

From the President's Desk

Dear Members,

First of all, I sincerely thank Denise Doolan, Rob Adlard (Secretary) and Kathy Andrews (Treasurer) for their professionalism and outstanding support during the transition of the Executive. I would also like to thank the outgoing ASP Council members and welcome the new team. Current Council members include: David Piedrafita (Executive Secretary), Aaron Jex (Treasurer), Richard Allen (ACT), Colin Stack (NSW), Jutta Marfurt (NT), Mark Pearson (QLD), Ryan O'Handley (SA), Alan Lymbery (WA), Abdul Jabbar (VIC), Melanie Leef (TAS), Chris Peatey (Incorporations Secretary), Peter O'Donoghue (BMM Convenor); ASP Network Convenor (Nick Smith), NewsLetter Editor (Lisa Jones); IJP Editor (Alex Loukas); IJP-DDR Editors Kevin Saliba and Andrew Kotze); IJP-PAWS Editors (Andy Thompson and Lyden Polley). Maureen Engler continues in the position of Secretariat.

Alex Loukas continues as Editor-in-Chief for IJP and Maria Meuleman is as committed as ever in her role as the IJP Editorial Assistant. On behalf of ASP and the field of Parasitology, I would like to thank Alex and Maria, and, importantly, the Deputy Editors Ian Beveridge and Brian Cooke, and the IJP Editorial Board members, for their outstanding dedication and contributions. IJP remains a leading specialist journal that publishes research articles devoted to our discipline. The current impact factor of the journal is 3.637. In related news, International Journal for Parasitology: Drugs and Drug Resistance (IJP-DDR), with Andrew Kotze and Kevin Saliba as editors, is establishing itself as open access journals in a competitive publishing environment. IJP-DDR's mandate is to publish original research and review articles in the areas of anti-parasitic drugs, drug development and mechanisms of drug resistance, for the control of parasites of socioeconomic



importance. Please submit relevant papers to IJP-DDR (http://www.elsevier.com/wps/find/journaldescription.cws_home/726218/description). Our second open access journal, IJP-Parasites and Wildlife (IJP-PAW), dedicated to diseases of wildlife, is edited by Andy Thompson and Lyden Polley, is developing well. Please submit relevant papers to IJP-PAW (<http://www.journals.elsevier.com/international-journal-for-parasitology-parasites-and-wildlife/>). On behalf of ASP, I sincerely thank all Editors, Deputy Editors, Assistant Editors and Editorial Board members for their major contributions.

The joint WAAVP-ASP conference was held in Perth from 25-29 August 2013. Presentations by high calibre international and national speakers integrated veterinary and medical parasitology, and crossed boundaries into other areas. The welcome reception was a great opportunity for people to connect. The opening lectures were well attended and received by the large number of attending public as well as conference attendees. In addition to great science, catering was outstanding. We are also grateful to numerous sponsors for their support. The pre-conference outreach activities were very successful. A gallery of images from the conference is included later in this newsletter.

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From the President's desk continued

The 50 Year Anniversary ASP Conference in 2014 will be held in Canberra from June 30 to July 3 2014. ANU Commons has been booked as the venue for the conference. The organising committee members are Kiaran Kirk (Conference Chair), Melanie Rug, Richard Allen, Giel van Dooren, Kevin Saliba, Ian Cockburn, Alex Maier, Adele Lehane, Carol Behm, Haylee Weaver, Eva Bennet, Lisa Jones (Network Communications and Strategic Planning Coordinator) and Nick Smith (Network Convenor). There will be a number of accompanying special events and Council would like to use this opportunity to further raise the profile of parasitology in Australia. A provisional program has been presented to Council, and the website is under construction and will go live in late December 2013 or early January 2014. Conference registration will open at that time.

In accordance with ASP strategic plan, the planned ASP Parasitology Course is now being organised. Sub-committees have been formed to define course structure/content and sponsorship. Alex Maier has been appointed as the ASP Parasitology Course Convenor, and will be co-opted to the ASP Council as a non-voting member. The Course Structure/Content sub-committee consists of Geoff McFadden, Stuart Ralph, Rob Adlard and Mal Jones. The Management sub-committee (includes sponsorship & funding) consists of Kiaran Kirk, Denise Doolan, Aaron Jex, Nick Smith, Lisa Jones and me). The plan is that the Course will commence in 2014 to coincide with the 50th Anniversary of ASP.

The International Congress of Tropical Medicine and Malaria to be held in Brisbane in September 2016 will be co-hosted by the ASP and the Australasian Society of Infectious Diseases Inc. (ASID). The Executives of both Societies have met, have defined their relationship, legal agreements have been drawn up, and the Professional Conference Organiser (PCO) has been selected. Malcolm Jones is leading this venture on behalf of ASP. The congress will have a major focus on parasites of humans, but there will be also major interests in parasitic zoonoses, One Health, and parasitology in production animals and fisheries of tropical regions. A local group of ASP and ASID members is being established to set the focus for the congress.

We were very sad to hear about the passing of Professor David Kemp who was recently elected Fellow of ASP in recognition of his contribution to the field of parasitology. A Citation to David by Alan Cowman is included this newsletter.

Finally, I wish to remind members of the Awards Schemes of the Society, which provide funding assistance to ASP members for researcher exchanges, training courses, visiting international lectureships, workshops, grant writing retreats and mentorship support.

ASP currently has 463 active (financial) members (October 2013; 35 fellows, 25 life members, 260 ordinary members, 211 students rest admin/institution subscribers). Together with my colleagues

in the Executive, I look very much forward to serving ASP, achieving the goals of the Society, and supporting and fostering our discipline both nationally and internationally.

Kind regards to all of you,

Robin Gasser

\$400 Undergraduate Prizes

The Australian Society for Parasitology is pleased to announce that it will be offering undergraduate student prizes of \$400 each to Australian Universities identified as offering a suitable course in parasitology, for presentation to the best undergraduate student in parasitology (highest passing mark/grade). The course(s) must be taught by a financial member of the ASP (of more than one year standing), and must comprise at least 30% parasitology.

Requests for 2014 prizes must be made by the eligible University to the ASP Treasurer or Secretary by the 30th September 2014. Requests for prizes must include the following for each eligible course:

1. Course name/code/degree year
2. Number of Students enrolled in 2014
3. Number of hours dedicated to parasitology (and total number of hours for the course)
4. Name of financial ASP member (of at least 1 year standing) teaching course

1964-2014



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Celebrating 50 years of the ASP

The 50th Anniversary Celebration ASP Conference will take place June 30 - 3 July in Canberra. See page 15 for further information.

ASP Fellow, David J. Kemp

It is with great regret that I pass on to members the sad news that Dave Kemp, recently honoured Fellow of the ASP, passed away on Friday 22nd November 2013. A tribute to Dave in the form of his ASP Fellowship citation is included below. Dave was an exceptional and highly respected scientist and valued colleague, mentor and friend to many. He will be sadly missed.

Denise Doolan

Professor Alan Cowman's Citation for Professor David J Kemp who has been admitted as a Fellow of the Australian Society for Parasitology

Professor Kemp received a Bachelor of Science from the University of Adelaide in 1969 and completed his PhD in 1973. He then accepted a position as Research Scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in the Department of Plant Industry. This was followed by two-years of postdoctoral work at Stanford University. In 1978 he returned to Australia and was appointed as Research Fellow at the Walter and Eliza Hall Institute of Medical Research (WEHI) in Melbourne. Initially his research was on the structure and function of immunoglobulin but he converted his laboratory's research to parasitology and from these small beginnings he became a major international figure in the field of malaria research. He was named a Howard Hughes Medical Institute International Research Scholar in 1992. In the same year, Professor Kemp left WEHI to become the Deputy Director at the Menzies School of Health Research in Darwin. In 1992 he was also appointed Professor at the Faculty of Medicine, University of Sydney. He continued his work in the malaria field

and also commenced research on the ectoparasite *Sarcoptes scabiei*. In 2000 he moved to the Queensland Institute of Medical Research (QIMR) in Brisbane where he was Head of the Malaria and Arbovirus Unit and appointed Professor, Australian Centre for International and Tropical Health and Nutrition at the University of Queensland. He has remained at QIMR and is currently an honorary Senior Principal Research Fellow within the Scabies Laboratory. During his career Dave Kemp has made a huge contribution to parasitology both nationally and internationally.

Professor Kemp was appointed as a Fellow of the Australian Academy of Sciences in 1996 in recognition of his contribution to Australian science and for his standing internationally. He was awarded the Centenary Medal in 2001 for contributions to Australian society and science in molecular biology. Additionally, he was awarded the Medal of the Order of Australia in 2008 for service to medical research as a molecular biologist, particularly in the areas of tropical health and infectious diseases. To date, Professor Kemp has published over 225 peer-reviewed papers, many in top ranking journals including an impressive 8 papers in *Nature*, 5 papers in *Cell*, and 18 papers in *Proceedings of the National Academy of Science USA*. His papers have been cited more than 13,300 times and his H-index is 56.

Professor Kemp began his career in South Australia where he undertook a PhD with Dr George Rogers in the Department of Biochemistry at the University of Adelaide. His major achievement during this time was demonstrating that keratin genes constituted one of the first known multigene families. Results were published in *Nature* as a single-author feature article, an outstanding feat for a PhD student. He was awarded the William Culross Prize for the best thesis of the year in 1973. He then undertook a short postdoctoral period at the CSIRO with Dr Jim Peacock before moving overseas with the award of an Eleanor Roosevelt fellowship to



study the molecular biology of *Drosophila* with Professor David Hogness at Stanford University. During this time at Stanford he learnt and contributed to the new recombinant DNA technology inventing and developing, in collaboration with Drs Jim Alwine and George Stark, the widely used "Northern blot" for detecting RNA. This was a major technical development since it allowed identification and analysis of specific RNA species. The resulting paper has had over 1,800 citations since its publication in 1977.

Professor Kemp returned to Australia in 1978 bringing with him the new techniques in recombinant DNA technology and was appointed as a Research Scientist at WEHI. He studied immunoglobulin gene transcription and rearrangements with Drs. Jerry Adams and Suzanne Cory at WEHI. A major contribution at the time was the demonstration that multiple genes were a major basis of VH gene diversity and for this work he was awarded the Boehringer Medal in 1981.

In 1979 he began his career in parasitology at WEHI. He invented a method to use antibody screening of expression libraries in 1981 and successfully applied it to the isolation of *Plasmodium falciparum* antigens in 1983, in collaboration with others. This has been one of the most widely used approaches in immunoparasitology and represents a major contribution to the field. Professor Kemp initiated studies on the genetics of *P. falciparum* in 1984 demonstrating that

David J Kemp continued

the chromosomes of this parasite could be detected and separated by the new approach of pulsed field electrophoresis, leading to a much greater understanding of chromosome structure. Additionally, he invented a generally applicable technique in molecular biology, 'Inverted PCR', which has now been cited over 650 times. He also invented diagnostic detection of PCR products by binding them to the walls of a microtitre dish and using ELISA technology to detect them, for which he was awarded the Wellcome Prize for Diagnostics. The group at WEHI became an internationally recognised centre of excellence for malaria research with Professor Kemp as a major contributor. In recognition of his contribution and leadership of malaria research at WEHI, he was appointed as Head of the Immunoparasitology Unit in 1990 which he led for two years before

accepting the Deputy Directorship at the Menzies School of Health Research.

During his time at the Menzies School of Health Research he continued his internationally recognised work on malaria and, together with his colleagues, used molecular fingerprinting to show that the scabies mite from human and dog hosts in Ohio, Panama and Aboriginal communities in northern Australia were genetically distinct. Because of the apparent genetic separation between human scabies and dog scabies, this suggested that control programs for human scabies in endemic areas did not require resources directed against zoonotic infection from dogs. Additionally, with his colleague Katja Fischer, families of serine and cysteine proteases that appear to be critical for the

ability of the parasite to survive in the face of the host were identified.

In light of his outstanding contributions to the field of Parasitology, Professor David Kemp is clearly an extremely worthy recipient of the title, Fellow of the Australian Society for Parasitology.

