. Following my PhD I worked as a Post-Doc in the Structural Immunology Laboratory of Professor Roy Mariuzza at the Center for Advanced Research in Biotechnology in Maryland USA. I primarily studied the interaction between T cell receptors and MHC class II presenting mutated 'self' antigen such as those arising from self-determinants bearing alterations that result in diseases like cancer. After this position I returned to John Fraser's lab to continue working on SSLs and *S. aureus* immune evasion. Currently one of my interests lies in determining the conditions under which *ssl* genes are up-regulated with the aim of establishing the situations in which SSLs aid the bacterium to avoid immune destruction. We are currently studying mouse models of colonization and subcutaneous abscess formation and will extend this research to other infection situations. Additionally I am characterising newly discovered core-genome encoded superantigens, and novel potential virulence factors of *S. aureus*.

### Dr Fiona Radcliff

I studied for my PhD with Adrian Lee at UNSW back in the heady days when a vaccine for *Helicobacter pylori* seemed imminent. The project was part of a very successful collaboration with CSL Ltd to identify candidate antigens for a protective *H. pylori* vaccine and was a wonderful example of how well academia and industry can complement each other. Working in this area stimulated an enduring interest in immune-therapeutics, particularly vaccination. After completing my PhD I did some additional work on *H. pylori* with Richard Ferrero at L'Institut Pasteur in Paris, and then switched fields to



Determination of *ssl6* expression levels in *S. aureus*-infected subcutaneous abscesses compared to in vitro cultured *S. aureus* by real-time PCR (left panel). Detection of rSSL6 by immunoblot analysis on 0.5% of day 1 abscess samples using anti-SSL6 (right panel).

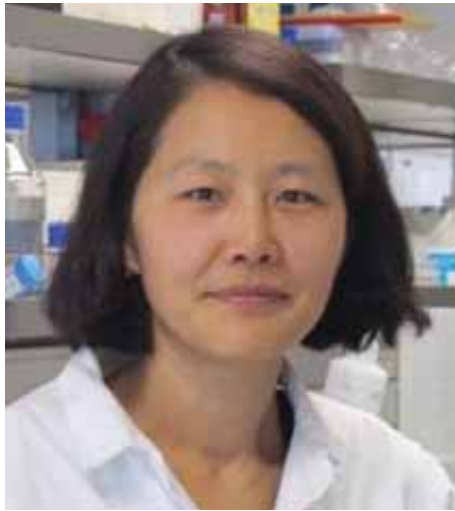


Dr Fiona Radcliff

work on Dendritic Cell based vaccines at the Royal Children's Hospital in Melbourne. Since that time I have been based in Auckland and initially worked as an immunologist for a biotech company, characterizing and developing novel immune therapeutics in pre-clinical models of inflammatory disease. I then returned to university-based research in John Fraser's lab, which continues to be a rewarding experience. Both *S. aureus* and *S. pyogenes* express an impressive assortment of molecules to circumvent the innate immune response. Understanding their mechanism of action offers the opportunity to harness the results of evolution as a basis for novel therapeutics. I am involved in a variety of projects, ranging from testing the utility of a novel superantigen-based vaccine carrier; an assessment of a novel vaccine candidate antigen for Group A Streptococcus; development of improved mouse models of infection for *Staphylococcus aureus*; and testing Staphylococcal Superantigen-Like proteins for anti-inflammatory properties *in vivo*.

#### Dr Hyun-Sun Jin

I have been interested in inflammatory diseases especially allergies, during my PhD at Yonsei University College of Medicine where I examined the role of Group II house dust mite *Dermatophagoides farinae* and *Dermatophagoides pteronyssinus*. Then as a research fellow at the National Jewish Medical and Research Center (NJMRC), Denver, USA, I have examined the signalling of lysophosphatidylserine (lyso-PS) during apoptosis. I worked on how lyso-PS signalling differed as compared to phosphatidylserine (PS), which is the most common phospholipid and involved in resolution of inflammation and could be used as a therapeutic target for severe asthma. As



Dr Hyun-Sun Jin

a research associate at Durham University, UK, I investigated the influences of cellular composition in dermis by epidermal notch activation. I joined Prof. Fraser's group in 2010 where my current research focus is on understanding *staphylococcus aureus*-like (SSL) proteins *in vivo* inflammatory models of IBD and chronic asthma, and induction of Gram-positive tolerance with SSL proteins.



#### Fiona Clow

I graduated from the University of Otago in 2003 with a Master of Science in Genetics, following a Bachelor of Science focused on Microbiology and Biochemistry. Not knowing what field my true calling was, but with a passion for science and wanting to find answers to those "how?" and "why?" questions, John Fraser gave me an opportunity to join his research lab. Nine years later I can say it is as much of an honour and opportunity as it was in the first year, and that I have definitely found my

fit in a field that has endless questions to answer. In addition to looking after all the members of the Fraser Team, I run the SPR Facility assisting NZ scientists to examine the specifics of the interactions between their molecules of interest on our Biacore T200. In the Fraser lab I am working on several projects involving Staphylococcal virulence factors, determining how they interact with cellular and molecular components of the immune system. Of particular interest to me are *in vivo* infection studies using *Lactococcus lactis*, where we look for advantages various Staph virulence factors provide to this usually innocuous bacterium. Bacteria levels, locations and varying responses from the host immune system are combined to help answer as many hows and whys as possible.

1. Reinherz EL, Schlossman SF (1980). The differentiation and function of human T lymphocytes. Cell, 19:4 821-7.

### Contributions sought for the ASI online immunology quiz

As part of World Day of Immunology events, we have developed an online immunology quiz (see <http://www.immunology.org.au/immquiz1.html>)

on the ASI website. This quiz is targeted at the general public, but it would be good to add a few more questions (especially some with an Australian flavour), and maybe even add an "Advanced Level", with questions that undergrad students might find useful for revising for exams. All that's needed now are the questions and answers.

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





43<sup>rd</sup> Annual Meeting of the  
**Australasian Society  
for Immunology**  
2-5 December 2013  
Wellington  
New Zealand

**Keynote Speakers**

**Prof Olivera Finn**  
*University of Pittsburgh, USA*

**Prof Richard Locksley**  
*University of California, San Francisco, USA*

**Prof Kristen Hogquist**  
*University of Minnesota, USA*

**Prof Gunilla Hedestam**  
*Karolinska Institutet, Sweden*

**Prof Lawrence Steinman**  
*Stanford University, USA*

**Dr Alan Sher**  
*National Institutes of Health, USA*

**Prof Takashi Saito**  
*Riken Research Center for Allergy and  
Immunology, Japan*

**Prof Rick Maizels**  
*University of Edinburgh, UK*

**Dr W. Ray Waters**  
*USDA National Animal Disease Center, USA*

**Prof Cornelis Melief**  
*Leiden University, Netherlands*

**Prof Britta Engelhardt**  
*Universität Bern, Switzerland*

**Prof Helen Heslop**  
*Baylor College of Medicine, USA*

**Important Dates**

**13 May 2013**  
Registration opens

**1 September 2013**  
Early Bird Registration Closes  
Abstract Submission Closes

**1 December 2013**  
Workshop Programme

**2-5 December 2013**  
Scientific Meeting

**[www.asi2013.org](http://www.asi2013.org)**



For more information about Corporate  
Sponsorship, Exhibition, or Travel Awards,  
please visit our website.

## Update – 43rd ASI Annual Meeting, Wellington, New Zealand

We have been furiously organizing the upcoming annual ASI meeting and to help make this meeting as successful and as enjoyable as possible, here are a few tips:

### Registration

The registration fee was originally set against previous years' fees. However, because the exchange rates fluctuate, the fee in Australian dollars will vary over time. The 4-year average rate is 0.78 AUD to 1.0 NZD but it is currently sitting around 0.88 AUD to 1.0 NZD. Thus, I recommend checking the exchange rate and if the NZD drops below the 4-year average exchange rate, the meeting will be a bargain.

### Flights

There are direct flights to Wellington from Sydney, Melbourne and Brisbane, and are run by Air New Zealand, Qantas, or Virgin Australia (though Air New Zealand). Most of these flights will arrive close to midnight, but the upside is that the airport is in the city

so it is only a 10-minute drive until you are at your hotel. I have been keeping track of specials on flights and will send around a notice through your councilors if there are any particularly good ones.

### Accommodation

There is a good listing of hotels through the conference website ([www.asi2013.org](http://www.asi2013.org)) as well as links to other options. For anyone who wishes to keep the costs low and does not mind sharing a room, the Nomad is a backpackers located directly across from the conference centre. It is very reasonably priced for you and 3 or more of your closest friends.

### Workshops

The workshops will be run at Vitoria University of Wellington, which is located on a hill overlooking the city centre. It is a pleasant 15-20 minute walk to the University from the city, but we will arrange alternative transportation in case of inclement weather.

Please check the ASI 2013 website ([www.asi2013.org](http://www.asi2013.org)) for any updated information on these arrangements.

This year the workshops will be run as 2 separate sessions: one in the morning and one in the afternoon. When you register, please select the *two* sessions you wish to attend and note that these sessions are limited so registering early will ensure you get your first choices. The workshop schedule is updated periodically although it is subject to change. The current schedule is shown below.

### Workshop Function

Directly after the workshops, there will be a wine-tasting function sponsored by Spy Valley Winery for the workshop participants and for any of the Scientific Meeting delegates who would like to attend. Please indicate if you are attending when you register. Additional tickets may also be purchased at that time. There will be light refreshments, beer, and other beverages available in case you are not a wine connoisseur.

