

WALKING THROUGH WALLS

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2017 ASP Conference - the
early bird catches the worm
Strategic Planning Review
Name the Fellows
New species of Australian tick
Parasites: Friends Without
Benefits (Part 2)
Jobs in the UK and US
Brian's fruit scones
and more...



ASP

BLUE MOUNTAINS

2017

JUNE 26TH - 29TH

THE FAIRMONT RESORT, LEURA, NSW



DON'T MISS OUT

**EARLY BIRD REGISTRATION
& ABSTRACTS DEADLINE
IS 13TH APRIL 2017**

PARASITE.ORG.AU/2017CONFERENCE

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Dear Members,

As rains deluge the eastern coast and the warm summer nights finally depart from Sydney, I also spare a thought or two for parasite epidemiology. So

I am inspired to parasitise these opening pages of this Newsletter, again fecund with items of immediate and personal interest to members. I contemplate what a bumper season it has been and will be forthcoming for our parasite friends, their vectors, their survival and persistence! A wonderful paralysis tick season, particularly down at the "Concepts in Parasitology" course at Kialoa with all those 'roos. From a parasite perspective, the only cloud on the horizon is the ability to kill ticks in 24h with these infuriatingly successful isoxazolines before they can produce toxin: tough on parasites and veterinary business perhaps?

But getting back on track, this newsletter provides an overview of the recent MTM, strategic planning and parasitology education meetings held in February. For the latter, an initial step was to form a Strategic Advisory Committee (SAC) to progress initiatives for national veterinary parasitology teaching- to be extended into medical parasitology once we convince them to teach more of it!

The ASP 2017 conference at Leura is highlighted in this issue. The program outline and accommodation/ events available on the website <http://parasite.org.au/2017conference/program/>. Please add to your plans for June 26-29, enlist your new students into the Society and plan your presentation(s) as **"Early Bird" registrations end on 13th April**. This is deliberately and undeniably an **Industry-led meeting**, thanks to our industrial and industrious members who have invited prominent keynote speakers to lead a very exciting mix of industry perspectives for parasitology research and careers along with our usual fun social events. So, this



ASP Annual Conference program has an outstanding mix of quality international and Australian speakers, including: **Carol Sibley** (University of Washington, USA), **David Sibley** (Washington University in St Louis, USA), **Jacqueline Matthews** (Moredun Research Institute, UK), **Ron Kaminsky** (Drug Discovery and Parasitology, Germany), **Christopher Cleveland** (University of Georgia, Athens, U.S.A.), **Norbert Mencke** (Bayer Animal Health, Germany), **Christian Epe** (Merial, USA), **Vern Bowles** (Hatchtech, Australia), **Aleta Knowles** (Virbac, Australia), **Graham Robertson** (Concord Repatriation General Hospital), **Harsha Sheorey** (St Vincent's Hospital), **Andreas Latz** (Novatec Immunodiagnostica, Germany), **Barry Hosking** (Elanco Animal Health), **Andrew Thompson** (Murdoch University), **Stephanie Godfrey** (University of Otago, N.Z.), **Kevin Saliba** (Australian National University), **Brian Cooke** (Monash University), **Andrew Kotze** (CSIRO), **Peter Rolls** (Biosecurity Queensland), **Abdul Jabbar** (University of Melbourne), **Giel van Dooren** (Australian National University), **Tom Burkot** (James Cook University) and **Jan Slapeta** (University of Sydney). Several will also host the ECR breakfast. So be there!!

From the President's desk continued

As usual, there is a long list of wonderful contributions of members and their exploits in the **outreach and network events and State events**. Thanks to each of our **State reps and Lisa and Nick** for the absolute pleasure and excitement of this suite of public engagements. Also listed are **journal highlights** and list of articles published by ASP members in IJP, IJPDDR and IJPPAW. In addition, each of our

journals has new social media accounts for signing up and following. And of course, "jobs and growth" (of events and members).

And congratulations to all our **grant winners** for 2017.

Don't forget to check your email boxes- **annual memberships are due NOW!**

Please read on- this is the appetitif!

David Emery on behalf of the Executive

www.parasite.org.au
www.facebook.com/ASParasitology
www.twitter.com/AS_Para

Notices

Shokoofeh Shamsi on a new society promoting Australian-Japanese collaboration

Shokoofeh Shamsi would like to bring your attention to the establishment of the Japan Society for the Promotion of Science Alumni Association in Australia (JSPSAAA) by the Australian Academy of Science.

If you are doing any research collaboration with Japan please consider joining the society. The purpose of the society is to engage Australian scientists with past, current or possible future collaborative links with Japan to enhance the strong bilateral science and research relationship between the two countries.

For further information please see:

<https://www.science.org.au/supporting-science/other-initiatives/japan-society-promotion-science-alumni-association-australia>

or contact your state/territory reps as specified in the website. Shokoofeh Shamsi from Charles Sturt University is representing NSW and ACT members.

Kathy Andrews' of Griffith University is writing a book for children and is seeking input from ASP members.

The ASP is proud to support a new outreach initiative led by ASP member Prof Kathy Andrews at Griffith University in Brisbane.