**Citation by
Professor Alan Cowman**

**Head, Division of
Infection and Immunity,
The Walter and Eliza Hall Institute
of Medical Research**

**Fellow, Australian Society for
Parasitology**

Jobs and opportunities

PhD in Molecular Parasitology (Tick-Borne Disease) at Murdoch University

Salary: \$30,000 stipend
(tax-free)

Location: Murdoch University,
Perth, WA

Are you interested in discovering and characterising pathogens using cutting-edge molecular techniques? Would you like to learn advanced next generation sequencing and bioinformatics in a vibrant research group at Murdoch University? Our research group is studying potentially pathogenic microorganisms in ticks.

Currently in Australia there is community concern and uncertainty about the

occurrence, diversity and distribution of tick-associated pathogens. The primary objective of this project is to systematically characterize and map potentially zoonotic tick-borne organisms (bacteria, rickettsiae and protozoa) using a new molecular toolkit. This project will create important data about vector-pathogen-host ecologies in Australia and provide new understanding about the potential risk for humans and companion animals of tick-borne disease, nationwide.

The research will involve quantitative PCR (qPCR and digital droplet) and the application of 454 and Ion Torrent deep sequencing. Successful applicants will be actively involved in both laboratory-based and fieldwork. We seek an enthusiastic PhD student to be involved with every aspect of this highly relevant and exciting research

that is fully-funded by an Australian Research Council Linkage Grant.

The PhD studentship is available from the end of 2013/early 2014 for the duration of three years. A stipend of \$30K per annum is available to Australian and New Zealand students in addition to some relocation expenses. The successful applicant will have an Honours degree (IIA minimum) or a research Masters degree, with experience in molecular biological techniques in a relevant discipline. Please contact Associate Professor Peter Irwin (P.Irwin@murdoch.edu.au), Professor Una Ryan (Una.Ryan@murdoch.edu.au) or Dr Charlotte Oskam (C.Oskam@murdoch.edu.au) with your CV if you would like to obtain more information.

Meet the President, Robin Gasser

Professor Robin Gasser,
BVetMed (Bern), Dr med vet
(Zurich), PhD & DVSc (Melb),
Dip EVPC, FASP

At the last ASP AGM, Wednesday August 28th 2013, held in Perth in conjunction with the ASP Conference – WAAVP2013 – the new ASP Executive was sworn in. Here, we hear from Robin Gasser, ASP President and Professor of Parasitology at The University of Melbourne.

Robin's research team have been investigating socio-economically important parasites (including protozoa, trematodes, cestodes and nematodes) using genetic, genomic and bioinformatic approaches to understand the biology and molecular biology of parasites, parasitic diseases and host-parasite interactions and to develop improved diagnostic and intervention methods. Most of their research has been funded through ARC, NHMRC and various industry partners. Robin has been involved in undergraduate teaching since 1985 and postgraduate training since 1991. To date, Robin has supported >30 postgraduate students, 25 postdoctoral researchers, 15 research assistants and 50 visiting scientists from >15 countries. Most postdoctoral scientists have been appointed to senior positions in academia, government or industry around the world. Robin is a Fellow of the ASP and has received a number of national and international awards.

Robin, tell us how you became involved in parasitology.

"I really enjoyed the subject as an undergraduate student in the University of Berne in Switzerland – we had an inspiring teacher, the late Bernd Hoernig, who later supported me to get a position as a research assistant and postgraduate student with Professor Johannes Eckert, in the University of Zurich. Here, I started



Incoming ASP President Robin Gasser with departing President Denise Doolan

my first research project on Giardia, and worked part-time as diagnostician and a demonstrator in Parasitology practicals in the undergraduate veterinary course. This period was a great experience, but I was focused on getting a broader research and teaching experience in Australia, so I joined the research team of Drs Mike Rickard and Marshall Lightowlers at the University of Melbourne, with scholarship support from the Australian-European Awards Program and the Swiss National Science Foundation. My PhD period was really one of the best

experiences of my professional life; I learnt so much about both research and teaching (as a demonstrator). This period really paved my Parasitology path."

What keeps you motivated as a parasitologist?

"Many things. There's always something new around the corner and there always a new way of approaching a biological problem. You're always learning, and learning how to tackle things in research

Meet the President continued

and teaching. Keeping things in a clinical context is important and exciting and conveying this to students keeps me motivated. It's amazing how much I have learnt from interacting with and teaching undergraduate students, and, of course, senior colleagues, – there's always a new way of explaining things or delivering a tutorial or lecture. Also new tools and technologies have assisted massively the study of parasites. I remember how ELISA and PCR transformed areas of science; now, it is new sequencing and computing platforms – the pace is so fast, and there so much to learn!"

How do you see your research developing in the future?

"Some of this will depend on funding, but the main goal is to have a balanced research program that includes classical and molecular parasitology to address important fundamental and applied questions about parasites, parasite-interactions and parasitic diseases. Major advances provide great opportunities to explore parasites at a global level, like never before. It's a great time to be in science – probably the best time of my career to date. We can now elucidate the genetic codes, RNAs (transcriptomes), proteins (proteomes) and metabolic profiles (metabolomes) of parasites. We've gone from studying single genes to exploring parasites on a global, molecular level ('systems biology'), and such research can underpin many areas, and such data sets are a resource for many groups around the world. It will be important to integrate information from laboratory and clinical studies to work toward better methods of diagnosis, treatment and control."

Tell us about the highlight of your science career so far.

"I dreamed that some day we would be able to characterize genomes and transcriptomes of some socioeconomically important parasites to provide a resource to the parasitology community to underpin fundamental studies of parasite-host interactions, comparative genetics, functional genomics, population genetics, evolution, gene expression, drug resistance, just to name some, and applied projects on developing new diagnostic tools and interventions. Through great work of colleagues or students, including Aaron Jex, Neil Young, Ross Hall, Cinzia Cantacessi, Bronwyn Campbell, Abdul Jabbar, Pasi Korhonen at Melbourne, and many friends and colleagues from other institutions around the world, we have been able to develop capacity in some areas of molecular parasitology. I am really excited about the next, post-genomic period, which sets the scene for in depth laboratory-based investigations. A particular highlight has been also to see numerous graduates and postdocs from our lab go on to become experts in respective areas, and to see many of my junior academic colleagues develop their labs and careers so well, in spite of challenges with funding and employment. It is a great time to congratulate all of them on their successes."

In 2010, you were made a Fellow of the ASP. Tell us what this means to you both personally and professionally.

"It is, of course, a great honor to be a Fellow, and I am delighted. How time flies.... It probably means that I am 'getting grey'... No... , what it means to me is that I need to support membership, particularly

junior members, and mentor them to achieve their goals and aspirations, and to serve the Society, in various capacities, to attain its goals."

What would you like to do in the future and what plans do you have in your role as ASP President?

It is a great honor to serve a Society that has treated me so well since I arrived back in Australia in 1987. This is the most supportive Society that I have been a member of - through my entire period as a postgraduate student, postdoc and as an academic. It's time to give back. In the spirit of the founders of the Society, the goal is to build capacity and support the discipline of Parasitology in the strongest possible way; this will be through support and mentoring for activities in research, undergraduate teaching, postgraduate/postdoctoral training and mentoring, national and international outreach, education courses at schools and universities, and engagement with the global scientific community. There is a major need to resist, at all cost, political and administrative pressures from some institutions to cut back on or "downgrade" Parasitology. There is also a need to ensure that the profile of the discipline as a whole is kept high at both the national and international levels, to ensure that we are seen and heard by government, universities, funding bodies, industries and the community at large. The Society is very well positioned to have a major impact over many years to come, and I, and my colleagues, Drs David Piedrafita (Executive Secretary) and Aaron Jex (Treasurer) look very much forward to contributing to the ongoing success of what is a really outstanding Society.



Left to right:

Outgoing executive,
Kathy Andrews, Denise
Doolan and Rob Adlard

Incoming Executive
Secretary, David Piedrafita
and Treasurer Aaron Jex

Alan Cowman wins the 2013 Victoria Prize

Professor Alan Cowman from Walter and Eliza Hall Institute has been awarded the 2013 Victoria Prize for Science and Innovation for his work on eradicating malaria..

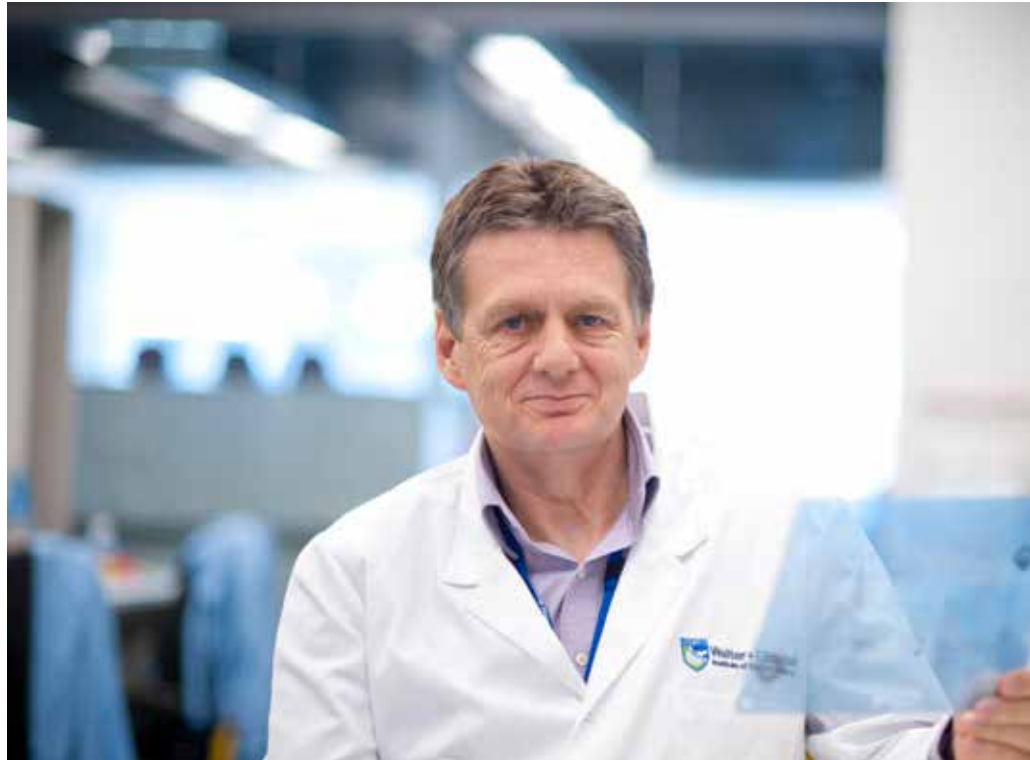
Malaria researcher Professor Alan Cowman from the Walter and Eliza Hall Institute has been awarded the 2013 Victoria Prize for Science and Innovation in recognition of his outstanding contributions in the quest to eradicate malaria.

The \$50,000 Victoria Prize for Science and Innovation in the life sciences recognises Professor Cowman's significant achievements in malaria research. Professor Cowman from the Infection and Immunity division has dedicated his nearly 30-year career to understanding what makes the malaria parasite 'tick' in order to create a vaccine that would eradicate this devastating disease. Minister for Innovation The Hon. Louise Asher MP presented Professor Cowman with the prize at an awards ceremony at Parliament House this evening.

Professor Cowman and his research team have made significant inroads into understanding how *Plasmodium falciparum*, the parasite responsible for the most severe form of malaria, infects humans and persists in the body by evading the immune system. He has made major contributions to understanding malarial drug resistance, unravelling the mechanism the parasite uses to become resistant to some of the most important antimalarial drugs. This has had implications for the development of new antimalarial treatments and opened the way for surveillance of the geographic spread of drug-resistant strains of malaria.

Professor Cowman's work has led to the development of two potential malaria vaccines, one of which reached clinical trials in the US and a second of which is in preclinical development.

Institute director Professor Doug Hilton said he was thrilled to see Professor Cowman's



achievements recognised by the Victorian Government's highest award for life science research. "Malaria is a significant global disease burden, infecting up to 250 million people each year," Professor Hilton said. "Alan's research has vastly improved our understanding of malaria biology, which is instrumental for developing new treatments or vaccines to prevent malaria. His discovery of how the malaria parasite develops drug resistance has informed government strategies to prevent or mitigate malaria transmission in many countries, saving countless lives."