### Morning sessions:

#### Postgraduate

Chair: Lisa Connor

Kristin Hogquist (USA)  
Takashi Saito (Japan)  
Larry Steinman (USA)  
Britta Engelhardt (Switzerland)  
Scott Mueller (Australia)

Panel discussion

#### Flow Cytometry I Clinical\*

Chair: Glennis White  
UK National External Quality  
Assessment Service  
David Barnett (UK) &  
Wendy Erber (Australia)  
Challenging Cases in the  
Clinical Laboratory  
Jeanrine Holden (USA)

#### Tumour Immunology I

Chair: Franca Ronchese  
Helen Heslop (USA)  
Cornelius Melief (Netherlands)  
  
Selected abstract talks

#### Infection & Immunity I

Viral infections and immunity  
Bacterial infections and  
immunity  
Chairs: Marilyn Hibma &  
Margaret Baird  
Gunilla Hedestam (Sweden)  
W Ray Waters (USA)  
Nicholas King (Australia)  
Joanna Kirman (NZ)

Selected abstract talks

### Afternoon sessions:

#### Mucosal Immunology

Chair: Elizabeth Forbes-Blom  
Kathy McCoy (Switzerland)  
Simon Phipps (Australia)  
Ken Beagley (Australia)

Selected abstract talks

#### Flow Cytometry II Research\*

Chair: David Hedley  
Designing Multicolour Panels  
Kelly Lundsten (USA)  
Vera Donnenberg (USA)  
Standardisation &  
Troubleshooting  
Holden Maecker (USA)  
Bill Telford (USA)  
David Hedley (Canada)  
Vera Donnenberg (USA)

#### Tumour Immunology II

Chair: Franca Ronchese  
Olivera Finn (USA)  
Gordon Ada Presentation  
Ian Hermans (NZ)

Selected abstract talks

#### Infection & Immunity II

Parasitology Emerging/hot  
topics in Infection & Immunity  
Chairs: Marilyn Hibma &  
Margaret Baird  
Alan Sher (USA)  
Rick Maizels (UK)

Selected abstract talks

Panel discussion

## ASI STUDENT NEWS

Hello to All

Firstly, Kia ora from your new ASI student representatives, Cameron Field (Malaghan Institute of Medical Research) and Farah Al Barwani (University of Otago) based in Wellington and Dunedin, Land of the Long White Cloud!

With the annual ASI meeting in Wellington just around the corner, we are getting into full steam with planning and preparation. This year, the student function will be hosted at the fantastic Mac's Brew Bar, right on the picturesque waterfront. All the international speakers are invited to attend so make the most of this great opportunity to mix and mingle and form new social and scientific networks in a more informal environment.

Also, it is worth noting the Australasian Flow Cytometry Group (AFCG 2013) conference will be held in Wellington from November 28-December 1. Like ASI, there will be a fantastic line up of international speakers as



*Wellington by night*

well as a workshop so new knowledge can be put into practice! As an added incentive, there is a special combined rate for people who attend both AFCG and ASI 2013. More details can be found at:

[www.afcg2013.org](http://www.afcg2013.org).

We look forward to seeing you all in December!

*Cameron and Farah*



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## PRESIDENT'S COLUMN

Dear ASI members

It has been a busy few months and there are a few things I would like to report on. Firstly, thanks to Sarah Jones (ASI Project Officer), our member survey has been completed and I am pleased (and somewhat relieved) to say that, generally speaking, ASI members seem to be very happy with the way the Society runs and what it has to offer its members. However, there is room for improvement in some areas and ASI Council spent some time going over these issues to determine what we can do in response to the suggestions we received. Please see the Project Officer's Report in this Newsletter for more details about this. This is also a good opportunity to remind our members that the best way for you to influence the way our Society runs is to nominate for a Council position. There are several positions opening up at the end of this year (please see the Honorary Secretary's (Rose Ffrench's) report for details, and we will be putting out a call for nominations very soon so give it some thought and keep a lookout for the email. You might end up as the next Branch Councillor, or maybe the next President! There will also be some new editorial board opportunities opening up in the next year or two with our journals *Immunology and Cell Biology*, and *Clinical and Translational Immunology*. Please contact Gabrielle Belz, Editor-in-chief, for further information.

Our new website is making good progress, and we are still aiming to have it go live before the annual meeting this year. With the new website, there will be a need to increase our online activity to get the most out of our website and related social media accounts, including Twitter <https://twitter.com/ASImmunology> and Facebook <https://www.facebook.com/ASImmunology>. Thus, we are calling for volunteers from our membership to work with Sarah Jones (website manager) and Gabi Khoury (Twitter and Facebook account manager) to keep the accounts lively and interesting. See the Project Officer's Report in this Newsletter for details.

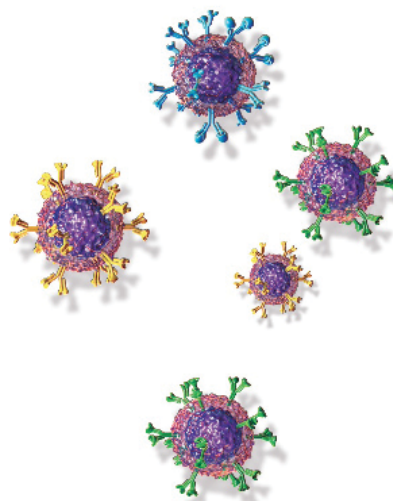
We recognise the importance of ASI Travel Awards for our members and we are doing as much as we can to increase the numbers of awards available. I am pleased to announce two new initiatives including a new category of Travel Award for early

career researchers (between 7 and 12 years postdoctoral experience). Two awards at \$3000 each will be made available for travel to international meetings. We have also committed to support up to three \$1500 Travel Awards for ASI representatives to attend FIMSA meetings. With former ASI President Alan Baxter working hard as the FIMSA Councillor for ASI, we are planning to enrich our involvement with FIMSA and its associated societies in our region of the globe. This should provide the chance for ASI members to participate in international conferences and training courses and should also open up some terrific new collaborative research opportunities.

Things are progressing very nicely with a major upcoming event in the history of our Society, namely, the International Congress of Immunology, to be held in Melbourne in 2016. The organising committee – Jose Villadangos (chair), Jenny Rolland, Ian Barr, Andrew Lew and myself – have been very busy already, preparing promotional material in conjunction with the PCO (Arinex). The

only unfortunate outcome so far is that Jose won an argument (or should I say exercised his power as chair) that will result in a front and back logo-emblazoned, white promotional T-shirt (Jose's choice), versus a slightly more respectable, logo-bearing, black polo shirt (my choice) ... Future opportunities for members to become involved with the organisation of this exciting event will be coming up so stay tuned. Our first major promotion will take place in ICI 2013 in Milan, and we encourage all ASI members to help us promote ICI 2016 by posting the logo on the website of your association, and by using the promotional slide when you give seminars and conference presentations. Both the logo (below) and the promotional slide have been emailed to members and are also available for download from our website <http://www.immunology.org.au/index.html>. In addition to promoting this meeting, just think how useful this might be if you run out of things to say at the end of your talk or you want to minimise question time!

Dale Godfrey



**ICI** 2016  
**INTERNATIONAL  
 CONGRESS OF  
 IMMUNOLOGY**  
 21–26 AUGUST 2016  
**MELBOURNE  
 AUSTRALIA**

## PROJECT MANAGER'S REPORT

Exciting times lie ahead for ASI members. The recent **ASI Member Survey**, completed by around a quarter of the ASI membership, highlighted a few weak spots and sparked some ideas to fix these. ASI members are generally pleased with their Society and its activities but in some areas members may not be getting their money's worth. Happily, the ASI Council has formulated a plan for most of those problem areas and we have some exciting new initiatives coming into fruition.

### *Networking and communication opportunities for ASI members*

Such opportunities are one of the main reasons for joining ASI, according to you, its members. However, participation in networking opportunities is limited by location and communication and these are hurdles we are working to overcome. The new website, currently being built, will contain a number of features that will allow ASI members to communicate with each other and lend their voice to boost ASI's activities and assets. The website will contain a **forum** for all ASI members that will be available for all relevant topics of discussion. We will collate a database of **experimental protocols** for ASI members to share with each other and will have a searchable **database of ASI members** and their locations and areas of expertise to aid collaboration. The website will contain an **archive of vidcasts** of seminars given as part of the ASI Visiting Speaker Program, allowing more regional members to view the seminars online. If you are regionally based, do speak to your ASI Branch Councillor to discuss options for accessing the Visiting Speaker Program – ASI Councillors will usually do whatever they can to ensure that all members experience the benefits of membership.

### *Women's Initiative*

As well as these features of the new website, we are excited to announce the creation of the **ASI Women's Initiative**. This program will contain three main components aimed at promoting and supporting Australasian women immunologists. The first is a **database of Australasian women immunologists**: a reference for conference organisers and other non-ASI members seeking to engage with women scientists. The second is a **forum**

for discussion of issues relevant to women in research and the third is an exciting new **mentorship program**, teaming women immunologists with mentors to guide them in their careers. It is important to emphasise here that the women's initiative will be richest if both male and female researchers participate in discussion and provide mentorship and support as part of the program. We will soon be issuing a call for participation in this program so please watch out for the email.

### *Communications Subcommittee*

The span of ASI is large and the success of our Society lies in its ability to reach all of its members quickly and easily. To facilitate this communication, we will form a **communications subcommittee**, a team of four volunteers who will help to collect and spread information to all ASI members via the website, facebook and Twitter. *If you wish to join this subcommittee, please email [jones.s@wehi.edu.au](mailto:jones.s@wehi.edu.au)*. If you don't already follow ASI on facebook and Twitter, please do! @ASIimmunology

### *Public profile of ASI*

Eventually, with the help of ASI members, we aim to boost the public profile of ASI, beginning with the creation of a database of **research information sheets** for members of the public including patients, teachers and students. The website will provide an avenue for strengthening ties with other organisations and societies as well as being a voice for Australasian immunologists on topics of public concern. All of these are

works in the making, but offer an exciting prospect for ASI members wishing to communicate their research to the outside world.

### *Scientific support and research areas*

Survey respondents would like to see greater recognition of the important contribution made to Australasian immunology by **research assistants and technicians**. We will endeavour to provide more opportunities for these scientists, for example by making RAs and technicians eligible for travel awards and bursaries, and for mentorship as part of the women's initiative.

Other areas that ASI members would like to see given more attention are the fields of **human and clinical immunology** as well as **veterinary immunology**. ASI will work towards greater promotion of these fields of immunology at the upcoming NZ 2013 ASI annual scientific meeting and beyond. ASI members are also encouraged to submit nominations of researchers in these areas for the visiting speaker program to [Alejandro.Lopez@qimr.edu.au](mailto:Alejandro.Lopez@qimr.edu.au).

In all, thanks to the feedback of ASI members, there is momentum in the Society – its looks will change and its voice will gain volume. Most importantly, the opportunities for ASI members to join in and shape the Society will be more easily accessible via the new website. Here's your chance to be a part of it!

Sarah Jones

### **An invitation and a request to all ASI members**

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

- We invite our student membership to voice their views on issues that interest or directly concern them.
- It's our newsletter, so let's support it and strive to make it even better.
- The ASI newsletter comes out 4 times a year and we welcome your contributions.
- **AND NOW YOU COULD WIN \$200 FOR THE BEST ARTICLE PUBLISHED IN THE NEWSLETTER!**

# 16<sup>th</sup> INTERNATIONAL SYMPOSIUM ON

16-19 JULY 2014

Brisbane Convention  
and Exhibition Centre  
Brisbane, Australia

This conference will be a major evolutionary step for the EBV meeting as the main focus will be on translation of basic research to the clinic. A number of sessions focusing on clinical management and novel treatment strategies for EBV-associated diseases are planned. In addition, information sessions for the public on these diseases will also be held during the EBV conference. We look forward to strong interaction between basic scientists and clinical experts.