The project is called "That's RAD! Science" and the aim is to bring science, technology, engineering and mathematics (STEM) careers alive for children through simple and engaging real-life stories. This will involve creating a series of illustrated books targeted to children in Grade 1-3 that showcase Queensland women in STEM and their exciting fields of research. The books will be written with education experts to ensure alignment with the

Australian curriculum wherever possible. Books will be distributed free to schools around Queensland. The first book will be authored by Kathy and will focus on parasites.

Kathy is seeking input from ASP members in the form of quiz questions that may be used for the book and/or an associated Web page that is currently under construction. Please send child-friendly multiple choice questions on any area of parasitology to thatsradscience@griffith.edu.au and make sure to include the correct answer!

Prizes and Awards

Success at the Lang Lang show for Brian Cooke

Monash University's Professor Brian Cooke was the toast of the Lang Lang Agricultural Show in Victoria this February, receiving First Prize for his delicious fruit scones.



Queensland Emerging Science Leader

Queensland Deputy Prime Minister Jackie Trad MP and Queensland Chief Scientist Professor Suzanne Miller, have commended James Cook University's Dr Paul Giacomini, the state's inaugural Emerging Science Leader

On 23rd March, Queensland Deputy Premier Jackie Trad announced Cairns scientist Dr Paul Giacomini as the state's inaugural Emerging Science Leader in recognition of his science advocacy and research into coeliac disease.

Speaking at a Queensland science gala tonight, Ms Trad said Dr Giacomini was an accomplished immunologist from the Australian Institute of Tropical Health and Medicine at James Cook University.

"Dr Giacomini is highly regarded for his coeliac disease research and has demonstrated a great talent for sharing the wonders of science. He is a worthy recipient of the inaugural Emerging Science Leader award," Ms Trad said.

"He is currently studying parasitic worms to understand what they release into the body to balance our immune systems, so he can help the 250,000 Australians who suffer from coeliac disease.

"He is a 2016 Queensland Young Tall Poppy Award winner and Advance Queensland Research Fellow, and actively works with the community and media to explain the wonders of science."

Science Minister Leeanne Enoch said Dr Giacomini's role as an Emerging Science Leader would be to advocate for Queensland science and highlight the

achievements of scientists across the state.

"A passionate scientist, Dr Giacomini will promote the wonders of science to all Queenslanders and inspire emerging



scientists to continue with their work," Ms Enoch said.

"His enthusiasm for science is infectious and will hopefully spark the imagination of children in Queensland communities, encouraging them to pursue science careers."

Queensland Chief Scientist Professor

Suzanne Miller said the role would also support her as an ambassador for Queensland science.

"The selection of Dr Giacomini as Emerging Science Leader is excellent for Queensland science and will help us to achieve our vision of a Queensland population that engages in, and recognises, supports and advocates for, science," she said.

Dr Giacomini was involved in last year's National Science Week, visiting Trinity Beach State School and will continue to engage Queenslanders in science to help raise awareness of the great science being undertaken across Queensland.

The Emerging Science Leader was selected by a panel of senior government executives from the 39 current Advance Queensland Research Fellows, and his selection was based on a criteria which included research achievements and passion for communication and science engagement.

The award was presented at the Queensland Science Reception which was held to coincide with the World Science Festival Brisbane from 22-26 March.

Source: <http://statements.qld.gov.au/Statement/2017/3/23/deputy-premier-commends-inaugural-emerging-science-leader>

Image courtesy of the [Centre for Biodiscovery and Molecular Development of Therapeutics](#).

A new species of Australian tick

Dr Amanda Ash and colleagues at Murdoch University researchers have discovered a new species of Australian tick, but believe it may be facing extinction because of its strong preference for critically endangered woylies.

Members of the Parasitology research team, collected ticks from the two remaining woylie populations in south western Australia. They found 42 per cent of the woylies with ticks hosted the new species, named *Ixodes woyliei*. The team also sampled the ticks found on 268 other marsupial species living within the same areas as woylies like brushtail possums, western quolls and southern brown bandicoots, and only found the new species of tick on two of the animals.

This is the first new Australian *Ixodes* tick species described in a scientific journal for more than 50 years.

The woylie, also known as the brush-tailed bettong, is an extremely rare small marsupial that is endemic to Australia. It once inhabited more than 60 per cent of the Australian mainland.

Murdoch researchers have been studying woylies for the last ten years, prompted by a population crash. Parasite infections were considered to be a possible contributing factor to their decline and so comprehensive data on woylie parasites were collected.

Dr Ash found the new species is less likely than other species of tick to be a vector for blood parasites, which have been implicated in the recent declines of woylies. However, she said more research was

required to understand the importance of the new tick for its marsupial host.

"When considering the critically endangered status of woylies, having undergone a 90 per cent decline in seven years, and the apparent host specificity of *Ixodes woyliei*, there is a very real risk of a future co-extinction event," she said.