Professor Cowman said he was honoured to receive the award. "Throughout my career I have been fortunate to work with some incredibly talented researchers and I would like to thank them for their support," Professor Cowman said. "Science research in Victoria and across the country is world-class and I am lucky to be able to facilitate these potentially life-changing discoveries."

Professor Cowman is a Fellow of the Royal Society and the Australian Academy of Science. He has received numerous national

and international grants and fellowships and his many awards include the Howard Taylor Ricketts Medal for Infectious Diseases from the University of Chicago, the Commonwealth of Australia Centenary Medal and the Australian National Health and Medical Research Council Research Achievement Award.

The Victoria Prize was first awarded in 1998 and celebrates leadership, determination, endeavour and creativity as well as highlighting the many ways in which research and development of international significance are conducted in Victoria. Professor Cowman is the sixth researcher from the Walter and Eliza Hall Institute to receive the honour; previous winners are Professor Terry Speed, Professor Andreas Strasser, Professor Peter Colman, Professor David Vaux and Professor Don Metcalf.

Photograph of Alan Cowman courtesy of WEHI

Senior ANU appointment for Kiaran Kirk

Congratulations to Professor Kiaran Kirk who has been appointed Dean of the College of Medicine, Biology and Environment at the Australian National University.

Professor Kirk has been with ANU since 1996, coming initially from the University of Oxford to head the then Faculty of Science's Department of Biochemistry and Molecular Biology.

He has held a succession of senior leadership positions at the University, and he has been a member of the University Council.

ANU's Vice-Chancellor, Professor Ian Young

AO, said that Professor Kirk is a natural leader and an outstanding scientist.

"He is widely recognised for his teaching and research supervision. He has won both University and national teaching awards and he delivered this year's 'Last Lecture' - an award that was voted on by students. I've even seen the fan page on Facebook that students have set up in his honour," says Professor Young.

Professor Kirk's research is on the biology of the malaria parasite, with a focus on antimalarial drugs and drug-resistance. He has published over 130 papers, held multiple prestigious biomedical research fellowships and been recognised by research awards from several scientific societies.

"Kiaran is, by any measure, a high-achieving academic with impeccable credentials in research, education and leadership. I am looking forward to continuing to work with him as part of the University's leadership group," says Professor Young.

Professor Kirk will take up his new position in April 2014, replacing Professor Andrew Cockburn who is retiring on completion of his term as Dean of the College, and who will continue his research at the University as an Emeritus Professor.

Image and story courtesy of ANU



Events

The British Society for Parasitology



Spring Meeting 2014 and Trypanosomiasis and Leishmaniasis symposium

Sunday 6th to Wednesday 9th April 2014
Robinson College, University of Cambridge, UK

A major annual international meeting organised by the BSP, uniting all aspects of parasitology, spanning identification of new therapeutic modalities, genomics, disease mechanisms, control strategies, basic organismal biology, evolution and more. The meeting aims to provide opportunities for leading scientists, postdoctoral researchers and students from all disciplines that impact parasitology and to exchange ideas, to cross disciplines and to network.

Sessions will include drug design and approaches, genomics, control mechanisms, cell biology, virulence, work in the field and more.

Each session will feature an invited speaker, and all remaining oral presentations will be selected from submitted abstracts. There will be ample scope for poster presentations, ad hoc workshops and roundtable discussions.

Founded in 1209, the University of Cambridge is the seventh oldest university in the world, maintaining a global reputation for excellence in education and research. Located in the Fenlands to the east of England, the University boasts some of the finest medieval architecture in the world, and a rich cultural heritage with global impact.

Organisers:

Mark C. Field (University of Dundee and BSP),
Owain Millington (University of Strathclyde and BSP)
Suggestions for session topics and workshops welcome.

Further details will be announced on the BSP website
(<http://www.bspuk.org>) in Autumn 2013.



News from the ASP Network for Parasitology

ASP Annual Report for 2012



Read about our achievements in the 2012 ASP Annual Report.

<http://parasite.org.au/wp-content/uploads/2012/06/2012annualreport-web.pdf>

Save the date!

ASP 50th Anniversary Annual Conference will take place 30 June – 3 July 2014 at ANU Commons, Canberra. It will be a truly memorable event, celebrating the past, the present and the future of Australian parasitology.

Please email Lisa.Jones1@jcu.edu.au for the ASP 50th anniversary logos for use at the bottom of your emails and for promotion of the ASP during 2014 and Lisa can also email you the conference poster to print out and display in your work area.

WAAVP 2013

The 2013 ASP meeting / 24th International Conference of the World Association for the Advancement of Veterinary Parasitology held 25th – 29th August in Perth was a great success, with over 640 participants. This was thanks to the hard work of the conference committee, Andy Thompson and Brown Besier (WAAVP Conference Co-Convenors) and the local Organising Committee including Alan Lymbery, Amanda Ash, Robert Dobson, Stephanie Godfrey, Russel Hobbs, Caroline Jacobson, Louise Pallant, and Dieter Palmer. Many thanks for your fantastic efforts! Similarly the ASP post-graduate workshops in Australian Wildlife Parasitology Workshop (organized by Amanda Ash) and the Bioinformatics and Phylogenetics workshop (organized by Terry Miller and Cinzia Cantanessi) were very well received by our ECRs on Sunday 25th August at Murdoch University. We would like to thank Amanda, Terry and Cinzia who put a lot of time and energy into organising these workshops and preparing course work material, well done to all involved!

Our joint **ASP-Inspiring Australia** public outreach events in Perth with our partners Perth Zoo, Scitech and Murdoch University were lots of fun, and well attended by the public and featured our own fabulous ASP members and international colleagues.

Parasites in Focus at Perth Zoo on Saturday 24th August 2013 attracted more than 300 of the 3000 visitors to the Zoo that day and gave people from all ages the chance to engage with ASP parasitologists and explore the fascinating world of parasites with activities suitable for everyone to enjoy, and an opportunity for zoo patrons to get “under the skin” of Australia’s parasitologists.

“Parasites and Pets, Parasites and You – What do you really think you know?” our Free public event for the whole family took place on Sunday, 25th

August, 5-6 pm, at the Perth Convention Exhibition Centre, Riverside Theatre. Professor Susan Little, Oklahoma State University, Professor Malcolm Jones, University of Queensland and Professor Andrew Thompson from Murdoch University gave a lively performance on stage and hosted a quiz with prizes (for non-parasitologists) exploring such fascinating questions as “Can parasites really burrow through your skin or be a cure for gut diseases?” At the same time young budding scientists could book into our “Young parasites science club” free, fun, supervised science activities for young scientists during the presentation. Murdoch University even offered a free parasite check for the first hundred people to register to bring in a pet poo sample. These two Inspiring Australia, ASP & Murdoch University events were attended by 150 members of the general public and over 500 parasitologists and their feedback has been a resounding thumbs up for a very entertaining and informative event.

We have uploaded the videos of “Parasites and Pets, Parasites and You – What do you really think you know”, in case you missed them, check out the **ASP YouTube** channel <http://www.youtube.com/user/ASPParasiteNetwork>

Our final public event was the **“Profs, Pints and Parasites. Friends Without Benefits.”** held on Tuesday 27th August, at the Aviary Rooftop Bar in Perth city. This inspiring and energetic event was hosted by Renae Sayers from Scitech and featured Professor Peter O'Donoghue and Stephanie Godfrey doing parasite interpretive dance and wide discussion from evolution and environment to why you need to “watch your orifices” with new threats on the block – parasites play a far more important (and horrifying) role in the world than you have ever imagined.

Conference Survey

Please complete our post-event survey for the 2013 ASP Annual Conference, WAAVP2013 held in Perth 25-29 August,

Inspiring Australia and ASP public events and the post-graduate workshops held at Murdoch University on the 25th September. Click on the following link or copy and paste the url into your browser: <https://www.surveymonkey.com/s/2013ASP>

This survey should not take more than 15 minutes and will be helpful for our future planning purposes. If you have any feedback about the survey please email Lisa Jones (Lisa.Jones1@jcu.edu.au). This survey will now close on 30th November 2013.

Later in this issue of the ASP Newsletter we feature some photographs taken at the 2013 ASP meeting/WAAVP 2013 Perth.

Travel Awards

Congratulations to JD Smyth Travel Award and ASP Network Travel Award winners in the first two rounds of the Travel Award scheme for 2013.

JD Smyth Travel Award winner

Danika Hill, PhD Student, WEHI for a Researcher Exchange visit to CRESIB and Swiss TPH

Victoria Morin-Adeline, PhD Student, University of Sydney, for a Workshop: CLC bio and BioBam (Blast2GO) Brisbane 3 Day Workshop

Gabrielle Josling, PhD Student, University of Melbourne, for Researcher Exchange to visit Dr Raymond Hui, Structural Genomics Consortium, Toronto Canada

ASP Network Travel Award winners

Sarah Roseann Catalano, PhD Student, The University of Adelaide, Researcher Exchange Santa Barbara Museum of Natural History (SBMNH) to work with the Curator of Malacology, Dr Daniel Geiger

Dr Michelle Power, Macquarie University, for a Researcher Exchange to in the laboratory of Dr Yannick Moret at Équipe Écologie Évolutive, University of Bourgogne, Dijon France

Dr Louise Randall, University of Melbourne for a Human Placenta Workshop, Queen's University, Kingston, ON, Canada

Mark Polinski, PhD Candidate, University of Tasmania, Researcher Exchange to Autonomous University of Barcelona, Spain

Melanie Shears, PhD Student, The University of Melbourne, Training course 14 June – 28 September 2013 MBL Biology of Parasitism Course followed by a 4 week Researcher Exchange to Pennsylvania State University to work with Dr Manuel Linas

Shamista Selvarajah, PhD student, The University of Melbourne, Duffy Laboratory, Researcher Exchange to visit Dr. Richard Bartfai and Prof. Hendrik Stunnenberg in The Netherlands for a collaborative project on the ATP-dependent chromatin remodelling SWR1 complex in the malaria parasite *Plasmodium falciparum*

Em. Prof. Lesley Warner, SA Museum, for Researcher Exchange to finalize a book chapter for the Handbook of Zoology with Prof Horst Taraschewski, Department of Ecology and Parasitology, Zoological Institute, Karlsruhe Institute of Technology, Germany and to visit the Natural History Museum London to network with colleagues and visit the Museum Library

Esther Rajendran, PhD Candidate, The Australian National University funding to attend the BoP course held in Woods Hole, Massachusetts, at the Marine Biological Laboratories (MBL)

Dr Mark S Pearson, James Cook University, for Researcher Exchange to Professor Philip Felgner: Protein Microarray

Laboratory and Infectious Disease School of Medicine, University of California, Irvine, CA, USA to spend 1 month in Dr Felgner's laboratory at University of California, Irvine

Leslie Vega, Veterinary Student Murdoch University for a Researcher Exchange to Omar Triana Chávez, Group for Biology and Control of Infectious Diseases, University of Antioquia, Medellin Colombia

Dr Crystal Kelehear, University of Sydney for a Researcher Exchange with Dr Mark Torchin and Dr Roberto Ibáñez at the Smithsonian Tropical Research Institute (STRI) based in Panama.

ASP members are encouraged to send news and to apply for other prizes including the "Odile Bain Memorial Prize" (OBMP) awarded annually by Parasites & Vectors in association with Merial: <http://www.parasitesandvectors.com/about/prize>

Congratulations NHMRC and ARC Research Fellowships and Project Grants

Great news for Australian parasitologists in recent NHMRC and ARC grant and fellowship announcements – eleven fellowships, one EU Collaborative Research Grant, five Lief grants and twenty project grants worth a total of over \$21 million.