[conference.qimr.edu.au/ebv](http://conference.qimr.edu.au/ebv)



Queensland Institute of  
Medical Research

# EBV

## and associated diseases

### Invited speakers

**Professor Emeritus Harald zur Hausen (Nobel Laureate)**  
German Cancer Research Center

**Professor Peter Doherty (Nobel Laureate)**  
Peter Doherty Institute, University of Melbourne

**Professor Suzanne Cory**  
Walter and Eliza Hall Institute of Medical Research

**Professor Klaus Rajewsky**  
Max Delbrück Center for Molecular Medicine Berlin

**Professor Ralf Kuppers**  
Institute of Cell Biology (Cancer Research), University of Duisburg-Essen

**Professor Helen Heslop**  
Department of Medicine Baylor College of Medicine

**Professor Louis Staudt**  
National Institute of Health

### Henle Lecture

**Professor Cliona Rooney**  
Center for Cell and Gene Therapy, Baylor college of Medicine

50 YEARS  
OF DISCOVERY





## HONORARY SECRETARY'S NEWS

### *ASI International Travel Awards*

In addition to the special Travel Awards ASI provided for postgraduate students and post-doctoral researchers to attend the ICI 2013 in Milan, there were an additional five \$3000 ASI International Travel Awards given in the April 2013 round. The post-doctoral awards went to Dr Connie Wong, Department of Immunology, Monash University, and Dr Daniel Pellici, Department of Microbiology and Immunology, University of Melbourne. Postgraduate awards went to Monika Srivastava of JCSMR, ANU; Nathan Zammit of the Garvan Institute; and Benjamin Duell of Griffith University. Congratulations to all the winners and we look forward to reading your reports on your travel in upcoming editions of the Newsletter. Thanks to the Prizes and Awards Sub-committee of ASI Council for judging the awards. The call for applications for the October round of ITAs will go out in September.

### *Jacques Miller Senior Travel Award*

The prestigious Jacques Miller Senior Travel Award has this year been awarded to Professor Anthony Purcell of Monash University. Professor Purcell will use the award of up to \$10,000 to travel to Oxford University in the UK for a three month sabbatical visit with collaborators at the Weatherall Institute of Molecular Medicine.

### *FIMSA Travel Awards*

There were also 10 travel awards awarded by FIMSA to attend the ICI 2013 in Milan. From a total of 62 applicants the following winners were announced:

Huai-Chia Chuang, Taiwan  
Mamdouh Sedhom, Australia  
Sophie Schussek, Australia  
Hai-Lan Piao, China  
Alison Thorburn, Australia  
Connie Duong, Australia  
Garth Cameron, Australia  
Yen-Lin Lin, Taiwan  
Yosuke Kurashima, Japan  
Qiong Wu, China

Great to see such good representation from ASI members amongst the awardees.

### *ASI awarded first prize in IUIS International Day of Immunology competition*

Congratulations to Dr Claerwen Jones and Day of Immunology organisers throughout Australia, who have been awarded first prize (Euro2000) in the IUIS competition for the best national campaign for International Day of Immunology on April 29th. Claerwen was chair for the Victorian committee for the Day of Immunology which has been running for four years now and last year agreed to take on the role of ASI National Day of Immunology Co-ordinator. As described in her article in the last newsletter, there were a great range of activities throughout Australia, including public lectures, tours of research institutes, wet lab training for high school students and teachers at GTAC, regional events and a 'vaccination cafe' in SA. Well done to everyone involved.

### *Upcoming nominations and election of new ASI Council positions*

We have several council positions that will become available for re-election in October. Firstly the position of **Vice President** becomes available when Past President David Tarlinton completes his term at the December AGM. The Vice President will serve one year as Vice President to current President Dale Godfrey, before taking on the role of President in December 2014 at the AGM. The presidential term is then two years, followed by a final year on Council as Past President. Therefore the incumbent will commit to four years on Council, from December 2013 to December 2017, which will include the period the ICI 2016 is held in Australia.

The position of **Honorary Secretary** will also become available for nominations in October, for a three year term. This role entails maintaining the official record of the Society, including agenda and minutes of the AGM and Council meetings, communication with members, Council and administrative Secretariat, oversight of ASI awards and prizes, and co-ordination of election of new Council members. If you are interested in finding out more about the duties and time commitment of this position, please email me at [rosemary.ffrench@monash.edu](mailto:rosemary.ffrench@monash.edu). Both the Vice President and Honorary Secretary positions are full voting members of Council and form part of the ASI Executive with the President and Treasurer.

We also have three branch representative positions on Council that will be available for nominations; these include **Queensland**, **New Zealand** and **Victoria/Tasmania**. Thanks to Ash Haque, Anne La Flamme and Stuart Berzins who have done a great job representing their regions on Council for the past nearly three years. These positions are all voting Council positions with three year terms. If you are interested in nominating for any of these branch representative roles, you can contact the current incumbent to find out more about the role (contact details on page 2).

Finally the position of **Newsletter Editor** will also become available for nominations this year. I am sure you will all agree that Simon Apte has done a great job editing the Newsletter for the past three years, including moving it on-line and including publications from members, but now his term has finished it is time for someone else to fulfil this important role. If you would like to get more information on what this role entails, please contact Simon directly on [Simon.Apte@qimr.edu.au](mailto:Simon.Apte@qimr.edu.au).

Nomination forms will be emailed or mailed out to all members in early September, with the deadline for nominations October 15th. Where more than one nomination for a position is received, a ballot will be held. For Vice President and Secretary this will involve all members, while branch representative positions will be voted for only by members within their home state, country or regions. If only one nomination is received, the applicant will be declared elected without ballot.

Further information on the roles of Council members can be found in the ASI Constitution on the website.

*Rosemary Ffrench*

### **Sustaining Membership**

ASI Inc acknowledges the support of the following sustaining member:

- Jomar Bioscience

## THE ASI VISITING SPEAKER PROGRAM

As you can see from the list of speakers scheduled, the program has grown significantly. More members are realising the advantages of inviting speakers to visit their locations and to tour around Australia under the VSP initiative. We always want to hear from you and encourage you to think of inviting your preferred Immunologist with views to fostering/strengthening collaborations. Please visit the website for details of the program.

### October 2013

**Chris Benedict PhD.** La Joya Institute of Allergy and Immunology (LIAI)  
California, USA

**Perth**, 13–18. Participating in the **Perth Immunology Group** meeting  
**Melbourne**, 19–23  
**Sydney**, 24–25

*Hosted by Alec Redwood, The University of Western Australia.*

Please check with the Branch Councillor for details of the program in various locations

### November 2013

**Professor Ed Palmer**, University Hospital,  
Basel, Switzerland

**Brisbane**, 11–13  
**Canberra**, 14–15  
**Sydney**, 18  
**Melbourne**, 19–22

*Hosted by Su Heinzl, WEHI*

Please check with the branch councillor for details of the program in various locations

### 2014

**Professor Peter Andersen**, Vaccine Research and Development at Statens Serum Institut, Copenhagen, Denmark

February/March. (Detailed schedule to be confirmed)

**Palmerston North**  
**Dunedin**  
**Sydney**

*Hosted by Joanna Kirman, University of Otago*



**Prof. Peter Lawætz Andersen** (above) is Vice President of Vaccine Research and Development at Statens Serum Institut. Prior to this he was director of Infectious Disease Immunology (1997–2002) and the Tuberculosis Research Unit (1991–1997), both at SSI. Prof. Andersen has been Honorary Professor at Copenhagen University since 2006. In his current position at the SSI, he is responsible for the overall co-ordination of vaccine research and development, covering activities from early research to clinical development. Prof. Andersen's research has been focused on the identification and characterisation of antigens, immune mechanisms and vaccine delivery systems that mediate protection against various pathogens and his main scientific interest has been immunity to intracellular pathogens such as *Mycobacterium tuberculosis* and *Chlamydia trachomatis*. Prof. Andersen has pioneered work both on novel diagnostic assays (the IGRA assays), novel TB vaccines (H1/H4/H56) and the CAF series of liposomal adjuvants.

Prof. Andersen is the co-ordinator of several multidisciplinary research consortia including the international Center for Nano-Vaccines and the Gates Grand Challenge 12 Consortium. He has served on a number of committees to advise and co-ordinate strategies for vaccine and diagnostic development and has organized and chaired numerous international meetings. Prof. Andersen has >250 publications within the field of infection, immunity and vaccine research in peer-reviewed journals and is

the inventor of >20 novel patents within the vaccine field.

### Selected Recent Publications

Lin PL, Dietrich J, Tan E, Abalos RM, Burgos J, Bigbee C, Bigbee M, Milk L, Gideon HP, Rodgers M, Cochran C, Guinn KM, Sherman DR, Klein E, Janssen C, Flynn JL, **Andersen P.** The multistage vaccine H56 boosts the effects of BCG to protect cynomolgus macaques against active tuberculosis and reactivation of latent *Mycobacterium tuberculosis* infection. *J Clin Invest.* 2012 Jan 3; 122(1):303-14.

Aagaard C, Hoang T, Dietrich J, Cardona PJ, Izzo A, Dolganov G, Schoolnik GK, Cassidy JP, Billeskov R, **Andersen P.** A multistage tuberculosis vaccine that confers efficient protection before and after exposure. *Nat Med.* 2011 Feb; 17(2):189-94.

Olsen AW, Theisen M, Christensen D, Follmann F, **Andersen P.** Protection against Chlamydia promoted by a subunit vaccine (CTH1) compared with a primary intranasal infection in a mouse genital challenge model. *PLoS One.* 2010 May 21; 5(5):e10768.

Aagaard CS, Hoang TT, Vingsbo-Lundberg C, Dietrich J, **Andersen P.** Quality and vaccine efficacy of CD4+ T cell responses directed to dominant and subdominant epitopes in ESAT-6 from *Mycobacterium tuberculosis*. *J Immunol.* 2009 Aug 15; 183(4):2659-68.

Hoang TT, Nansen A, Roy S, Billeskov R, Aagaard C, Elvang T, Dietrich J, **Andersen P.** Distinct differences in the expansion and phenotype of TB10.4 specific CD8 and CD4 T cells after infection with *Mycobacterium tuberculosis*. *PLoS One.* 2009 Jun 16; 4(6):e5928.

Lindenstrøm T, Agger EM, Korsholm KS, Darrah PA, Aagaard C, Seder RA, Rosenkrands I, **Andersen P.** Tuberculosis subunit vaccination provides long-term protective immunity characterized by multifunctional CD4 memory T cells. *J Immunol.* 2009 Jun 15; 182(12):8047-55.