"As such, it is important to understand more about this host-parasite relationship. Our native species carry many native parasites like ticks, internal worms and blood parasites, which can have a conservation value for that species. Parasites can influence the behaviour of hosts, regulate population sizes and act as ecosystem engineers. So parasite extinction may have important impacts on

how an ecosystem functions and can affect biodiversity."

Dr Ash said the preference of *Ixodes woyliei* for woylies could be explained ecologically.

"Woylies utilise several nests, normally located under grass trees, and transmission of ticks could be confined to these sites," she said. "If the ticks detach, develop and relocate to another host within these nests, it is easy to understand why they seem to be found mostly on woylies."

But she added the tick species could also face extinction through translocation events.

"Woylies are currently the focus of intense conservation management strategies involving the frequent and wide scale translocation of the species across Australia. Some translocation protocols involve treatment for parasites, with ticks eliminated," she explained.

"If hosts are not treated, the ability of the tick population to establish itself is reliant on the number of ticks and hosts translocated and the suitability of the new habitat for survival during its off-host development.

"We found *Ixodes woyliei* hosted by woylies at Karakamia Wildlife Sanctuary, suggesting these ticks can survive translocation under

the right conditions. But more research is required to understand this relationship fully."

The study by Dr Ash and colleagues was published in the journal *Parasites and Vectors*.

Story and image of a Woylie kindly supplied by Murdoch University.

An interview with Amanda Ash



Amanda Ash is an affiliate researcher at Murdoch University and researches parasitic infections in a wide range of hosts, including humans, domestic animals and wildlife. With fellow researchers Aileen Elliot, Stephanie Godfrey, Halina Burmej, Mohammad Yazid Abdad, Amy Northover, Adrian Wayne, Keith Morris, Peta Clode, Alan Lymbery and R. C. Andrew Thompson, Amanda discovered a new species of tick (*Ixodes woyliei*). Amanda Ash talks to Lisa Jones.

L: Amanda, tell us about your research on *Ixodes* and how excited you were by your discoveries.

A: Firstly this discovery was very much a collaborative effort (as you can see by the author list!). Quite a few years ago now researchers within the group came across what they thought was a new tick within the genus *Ixodes*. However, the process of describing a new species is quite a complex process so this 'discovery' remained unconfirmed for many years. It wasn't until we were able to obtain genetic information from this tick that we could start to be confident. Even then it required obtaining genetic information from a range of other known *Ixodes* sp. so that we had something to compare to. Information currently available on genetic databases is largely confined to those *Ixodes* species which are pathogenic to us or our animals - wildlife ticks just don't feature. But once we had enough data to construct a phylogenetic tree and it became clear that we had a new species it was magic!!!. Aileen Elliot then got very busy completing the taxonomic description!

How did you become interested in studying *Ixodes*?

My interest in this really came about by being able to employ my skills in molecular biology to answer this long held query about this tick. I've had experience in genotyping various endoparasites but never ectoparasites so this was a new challenge. And then when it became clear that there

was so little genetic information available for Australian ticks it became even more exciting and relevant.

Amanda, why it is so important to study parasites like *Ixodes* and what more can we learn about them?

Ticks are hot right now! - particularly as a vector of disease - yet we know so little about many of the species infecting our wildlife. This discovery was only possible through the long term research undertaken on its wildlife host, the Woylie, a marsupial which has undergone dramatic population declines. So now we know we have a new tick and that it really only likes one particular host, who happens to be critically endangered, and this raises more questions. Why is this tick so loyal to this host? Is it purely a function of ecology, or is there something more to it? Why can't this tick jump ship and find a new host, rather than run the risk of extinction? What is it about the woylie?

"Ticks are hot right now! - particularly as a vector of disease - yet we know so little about the species infecting our wildlife"

The research team named this new tick after the host, the Woylie. Tell us more about this decision.

As mentioned this tick is almost exclusively found on the Woylie a small critically endangered marsupial found in southwest WA. Several other animals living alongside the woylie were also trapped and ectoparasites were collected but besides one quenda (bandicoot) this new tick species was only ever found on the woylie. It made sense then to name it *Ixodes woyliei*, after its host. Woylie is also the Aboriginal name given by the Noongar people who live in the south-west corner of Western Australia, where the woylie and this tick are found. So there are some nice parallels with the host, the region and the local indigenous people.

What do you see as the future for this new tick species?

This is a really important discovery; we now have a new tick which has a high predilection for a critically endangered host - and, we think, the possibility of a future co-extinction event. We have recently been contacted by a committee member of the IUCN (International Union for Conservation of Nature) to see if we would be interested in adding this species to the IUCN Red List of Threatened species. Very few parasites would be on this list so it's great to see the international community recognising the less charismatic species!

Ash A, Elliot A, Godfrey S, Burmej H, Abdad MY, Northover A, Wayne A, Morris K, Clode P, Lymbery A, Thompson RC. Morphological and molecular description of *Ixodes woyliei* n. sp. (Ixodidae) with consideration for co-extinction with its critically endangered marsupial host. Parasit Vectors. 2017 Feb 7;10(1):70. doi: 10.1186/s13071-017-1997-8. PubMed PMID: 28173840; PubMed Central PMCID: PMC5296950.