Early Career Fellowships for funding commencing in 2014

David Riglar, The Walter and Eliza Hall Institute \$355,028

Natalie Spillman Australian National University \$324,812

Career Development Fellowships for funding commencing in 2014

Jacob Baum, CDA2, The Walter and Eliza Hall Institute of Medical Research, \$447,840

Stuart Ralph, CDA2, University of Melbourne, \$447,840

Practitioner Fellowships for funding commencing in 2014

Professor Timothy Davis, PF2, University of Western Australia, \$542,217

Research Fellowships for funding commencing in 2014

Doctor Christian Engwerda, SRF A, Queensland Institute of Medical Research \$601,420

Professor Raymond Norton, PRF, Monash University \$727,610

Professor Magdalena Plebanski, SRF A, Monash University \$601,420

Professor Malcolm McConville, PRF, University of Melbourne \$727,610

NHMRC – European Union Collaborative Research Grants (NHMRC – EU Scheme) for Funding Commencing in 2014

Associate Professor Katherine Andrews, *Anti-Parasitic Drug Discovery in Epigenetics*, Griffith University \$266,352

Project Grants for funding commencing in 2014

CIA - Doctor Seth Masters
CIB - Doctor Christopher Tonkin
Regulation of toxoplasma by the NLRP1 inflammasome, The Walter and Eliza Hall

Institute, \$602,562

CIA - Doctor Diana Hansen
CIB - Prof Daniel Schofield
Understanding the development of humoral immunity to malaria merozoites, The Walter and Eliza Hall Institute, \$621,894

CIA - Prof Malcolm McConville
CIB - Doctor Fiona Sansom
Identifying metabolic pathways in Leishmania parasites and their host cells required for virulence, University of Melbourne, \$950,744

CIA - Prof Leann Tilley
CIB - Prof Philip Rosenthal
CIC - Doctor Arjen Dondorp
Elucidating the mechanisms of action of and resistance to endoperoxide antimalarials, University of Melbourne \$693,458

CIA - Doctor Freya Fowkes
CIB - A/Prof Julie Simpson
CIC - Prof Francois Nosten, *Human malarial immunity and assessment of emerging artemisinin resistance*, Macfarlane Burnet Institute, \$302,647

CIA - Prof Stephen Rogerson
CIB - A/Prof Anthony Jaworowski
Wrong parasite, wrong host? How Plasmodium falciparum erythrocyte membrane protein 1 expression and the host's innate immune response combine to influence the inflammatory response to malaria in vitro and in vivo. Implications for severe malaria, University of Melbourne, \$683,712

CIA - A/Prof Richard Payne
CIB - Prof Nicholas Hunt
CIC - Doctor Sheena McGowan
CID - Prof Susan Charman
CIE - Prof Philip Rosenthal
Development of Antimalarial Drug Leads Through Inhibition of Food Vacuole Falcipain, University of Sydney, \$627,670

CIA - Prof Robin Gasser
CIB - Prof Patrick Tan, *Global molecular exploration of liver fluke* University of Melbourne \$402,111

CIA - Doctor Sheena McGowan
CIB - Prof Peter Scammells
Targeting the Plasmodium falciparum Metalloaminopeptidases for Development of New Antimalarial Agents, Monash University, \$546,894

CIA - Prof Justine Smith *Toxoplasma gondii Infection of Human Retinal Pigment Epithelium*, Flinders University, \$445,505

CIA - A/Prof Brendan McMorran
CIB - Prof Simon Foote
CIC - Doctor Gaetan Burgio, *The role of Duffy and PF4 in the platelet killing of malaria parasites*, Macquarie University, \$338,447

CIA - Doctor Katja Fischer
CIB - Doctor Deborah Holt
CIC - Doctor Simone Reynolds
CID - Prof Robert Pike
CIE - Prof Ben Dunn, *Scabies mite intestinal proteases as targets for novel therapeutics*, Queensland Institute of Medical Research, \$650,799

CIA - Doctor Emily Eriksson
Development, regulation and role of innate immunological memory in malaria, The Walter and Eliza Hall Institute, \$541,521

CIA - Prof Vicky Avery
CIB - Doctor Graeme Stevenson
CIC - Prof Susan Charman
Investigating the therapeutic potential of FTY720 for Human African Trypanosomiasis, Griffith University, \$632,402

CIA - Prof Alan Cowman
CIB - Doctor Neta Regev-Rudzki
CIC - Doctor Danny Wilson, *The role of exosome-like vesicles in cell-cell*

Closing dates
for ASP awards

ASP Network Travel Award
(includes JD Smyth Award)
Friday 29 November 2013

ASP Fellowships
9 January 2014
More information www.parasite.org.au

communication between *P. falciparum*-infected red blood cells, The Walter and Eliza Hall Institute, \$607,484

CIA - Prof Denise Doolan

CIB - Doctor Nadine Dudek

CIC - Prof Anthony Purcell

Immunodominance and protective immunity in the context of a complex host-pathogen system, Queensland Institute of Medical Research, \$864,300

CIA - Prof Christian Doerig

CIB - Doctor Teresa Carvalho

CIC - Prof Andrew Tobin *Functional characterisation of the essential Aurora kinase family in the human malaria parasite Plasmodium falciparum*, Monash University, \$494,838

CIA - Doctor Louise Randall

CIB - Prof Stephen Rogerson,

The immune modulatory function of chondroitin sulphate A in placental malaria: protecting the fetus, promoting the parasite?, University of Melbourne, \$507,860

CIA - Prof Brendan Crabb

CIB - A/Prof Travis Beddoe

CIC - A/Prof Tania de Koning-Ward

CID - Doctor Paul Gilson

The structural resolution of PTEX, the translocon of virulence proteins and malaria parasites, Macfarlane Burnet Institute, \$542,562

ARC FUTURE FELLOWS

Katja Fischer, Queensland Institute of Medical Research, 2013- 2017 \$749,920

Freya J Fowkes, Macfarlane Burnet Centre for Medical Research, 2013-2017, \$755,320

ARC DISCOVERY PROJECT

Robin B Gasser, Abdul Jabbar, Andreas Hofmann, Paul W Sternberg, The University of Melbourne, Monash University, Deakin

University, Macfarlane Burnet Centre for Medical Research, 2014 – 2016 , \$580,000

ARC LIEF GRANTS

Ronald J Quinn, Tanja Grkovic, Jennifer C Wilson, Mark von Itzstein, Sally-Ann Poulsen, Robert M Wellard, Kathleen M Mullen, Steven E Bottle, Huai-Yong Zhu, Colleen C Nelson, Ben W Greatrex, Christopher M Fellows, Michelle K Taylor, Daniel J Keddie, Brian R Wilson, Scott F Cummins, Kate E Mounsey, Joanne Macdonald, David J McMillan, Kirsten Benkendorff, Graham J King, Richard T Bush, Leigh A Sullivan, Griffith University Queensland University of Technology, The University of New England, University of the Sunshine Coast, Southern Cross University, 2014, \$2,000,000

David J Miller, Dean R Jerry, Alexander C Loukas, Gregory E Maes, Cinzia Cantacessi, James Cook University, 2014, \$167,990

William R Heath, Scott N Mueller, Elizabeth L Hartland, Jose Villadangos, Erica K Sloan, Irina Caminschi, Michael Hickey, Jamie Rossjohn, Geoffrey I McFadden, Tania F de Koning-Ward, Brendan S Crabb, The University of Melbourne, Monash University, Deakin University, Macfarlane Burnet Centre for Medical Research, 2014, \$650,000

James Vickers, David H Small, Barbara F Nowak, Emily F Hilder, Gustaaf M Hallegraef, University of Tasmania, 2014, \$380,000

Peter W Gunning, Hongyuan R Yang, Lars M Ittner, Edna C Hardeman, Maria Kavallaris, Nicholas J King, Georges E Grau, Jennifer R Gamble, Wolfgang Weninger, The University of New South Wales, The University of Sydney, 2014, \$370,000

Network Mentorship Scheme

Early career researchers are encouraged to apply to the Network Convenor (nicholas.smith@jcu.edu.au), in strict confidence, for funding to participate in the Network Mentorship Scheme. The scheme allows young investigators to be paired with experienced, successful researchers to discuss, plan, prioritise and set targets for their career. Typically, the early career researcher will fly to the institute of a senior parasitologist and spend a day there. Arrangements for professional development and progress to be reviewed by the pair annually can also be arranged. Importantly, mentors need not be from an individual's home institution but can be drawn from across the Network. The scheme has proved very valuable for several young researchers and their mentors already.

To apply, simply write to Nick Smith (nicholas.smith@jcu.edu.au) with a brief outline of your research interests and aspirations. You can also indicate a preferred mentor or ask Nick for advice on whom amongst the Network participants may be most suitable.

Nick Smith
Convenor,
ASP Network for Parasitology

Lisa Jones
Communications Coordinator

Researcher Exchange Travel Awards

Dr Rama Jayaraj from Charles Darwin University reports on his visit Thammasat University in Thailand for his work on liver flukes. Rama was funded through the ASP Network for Parasitology Researcher Exchange scheme..

I completed a one month researcher exchange in July 2013 to visit Thailand to work with Professor Rudi Grams at Thammasat University. Professor Grams is a world renowned parasitologist working in Thailand. The objective of my researcher exchange was to investigate the Immunolocalisation and *in situ* hybridization of stage specific cathepsin B and cathepsin L within the liver fluke, *Fasciola*. I was particularly keen to learn immunolocalisation techniques such as Immunofluorescence staining and Immunogold labelling and then implement and establish those techniques in our

parasitology laboratory at Charles Darwin University. This has been a great success thanks Dr Amornrat in Rudi's laboratory.

Most importantly, this training allowed me to sharpen my parasitological and immunolocalisation skills and they can now be used to expand the skill base and enable the formation of an immunoparasitology laboratory at the Charles Darwin University. Furthermore, it gave me the opportunity to personally interact with International scientists from different research facilities. This is something I don't often have the opportunity to do due to the isolated location of Darwin. I consider that the intensive research training I received in Thailand was a great professional development for me. Whilst in Thailand, I also gave a talk on "*Cutting Edge Lecture: Molecular Parasitology*" on 24th July 2013 at Thammasat University.

Left: Training on immunolocalisation with Dr Amornrat

Top right: With Dr Hans Rudi Grams and his laboratory at Thammasat University, Thailand .

Bottom right: With Professor Mathurose and her research colleagues at Mahidol University, Thailand.



2014 Conference

ASP 50th Anniversary Annual Conference 30 June - 3 July 2014, ANU Commons, Canberra

The 2014 Australian Society for Parasitology 50th Anniversary Conference will take place in Canberra from Monday June 30 – Thursday July 3, 2014, inclusive, at the Australian National University, the site of the Society's first conference in 1964. It will be a truly memorable event, celebrating the past, the present and the future of Australian parasitology and features events for early career researchers and the general public with the following proposed themes and invited speakers:

Elsevier Lectures

- IJP Lecture – **Raffi Aroian** (University of California, San Diego, USA)
- IJP Drugs and Drug Resistance Lecture – **David Horn** (University of Dundee, UK)
- IJP Parasites and Wildlife Lecture – **Vanessa Ezenwa** (University of Georgia, USA)

Plenary and Symposia themes and confirmed speakers

- Discovery, Development and Investigation of New Antiparasitics (Helminths) – **Tim Geary** (McGill University, Canada)
- Discovery, Development and Investigation of New Antiparasitics (Protozoa) – **Mike Ferdig** (University of Notre Dame, USA)
- Cell Biology and Development – **Boris Striepen** (University of Georgia, USA)
- Vaccines – **Marshall Lightowlers** (University of Melbourne, Australia)

- Host-Parasite Interactions – **Wai-Hong Tham** (Walter and Eliza Hall Institute, Australia)
- Epidemiology – **Una Ryan** (Murdoch University, Australia)
- Immunoregulation (Protozoa) – **Ian Cockburn** (John Curtin School of Medical Research, Australia)
- Cell Signalling and Parasite Lifecycles – **Christian Doerig** (Monash University)
- Drugs and Drug Resistance – **Vicky Avery** (Griffith University, Australia)
- Ecology – **Jan Slapeta** (University of Sydney, Australia)
- Population Genetics
- Structure and Function
- Evolution and Phylogeny
- Immunoregulation (Helminths)
- Physiology and Biochemistry

In addition to these sessions, we will be staging two celebratory and provocative sessions, at the start and end of the conference, on A History of Australian Parasitology – Discoveries that Matter and The Future of Parasitology. Professor Graham Mitchell (AO) will chair both these sessions, drawing on the wisdom of some of the ASP's Fellows for the first and our Bancroft Mackerras Medalists for the closing session.