Aagaard C, Dietrich J, Doherty M, **Andersen P.** TB vaccines: current status and future perspectives. *Immunol Cell Biol.* 2009 May-Jun; 87(4):279-86.

Andersen CS, Agger EM, Rosenkrands I, Gomes JM, Bhowruth V, Gibson KJ, Petersen RV, Minnikin DE, Besra GS, **Andersen P.** A simple mycobacterial monomycolated glycerol lipid has potent immunostimulatory activity. *J Immunol.* 2009 Jan 1; 182(1):424-32.

Hansen J, Jensen KT, Follmann F, Agger EM, Theisen M, **Andersen P.** Liposome delivery of *Chlamydia muridarum* major outer membrane protein primes a Th1 response that protects against genital chlamydial infection in a mouse model. *J Infect Dis.* 2008 Sep 1; 198(5):758-67.

**Andersen P.** Tuberculosis vaccines – an update.  
Nat Rev Microbiol. 2007 Jul; 5(7):484-7.

**Other visits planned for 2014**

**Jason Cyster, PhD**, Howard Hughes Medical Institute, University of California, San Francisco, CA. USA  
*Hosted by Claudine Bonder, Centre for Cancer Biology, Adelaide*

**John O'Shea, MD**, National Institute of Arthritis and Musculoskeletal and Skin, Molecular Immunology and Inflammation Branch, NIH, Bethesda, MD. USA.  
*Hosted by Stuart Tangye, Garvan Institute of Medical Research, Sydney*

**A/Prof. Anand Goldrath**, Section of Molecular Biology, University of California, San Diego, CA. USA.  
*Hosted by Roslyn Kemp, University of Otago*

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

**WEHI Seminars on the Web:**  
[www.wehi.edu/seminars/](http://www.wehi.edu/seminars/)

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## UPCOMING CONFERENCES

VIII World Congress on Immunopathology, Respiratory Allergy & Asthma  
October 12–15, 2013  
Dubai, UAE  
[info@wipocis.org](mailto:info@wipocis.org)  
[www.wipocis.org](http://www.wipocis.org)

11th International Congress on AIDS in Asia and the Pacific  
November 18–22, 2013  
Bangkok, Thailand  
<http://icaap11.org/>

ACA 2013  
6th Asian Congress of Autoimmunity  
November 21–23, 2013  
Hong Kong  
<http://www2.kenes.com/autoimmunity2013>  
Email: [aca@kenes.com](mailto:aca@kenes.com)

2013 Conference on Virology & Immunology  
December 3–5, 2013  
Sanya, China  
[www.engii.org/workshop/CVI2013December](http://www.engii.org/workshop/CVI2013December)  
[workshop\\_December@engii.org](mailto:workshop_December@engii.org)

3rd Network of Immunology Frontier Winter School on Advanced Immunology  
January 19–23, 2014  
Awaji Island, Japan  
<http://ifrec-sign-winterschool.org/index.html>

53rd Midwinter Conference of Immunologists at Asilomar  
January 25 – 28, 2014  
Pacific Grove, California, USA  
[www.midwconimmunol.org](http://www.midwconimmunol.org)

8th World Immune Regulation Meeting  
19–22 March 2014  
Davos, Switzerland  
<http://www.wirm.ch>  
<http://www.facebook.com/WIRMeeting>

6th Annual World Congress of Vaccine (WCV-2014)  
April 25–28, 2014  
Dalian, China  
<http://www.bitlifesciences.com/wcv2014/>

16th Biennial Meeting of the European Society for Immunodeficiencies (ESID 2014)  
October 29–November 1, 2014  
Prague, Czech Republic  
[www.kenes.com/esid](http://www.kenes.com/esid)

## ASI is now on Facebook and Twitter

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

Follow at:

<https://twitter.com/ASImmunology>

<https://www.facebook.com/ASImmunology>

And for even more immunology news,

<https://twitter.com/DayofImmunology>



Accounts managed by ASI member, Gabriela Khoury



# 13th International Congress of the Immunology of Diabetes Society

## International speakers

Mark Atkinson  
Eesh Bhatia  
Ezio Bonifacio  
Teresa Di Lorenzo  
Mario Enlers  
Malin Flodstrom  
Ronald Gill  
Steve Gitelman  
Carla Greenbaum  
Katie Haskins  
Olle Korsgren  
Lars Krogvold  
Myung-Shik Lee  
Roberto Mallone  
Thomas Mandrup-Poulsen  
Clayton Mathews  
Chantal Mathieu  
Maki Nakayama  
Jerry Nepom  
Mark Peakman  
Al Powers  
Bart Roep  
Des Schatz  
Ania Skowera  
Jay Skyler  
Lisa Spain  
Bruce Verchere  
Dario Vignali  
Matthias von Herrath  
Frank Waldron-Lynch

## Australian speakers

Alan Baxter  
Tom Brodrick  
Peter Colman  
Maria Craig  
Chris Goodnow  
Shane Grey  
Len Harrison  
Cecile King  
Andrew Lew  
Charles Mackay  
Stuart Manning  
Jim McCluskey  
Grant Morahan  
Ed Stanley  
Helen Thomas  
Ranjeny Thomas



**Mantra Lorne, Victoria, Australia**  
**7 - 11 December 2013**



**IDS** Immunology Of Diabetes Society

**[www.ids2013.org](http://www.ids2013.org)**

## ASI Councillors' News

### W.A. News

It has been a busy couple of months and we have had some excellent speakers (see the meeting report below from Demelza Ireland about our last guest, Dr Brad Spiller), and good attendance by our members. If you haven't been to an ASI seminar this year yet, come along to our next one and enjoy a few drinks, eats and an interesting talk. Our next scheduled speaker is Dr Timothy Fairchild from the School of Psychology and Exercise Science at Murdoch University, who will talk about glucose control, exercise and immunity on August 28 (keep an eye out for the flyer).

The committee has been very active, and we are happy to announce that we will host the 3rd Perth Immunology Group Meeting on 16 and 17 October. This will take place at the Perth Flying Squadron Yacht Club in Nedlands and we have some excellent invited speakers from overseas and over east attending, including Dr Chris Benedict (La Jolla Institute, USA), Prof Sarah Robertson (Uni of Adelaide) and Dr Matt Sweet (Uni of Qld). We also have some interesting local speakers and themed sessions. There will be plenty of opportunity for selected presentations (talks and posters) and some attractive prizes, so save the date and keep an eye open for updates in the coming weeks.

Andrew Currie  
Councillor

### July meeting report by Demelza Ireland

ASI WA joined forces with ASM WA (Australian Society for Microbiology) to present a 'super-session' of talks on Thursday July 11th with an infection/immunity theme. ASI invited Dr Brad Spiller of the Department of Child Health at Cardiff University School of Medicine to present to us whilst he was in Perth to work on a collaboration with Professor John Newnham and Drs Matthew Kemp and Matthew Payne and the sheep model for preterm birth at UWA. Dr Spiller's talk was titled "Ureaplasma re-booted: technological advances to examine immune detection and evasion". He presented research on the role of *Ureaplasma* and *Mycoplasma* in inducing premature birth and post-birth sequelae, as well as developmental insufficiency in



Dr Brad Spiller

complement immunology and neutrophil proteinases in term and preterm birth. He shared some recent developments in transposon mutagenesis in his lab that have opened the door to investigating individual genes in the *Ureaplasma* genome for pathogenicity.

ASM, together with BD Diagnostics, hosted Dr Patrick Murray, the Worldwide Director of Scientific Affairs for Becton Dickinson Diagnostics. Dr Murray presented an overview of the work being done and left to do in identifying novel diagnostic approaches for hospital-acquired infections and assist in introducing these to the clinical market.

The meeting was a big success with close to 45 people attending, and offered a great opportunity for immunologists and microbiologists to get re-acquainted (just like old times!).

### S.A./N.T. News

The next upcoming event for the SA/NT branch is the 9th Annual Adelaide Immunology Retreat (AIR-9). The retreat is aimed at giving PhD students, Honours students and Research Assistants the opportunity to present their work and interact in a relaxed environment and will be held on 9-10 August in Murray Bridge. There will be plenty of opportunity for networking throughout the retreat including an afternoon visit to Monarto Zoo. We are looking forward to welcoming Prof Phil Hodgkin (WEHI) as our invited national speaker, who will share his 'Adventures in immunity' and our invited local speaker, Dr Lisa Ebert (Centre for Cancer Biology). We are also happy to host our first student delegate from the NT, Jessica Loughland, who is the recipient of a travel award to attend this year's retreat. Look out for a full meeting report in the next edition of the ASI newsletter.

I would like to thank the AIR-9 organising committee: Erin Lousberg, Susan Christo, Natalie Stevens, Tessa Gargett, Simon Barry, Pallave Dasari, Dave Yip, Natasha Kolesnikoff, Kate Parham, David Dimasi, Houn Taing and Wenying (Layla) Zhu. I would also like to acknowledge the generous support of our sponsors: Jomar, Australian Biosearch, Sapphire Bioscience, UniSA, Geneworks, Life Technologies, Epitope Technologies, Enzo, BD Biosciences, VWR, John Morris, ELISA Kits, Promega, DAKO, ACRF Cancer Genomics Facility, Mimotopes, Eppendorf, Scientifix, SAHMRI, Centre for Cancer Biology, Genesearch and The Hospital Research Foundation (QEH). Without their generous financial support the event could not be held.

Cara Fraser  
Councillor

### ICB Online Manuscript Submission

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

<http://mts-icb.nature.com/>

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

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



## Victorian News

These past few months have seen IgV present its Annual Master Class of Immunology and the Annual IgV Winter Seminar. The Master Class once again saw a great turnout of students and postdocs attending the full day event to listen to a great line up of experts representing different fields of immunology. This year's Winter Seminar was held at the Walter and Eliza Hall Institute and featured John Sprent delivering a great lecture to a large audience. Miltenyi Biotec are long term sponsors of the event and their support enabled IgV to provide the audience with wine and cheese before they all headed out into an appropriately wintry Melbourne evening of blustery sideways rain.

The IgV Annual Scientific Meeting will be held at the Forest Resort in Creswick on September 26/27. The event is always popular with local ASI members as it offers a relaxed environment and encourages the involvement of early career researchers. The next event then is the Annual ASI Scientific

Meeting in Wellington, so please remember to arrange your flights and accommodation early.