Download a copy of this publication
<http://parasitesandvectors.biomedcentral.com/articles/10.1186/s13071-017-1997-8>

How malaria parasites walk through walls

Researchers at WEHI have identified proteins that enable deadly malaria parasites to 'walk through cell walls' – a superpower that was revealed using the Institute's first insectary to grow human malaria parasites. The research has identified two parasite proteins that are the key to this superpower. The proteins could be targeted to develop much-needed antimalarial drugs or vaccines.

Dr Justin Boddey, Dr Sara Erickson and Ms Annie Yang led a team investigating how the deadly malaria parasite *Plasmodium falciparum* travels from the site of a

mosquito bite to invade human liver cells, the critical first step in malaria infection. Their findings were published today in the journal *Cell Reports*.

When a person is infected with malaria, the parasite silently invades and multiplies in liver cells, but

doesn't cause disease. The parasites then burst out of the liver and infect the blood, causing symptoms such as fever, chills, fatigue and muscle and joint pain that are characteristic of malaria.

Dr Boddey said the research confirmed the deadly malaria parasite *Plasmodium falciparum* had the ability to 'walk through cell walls' as it sought out liver cells where it could hide and multiply.

"The malaria infection cycle begins with a mosquito bite, when parasites are injected into the skin, and then rapidly moves to the liver," Dr Boddey said. "We have shown that *P. falciparum* employs a technique

called cell traversal to quickly move through host cells in their path as they seek out liver cells to infect."



"Our study identified that *P. falciparum* parasites traverse human cells – effectively walking through cell walls – using two proteins called SPECT and PLP1 to achieve this superpower. This allows parasites to get from the skin to the liver very quickly following a mosquito bite."

Malaria causes more than 650,000 deaths each year, predominantly in children and pregnant women, and there is an urgent need for new malaria vaccines and treatments in an effort to eradicate the disease.

Dr Boddey said pinpointing these proteins was a good avenue for new therapies.

"Our long-term goal is to eradicate malaria, so we have to look at ways of breaking the cycle of infection," Dr Boddey said.

"A vaccine or treatment that halts the liver-stage infection offers the best chance of eradication because it stops parasites before they take hold."

Dr Erickson manages the Institute's insectary, which was established in 2012 to enable Institute researchers to study all developmental stages of human malaria parasites.

"In the past, it was impossible to examine the earliest stages of human infection with malaria parasites at the Institute," Dr Erickson said. "The insectary enables us, for the first time, to specifically work with the parasites that initiate human infection, particularly with *P. falciparum* that is responsible for most deaths from malaria globally. We hope this will

fast track identification of potential targets for antimalarial vaccines or drugs."

This work was supported by National Health and Medical Research Council, the Human Frontiers Science Program, the Ramaciotti Foundation, the Australian Research Council and the Victorian State Government Operational Infrastructure Support Program.

Story and image courtesy Walter and Eliza Hall Institute of Medical Research

Pictured: Sara Erickson and Justin Boddey

The Malaria Vaccine Project

The Malaria Vaccine Project, aims to build on successful clinical trials of a malaria vaccine developed by Michael Good, Danielle Staniscic and colleagues at Griffith.

Researchers have shown the world-first whole blood-stage malaria parasite vaccine PlasProtecT®, tested in collaboration with the Gold Coast University Hospital, is safe and induces an immune response in humans.

Now efforts are turning to an international fundraising campaign to enable further evaluation of the vaccine in clinical trials, before researchers can shift their focus to malaria endemic countries.

The Malaria Vaccine Project, officially launched by His Excellency General the Honourable Sir Peter Cosgrove AK MC (Retd), Governor-General of the Commonwealth of Australia, aims to raise \$500,000 to get the research to the next stage through Rotary fundraising efforts.

Speaking at the Institute of Glycomics on Monday March 27, Sir Peter said the work represented Australian science and innovation at its very best.

"This is what will make a difference, a better world and save lives. It is being done in our corner of the world, for the world," he said.

The malaria project has been years in the making for researchers Professor Michael Good and Dr Danielle Staniscic who first started clinical trials in 2013 working with medical staff at Gold Coast University Hospital.

Professor Good has so much faith in a vaccine that could save millions of people that he was the first person to receive it (see picture below). As a study participant, he had to step back from his usual research role in the "first-in-man" clinical trial.



"I wouldn't ask people to do what I wouldn't be prepared to do, and we couldn't do this without the volunteers who give their time to us knowing they are helping further work towards a cure," he said.

Gold Coast Health Director of Infectious Diseases Dr John Gerrard said ground breaking collaborative research of this

type cemented the role of the Gold Coast University Hospital as a leading medical teaching and research centre in Australia.

"For the past four years eight medical specialists have provided medical oversight for the volunteers participating in the trial," Dr Gerrard said.

Dr Staniscic said volunteers, who had to attend appointments at Griffith University's

Clinical Trials Unit every two days for a month, were administered with the vaccine which consists of inactivated human malaria parasites that prevent them from growing and causing a malaria infection.

"Initially we showed that this vaccine was able to induce cross-species protection in pre-clinical trials," she said.