Conference website www.parasite.org.au/arcnet

Registrations will open late January 2014

Our Inspiring Australia and ASP public events will take place in conjunction with the conference along with some truly inspirational events for Early Career Researchers and Postgraduate students.

Please email Lisa.Jones1@jcu.edu.au for the ASP 50th anniversary logos for use at the bottom of your emails and for promotion of the ASP during 2014 and Lisa can also email you the conference poster to print out and display in your work area.



Images from WAAVP-ASP, Perth, August 2013





News about Australia/Europe Malaria Research Cooperation

OzEMalaR continues to strengthen links and promote collaboration between Australian malaria research laboratories and European, African & Indian malaria researchers through researcher exchanges and communication.

Malaria in Melbourne Conference (MiM 2013)

In October 2013 more than 200 researchers, mostly from Australia but also Papua New Guinea, spent two days exchanging the latest malaria research data and at the Malaria in Melbourne Conference (MiM 2013).

MiM 2013 Chair and Head of Burnet's Malaria Epidemiology Group, Dr Freya Fowkes said Australia is an international hub for malaria research. "There is more than 50 research groups across the country investigating different approaches to try and solve this global health issue," she said. "We've all come together with the common goal of controlling, eliminating and ultimately eradicating malaria." Presentations ranged from basic science through to clinical/epidemiological studies and translational research.

"This year our plenary speakers reflect the malaria community's research goal with dengue fever expert, Dr Peter Ryan from Monash University and Burnet Deputy

Director Professor Mike Toole AM who have both made major contributions to the global control of infectious diseases," Dr Fowkes said.

For a look at the research presented, head to #MiMelb2013 on Twitter.

Malaria vaccine technology roadmap - Update launched November 2013

The updated Malaria Vaccine Roadmap represents the result of a review process facilitated by the World Health Organization (WHO), which worked with the Malaria Vaccine Funders Group to update the vision and strategic goals of the first publication. Originally launched at the 2006 WHO Global Vaccine Research Forum and supported by the Funders Group, the Roadmap forms a strategic framework that underpins the activities of the global malaria vaccine research and development (R&D) community.

The new roadmap, launched 14 November 2013 at the annual conference of the American Society of Tropical Medicine & Hygiene in Washington DC and also announced in a letter published in "The Lancet", aims to identify where additional funding and activities will be particularly key in developing second generation malaria vaccines both for protection against malaria disease and for malaria elimination.

These include next-generation vaccines that target both *Plasmodium falciparum* and *Plasmodium vivax* species of malaria.

"The new vaccines should show at least 75% efficacy against clinical malaria, be suitable for use in all malaria-endemic areas, and be licensed by 2030," says Dr Jean-Marie Okwo Bele, Director of WHO's Department of Immunization, Vaccines and Biologicals. "The roadmap also sets a target for malaria vaccines that reduce transmission of the parasite."

"Safe, effective, affordable vaccines could play a critical role in defeating malaria," said Dr Robert D. Newman, Director of WHO's Global Malaria Programme. "Despite all the recent progress countries have made, and despite important innovations in diagnostics, drugs and vector control, the global burden of malaria remains unacceptably high."

This update responds to the recognition that the malaria epidemiological and control status has changed markedly since 2006 when the Roadmap was originally launched and hence the shared vision and strategic goals of the Roadmap have been expanded.

Vision: Safe and effective vaccines against *Plasmodium falciparum* and *Plasmodium vivax* that prevent disease and death and



prevent transmission to enable malaria eradication.

Strategic goals

- By 2030, license vaccines targeting *Plasmodium falciparum* and *Plasmodium vivax* that encompass the following two objectives, for use by the international public health community
- Development of malaria vaccines with protective efficacy of at least 75 percent against clinical malaria suitable for administration to appropriate at-risk groups in malaria-endemic areas.
- Development of malaria vaccines that reduce transmission of the parasite and thereby substantially reduce the incidence of human malaria infection. This will enable elimination in multiple settings. Vaccines to reduce transmission should be suitable for administration in mass campaigns.

Source: WHO

http://www.who.int/immunization/topics/malaria/vaccine_roadmap/en/

OzEMalaR Travel Award Scheme

Congratulations to our latest OzEMalaR Travel Award winners:\

- **Renate Zelger**, PhD student, The Australian National University, Research School of Biology, Maier Lab, Canberra, for a Research Exchange with Kenya Medical Research Institute, Centre for Geographic Medicine Research, Kilifi to Evaluation of the new ultra-sensitive immuno-qPCR assay for detection of malaria parasites in clinical samples in Kilifi, Kenya
- **Dr. Wilson Wong**, Research Officer, Walter and Eliza Hall Institute/ Dr. Jake Baum's Laboratory, for a Research Welcome Trust Sanger Institute, Hinxton and the Laboratory of Molecular Biology, Cambridge to combine parasitology with state of the art cryoelectron microscopy towards solving or establishing the foundations to solve the ribosome structure.

OzEMalaR funding runs until the end of 2014 and we want to see lots of applications in the next year to make the most of such a fantastic opportunity.

*Remember all OzEMalaR Travel Award funds granted to successful applicants must be spent by the end of 2014.

The deadlines for 2014 OzEMalaR Travel Awards* are:

Friday 10 January 2014
Friday 7 March 2014

Friday 2 May 2014
Friday 4 July 2014
Friday 5 September 2014
Friday 31 October 2014+

*For applications after 31 October 2014 please email Lisa.Jones1@jcu.edu.au

Visit our website www.ozemalar.org to find out how you can apply for OzEMalaR Travel Awards to support early career malaria researchers (PhD and postdocs) from Australia to work and be trained in top European laboratories within EviMalaR (=BioMalPar) for malaria research. To check which laboratories are eligible as hosts visit www.evimalar.org.uk Download funding guidelines from the OzEMalaR website and start planning your researcher exchanges to utilise this great opportunity. We hope to see lots of new applications in 2014, our final year of funding for OzEMalaR. If you are not currently but would like to be part of the OzEMalaR Network please contact Lisa with your details.

Please email Lisa with any news, jobs or events you have for the website (lisa.jones1@jcu.edu.au) or with your comments and suggestions.

Geoff McFadden
Convenor, OzEMalaR



Image of the *Anopheles* mosquito courtesy Centre for Biosecurity and Tropical Infectious Diseases, James Cook University.

The Expedition of Marshall Lightowlers

Professor Marshall Lightowlers's expedition to control taeniid cestodes in developing countries

The past few months have included quite a bit of international travel for Marshall Lightowlers. In September he travelled to Mohammedia in Morocco for discussions with MCI Santé Animale concerning the potential manufacture of anti-cestode vaccines by that company. On the return journey he visited the village of Omphalong in northern Laos where John Allen (CSIRO), Anna Okello (Moredun), Andy Thompson (Murdoch) and their colleagues are implementing control measures for *Taenia solium*, including vaccination of pigs with the TSOL18 vaccine. October saw more travel, initially to Cagliari in Sardinia at the request of the WHO which is assisting with the planning and implementation of a 5

year pilot control program for echinococcosis focussing on the application of the EG95 vaccine in sheep. Subsequently Marshall travelled to Geneva for talks with Dirk Engels and Lorenzo Savioli at the WHO concerning control measures for both echinococcosis and cysticercosis. The return journey included visits to remote rural regions of the Eastern Cape of South Africa, Uganda and Tanzania. These areas are being considered by Marshall and his partners at the Global Alliance for Livestock Veterinary Medicines as potential sites for implementation of pilot cysticercosis control programs utilizing the TSOL18 vaccine. While the vaccine has been shown to be extremely successful in experimental infection trials in pigs and in field trials conducted in Cameroon and Peru, they wish to demonstrate an effective and sustainable intervention capable of providing protection to pigs in circumstances where new, disease susceptible pigs are born into the area more or less constantly.



Above Residents of Omphalong in Northern Laos where control measures are being implemented for *Taenia solium* including the vaccination of pigs with the TSOL18 vaccine.

Right Resident of the Soroli district in Central Uganda with piglets. The region is being evaluated as a potential site for implementation of an on-going control measures to prevent *Taenia solium* transmission



IJP



INTERNATIONAL JOURNAL FOR PARASITOLOGY

August 2013

Rhipicephalus microplus lipocalins (LRMs): Genomic identification and analysis of the bovine immune response using in silico predicted B and T cell epitopes. **Manuel Rodriguez-Vallea, Paula Moolhuijsena, Emily K. Pipera, Olivia Weissa, Megan Vancea, Matthew Bellgard, Ala Lew-Tabor**

Seasonal dynamics of the lungworm, *Rhabdias pseudosphaerocephala*, in recently colonised cane toad (*Rhinella marina*) populations in tropical Australia. **Ligia Pizzatto, Crystal Kelehear, Richard Shine**

September 2013

Tetraspanin-2 localisation in high pressure frozen and freeze-1 substituted *Schistosoma mansoni* adult males reveals its distribution in membranes of tegumentary vesicles **Leigh Schulte, Erica Lovas, Kathryn Green, Jason Mulvenna, Geoffrey N. Gobert, Garry Morgan, Malcolm K Jones**

Multilocus population genetic analysis of the Southwest Pacific malaria vector *Anopheles punctulatus* **Ignatius M. Seah, Luke Ambrose, Robert D. Cooper, Nigel W. Beebe**

October 2013

Succinctus

Cyst formation and fecal-oral transmission of *Dientamoeba fragilis* - the missing link in the life cycle of an emerging pathogen **Varuni S. Munasinghe, Nicole G. F. Vell, John T. Ellis, Peter A. Windsor, Damien Stark**

Succinctus

Travellers as sentinels: Assaying the worldwide distribution of polymorphisms associated with artemisinin combination therapy resistance in *Plasmodium falciparum* using malaria cases imported into Scotland **Carol W. Hunja, Holger Unger, Pedro Ferreira, Richard Lumsden, Sheila Morrisf, Rashid Aman, Claire Alexander, Toshihiro Mita, Richard Culleton**

Special issue for publication in early 2014

February 2014 12th International Congress on Toxoplasmosis

The IJP Interview

"Freezing reveals subcellular location"

Leigh Schulte and Malcolm Jones and colleagues have been working on the parasite *Schistosoma mansoni* for about the past 15 years and their work was recently published in IJP *

Leigh and Malcolm talk to Lisa Jones about this research

Tell me about your research on *Schistosoma mansoni*?

Leigh: I started researching schistosomes when I began my honours degree with Mal in 2009 and then started my PhD the year after. My PhD focuses on the tegument of the worm and how it transforms upon host infection and how it is maintained throughout the adult worms long life.

Tell me about this technique you used to prepare the parasite for viewing with immuno-electron microscopy. What is important about this technique?

Leigh: High pressure freezing and cryosubstitution with uranyl acetate has been applied to a number of organisms in the past and we have applied this technique to adult schistosomes for the first time. The main advantage of the technique we have used is that it combines excellent ultrastructure and membrane preservation, while preserving antigenicity of the tissues so that we can localise proteins of interest in the tissues. This is especially important for investigating membrane-resident proteins of tegument. In this paper we have shown the localisation patterns of *Schistosoma mansoni* tetraspanin 2. We have used the same technique to localise other important tegumental proteins that are the focus of my PhD to give insight into the role of these proteins in schistosome biology.



Your IJP publication discussed vaccine development against *Schistosoma mansoni* -tell us what stage this vaccine idea is at and how will your research help to achieve this goal?

Leigh: SmTSP2 is known as a leading vaccine candidate against schistosomiasis. But we really don't know what role SMTSP2, along with other important tegumental proteins, has in the biology of the tegument. This localisation data, together with investigations on the interaction biology of the protein I have conducted, and structural studies by Sidney Jia and Jason Mulvenna at QIMR Berghofer will help us to understand the important of this molecule in membrane maintenance and turnover and most importantly, when and where in parasite development the molecule is exposed to the host immune system.

Tell us what happens next in this *Schistosoma mansoni* story?

Leigh: This localisation data combined with a large amount protein interaction data I have generated provides us with more details about the interaction of TSPs with other tegumental proteins involved in the dynamics of tegument. The final step we have undertaken to understanding the function of tegumental proteins is to knock them down using RNA interference, leading to a detectable phenotype. With funding from ASP JD Smyth travel award I was able to travel to Conor Caffrey's lab at University of California, San Francisco to learn more about this technique and bring these skills back to QIMR Berghofer to perform my own experiments. High pressure freezing and cryosubstitution with uranyl acetate applied to schistosomula (the larval stage) during host infection would allow us to localise proteins at different stages of tegument transformation. This would help us learn more about host-parasite interactions during host infection.