Lastly, IgV has been gathering content for its section of the new and improved ASI website. The website should greatly improve communication between ASI and its members and will hopefully enable us to process payments for meeting registrations and membership fees over the internet rather than relying on fax or standard mail as we do now. The new site has been designed to be compatible with mobile phone and tablets, as well as standard computer screens, so we are hoping ASI and IgV can offer far greater resources to our members. Please contact me with ideas about the sort of content you would like the ASI website to provide, as we are keen to know if members would mainly use the site as a resource for ASI/IgV activities, or if they would like to be able to source general information about immunology (e.g. links to journals, a resource for methods, etc.). Feel free to contact me about this or any other matter relating to ASI/IgV membership.

*Stuart Berzins*  
Councillor

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**Contributions  
sought for the ASI  
Newsletter**

**You could win \$200**

**Deadline for the  
next issue :  
1st November  
2013**

Please email your contributions  
to the Secretariat by the  
above date.  
[asi@21century.com.au](mailto:asi@21century.com.au)

## Special promotion for ASI members

Purchase an ELISA kit from the  
new Australian company  
**ELISAKIT.com** for \$250  
(regular price \$450).

For every kit purchased,  
**ELISAKIT.com** will give a \$50  
rebate to ASI to support  
more travel awards.

To take advantage of the offer, order a kit from [ELISAKIT.com](http://ELISAKIT.com) using a credit card or PO number and enter the code ASI2013. The offer is valid until the NZ 2013 ASI annual meeting, December 2–5 2013. [ELISAKIT.com](http://ELISAKIT.com) may offer further discounts for bulk purchases. Contact [info@elisakit.com](mailto:info@elisakit.com) to enquire.  
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## TRAVEL AWARD CONFERENCE REPORTS

### Immunology 2013 May 3–7, 2013, Honolulu, Hawaii

**Scott Mueller, The University of Melbourne:**

Along with four other ASI members, I was awarded an ASI special travel award to attend and present in an ASI Symposium at the centennial American Association of Immunologists (AAI) conference in Honolulu, Hawaii. The location of the conference was near picturesque Waikiki, with lovely beaches and the famous Diamond Head volcano crater. The conference was held in a very well equipped conference center. As is typical of the very large AAI conferences, the program was densely packed, with sessions starting at 7:30am and continuing until at least 6pm. In addition, more than 6000 posters were on display, with poster sessions each lunchtime over three days.

After the opening AAI President's address by Gail Bishop and a welcome reception on the first evening, the conference began with a major symposium dedicated to tissue-resident T cell populations. Speakers such as Prof. Frank Carbone, Wendy Havran, Leo Lefrancois, David Masopust and Adrian Hayday presented captivating work on the roles of both alpha-beta and gamma-delta T cell population's resident in tissues such as the skin and mucosal tissues. Other major symposia included topics such as CD4 T cell subsets, chaired by Bill Paul (NIAID), viral and bacterial pathogenesis, chaired by Bruce Walker, and the many roles of TGF-beta in immunity, chaired by Ming Li. In addition, multiple block symposia ran concurrently, covering a large range of specific topics. The ASI Symposium, chaired by John Stambas and Meredith O'Keefe, was well attended and showcased a range of expertise from cellular immunology to structural biology.

With many of the sessions overlapping it was a struggle to see even a fraction of the interesting talks, however the breadth of the presentations was impressive. When it all became too much, there was always Waikiki Beach to spend an hour away from it all. A final highlight of the conference was the AAI Centennial Celebration Luau at the Hilton Resort, where they featured local Hawaiian performers and a very impressive

fireworks display over the beach. All in all, Immunology 2013 was an excellent conference.

**Kim Jacobsen, Walter & Eliza Hall Institute, Melbourne:**

The American Association of Immunologists meeting took place in Hawaii. I won't admit that this influenced my decision to attend this meeting in particular! Surprisingly for a large conference, it was relatively easy to jump between rooms and thus see most presentations circled in the abstract book. One of the highlights of the plenary talks was Barton Haynes, who received the AAI-Steinman Award for Human Immunology Research. He described in detail the progress to date with HIV vaccines, which went on an interesting tangent to studying Opossums (Yang et al 2013 JEM) for his and Garnett Kelsoe's research on how HIV-1 gp41 mimics tolerising autoantigens.

From a B cell immunologist's perspective, there was, as there always is, a lot of presentations on T cells. However, there were a number of interesting presentations in the field of humoral immunity. The most interesting from my perspective was from the Jenkins lab. They have adapted their T

cell limiting dilution assay published recently in Cell (Tubo et al 2013 Cell) for B cells to ask the question: does one naïve B cell give rise to multiple fates, or just one fate per naïve cell? One can imagine that this type of work will eventually utilise single cell qPCR that McHeyzer-Williams discussed to examine the mechanisms underlying fate decisions of single cells. Interestingly, two members from Joshy Jacob's lab presented posters on examining the presence of long-lived murine plasma cells in the spleen, confirming previous work done by Australian immunologists (Ellyard et al 2004 Blood), describing the existence of long-lived plasma cells in human spleen.

Lastly, a number of research groups have identified novel roles for epigenetic modifications during an immune response; for example Artem Barski and colleagues (among others) presented modifications that underly the "poising" of memory T cells for rapid responses upon reactivation. This is a burgeoning area of research, and thus there is likely to be a number of papers published soon that will increase our understanding of the vital role these modifications play in the immune system. Finally, I'd like to thank ASI and the organisers for selecting me to attend and present my research.





**Stephanie Gras, Monash University, Melbourne:**

I've recently attended the annual meeting of the American Association of Immunology in Hawaii. Thanks to the support of ASI and organisation of a special session for Guest Societies, I was privileged to attend the meeting as well as present my work and represent the Australasian Society of Immunology.

The conference took place in Hawaii, a few metres away from the well-renamed Waikiki Beach, probably one of the most beautiful places I have had the chance to attend a conference. If it were not for the fact that I'd caught tonsillitis on my way to Hawaii, it would have been perfect. After two days on the island, I had to visit the first aid desk of the conference to look for a MD, as I could barely speak and had my talk to give two days later. This was an experience altogether, calling a private clinic on a Saturday afternoon, having a taxi-like service pick me up from my hotel to drive me to the clinic. After \$250, one shot and antibiotics, I was on my way back to the conference. A good night's sleep and waking up with warm sun help me to be in better shape and give my talk.

The conference itself was amazing, gathering some of the best immunologists in the world in one place. The number of topics on T cells only surprised me – a pleasant surprise as I was presenting some data on T cell immunity. After an introduction by Daniel Kaufman, we had some promising insight into the research on HIV vaccine; in another

session I've discovered that HLA-F could be a ligand for KIR, and that you could refold H2Kb with dipeptide.

Our session was of high quality and a fantastic opportunity to learn more about my fellow Australian Immunologists; impressive quality of talks. I had some great feedback with questions during the session and some more interest after my talk about the project and a few students were enquiring about the prospect of doing their post-doc in Australia.

The conference celebrated the AAI centennial, and we had a beautiful red T-shirt as souvenir to commemorate the year. The closing ceremony was held in the Hilton Hotel

Hawaiian village on the beach, a beautiful place with the sunset as background to start the night, a great animation with Hawaiian music and dance, and to finish the warm night, a fireworks display.

Overall a fantastic meeting, and a big thank you for ASI's support for providing the Travel Grant and organising the Guest Symposium.

**Susan Johnson, Streck Lab, MHRP, USA:**

Hawaii was a fitting venue for the conference celebrating the centenary of AAI. As always, it brought together experts and students alike with my highlight of the conference being Barton Haynes' overview of the recent developments in the HIV vaccine field. As well as the symposiums, there were many opportunities to attend career sessions that dealt with the many things that we may encounter at this stage in our early postdoctoral career. This allowed the opportunity to network with both academics and non-academics, as well as getting tips on resumes, interviewing, fellowships and other out-of-academia career alternatives.

It was nice to see some familiar faces (and hear the accents) of those in the ASI session after being overseas for so long and I thank ASI for giving me the chance to present my work in the ASI session and attend the conference.





**Jonathan Coquet, UGent Unit of Immunoregulation & Mucosal Immunology, Ghent, Belgium:**

The 100th AAI Symposium was on this year and what better way to celebrate such a milestone than to host the conference in Honolulu, Hawaii? I was lucky enough to be chosen for the ASI Symposium session on the Sunday afternoon and although there were a few stragglers coming in right after lunch (including me – the Chinese lunch order took a little longer than expected), it quickly picked up and turned out to be a good session.

Having performed research into co-stimulatory molecule function over the last three years whilst doing a post-doc at the Netherlands Cancer Institute in Amsterdam, I was particularly interested in the President's session on TRAF signaling, which did not disappoint. But it was also great to see some

gurus of the Thelper field such as Bill Paul, John O'Shea and Shimon Sakaguchi speaking about the areas of research that they have dedicated most of their lives to. There was, of course, no escaping the current 'Bieber' of the immune system, the Innate lymphoid cell. Like Bieber, I had largely avoided learning anything much about them but a number of great talks really opened my eyes to their importance. Makes me wonder if I'd actually enjoy a Bieber concert ...

Thanks again to the ASI for granting me the opportunity to attend this conference, which I otherwise certainly would not have attended. It was a great experience.



## Publications List

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

Thomas HE, Graham KL, Chee J, Thomas R, Kay TW, Krishnamurthy B. **Proinflammatory cytokines contribute to development and function of regulatory T cells in type 1 diabetes.** *Ann N Y Acad Sci* 2013; **1283**: 81.

Shimoni R, Pham K, Yassin M, Gu M, Russell SM. **TACTICS, an interactive platform for customized high-content bioimaging analysis.** *Bioinformatics* 2013; **29**(6): 817.

Lopez JA, Susanto O, Jenkins MR, Lukoyanova N, Sutton VR, Law RH, Johnston A, Bird CH, Bird PI, Whistock JC *et al.* **Perforin forms transient pores on the target cell plasma membrane to facilitate rapid access of granzymes during killer cell attack.** *Blood* 2013; **121**(14): 2659.

Nguyen C, Varney MD, Harrison LC, Morahan G. **Definition of high-risk type 1 diabetes HLA-DR and HLA-DQ types using only three single nucleotide polymorphisms.** *Diabetes* 2013; **62**(6): 2135.

Lindner S, Dahlke K, Sontheimer K, Hagn M, Kaltenmeier C, Barth TF, Beyer T, Reister F, Fabricius D, Lotfi R *et al.* **Interleukin 21-induced granzyme B-expressing B cells infiltrate tumors and regulate T cells.** *Cancer Res* 2013; **73**(8): 2468.

Hu M, Fletcher J, McCahon E, Catchpoole D, Zhang GY, Wang YM, Algar EM, Alexander SI. **Bilateral Wilms tumor and early presentation in pediatric patients is associated with the truncation of the Wilms tumor 1 protein.** *J Pediatr* 2013; **163**(1): 224.