"We've now taken a human version of the vaccine and tested it in volunteers and shown it is safe and induces an immune response.

"This is a world first. We are the first to put a vaccine like this into humans that has potential to protect against multiple strains and species of malaria."

There are approximately 3.2 billion people currently living in malaria endemic countries worldwide and of the 500,000 sufferers who die each year,

80 per cent are young children who are simply not strong enough to fight off the killer parasite.

Rotary past district governor Graham Jones AM said Rotary's work with impregnated nets was helping in all kinds of endemic countries but an effective vaccine was sorely needed.

Malaria Vaccine Project continued



Previous page: Professor Michael Good receives PlasProtect from Dr John Gerrard at the Gold Coast University Hospital.

This page: Professor Michael Good and Dr Danielle Stanisc.

"This research could be the gateway to sustainable development of the vaccine and its use in eradicating malaria worldwide," he said.

Steve Carroll, Rotarians Against Malaria chairman for District 9670 who lost his daughter Michelle to malaria when she was 19 years old, said they were on a crusade to make malaria the

new polio for Rotary.

"She was our baby and for the first couple of years we were just devastated until we found Rotary," he said.

"People don't think of malaria as being much because we're in a nice safe country but if we can get this vaccine out there, just imagine all the lives it could save."

The next trial will test whether or not the vaccine protects people by immunising volunteers and challenging them with the malaria parasite.

To donate visit the Malaria Vaccine Project fundraising page.

For more information on how to donate to the Institute visit their website.

<https://www.griffith.edu.au/institute-glycomics/donate>

Story and photos courtesy of Griffith University.

ASP Undergraduate Prizes

Two outstanding students, Caitlin McFadden and Tiffany Furniss, were recently presented with the ASP Undergraduate Prize at Charles Sturt University.

Left: Professor Glenn Edwards, Head of School, Associate Professor Shokoofeh Shamsi (ASP member), Ms Tiffany Furniss (Animal Science student), winner of the ASP undergraduate prize and Professor Tim Wess, Executive Dean of the Faculty of Science

Right: Associate Professor Shokoofeh Shamsi, Ms Caitlin McFadden (Veterinary Science student), winner of the ASP undergraduate prize and Professor Tim Wess.





ASP

BLUE MOUNTAINS

2017

JUNE 26TH - 29TH 2017

THE FAIRMONT RESORT, LEURA, NSW

Registration and abstract submission now open.

Please visit the conference website for all the latest conference news.

www.parasite.org.au/2017conference

Please contact the Conference Coordinator, Lisa Jones by email (lisa.jones1@jcu.edu.au) or telephone +61 (0)7 4232 1311 with any queries.

Confirmed speakers include

Carol Sibley,
David Sibley,
Jacqueline Matthews,
Ron Kaminsky,
Norbert Mencke,
Vern Bowles,
Aleta Knowles,
Christopher Cleveland,
Giel van Dooren,
Tom Burkot,
Graham Robertson,
Harsha Sheorey,
Andreas Latz,
Christian Epe,
Barry Hosking,
Andrew Thompson,
Kevin Saliba,
Andrew Kotze,
Ala Tabor,
Stephanie Godfrey,
Peter Rolls,
Abdul Jabbar,
Jan Slapeta,
Shokoofeh Shamsi



Can you name these Fellows of the Society?

Senior members of the ASP will recognize the faces below immediately - all are luminaries of the Society's early years. Younger members may be less familiar with some of them.

We are continuing to add more detail to our "Fellows of the Society" pages. As they grow over the coming months, these pages should form a fascinating biographical archive of some of the leading Australian Parasitologists of the last fifty years.

If you have any suggestions for the improvement of these pages, please write to Lisa Jones at lisa.jones1@jcu.edu.au



To put names to faces and to read a brief biography of each Fellow, visit parasite.org.au/the-society/fellows-of-the-society/

The answers can also be found at the bottom of page 28 of this newsletter

News from the ASP Network for Parasitology

Welcome

Conference News

We are looking forward to this year's ASP Conference, which will take place at the Fairmont Resort in Leura in the Blue Mountains from June 26-29, 2017, starting with a welcome reception in the Ballroom of The Carrington Hotel in Katoomba. Register and submit your abstract before the early bird deadline 13th April 2017 please visit the conference website (www.parasite.org.au/2017conference) for all the latest conference news.

We have a great line-up of national and international speakers already confirmed for various exciting themes covering, as always, the full spectrum of parasitological research, including:

Plenary Lectures – Parasitology: An Industry Perspective

- Norbert Mencke (Bayer Animal Health, Germany)
- Vern Bowles (Hatchtech, Australia)
- Aleta Knowles (Virbac, Australia)

ASP Invited International Lecturers

- Carol Sibley (University of Washington, USA)
- L. David Sibley (Washington University in St Louis, USA)

Elsevier Parasitology Lecture Series IJP Lecturer

- Jacqueline Matthews (Moredun Research Institute, UK)

IJP: Drugs & Drug Resistance Lecturer

- Ron Kaminsky (Drug Discovery and Parasitology, Germany)

IJP Parasites and Wildlife Lecturer

- Christopher Cleveland (University of Georgia, Athens, U.S.A.)