As for me, I will be busy writing up my thesis and looking for a post doc position where I can apply the skills I've learnt throughout my PhD to new areas and learn new techniques to understand more about how parasites and hosts live together.

* This research was recently published in IJP

Tetraspanin-2 localisation in high pressure frozen and freeze-1 substituted *Schistosoma mansoni* adult males reveals its distribution in membranes of tegumentary vesicles, Leigh Schulte, Erica Lovas, Kathryn Green, Jason Mulvenna, Geoffrey N. Gobert, Garry Morgan, Malcolm K Jones, Volume 43, Issue 10, September 2013, Pages 785–793

Outreach

Melanie Leef describes a very fruitful period for ASP-sponsored state outreach events organised by members at the University of Tasmania

Pizzas for Parasitology

Victoria Valdenegro and Mark Polinski organized a pizza night for second and third year undergraduate students who were interested in completing Honours in parasitology with the University of Tasmania's Aquatic Animal Health group. The event was attended by approximately 20 people and both Victoria and Mark gave presentations about their experiences as PhD students and also about the skills and techniques they have learnt as part of their parasitology research. Dr Melanie Leef also gave a presentation about the Aquatic Animal Health undergraduate unit which covers a significant portion of parasitology related material and offers the ASP best undergraduate student award. After the presentations students were able to talk to Aquatic Animal Health members including Victoria, Mark, Melanie and group leader Professor Barbara Nowak over pizza and drinks. Current and Past Honours students Kingsley Tam and Catarina Norte dos Santos also attended to share their personal experiences.

"Parasite Corner" at the UTAS/AMC Open Day

Catarina Norte dos Santos also organized an outreach event that was held during the the UTAS/AMC Open Day. This event targeted young future parasitologists who were encouraged to make their own parasites with craft material. A colouring competition of different parasites by a local primary school was also displayed as part of the event. This outreach event was very successful with participation not just from the young ones but also some adults (either parents who were accompanying their children, or young adults that wanted to participate). While children were busy learning about parasites the parents were

able to look at real versions under the microscope at the fish parasitology stand that was opposite the children's event. The adults parasitology stand was organized by new PhD student Lukas Neumann who is currently a proposed ASP member. One of the big highlights for the children, as well as getting to take home a custom made parasite, was the large poster of a fish with parasites. This poster proved invaluable to help explain where the parasites could be found on the fish. The event was so popular Catarina has been asked to visit local schools with her display.

Science week

Two PhD students – Victoria Valdenegro and Fu Dingkun and Prof Barbara Nowak gave public lectures at Royal Society of Tasmania special event during Science Week. Victoria talked about her research on AGD and Barbara covered significance of fish parasites in biodiversity, fisheries research, mariculture and human health.

The event was well attended and had press coverage (Examiner).

Although she is currently based in Townsville, Tasmanian ASP student member Melissa Beata Martin recently contributed to two Queensland outreach programmes. Melissa volunteered for the Museum of Tropical Queensland Townsville to promote "Science Week: Fossil" during the Cultural Festival (14-18th August), where kids get their hands dirty in fossil-making, a fun approach in learning about fossils and their formation. The second event was a short taxonomic course held for MSc students at the Museum of Tropical Queensland (5th September), organized by Dr Niel Bruce, which covered museum research (general and specific), importance of museum natural history collections and the importance of taxonomy and it's applied science.



Above: Catarina Norte dos Santos and Lukas Neumann at the UTAS Open Day and Melissa Beata Martin encouraging parasitology outreach.

Social Media

News of some ASP initiatives in electronic outreach.

ASP Facebook page

For those who are Facebook users you have probably noticed that we now have a wonderful researcher taking care of the ASP Facebook page. Our Victorian ASP State Representative, Abdul Jabbar, is looking for all of your news items to put onto Facebook. Please email him directly jabbara@unimelb.edu.au and our ASP Facebook page link is www.facebook.com/ASPParasitology so you can also "like" our page if you haven't already done so.

Google + Hangout

Live On Air "Parasites - Practically Perfect in Every Way" series. "

Dec 3rd 0900 AEDT (or Dec 2nd 1700 EST / 1600 CST in Northern Hemisphere)

More on the social media front: If you have a gmail or Google account then you can link to the ASP Google+ page where we will be posting events and hosting Google + live hang-outs <https://www.google.com/+ParasiteOrgAuASP>. ASP member Dr Tommy Leung will be hosting our Hangouts over the next couple of months to discuss why we do parasitology and why we find parasites fascinating.

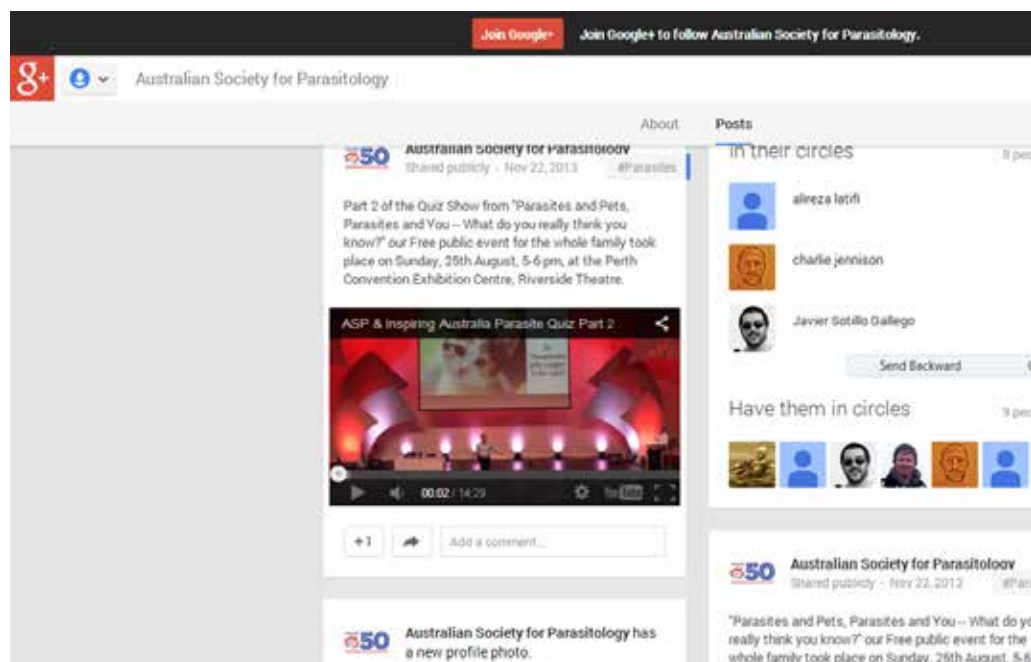
Our first "Parasites - Practically Perfect in Every Way" chat/discussion is relatively

informal and free-flowing. We will be chatting to parasitologists from across the world about how and why they got into studying parasitic organisms, what they are working on and why they find them fascinating. This Google + hangout on air series is intended for the general public and is intended as a part of our outreach program to further public understanding of parasitology and the role played by parasites. If you need any assistance setting up a Google + account this is the official page <https://accounts.google.com/SignUp> OR go to our ASP Google + page <https://www.google.com/+ParasiteOrgAuASP> and click on the red "Join Google +" button at the top. If you already have a Google +

account then head to our Google+ page at 330pm on Dec 3rd (EST) <https://www.google.com/+ParasiteOrgAuASP> and click on the link to our "Parasites - Practically Perfect in Every Way" Hangout or go to the "Hangouts" page where our ASP Hangout will be live. It will also be streamed live to our ASP YouTube channel <http://www.youtube.com/user/ASPParasiteNetwork>

The Conversation

Dr Tommy Leung recently wrote an article for The Conversation on freezing parasites here: <https://theconversation.com/the-parasite-a-cricket's-nightmares-are-made-of-19364>.



Outreach Funding

ASP members are encouraged to apply for ASP funding to support outreach in their state. Up to \$500 per event is available with a total per state or territory of \$2000 per calendar year. Proposals are to be submitted for consideration by State Representatives. Initiatives should foster outreach by members and advance the field of parasitology. This pool of funds has not yet been widely accessed and ASP President Denise Doolan would like to

emphasise that the funds can be used to support a wide range of activities - from seminars, symposia atc to "beer and nibbles" networking sessions of State members or any other parasitology-related event.

Proposals are to be submitted for consideration by State/Territory Representatives.

State News

Australian Capital Territory

The Australian National University

During National Science Week, the ANU Science Communication Society runs a series of events for the 'ANU Science Carnival'. For one event, the 'ANU Science Market', the various science societies set up stalls to showcase society activities to students and a broad variety of visitors to the university. This year in August, members of the ACT branch of the ASP contributed to the Science Market by running a stall alongside a dozen other societies. The ASP 'Parasitology Stall' ran a game of 'What's that Parasite', with visitors attempting to identify a variety of parasites from a panel of images. More than 60 visitors participated, each receiving a small, high-caloric reward for their efforts. A microscope was set up for viewing some real parasites, and information made available on studying parasitology at the ANU.



Eleanor Kerdo was the driver of events, and was helped out by **Vanessa Howieson, Melanie Rug, Erick Thjn, Melanie Ridgeway, and Richard Allen** (ACT ASP Rep). Eleanor says the organisers

of the Science Market reported that the 'Parasitology Stall' was one of the most popular stalls of the day. Thanks go to all who contributed, especially Eleanor Kerdo, whose enthusiasm helped make the day a great success.

New South Wales

Charles Sturt University

The last few months have been very busy, especially with teaching at CSU. However, **Shokoofeh Shamsi** and some of her students were able to make it to WAAVP in Perth. Shokoofeh gave a review on the taxonomy of anisakids with an emphasis on Australian species. **Leah Brunt**, a fourth year Veterinary Science student at CSU, presented her work on acanthocephalans from marlins. **Thomas O'Brian**, a third year Veterinary Science CSU student, had a poster on parasites of the cormorants and **Margrieth Van Keulon** a final year Veterinary Medicine student from the University of Utrecht, the Netherlands, who spent 10 weeks in Shokoofeh's lab at CSU presented her results on parasites of carps. She also won tickets to the next WAAVP Conference in Liverpool. **Anna Turner**, Honours student, working with Shokoofeh and Skye Wassens from CSU School of Environmental Science presented her work on parasites of introduced fish in Murrumbidgee Basin, at the Wildlife Disease Conference held in October 2013 at Grampian, Victoria. Some of current research activities at Shokoofeh's lab are looking at nematodes from the Indian Ocean (in collaboration with **Professor Malhotra** from India) and the genetic characterisation of *Linguatula* sp from the Middle East.

University of Sydney

Laboratory of Veterinary Parasitology @ McMaster Building

The Faculty Veterinary Science is transforming its undergraduate BVSc into a new graduate DVM program. Let's hope there will be more parasitologists directly recruited from DVM with its compulsory research component and therefore better exposure to the research environment.

Jan Šlapeta has published in *IJP* something that was occupying his mind for almost a decade, since his first postdoc at NIH while culturing the zoonotic cryptosporidia. It deals with the diversity and need for formal long lasting 'labels', in other words names and taxonomy. All that has been published from 1907 (the first time the genus *Cryptosporidium* was introduced) is summarised in the light of current knowledge – "Cryptosporidiosis and *Cryptosporidium* Species in Animals and Humans: A Thirty Colour Rainbow?" [<http://dx.doi.org/10.1016/j.ijpara.2013.07.005>]

Diagnostic wise, we have re-visited the concept of microbial diversity profiling based on 454 amplicon sequencing for detection of eukaryotic parasites in tissues. This technique is well established to capture the rare biosphere, and there was no reason why it would not work for unknown parasites in animal tissue. So we gave it a go. The first real outcome, published in *PLOS ONE*, is the detection of a special coccidian in coral from the Great Barrier Reef, known previously only from the Caribbean reefs and speculated to cause some harm – "Combined amplicon pyrosequencing assays reveal presence of the apicomplexan "type-N" (cf. *Gemmocystis cylindrus*) and *Chromera velia* on the Great Barrier Reef, Australia" [<http://dx.doi.org/10.1371/journal.pone.0076095>]. This technique has major advantages over traditional approaches and we hope to have more evidence very soon, in fact our BSc(Vet) student **Stefan Saverimuttu** is currently writing up his thesis on this topic.