Wang YM, Zhou JJ, Wang Y, Watson D, Zhang GY, Hu M, Wu H, Zheng G, Durkan AM, Harris DC *et al.* **Daedalic DNA vaccination against self antigens as a treatment for chronic kidney disease.** *Int J Clin Exp Pathol* 2013; **6**(3): 326.

Lin X, Hamilton-Williams EE, Rainbow DB, Hunter KM, Dai YD, Cheung J, Peterson LB, Wicker LS, Sherman LA. **Genetic interactions among Idd3, Idd5.1, Idd5.2, and Idd5.3 protective loci in the nonobese diabetic mouse model of type 1 diabetes.** *J Immunol* 2013; **190**(7): 3109.

Brady JL, Sutherland RM, Hancock M, Kitsoulis S, Lahoud MH, Phillips PM, Hawthorne WJ, d'Apice AJ, Cowan PJ, Harrison LC *et al.* **Anti-CD2 producing pig xenografts effect localized depletion of human T cells in a huSCID model.** *Xenotransplantation* 2013; **20**(2): 100.

Chuang I, Sedegah M, Cicatelli S, Spring M, Polhemus M, Tamminga C, Patterson N, Guerrero M, Bennett JW, McGrath S *et al.* **DNA prime/Adenovirus boost malaria vaccine encoding P. falciparum CSP and AMA1 induces sterile protection associated with cell-mediated immunity.** *PLoS One* 2013; **8**(2): e55571.

Chan AC, Leeansyah E, Cochrane A, d'Udekem d'Acoz Y, Mittag D, Harrison LC, Godfrey DI, Berzins SP. **Ex-vivo analysis of human natural killer T cells demonstrates heterogeneity between tissues and within established CD4(+) and CD4(-) subsets.** *Clin Exp Immunol* 2013; **172**(1): 129.

Mullally A, Bruedigam C, Poveromo L, Heidel FH, Purdon A, Vu T, Austin R, Heckl D, Breyfogle LJ, Kuhn CP *et al.* **Depletion of Jak2V617F myeloproliferative neoplasm-propagating stem cells by interferon-alpha in a murine model of polycythemia vera.** *Blood* 2013; **121**(18): 3692.

Coppieters KT, Harrison LC, von Herrath MG. **Trials in type 1 diabetes: Antigen-specific therapies.** *Clin Immunol* 2013.

Valkenburg SA, Gras S, Guillonneau C, Hatton LA, Bird NA, Twist KA, Halim H, Jackson DC, Purcell AW, Turner SJ *et al.* **Preemptive priming readily overcomes structure-based mechanisms of virus escape.** *Proc Natl Acad Sci U S A* 2013; **110**(14): 5570.

John LB, Trengove MC, Fraser FW, Yoong SH, Ward AC. **Pegasus, the 'atypical' Ikaros family member, influences left-right asymmetry and regulates pitx2 expression.** *Dev Biol* 2013; **377**(1): 46.

Lin MW, Ho JW, Harrison LC, dos Remedios CG, Adelstein S. **An antibody-based leukocyte-capture microarray for the diagnosis of systemic lupus erythematosus.** *PLoS One* 2013; **8**(3): e58199.

Roth AJ, Ooi JD, Hess JJ, van Timmeren MM, Berg EA, Poulton CE, McGregor J, Burkart M, Hogan SL, Hu Y *et al.* **Epitope specificity determines pathogenicity and detectability in ANCA-associated vasculitis.** *J Clin Invest* 2013; **123**(4): 1773.

Hurt AC, Leang SK, Tiedemann K, Butler J, Mechinaud F, Kelso A, Downie P, Barr IG. **Progressive emergence of an oseltamivir-resistant A(H3N2) virus over two courses of oseltamivir treatment in an immunocompromised paediatric patient.** *Influenza Other Respi Viruses* 2013.

Hamilton JA. **Therapeutic potential of targeting inflammation.** *Inflamm Res* 2013; **62**(7): 653.

Ma Y, Adjemian S, Mattarollo SR, Yamazaki T, Aymeric L, Yang H, Portela Catani JP, Hannani D, Duret H, Steegh K *et al.* **Anticancer chemotherapy-induced intratumoral recruitment and differentiation of antigen-presenting cells.** *Immunity* 2013; **38**(4): 729.



- Tan X, Alrashdan YA, Alkhouri H, Oliver BG, Armour CL, Hughes JM. **Airway smooth muscle CXCR3 ligand production: regulation by JAK-STAT1 and intracellular Ca(2)(+).** *Am J Physiol Lung Cell Mol Physiol* 2013; **304**(11): L790.
- Liu YC, Miles JJ, Neller MA, Gostick E, Price DA, Purcell AW, McCluskey J, Burrows SR, Rossjohn J, Gras S. **Highly divergent T-cell receptor binding modes underlie specific recognition of a bulged viral peptide bound to a human leukocyte antigen class I molecule.** *J Biol Chem* 2013; **288**(22): 15442.
- Warren HS, Wu F, Horn PL, Pyne DB, West NP, Cripps AW. **Peripheral blood natural killer (NK) cell function in healthy adults assessed using the target-induced NK loss (TINKL) assay.** *J Immunol Methods* 2013; **392**(1-2): 68.
- Chan CJ, Smyth MJ, Martinet L. **Molecular mechanisms of natural killer cell activation in response to cellular stress.** *Cell Death Differ* 2013.
- Comerford I, Harata-Lee Y, Bunting MD, Gregor C, Kara EE, McColl SR. **A myriad of functions and complex regulation of the CCR7/CCL19/CCL21 chemokine axis in the adaptive immune system.** *Cytokine Growth Factor Rev* 2013; **24**(3): 269.
- Terrinoni A, Serra V, Bruno E, Strasser A, Valente E, Flores ER, van Bokhoven H, Lu X, Knight RA, Melino G. **Role of p63 and the Notch pathway in cochlea development and sensorineural deafness.** *Proc Natl Acad Sci U S A* 2013; **110**(18): 7300.
- Wiede F, Fromm PD, Comerford I, Kara E, Bannan J, Schuh W, Ranasinghe C, Tarlinton D, Winkler T, McColl SR *et al.* **CCR6 is transiently upregulated on B cells after activation and modulates the germinal center reaction in the mouse.** *Immunol Cell Biol* 2013; **91**(5): 335.
- Koenen P, Heinzel S, Carrington EM, Haplo L, Alexander WS, Zhang JG, Herold MJ, Scott CL, Lew AM, Strasser A *et al.* **Mutually exclusive regulation of T cell survival by IL-7R and antigen receptor-induced signals.** *Nat Commun* 2013; **4**: 1735.
- Flynn JK, Paukovics G, Moore MS, Ellett A, Gray LR, Duncan R, Salimi H, Jubb B, Westby M, Purcell DF *et al.* **The magnitude of HIV-1 resistance to the CCR5 antagonist maraviroc may impart a differential alteration in HIV-1 tropism for macrophages and T-cell subsets.** *Virology* 2013; **442**(1): 51.
- Roche M, Salimi H, Duncan R, Wilkinson BL, Chikere K, Moore MS, Webb NE, Zappi H, Sterjovski J, Flynn JK *et al.* **A common mechanism of clinical HIV-1 resistance to the CCR5 antagonist maraviroc despite divergent resistance levels and lack of common gp120 resistance mutations.** *Retrovirology* 2013; **10**: 43.
- Wang AL, Ruparel K, Loughhead JW, Strasser AA, Blady SJ, Lynch KG, Romer D, Cappella JN, Lerman C, Langleben DD. **Content matters: neuroimaging investigation of brain and behavioral impact of televised anti-tobacco public service announcements.** *J Neurosci* 2013; **33**(17): 7420.
- Wang Y, Thomson CA, Allan LL, Jackson LM, Olson M, Hercus TR, Nero TL, Turner A, Parker MW, Lopez AL *et al.* **Characterization of pathogenic human monoclonal autoantibodies against GM-CSF.** *Proc Natl Acad Sci U S A* 2013; **110**(19): 7832.
- Sceneay J, Smyth MJ, Moller A. **The pre-metastatic niche: finding common ground.** *Cancer Metastasis Rev* 2013.
- Kara EE, McColl SR, Comerford I. **The basophil: Resolved questions and new avenues of investigation.** *Bioessays* 2013; **35**(8): 670.
- Mingueneau M, Kreslavsky T, Gray D, Heng T, Cruse R, Ericson J, Bendall S, Spitzer MH, Nolan GP, Kobayashi K *et al.* **The transcriptional landscape of alphabeta T cell differentiation.** *Nat Immunol* 2013; **14**(6): 619.
- Sagulenkov V, Thygesen SJ, Sester DP, Idris A, Cridland JA, Vajihala PR, Roberts TL, Schroder K, Vince JE, Hill JM *et al.* **AIM2 and NLRP3 inflammasomes activate both apoptotic and pyroptotic death pathways via ASC.** *Cell Death Differ* 2013; **20**(9): 1149.
- Mittal D, Kassianos AJ, Tran LS, Bergot AS, Gosmann C, Hofmann J, Blumenthal A, Leggatt GR, Frazer IH. **Indoleamine 2,3-Dioxygenase Activity Contributes to Local Immune Suppression in the Skin Expressing Human Papillomavirus Oncoprotein E7.** *J Invest Dermatol* 2013.
- Wikstrom ME, Fleming P, Comerford I, McColl SR, Andoniu CE, Degli-Esposti MA. **A Chemokine-Like Viral Protein Enhances Alpha Interferon Production by Plasmacytoid Dendritic Cells but Delays CD8+ T Cell Activation and Impairs Viral Clearance.** *J Virol* 2013; **87**(14): 7911.
- Duong CP, Westwood JA, Yong CS, Murphy A, Devaud C, John LB, Darcy PK, Kershaw MH. **Engineering T cell function using chimeric antigen receptors identified using a DNA library approach.** *PLoS One* 2013; **8**(5): e63037.
- Guarnaccia T, Carolan LA, Maurer-Stroh S, Lee RT, Job E, Reading PC, Petrie S, McCaw JM, McVernon J, Hurt AC *et al.* **Antigenic drift of the pandemic 2009 A(H1N1) influenza virus in a ferret model.** *PLoS Pathog* 2013; **9**(5): e1003354.
- Valente LJ, Gray DH, Michalak EM, Pinon-Hofbauer J, Egle A, Scott CL, Janic A, Strasser A. **p53 efficiently suppresses tumor development in the complete absence of its cell-cycle inhibitory and proapoptotic effectors p21, Puma, and Noxa.** *Cell Rep* 2013; **3**(5): 1339.
- Cockburn IA, Amino R, Kelemen RK, Kuo SC, Tse SW, Radtke A, Mac-Daniel L, Ganusov VV, Zavala F, Menard R. **In vivo imaging of CD8+ T cell-mediated elimination of malaria liver stages.** *Proc Natl Acad Sci U S A* 2013; **110**(22): 9090.
- Ong ML, Wikstrom ME, Fleming P, Estcourt MJ, Hertzog PJ, Hill GR, Andoniu CE, Degli-Esposti MA. **CpG pretreatment enhances antiviral T-cell immunity against cytomegalovirus.** *Blood* 2013; **122**(1): 55.
- Tangye SG, Ma CS, Brink R, Deenick EK. **The good, the bad and the ugly - TFH cells in human health and disease.** *Nat Rev Immunol* 2013; **13**(6): 412.
- Bandala-Sanchez E, Zhang Y, Reinwald S, Dromey JA, Lee BH, Qian J, Bohmer RM, Harrison LC. **T cell regulation mediated by interaction of soluble CD52 with the inhibitory receptor Siglec-10.** *Nat Immunol* 2013; **14**(7): 741.
- Vincent FB, Saulep-Easton D, Figgett WA, Fairfax KA, Mackay F. **The BAFF/APRIL system: Emerging functions beyond B cell biology and autoimmunity.** *Cytokine Growth Factor Rev* 2013; **24**(3): 203.
- Deng YM, Iannello P, Caldwell N, Jelley L, Komadina N, Baas C, Kelso A, Barr IG. **The use of pyrosequencer-generated sequence-signatures to identify the influenza B-lineage and the subclade of the B/Yamataga-lineage viruses from currently circulating human influenza B viruses.** *J Clin Virol* 2013; **58**(1): 94.
- Chua CL, Brown GV, Hamilton JA, Molyneux ME, Rogerson SJ, Boeuf P. **Soluble CD163, a product of monocyte/macrophage activation, is inversely associated with haemoglobin levels in placental malaria.** *PLoS One* 2013; **8**(5): e64127.
- Baas C, Barr IG, Fouchier RA, Kelso A, Hurt AC. **A comparison of rapid point-of-care tests for the detection of avian influenza A(H7N9) virus, 2013.** *Euro Surveill* 2013; **18**(21).
- Henderson MA, Yong CS, Duong CP, Davenport AJ, John LB, Devaud C, Neeson P, Westwood JA, Darcy PK, Kershaw MH. **Chimeric antigen receptor-redirectioned T cells display multifunctional capacity and enhanced tumor-specific cytokine secretion upon secondary ligation of chimeric receptor.** *Immunotherapy* 2013; **5**(6): 577.
- Van Rhijn I, Kasmar A, de Jong A, Gras S, Bhati M, Doorenspleet ME, de Vries N, Godfrey DI, Altman JD, de Jager W *et al.* **A conserved human T cell population targets mycobacterial antigens presented by CD1b.** *Nat Immunol* 2013; **14**(7): 706.
- Sakuishi K, Ngiew SF, Sullivan JM, Teng MW, Kuchroo VK, Smyth MJ, Anderson AC. **TIM3/FOXP3 regulatory T cells are tissue-specific promoters of T-cell dysfunction in cancer.** *Oncoimmunology* 2013; **2**(4): e23849.
- McCaskill J, Singhanian R, Burgess M, Allavena R, Wu S, Blumenthal A, McMillan NA. **Efficient Biodistribution and Gene Silencing in the Lung epithelium via Intravenous Liposomal Delivery of siRNA.** *Mol Ther Nucleic Acids* 2013; **2**: e96.
- Sedegah M, Kim Y, Ganesan H, Huang J, Belmonte M, Abot E, Banania JG, Farooq F, McGrath S, Peters B *et al.* **Identification of minimal human MHC-restricted CD8+ T-cell epitopes within the Plasmodium falciparum circumsporozoite protein (CSP).** *Malar J* 2013; **12**: 185.
- Stolp J, Marino E, Batten M, Sierro F, Cox SL, Grey ST, Silveira PA. **Intrinsic molecular factors cause aberrant expansion of the splenic marginal zone B cell population in nonobese diabetic mice.** *J Immunol* 2013; **191**(1): 97.
- Engwerda CR, Kumar R. **Mast cells fuel the fire of malaria immunopathology.** *Nat Med* 2013; **19**(6): 672.
- Falcone M, Lerman C, Cappella JN, Sanborn P, Jepson C, Strasser AA. **No untoward effects of smoking cues in anti-smoking public service announcements.** *Drug Alcohol Depend* 2013.
- Hannani D, Locher C, Yamazaki T, Colin-Minard V, Vetzou M, Aymeric L, Viaud S, Sanchez D, Smyth MJ, Bruhns P *et al.* **Contribution of humoral immune responses to the antitumor effects mediated by anthracyclines.** *Cell Death Differ* 2013.
- Ke F, Bouillet P, Kaufmann T, Strasser A, Kerr J, Voss AK. **Consequences of the combined loss of BOK and BAK or BOK and BAX.** *Cell Death Dis* 2013; **4**: e650.
- Susanto O, Stewart SE, Voskoboinik I, Brasacchio D, Hagn M, Ellis S, Asquith S, Sedelies KA, Bird PI, Waterhouse NJ *et al.* **Mouse granzyme A induces a novel death with writhing morphology that is mechanistically distinct from granzyme B-induced apoptosis.** *Cell Death Differ* 2013; **20**(9): 1183.
- Carbone FR, Mackay LK, Heath WR, Gebhardt T. **Distinct resident and recirculating memory T cell subsets in non-lymphoid tissues.** *Curr Opin Immunol* 2013; **25**(3): 329.
- Kemp R, Dunn E, Schultz M. **Immunomodulators in Inflammatory Bowel Disease: An Emerging Role for Biologic Agents.** *BioDrugs* 2013.
- Rist MJ, Theodossis A, Croft NP, Neller MA, Welland A, Chen Z, Sullivan LC, Burrows JM, Miles JJ,