Toxoplasmosis

- Giel van Dooren (The Australian National University, Australia)

Malaria Control

- Tom Burkot (James Cook University,

Australia)

Diagnostics

- Graham Robertson (Concord Repatriation General Hospital, Australia)
- Harsha Sheorey (St Vincent's Hospital, Melbourne, Australia)
- Andreas Latz (Novatec Immunodiagnostica, Germany)

Companion Animals

- Christian Epe (Merial, USA)

Aquaculture

- Barry Hosking (Elanco Animal Health, Australia)

Life Inside a Red Blood Cell

- Brian Cooke (Monash University, Australia)

Wildlife

- Andrew Thompson (Murdoch University, Australia)
- Stephanie Godfrey (University of Otago, N.Z.)

Drugs and Drug Resistance

- Kevin Saliba (The Australian National University, Australia)
- Andrew Kotze (CSIRO, Australia)

Livestock

- Ala Lew-Tabor (The University of Queensland, Australia)
- Peter Rolls (Biosecurity Queensland, Australia)
- Abdul Jabbar (University of Melbourne)

Education:

- Shokoofeh Shamsi (Charles Sturt University, Australia)

The 2017 Early Career Researcher Event has the theme "Careers with Industry" and takes place on Wednesday June 28, 2017 from 630pm at the The Old City Bank Brasserie, Katoomba.

Special conference rates for accommodation have been negotiated with both the Fairmont Resort in Leura (the main conference venue) and The Carrington Hotel in Katoomba (with some rooms that are perfect for students) and there will be a bus to transport delegates between Katoomba and Leura during the conference. We have organized one coach trip on June 26th to collect delegates

from Sydney Airport, stopping at Sydney Central Station and on to the conference venues in the Blue Mountains and a return coach trip home on the morning of 30th June 2017. The Blue Mountains is also accessible by road, train or bus.

The success of our conference is, as always, dependant on our supporters and we would like to thank sincerely the following organisations for their generous support; Elsevier Parasitology, the International Journal for Parasitology (IJP), Virbac, Bayer, Merial and Novatec.

Please contact the Conference Coordinator, Lisa Jones by email (lisa.jones1@jcu.edu.au) or telephone +61 (0)7 4232 1311 with any queries.

Network Researcher Exchange and Travel Awards

Applications for the next Network Researcher Exchange and Travel Awards round close on 29 September 2017 check the ASP website for guidelines and the application form.

www.parasite.org.au/awards/jd-smyth-postgraduate-travel-awards/

ASP Outreach

Hosts wanted for Gula Guri mayin

We are delighted to announce that Gula Guri mayin will be on display at Wagga Wagga NSW as part of National Science Week events in 2017. More details to follow.

Would you like to host our amazing science-art painting "Gula Guri mayin" by Bernard Singleton? (www.parasite.org.au/outreach/gula-guri-mayin). This art piece is currently on display, along with Parasites: Life Undercover at the Queensland Museum. We will be looking for new homes to host this beautiful piece of parasite art for periods of time greater than a month. Please contact Lisa.Jones1@jcu.edu.au if you have ideas for a suitable venue or would like further details.

Parasites: Life Undercover

Parasites: Life Undercover will be travelling to Perth as part of the Royal Show in September this year. WA members this is your chance to take your family and friends to see this awesome exhibition before it heads back to Berlin. Stay tuned for more details of this and other outreach news from Perth parasitologists.

Pint of Science

www.pintofscience.com.au

This year, Pint of Science science talks will take place in thirteen locations around Australia, 15th, 16th and 17th May 2017. In Tamworth, **Dr Peter Hart** (CSIRO McMaster Laboratory) will wow audiences with his research stories on parasitology. More details will appear on the ASP website over the next month.

If you are running outreach events, please contact Lisa with the details.

Research Grant Success

Congratulations to Australian parasitology researchers and their grant success!

NHMRC R.D. Wright Career Development Fellowship

Dr Justin Boddey (WEHI) for "Functional genomics of malaria liver infection and transmission."

NHMRC Program Grant

Professor James McCarthy (The Council of the Queensland Institute of Medical Research), **Professor Nicholas Anstey** (Menzies School of Health Research), **Professor Denise Doolan** (James Cook University), **Dr Christian Engwerda** (The Council of the Queensland Institute of Medical Research), **Professor Michael Good** (Griffith University), **Professor Alexander Loukas** (James Cook University), **Professor Don McManus** (The Council of the Queensland Institute of Medical Research), **Professor Richard Price** (Menzies School of Health Research), **Professor Istvan Toth** (The University of Queensland), Tropical diseases: translating discoveries into better health.

ARC Discovery Early Career Researcher Award

Dr Sophie Zaloumis, The University of Melbourne, for: Mathematical and statistical modelling of antimalarial drug action. This project aims to develop a mathematical model to optimise global antimalarial treatment policy. Malaria-

causing parasites are resistant to the most potent antimalarial drug available. If left unaddressed, a catastrophic rise in global malaria incidence and mortality could occur. Changes to global antimalarial treatment policy increasingly rely on mathematical models, but they do not encompass recent breakthroughs in antimalarial drug action and the immune response. This project's model is expected to improve antimalarial drug dosing regimens and control the spread of antimalarial drug resistance.