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Neil Portman (post doc) and **Christi Foster** (PhD student) have published in *Eukaryotic Cell* their insight into early apicomplexan evolution. They combined their effort to document an apical complex and the presence of a blueprint for canonical flagellum assembly in *Chromera velia* (a photosynthetic relative of Apicomplexa). Their "Evidence for Intraflagellar Transport and Apical Complex Formation in a Free Living Relative of the Apicomplexa" [<http://dx.doi.org/10.1128/EC.00155-13>] will appear in the January issue and will be featured on the cover of the journal. Well done!

Victoria Morin-Adeline (PhD student) has won the best poster prize at the ASP/WAAVP in Perth! With such a success Vicki is now going to Spain to advance her bioinformatics & command line skill in the lab that gave us Blast2GO. In August a new PhD student **Shannon Donahoe** started to unravel the mysteries of *Neospora* cyst formation in our fat-tailed dunnart model.

Around WAAVP, two eminent scientists visited the McMaster Building and gave a seminar at the Faculty. **Julie Fitzpatrick**, Director of Moredun Research Institute and CEO of The Moredun Group Pentlands Science park, Scotland gave a talk on food security. **John Dalton**, Queens' University Belfast, Northern Ireland gave a talk on virulence, tissue invasion and immune modulation. The Faculty and students welcomed the opportunity to discuss their projects with the researchers. Thanks Julie and John!

In collaboration with **Rachael Gray** and **Damien Higgins** (both Faculty of Veterinary Science) we have worked on understanding parasitism in Australian sea lions. **Ben Haynes** (Honours student) has done thorough work on understanding how parasite biology relates to female site fidelity. **Alan Marcus** (PhD student) is close to evidencing the high mortality of the pups. Both are heading to South Australia one more time to collect more samples and later in the year to present their work at the

20th Biennial Conference on the Biology of Marine Mammals.

Finally, **Andrea Lawrence** (Honours student) has finished her work on cat fleas. She developed genotyping tools that allowed her to genotype *Ctenocephalides* cf. *felis* from Australia, Fiji and Thailand as well as the Seychelles. Australian cat fleas are puzzling, with very skewed diversity! (soon to be published). Well done and all the best on your future endeavours.

Last but not least, Jan's latest favourite book is by James D. Watson "Avoid Boring People: Lessons from a Life in Science". In his usual laid back but slightly controversial style he delivers some topical agendas from a scientist's life. While I do not agree with all of it, it was inspirational to read it. It is not too late, ask Santa to get it for you!

Dave Emery and **Ian Beveridge** (UMelb) are still grinding onwards with the parasitology e-textbook, constantly haranguing colleagues for completion of chapter refereeing. David's PhD student, **Mariana Gomes Nogueira** submitted her thesis on enteric vaccination against *Lawsonia* (not a parasite!) along with 2 accepted papers on her work.

University of Western Sydney

Colin Stack is currently in on a sabbatical trip to Queen's University where he is spending some time in **Mark Robinson's** laboratory as well as spending time in **John Dalton's** laboratory who has just recently moved to Queen's from McGill University. **Leah** is back in the lab at UWS hopefully working hard.

Queensland

University of Queensland

School of Chemistry and Molecular Biosciences

Staff and students had a great time at WAAVP in Perth. Good to catch up with international colleagues. Looking forward to ASP-50 in Canberra next year. Hope it is momentous! **Peter O'Donoghue**, **Tom Cribb** and **Steve Barker** are in the midst of teaching (parasitology, marine biology and genetics) but with an occasional trip thrown in to preserve sanity. POD has finished his decadal survey for enteric and blood protozoa of reptiles (lizards, snakes and tortoises), birds and rodents. Many novel coccidian morphotypes have been detected and are slowly being described. Most haemoprotozoa detected have previously been described either locally or offshore.

POD's PhD students are close to finishing: **Linda Ly** is finalizing her collections of parabasalid flagellates from termites in SE Queensland and is conducting ultrastructural studies to determine organelles of energy transduction; **Veronica Zhang** is finishing her analyses of novel therapeutics against *Plasmodium falciparum*; and Rebecca Dunne is writing up her bioinformatics chapters on *Trichomonas vaginalis*.

UQ-QAAFI and DEEDI Applied Biotechnology Livestock Group (UQ St. Lucia Campus Brisbane)

With the completion of her Poultry CRC project, **Rosie Godwin** has come to the end of her contract with DAFF in the Cocci group. Fortunately she has found a

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new position working with **Peter James** and **Diana Leemon** in UQ-QAAFI in the Integrative Pest Management group at the Eco-Sciences Precinct. Rosie and **Jess Morgan** have been busy writing up a new chicken *Eimeria* diagnostic assay which will soon be published and Jess has been preparing a manuscript for an Acta Tropica special supplement on screwworm and tsetse flies.

Bronwyn Venus has started working with us (**Ala Lew-Tabor** and Jess) to finalise some tick fever genotyping methods in collaboration with the Tick Fever Centre and with the Qld State Government.

Manuel Rodriguez Valle has been at the US Department of Agriculture with Dr Felix Guerrero on a 3 month OECD fellowship undertaking collaborative cattle tick research. PhD candidate **Tao Xu** is busy expressing cattle tick proteins in yeast and will soon be finished in the lab and focused on completing his thesis. We welcome **Tom Karbanowicz** (Biotechnology Honours student) to the team who is commencing research into paralysis tick. PhD candidate **Greta Busch** is busy making paralysis ticks spit and so far has collected over 100 ticks during this tick season! **Eric Dover** is close to finishing his Honours on paralysis tick toxin expression. **Yusra Nordin** is also finishing up her Honours on genetically characterising species of *Campylobacter*. On the cattle tick front - we are soon commencing trials to screen vaccine antigens. It's all about ticks, ticks and more ticks. On that note we all returned from WAAVP 2013 with several ticks and tick posters – it was a great conference!



Happy faces on the bus ride to the Perth zoo for the 2013 ASP AGM.

Queensland Museum

Earlier this year **Ricky Gleeson** (principal supervisor **Rob Adlard**) was awarded his PhD for a morphological and molecular study on the taxonomy, systematics and biology of myxosporean parasites of sharks and rays – congratulations to Rick. While **Holly Heiniger** (also supervised by Rob Adlard) submitted her PhD thesis and, while waiting for assessor's reports, is teaching English at a school in Shenzhen, China - something of a different experience from her work on bivalvulidan and multivalvulidan myxozoans of coral reef fishes.

Marissa McNamara joined Rob Adlard at the Museum this year, initially to enter data on Australian myxozoan parasites into the Australian Faunal Directory which provides the lexicon for entries into the Atlas of Living Australia (i.e. museum data on-line). Marissa is now working on a project funded by FRDC and federal DAFF (now AGDA) called *Neptune* – a web-based tool aimed at enhancing Australia's Aquatic Animal Health biosecurity which has a database of 'occurrences' of diseases, a fabulous 'Google Earth' type digital histological slide collection of significant diseases, and a 'community space' through which webinars are run each month.

In July, **Rob Adlard** arranged for the Museum to exhibit the Parasites in Focus images, launched in concert with the Eskitis Institute (Griffith University) Living Colour photography competition winners. It was a gala evening event with wine and food and **Prof Denise Doolan**, as President, welcomed guests on behalf of the ASP. Rob and **Kathy Andrews** (Eskitis) completed the full set of the Executive of the Society in attendance at the launch.

James Cook University

Cairns Campus, Queensland Tropical Health Alliance

After the hottest Queensland September on record, a few QTHA members have decided

to get out of town for a while. **Annette Dougall**, who has been working for **Alex Loukas** since 2010 on human hookworm and schistosomiasis vaccines, has received a two year BelpD-COFUND postdoctoral fellowship through the University of Liege, Belgium. She will be joining Dr Benjamin Dewal's group within the Immunology and Vaccinology laboratory where they plan to develop and assess a mouse co-infection model for *S. mansoni* and gamma-herpesvirus. Annette will be leaving the warm tropical conditions of Cairns in mid December to be plunged into the cold darkness of Belgium, where she will stay warm by drinking Belgium beer and eating pearl sugar waffles.

Rob Walker, working with **Nick Smith**, has just recently (September) begun a one year posting at the Institute of Parasitology, University of Zurich, funded by a Swiss Government Excellence Scholarship. Working with Prof. Adrian Hehl and Prof. Peter Deplazes, he will continue an on-going collaboration that focuses on identifying novel vaccine candidates against the feline, sexual stages of the human protozoan parasite, *Toxoplasma gondii*. Rob has reported that the temperature in Zurich is sneaking below 10°C everyday now and Winter is still officially 8 weeks away so it's fun and frosty times ahead!

Mark Pearson, also from Alex Loukas' laboratory, has received an ASP travel award to do some research in Philip Felgner's laboratory at the University of California, Irvine. He will spend a month in (hopefully) sunny California extending his helminth protein array research by comparing some new array construction technologies.

Townsville Campus, Marine Parasitology Laboratory

Members of the Marine Parasitology Laboratory thoroughly enjoyed the scientific and social aspects of the 2nd Fisheries Research and Development Corporation Australasian Aquatic Animal Health Scientific Conference in Cairns in July. PhD student **Thane Militz** presented his work on the efficacy of garlic extract in managing

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fish ectoparasites, while Masters student **Alejandro Trujillo Gonzalez** spoke of differences in epithelial pathology of fish microhabitats infected with the skin fluke *Neobenedenia*. Congratulations to PhD student **Alexander Brazenor** who received the student prize for his paper on the effects of temperature and salinity on the life cycle of *Neobenedenia*. Well done Alex! **Kate Hutson** presented on the survival strategies of monogenean ectoparasites while **Terry Miller** spoke about his progress towards his current research project on integrated parasite and disease management strategies for finfish aquaculture in tropical north Queensland. Special topic student, Amy Folkes, also presented her research on spirorchiid parasites at the 2013 Sea Turtle Health and Rehab Workshop held in Townsville in July.

Thane's recent publications on the efficacy of garlic in reducing ectoparasite infections on fishes have received considerable attention in the media with reports by Australian Geographic, Science Alert, and a radio interview with ABC Far North Queensland.

New arrivals: The Marine Parasitology Laboratory welcomes two new PhD students. **Giana Gomes**, supervised by Kate and Terry, for her research on parasites of farmed freshwater barramundi. Giana has enthusiastically launched into her research work with field trips to barramundi farms and exciting preliminary molecular analyses which indicate she will be able to detect sources of protozoan parasites in the environment. We also welcome new PhD student **Conni Sidabalok** (commencing October 2013) who will be supervised by Kate and **Niel Bruce** (Museum of Tropical North Queensland) for her research on isopods. We also welcome **Eleanor Leia Saunders**, born at 0900 on the 26th August (9lbs 1 oz), which can explain Kate's absence at the annual ASP conference this year. However, there is no doubt that Eleanor is keen to come along to the ASP conference with Kate in Canberra in 2014!

Central Queensland

University

Central Queensland University's sole surviving ASP member, **Leonie Barnett**, is still working on publications from her thesis and thinking about research life after the PhD (awarded at the end of last year). She is toying with the idea of testing out the idea of using snail parasites as biomonitors; with the port of Gladstone just down the road, it's the perfect opportunity to compare healthy and affected ecosystems.

Tasmania

University of Tasmania

It has been a very busy few months for the Tasmanian ASP members. A number of members have attended conferences, forums and workshops, visited overseas laboratories as well as conducted a number of state outreach events.