Brennan RM *et al.* **HLA Peptide Length Preferences Control CD8+ T Cell Responses.** *J Immunol* 2013; **191**(2): 561.

Smart CE, Morrison BJ, Saunus JM, Vargas AC, Keith P, Reid L, Wockner L, Amiri MA, Sarkar D, Simpson PT *et al.* **In vitro analysis of breast cancer cell line tumourspheres and primary human breast epithelia mammospheres demonstrates inter- and intrasphere heterogeneity.** *PLoS One* 2013; **8**(6): e64388.

Chang CC, Crane M, Zhou J, Mina M, Post JJ, Cameron BA, Lloyd AR, Jaworowski A, French MA, Lewin SR. **HIV and co-infections.** *Immunol Rev* 2013; **254**(1): 114.

Loi S, Pommey S, Haibe-Kains B, Beavis PA, Darcy PK, Smyth MJ, Stagg J. **CD73 promotes anthracycline resistance and poor prognosis in triple negative breast cancer.** *Proc Natl Acad Sci U S A* 2013; **110**(27): 11091.

Apte SH, Redmond AM, Groves PL, Schussek S, Pattinson DJ, Doolan DL. **Subcutaneous cholera toxin exposure induces potent CD103 dermal dendritic cell activation and migration.** *Eur J Immunol* 2013.

Kara EE, Comerford I, Bastow CR, Fenix KA, Litchfield W, Handel TM, McColl SR. **Distinct chemokine receptor axes regulate th9 cell trafficking to allergic and autoimmune inflammatory sites.** *J Immunol* 2013; **191**(3): 1110.

Roep BO, Solvason N, Gottlieb PA, Abreu JR, Harrison LC, Eisenbarth GS, Yu L, Leviten M, Hagopian WA, Buse JB *et al.* **Plasmid-encoded proinsulin preserves C-peptide while specifically reducing proinsulin-specific CD8(+) T cells in type 1 diabetes.** *Sci Transl Med* 2013; **5**(191): 191ra82.

Michel M, Henri P, Vincent FB, Leon N, Marcelli C. **Mesangial immunoglobulin (Ig) Agglomerulonephritis in a patient with rheumatoid arthritis treated with abatacept.** *Joint Bone Spine* 2013.

Strasser A, Carra M, Ghareeb K, Awad W, Bohm J. **Protective effects of antioxidants on deoxynivalenol-induced damage in murine lymphoma cells.** *Mycotoxin Res* 2013; **29**(3): 203.

Tangye SG. **To B1 or not to B1: that really is still the question!** *Blood* 2013; **121**(26): 5109.

Tsantikos E, Maxwell MJ, Putoczki T, Ernst M, Rose-John S, Tarlinton DM, Hibbs ML. **Interleukin-6 trans-signaling exacerbates inflammation and renal pathology in lupus.** *Arthritis Rheum* 2013.

de Oca MM, Engwerda C, Haque A. **Plasmodium berghei ANKA (PbA) Infection of C57BL/6J Mice: A Model of Severe Malaria.** *Methods Mol Biol* 2013; **1031**: 203.

Jakobsen MR, Cashin K, Roche M, Sterjovski J, Ellett A, Borm K, Flynn J, Erikstrup C, Gouillou M, Gray LR *et al.* **Longitudinal Analysis of CCR5 and CXCR4 Usage in a Cohort of Antiretroviral Therapy-Naive Subjects with Progressive HIV-1 Subtype C Infection.** *PLoS One* 2013; **8**(6): e65950.

Chen MI, Cook AR, Lim WY, Lin R, Cui L, Barr IG, Kelso A, Chow VT, Leo YS, Hsu JP *et al.* **Factors influencing infection by pandemic influenza A(H1N1)pdm09 over three epidemic waves in Singapore.** *Influenza Other Respi Viruses* 2013.

Hutt K, Kerr JB, Scott CL, Findlay JK, Strasser A. **How to best preserve oocytes in female cancer patients exposed to DNA damage inducing therapeutics.** *Cell Death Differ* 2013; **20**(8): 967.

Pinzon-Charry A, Woodberry T, Kienzle V, McPhun V, Minigo G, Lampah DA, Kenangalem E, Engwerda C, Lopez JA, Anstey NM *et al.* **Apoptosis and dysfunction of blood dendritic cells in patients with falciparum and vivax malaria.** *J Exp Med* 2013; **210**(8): 1635.

Schussek S, Trieu A, Apte SH, Sidney J, Sette A, Doolan DL. **Immunisation with AMA-1 confers sterile infection-blocking immunity against Plasmodium sporozoite challenge in a rodent model.** *Infect Immun* 2013.

Shapiro HM, Apte SH, Chojnowski GM, Hanscheid T, Rebelo M, Grimberg BT. **Cytometry in malaria-a practical replacement for microscopy?** *Curr Protoc Cytom* 2013; **Chapter 11**: Unit11 20.