Cheers,
Nick and Lisa

Closing dates for ASP awards

ASP Fellowships
9 January 2018

ASP Researcher Exchange, Travel and Training Awards & JD Smyth
29 September 2017

Bancroft-Mackerras Medal for Excellence
30 September 2017

More information
www.parasite.org.au

ASP 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. Initiatives should foster outreach by members and advance the field of parasitology. The funds can be used to support a wide range of activities - from seminars and symposia to "beer and nibbles" networking sessions of State members or any other parasitology-related event.

Submit your proposal to your ASP State/Territory Representative for consideration.

IJP

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46:09 (August 2016)

Original Research Article

Persistence and immunogenicity of chemically attenuated 1 blood stage *Plasmodium falciparum* in Aotus monkeys. Sai Lata De, Danielle I Stanicic, Karin van Breda, Bernadette Belleste, Ivor Harris, Fiona McCallum, Michael D Edstein, Michael F Good

46:12 (November 2016)

Invited Review

Haemonchus contortus: the then and now, and where to from here? David L. Emery, Peter W. Hunt, Leo F. LeJambre

Original Research Articles

Water, sanitation and hygiene related risk factors for soil-transmitted helminth and *Giardia duodenalis* infections in rural communities in Timor-Leste. Suzy J Campbell, Susana V Nery, Catherine A D'Este, Darren J Gray, James S McCarthy, Rebecca J Traub, Ross M Andrews, Stacey Llewellyn, Andrew J Vallely, Gail M Williams, Salvador Amaral, Archie CA Clements

Multilocus sequence typing of *Dientamoeba fragilis* identified a major clone with widespread geographical distribution.

Simone M. Cacciò, Anna Rosa Sannella, Antonella Bruno, Christen R. Stensvold, Erica Boarato David, Semiramis Guimarães, Elisabetta Manuali, Chiara Magistrali, Karim Mahdad, Miles Beaman, Roberta Maserati, Fabio Tosini, Edoardo Pozio



47:01 (November 2016)

Elucidation of the first definitively identified life cycle for a marine turtle blood fluke (Trematoda: Spirorchidae) enables informed control. Thomas H. Cribb, Jose L. Crespo-Picazo, Scott C. Cutmore, Brian A. Stacy, Phoebe A. Chapman, Daniel García-Párraga

Novel application of species richness estimators to predict the host range of parasites. David M Watson, Kirsty V. Milner, Andrea Leigh



47:02/03 (February 2017)

Molecular Approaches to Malaria (MAM) 2016 Special Issue

Invited Reviews

Dissecting malaria biology and epidemiology using population genetics and genomics. Sarah Auburn, Alyssa E. Barry

Out of Africa: origins and evolution of the human malaria parasites *Plasmodium falciparum* and *Plasmodium vivax*. Dorothy E. Loy, Weimin Liu, Yingying Li, Gerald H. Learn, Lindsey J. Plenderleith, Sesh A. Sundararaman, Paul M. Sharp, Beatrice H. Hahn

Recent insights into humoral immunity targeting *Plasmodium falciparum* and *Plasmodium vivax* malaria. Michelle J. Boyle,

IJP Highlights continued

Linda Reiling, Faith H. Osier, Freya J. I. Fowkes

Emerging concepts in T follicular helper cell responses to malaria. Diana S. Hansen, Nyamekye Obeng-Adjei, Ann Ly, Lisa J. Ioannidis, Peter D. Crompton

Plasmodium vivax vaccine research – we've only just begun. Wai-Hong Tham, James G. Beeson, Julian C. Rayner

Host cell remodeling in malaria parasites: a new pool of potential drug targets. Paul R. Gilson, Scott A. Chisholm, Brendan S. Crabb, Tania F. de Koning-Ward

Molecular mechanisms of host cell traversal by malaria sporozoites. Annie S. P. Yang, Justin A. Boddey

The apicoplast: now you see it, now you don't. Geoffrey Ian McFadden, Ellen Yeh

Severe malaria: what's new on the pathogenesis front?. Samuel Crocodile Wassmer, Georges Emile Raymond Grau

Original research articles

Cord blood IgG and the risk of severe

Plasmodium falciparum malaria in the first year of life. Linda M. Murungi, Klara Sondén, Dennis Odera, Loureen B. Oduor, Fatuma Guleid, Irene N. Nkumama, Mark Otiende, David T. Kangoye, Greg Fegan, Anna Färnert, Kevin Marsh, Faith H.A. Osier