2nd FRDC Australasian Aquatic Animal Health Scientific Conference, Cairns, Australia 8-12 July 2013

In July the University of Tasmania's Aquatic Animal Health group headed by **Prof Barbara Nowak** attended the 2nd FRDC Australasian Aquatic Animal Health Scientific Conference held in Cairns. The conference was also attended by ASP members **Dr Melanie Leef**, **Melissa Beata Martin**, **Megan Stride**, **Victoria Valdenegro** and **Ylenia Pennacchi**. Dr Leef presented results from her current research project which involves the use of an in vitro gill preparation to investigate gill function in salmon affected with Amoebic Gill Disease (AGD) and Melissa gave a presentation about her research on fish parasitic "tongue-biters" in Australia. Victoria, who travelled

to Cairns directly from another conference in Spain (see details below), presented her research on the mucosal immune response of fish vaccinated against AGD while new PhD student Ylenia presented results from her first experiment which investigated immune gene expression in AGD affected Atlantic salmon. Megan presented her research on novel Chlamydia-like epitheliocystis agents in Australian farmed kingfish, striped trumpeter and barramundi and won the conference award for best student presentation.



University of Tasmania's Aquatic Animal Health group headed by Prof Barbara Nowak at the 2nd FRDC Australasian Aquatic Animal Health Scientific Conference held in Cairns earlier this year.

16th International Conference on Diseases of Fish and Shellfish (European Association for Fish Pathology Conference) Tampere, Finland September 2-6 2013

Prof Barbara Nowak and **Megan Stride** attended the 16th International Conference on Diseases of Fish and Shellfish in Tampere Finland in September. The conference in Finland covered a lot of fish parasitology, mostly related to the host, but also life cycles and aspects of parasite biology and taxonomy. It was also a great opportunity to catch up with former PhD students and ASP

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members, including **Dr Melanie Andrews** (currently Norwegian Veterinary College, Norway) and **Dr Nicole Kirchhoff** (currently Totally Pelagic, USA). Prof Nowak organized and ran a workshop on Amoebic Gill Disease (AGD), which attracted a lot of interest as the disease is reported from more geographical locations and host species. Prof Nowak also contributed two oral presentations, including one co-authored by **Mark Polinski**, **Dr Sho Shirakashi** and **Dr Andrew Bridle** on host-parasite interactions in blood fluke infections in Pacific Bluefin Tuna. This paper is a result of her collaboration with Dr Sho Shirakashi from Kinki University, who is currently hosting PhD student and ASP member **Ylenia Pennacchi** who is following up the work presented at the conference. As well as presenting both an oral and poster presentation at the conference, student ASP member Megan Stride also attended the European Society for Clinical Microbiology and Infectious Diseases (ESCMID), postgraduate workshop on Intracellular Bacteria, in Villar-sur-Ollon Switzerland. To attend both the workshop and conference, Megan received travel support from the University of Tasmania, the Fisheries Society of the British Isles, and the Australian Biological Resources Study. In addition, she also received fee waivers from ESCMID and European Association for Fish Pathology (EAFP). After the conference Nicole also visited Stirling University and met with the Fish Vet Group, Inc. about collaborative projects in the future.



Tasmanian ASP members Prof Barbara Nowak (second right) and Megan Stride (far left) catching up with Dr Melanie Andrews (far left) who is now based in Norway and Dr Nicole Kirchhoff (second left) who is based in the US at the European Association for Fish Pathology Conference

in Finland. Melanie and Nicole completed their PhDs with Barbara, while Megan who will graduate in 2014 is one of Barbara's current students.



Student ASP member Megan Stride visiting the Australian War Memorial during the National Student Leadership Forum (NSLF) held in Canberra.

1st International Conference of Fish and Shellfish Immunology Vigo Spain 25-28 June 2013

PhD students **Victoria Valdenegro**, **Catarina Norte dos Santos** and **Mark Polinski** and **Prof Barbara Nowak** presented their research at the 1st International Conference of Fish and Shellfish Immunology Vigo Spain 25-28 June 2013. While the conference focused on immunology of aquatic animals, there were quite a few papers addressing immune response in parasitic diseases, including a number of papers on myxosporean infections. Mark also visited Laboratory of **Dr Simon Mackenzie** at the Autonomous University of Barcelona where he gained specific insights into his current research with blood related parasites and the potential for febrile responsiveness in fish, as well as on other matters concerning individual variation within populations and epigenetics. Mark hopes to utilize the knowledge that he gained to further investigate host-parasite interactions between *Cardicola* blood fluke species

and the economically important Southern Bluefin tuna reared here in Australia.

Whilst in Europe, Victoria and Catarina travelled to Portugal to visit the Institute for Molecular and cell Biology in the city of Porto and more specifically the Fish Immunology and Vaccinology area under the supervision of **Dr Nuno Santos**. This laboratory works on host-pathogen interaction using fish as host model. They have contributed in sequencing and characterizing important molecules involved in the immune response in sea bass (*Dicentrarchus labrax*) against bacteria and parasites. Prior to the conference Catarina also visited **Prof Erling O Koppang's** laboratory at the Norwegian School of Veterinary Science in Oslo, Norway. Whilst there Catarina completed some immunostaining of gill histology using non-commercial antibodies that were developed by Prof Koppang's research group. Collaboration with Prof Koppang is continuing. Catarina received international travel support from the Fisheries Society of the British Isles (FSBI).



Tasmanian ASP members Victoria Valdenegro (front – second left), Mark Polinski (back), Barbara Nowak (second right) and Catarina Norte dos Santos (far right) at the 1st International Conference of Fish and Shellfish Immunology conference dinner in Spain.

Europharma Lofoten Seminar

Prof Barbara Nowak was an invited keynote speaker at the annual Lofoten Seminar organized by Europharma in June. She presented an overview on Amoebic Gill Disease. The seminar was attended

by 120 people, including representatives of aquaculture industry from Norway and Scotland. Most presentations were industry focused and the social program included sea fishing. The seminar was a great opportunity to network and visit beautiful Lofoten Islands.

2013 Canberra National Student Leadership Forum

In June this year student member **Megan Stride** attended the National Student Leadership Forum (NSLF) held in Canberra at the end of a parliamentary sitting week. Megan was one of only two students to be selected by the Australian Maritime College (AMC) to attend the 2013 Forum which provides an opportunity for the emerging generation to discuss the significance of faith and values as foundations for effective leadership. Megan spent time in Parliament, at the Australian War Memorial and volunteering at a local school for an afternoon. Despite her busy schedule, Megan has also had two papers published recently. These articles were from her current PhD research and have been published in the *Journal of Fish Diseases and Applied and Environmental Microbiology*.



Student ASP member Megan Stride visiting the Australian War Memorial during the National Student Leadership Forum (NSLF) held in Canberra.

Other News

Congratulations to **Dr Clare Smith** from the Menzies Research Institute who is now working as a postdoc at the UMass Medical School in the US. Clare has made a sidestep from parasitology and moved into the world of bacteria and is now working with TB to examine the host-pathogen interface with **Assoc/prof Chris Sassetti**. We wish Clare all the best with her future research.

Dr Melanie Leef received a University of Tasmania professional development award to attend the Micromon Recombinant DNA techniques course to be held at Monash University in December. Dr Leef and student members **Melissa Beata Martin**, **Kingsley Tam** and **Melissa Ting** also recently attended the joint ASP/WAAVP conference in Perth.

Laura Gonzalez began a new part of her PhD research back in Chile on March 2013, and she continues her work overseas in this project. This work involves the temporal characterization of amoebic gill disease (AGD) outbreaks in relation to sea lice *Caligus* spp outbreaks and co-infections with Piscirickettsiosis and ISAV on farmed salmon. She will be comparing these results with similar studies obtained in Tasmania. She has been carrying out sampling in salmon farms in Chiloé Island, and analyzing samples at the Virology Unit at the Universidad de Santiago, under the supervision of **Dr. Ana María Sandino** and **Dr Marcelo Cortez-San Martín**. Additionally, she has been doing some histology work at the Ecology Department at Universidad de Católica de Chile with the help of **Ms Verónica Flores**.

She has also participated in a workshop entitled "Dinámica poblacional de *Caligus rogercresseyi* en centros de cultivo de salmónes y estrategias de control" (Population dynamics of *C. rogercresseyi* in salmon farms and control strategies). This was a winter course offered by I-Mar Centre at Universidad de Los Lagos in Puerto Montt. Before starting her PhD at UTas, Laura used to work at this university where she was one of the first people that

worked on *Caligus* outbreaks in salmon farms back in 1992. She published several scientific papers on this topic.

Victoria

University of Melbourne

Ian Beveridge in China

Emeritus Professor Ian Beveridge, as an invited lecturer in parasitology, has recently travelled second time to China to teach a postgraduate course in the Veterinary School, Hua Zhong Agricultural University, Wuhan.

Hua Zhong Agricultural University was used to be an agricultural university but now offers a full range of courses and has about 15,000 students. The university is situated out of the city on the banks of the South Lake.



The main square of Hua Zhong Agricultural University, Wuhan

"The class consists of Chinese students undertaking postgraduate courses in parasitology as well as foreign students, mainly from Pakistan and Africa (last year we had a student from PNG) who are studying various topics but who come because the lectures are in English rather than in Chinese!" said Ian.

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This teaching experience gave me an opportunity to share my knowledge and experience with future parasitologists and learn Chinese culture as well as practice my Mandarin, added Ian.

Marshall Lightowlers' expedition to developing countries

The past few months have included quite a bit of international travel for **Professor Marshall Lightowlers**. For a description and photographs of Marshall's expedition, please turn to the spread earlier in this newsletter.

Walter and Eliza Hall Institute

Congratulation to **Professor Alan Cowman** from Walter and Eliza Hall Institute who has recently been awarded the 2013 Victoria Prize for Science and Innovation in the life sciences for his outstanding contribution to a human deadly disease 'malaria'.

Professor Cowman received the prize (\$50,000) from the Victorian Minister for Innovation The Hon. Louise Asher MP in an awards ceremony at Parliament House, Victoria.

NHRMC Project Grants 2014

In the recent outcome of NHMRC research grants for 2014, Victorian scientists won 11 projects of worth \$6,448,906. A list of successful projects is given below.

Monash University

CIA - Prof Christian Doerig

CIB - Doctor Teresa Carvalho

CIC - Prof Andrew Tobin

Functional characterisation of the essential

Aurora kinase family in the human malaria parasite Plasmodium falciparum
\$494,838

CIA - Doctor Sheena McGowan

CIB - Prof Peter Scammells

Targeting the Plasmodium falciparum

Metalloaminopeptidases for Development of New Antimalarial Agents

\$546,894

The Macfarlane Burnet Institute for Medical Research and Public Health Ltd

CIA - Doctor Freya Fowkes

CIB - A/Prof Julie Simpson

CIC - Prof Francois Nosten

Human malarial immunity and assessment of emerging artemisinin resistance

\$302,647

CIA - Prof Brendan Crabb

CIB - A/Prof Travis Beddoe

CIC - A/Prof Tania de Koning-Ward

CID - Doctor Paul Gilson

The structural resolution of PTEX, the translocon of virulence proteins and malaria parasites.

\$542,562

The Walter and Eliza Hall Institute of Medical Research

CIA - Doctor Seth Masters

CIB - Doctor Christopher Tonkin

Regulation of toxoplasma by the NLRP1 inflammasome

\$602,562

CIA - Prof Alan Cowman

CIB - Doctor Neta Regev-Rudzki

CIC - Doctor Danny Wilson

The role of exosome-like vesicles in cell-cell communication between P. falciparum-infected red blood cells

\$607,484

CIA - Doctor Diana Hansen

CIB - Prof Daniel Schofield

Understanding the development of humoral immunity to malaria merozoites
\$621,894

University of Melbourne

CIA - Prof Malcolm McConville

CIB - Doctor Fiona Sansom

Identifying metabolic pathways in Leishmania parasites and their host cells required for virulence

\$950,744

CIA - Prof Leann Tilley

CIB - Prof Philip Rosenthal

CIC - Doctor Arjen Dondorp

Elucidating the mechanisms of action of and resistance to endoperoxide antimalarials

\$693,458

CIA - Prof Stephen Rogerson

CIB - A/Prof Anthony Jaworowski

Wrong parasite, wrong host? How Plasmodium falciparum erythrocyte membrane protein 1 expression and the hosts innate immune response combine to influence the inflammatory response to malaria in vitro and in vivo. Implications for severe malaria

\$683,712

CIA - Prof Robin Gasser

CIB - Prof Patrick Tan

Global molecular exploration of liver fluke
\$402,111

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