Vincent F, Northcott M, Hoi A, Mackay F, Morand E. **Association of serum B cell activating factor from the tumour necrosis factor family (BAFF) and a proliferation-inducing ligand (APRIL) with central nervous system and renal disease in systemic lupus erythematosus.** *Lupus* 2013; **22**(9): 873.

Pierson W, Cauwe B, Policheni A, Schlenner SM, Franckaert D, Berges J, Humblet-Baron S, Schonefeldt S, Herold MJ, Hildeman D *et al.* **Antiapoptotic Mcl-1 is critical for the survival and niche-filling capacity of Foxp3(+) regulatory T cells.** *Nat Immunol* 2013; **14**(9): 959.

Good MF, Reiman JM, Rodriguez IB, Ito K, Yanow SK, El-Deeb IM, Batzloff MR, Stanisic DI, Engwerda C, Spithill T *et al.* **Cross-species malaria immunity induced by chemically attenuated parasites.** *J Clin Invest* 2013.

Holland AM, Garcia S, Naselli G, Macdonald RJ, Harrison LC. **The Parahox gene Pdx1 is required to maintain positional identity in the adult foregut.** *Int J Dev Biol* 2013; **57**(5): 391.

Lee AY, Eri R, Lyons AB, Grimm MC, Korner H. **CC Chemokine Ligand 20 and Its Cognate Receptor CCR6 in Mucosal T Cell Immunology and Inflammatory Bowel Disease: Odd Couple or Axis of Evil?** *Front Immunol* 2013; **4**: 194.

Peperzak V, Vikstrom I, Walker J, Glaser SP, Lepage M, Coquery CM, Erickson LD, Fairfax K, Mackay F, Strasser A *et al.* **Mcl-1 is essential for the survival of plasma cells.** *Nat Immunol* 2013; **14**(8): 877.

Lopez JA, Jenkins MR, Rudd-Schmidt JA, Brennan AJ, Danne JC, Mannering SI, Trapani JA, Voskoboinik I. **Rapid and Unidirectional Perforin Pore Delivery at the Cytotoxic Immune Synapse.** *J Immunol* 2013.

Miranda-Hernandez S, Baxter AG. **Role of toll-like receptors in multiple sclerosis.** *Am J Clin Exp Immunol* 2013; **2**(1): 75.

Harrison LC, Wentworth JM, Zhang Y, Bandala-Sanchez E, Bohmer RM, Neale AM, Stone NL, Naselli G, Bosco JJ, Auyeung P *et al.* **Antigen-Based Vaccination and Prevention of Type 1 Diabetes.** *Curr Diab Rep* 2013.

Ma Y, Yamazaki T, Yang H, Kepp O, Galluzzi L, Zitvogel L, Smyth MJ, Kroemer G. **Tumor necrosis factor is dispensable for the success of immunogenic anticancer chemotherapy.** *Oncimmunology* 2013; **2**(6): e24786.

Ngiow SF, Knight DA, Ribas A, McArthur GA, Smyth MJ. **BRAF-targeted therapy and immune responses to melanoma.** *Oncimmunology* 2013; **2**(6): e24462.

Strasser A, Wittmann HJ. **Molecular modeling studies give hint for the existence of a symmetric hbetaR-Galphabeta gamma-homodimer.** *J Mol Model* 2013.



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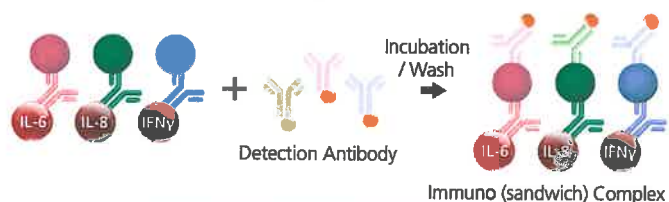
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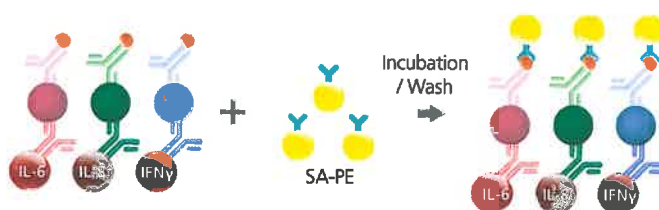
1. Incubate your sample with the antibody conjugated beads for 1-2 hours



2. Add detection antibody and incubate for 30 minutes



3. Add SA-PE and incubate for 30 minutes



4. Detect interactions on a Luminex instrument





# ProcartaPlex™ Multiplex Immunoassays

Human		
Essential Th1/Th2 Cytokine Panel (6 plex) Cat. No. EPX060-10009-901		
IFN $\gamma$	IL-5	IL-12 p70
IL-4	IL-6	TNF $\alpha$

Human

Th1/Th2 Cytokine Panel (11 plex) Cat. No. EPX110-10810-901			
GM-CSF	IL-2	IL-6	IL-18
IFN $\gamma$	IL-4	IL-12 p70	TNF $\alpha$
IL-18	IL-5	IL-13	
Th9/Th17/Th22/Treg Cytokine Panel (7 plex) Cat. No. EPX070-10817-901			
IL-9	IL-17A	IL-22	IL-27
IL-10	IL-21	IL-23	
Cytokine Panel 1C (7 plex) Cat. No. EPX070-10010-901			
IFN $\alpha$	IL-7	TNF $\beta$	
IL-1 $\alpha$	IL-15		
IL-1RA	IL-31		
Chemokine Panel 1 (8 plex)* Cat. No. EPX080-10007-901			
Eotaxin/CCL11	MIP-1 $\alpha$ /CCL3		
GRO $\alpha$ /CXCL1	MIP-1 $\beta$ /CCL4		
IL-8/CXCL8	SDF1 $\alpha$ /CXCL12		
IP-10/CXCL10	*RANTES		
MCP-1/CCL2	34 plex & 45 plex only		
Growth Factor Panel 1 (11 plex) Cat. No. EPX110-12170-901			
BDNF	FGF-2	PLGF	
$\beta$ NGF	HGF	SCF	
CD40L/TNFSF5	LIF	VEGF-A	
EGF	PDGF-BB		

- ☐ **Th1/Th2/Th9/Th17/Th22/Treg Cytokine Panel (18 plex)** Cat. No. EPX180-12165-901
- ☐ **Cytokine Panel 1B (25 plex)** Cat. No. EPX250-12166-901
- ☐ **Cytokine & Chemokine Panel 1A (34 plex)** Cat. No. EPX340-12167-901
- ☐ **Cytokine/Chemokine/Growth Factor Panel 1 (45 plex)** Cat. No. EPX450-12171-901

Human		
MMP-Panel I (5 plex) Cat. No. EPX050-10015-901		
MMP-1	MMP-8	MMP-13
MMP-7	MMP-12	

Human ProcartaPlex Simplex Bead Set Reagent Kits			
Analytes			
CD40L	IL-4	IL-22	MMP-7
ENA-78	IL-5	IL-23 p19	MMP-8
Eotaxin	IL-6	IL-27	MMP-12
Eotaxin-3	IL-7	IL-31	MMP-13
Fractalkine	IL-8	IP-10	Rantes
GM-CSF	IL-9	LIF	SAA
GRO- $\alpha$	IL-10	M-CSF	SCF
IFN- $\alpha$	IL-12 p40	MCP-1	SDF-1 $\alpha$
IFN- $\beta$	IL-12 p70	MCP-3	sFas-L
IFN- $\gamma$	IL-13	MIF	TGF- $\alpha$
IL-1 $\alpha$	IL-15	MIP-1 $\alpha$	TNF- $\alpha$
IL-1 $\beta$	IL-17A/ CTLA-8	MIP-1 $\beta$	TNF- $\beta$
IL-1RA	IL-18	MIP-3 $\alpha$	TRAIL
IL-2	IL-21	MMP-1	

Mouse ProcartaPlex Simplex Bead Set Reagent Kits		
Analytes		
Adiponectin	IL-9	LIF
Eotaxin/CCL11	IL-10	MCP-1
G-CSF/CSF-3	IL-12 p40	MCP-3
GM-CSF	IL-12 p70	M-CSF
GRO- $\alpha$	IL-13	MIP-1 $\alpha$
IFN- $\gamma$	IL-17A/CTLA-8	MIP-1 $\beta$
IL-1 $\beta$	IL-18	MIP-2
IL-2	IL-22	RANKL
IL-3	IL-23 p19	Rantes
IL-4	IL-27	TNF- $\alpha$
IL-5	IP-10	VEGF-A
IL-6	Leptin	

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Mouse		
Essential Th1/Th2 Cytokine Panel (6 plex) Cat. No. EPX060-20831-901		
IFN $\gamma$	IL-5	IL-12 p70
IL-4	IL-6	TNF $\alpha$

Mouse		
Th1/Th2 Cytokine Panel (11 plex) Cat. No. EPX110-20820-901		
GM-CSF	IL-4	IL-13
IFN $\gamma$	IL-5	IL-18
IL-1 $\beta$	IL-6	TNF $\alpha$
IL-2	IL-12 p70	
Th9/Th17/Th22/Treg Cytokine Panel (6 plex) Cat. No. EPX060-20822-901		
IL-9	IL-17A	IL-23
IL-10	IL-22	IL-27
Chemokine Panel 1 (9 plex) Cat. No. EPX090-20821-901		
Eotaxin	MCP-1	MIP-1 $\beta$
GRO $\alpha$ /CXCL1	MCP-3	MIP-2
IP-10	MIP-1 $\alpha$	RANTES
Cytokine Panel 1B (10 plex) Cat. No. EPX100-26091-901		
G-CSF	IL-31	LIX/GCP2/CXCL5
IFN $\alpha$	IL-1 $\alpha$	M-CSF/CSF-1
IL-15/IL-15R	IL-3	
IL-28	LIF	

- ☐ **Th1/Th2/Th9/Th17/Th22/Treg Cytokine Panel (17 plex)** Cat. No. EPX170-26087-901
- ☐ **Cytokine & Chemokine Panel 1 (26 plex)** Cat. No. EPX260-26088-901
- ☐ **Cytokine & Chemokine Panel 1A (36 plex)** Cat. No. EPX360-26092-901

Mouse		
Antibody Isotyping Panel (7 plex) Cat. No. EPX070-20815-901		
IgG1	IgG3	IgM
IgG2a	IgA	
IgG2b	IgE	

Porcine		
Cytokine/Chemokine Panel 1 (9 plex) Cat. No. EPX090-60829-901		
IFN $\alpha$	IL-4	IL-10
IFN $\gamma$	IL-6	IL-12 p40
IL-1 $\beta$	IL-8	TNF $\alpha$

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