Infectivity of symptomatic and asymptomatic *Plasmodium vivax* infections

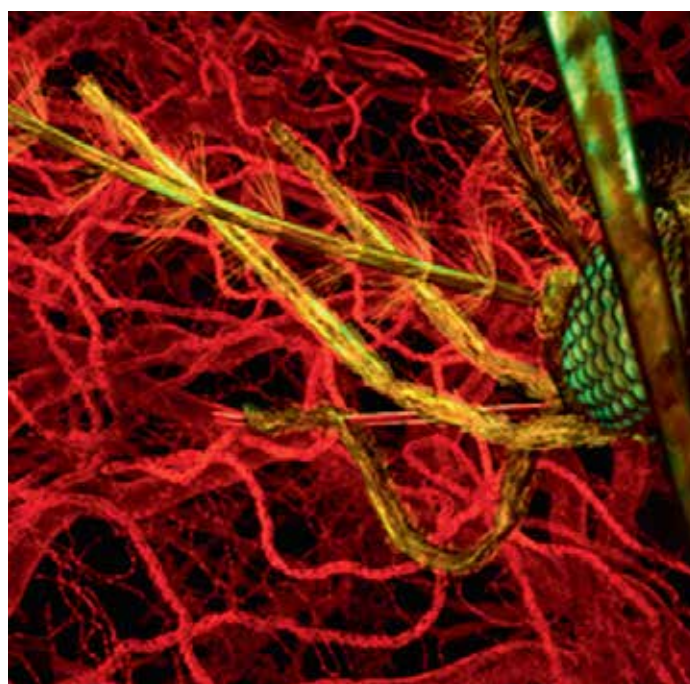
to a Southeast Asian vector, *Anopheles dirus*. Kirakorn Kiattibutr, Wanlapa Roobsoong, Patchara Sriwichai, Teerawat Saeseu, Nattawan Rachaphaew, Chayanut Suansomjit, Sureemas Buates, Thomas Obadia, Ivo Mueller, Liwang Cui, Wang Nguitragool, Jetsumon Sattabongkot

47:04 (March 2017)

Comparative proteomic analysis of two pathogenic *Tritrichomonas foetus* genotypes: there is more to the proteome than meets the eye. Leah J. Stroud, Jan Šlapeta, Matthew P. Padula, Dylan Druery, George Tsiotsioras, Jens R. Coorssen, Colin M. Stack

47:05 (April 2017)

Temperature rise and parasitic infection interact to increase the impact of an invasive species. Ciaran Lavery, David Brenner, Christopher McIlwaine, Jack J. Lennon, Jaimie T. A. Dick, Frances E. Lucy, Keith A. Christian



<http://www.journals.elsevier.com/international-journal-for-parasitology-parasites-and-wildlife/>

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IJP-PAW has a Facebook page, please check it out and like us and some of our articles so we can promote the journal and all of the wonderful research published through *IJP-PAW*

Articles published in International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016

The first two publications listed come from ASP Members Russell Hobbs and Aileen Elliot at Murdoch University and Australian researchers King and Jones at the University of Western Australia.

Russell P. Hobbs, Aileen D. Elliot, [A new species of *Potoroxyuris* \(Nematoda: Oxyuridae\) from the woylie *Bettongia penicillata* \(Marsupialia: Potoroidae\) from southwestern Australia](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 211-216, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.06.004>.

C. King, H.I. Jones, [The life cycle of the reptile-inhabiting nematode *Abbreviata hastaspicula* \(Spirurida: Physalopteridae\)](#)

[\(Physalopterinae\) in Australia](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 258-262, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.08.002>.



Andrea M. Quattrini, Amanda W.J. Demopoulos, [Ectoparasitism on deep-sea fishes in the western North Atlantic: In situ observations from ROV surveys](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 217-228, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.07.004>.



Matthew M. Smith, Caroline Van Hemert, Richard Merizon, [Haemosporidian parasite infections in grouse and ptarmigan: Prevalence and genetic diversity of blood parasites in resident Alaskan birds](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 229-239, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.07.003>.



[ijppaw.2016.07.003](#).

Maria C. Spriggs, Lisa L. Kaloustian, Richard W. Gerhold, [Endoparasites of American marten \(*Martes americana*\): Review of the literature and parasite survey of reintroduced American marten in Michigan](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 240-248, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.07.001>.

IJP:PAW continued

Karin Federer, Maria Teresa Armua-Fernandez, Francesca Gori, Stefan Hoby, Christian Wenker, Peter Deplazes, [Detection of taeniid \(*Taenia* spp., *Echinococcus* spp.\) eggs contaminating vegetables and fruits sold in European markets and the risk for metacestode infections in captive primates](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 249-253, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.07.002>.



C.L. Amundson, N.J. Traub, A.J. Smith-Herron, P.L. Flint, [Helminth community structure in two species of arctic-breeding waterfowl](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 263-272, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.09.002>.



T.A. Ríos, M.C. Ezquiaga, A.M. Abba, G.T. Navone, [Intestinal parasites of *Tolypeutes matacus*, the most frequently consumed armadillo in the Chaco region](#), International Journal for Parasitology:

Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 254-257, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.08.001>.

Nicholas R. Dunham, Scott Reed, Dale Rollins, Ronald J. Kendall, [Oxyuris petrowi infection leads to pathological consequences in Northern bobwhite \(*Colinus virginianus*\)](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 273-276, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.09.004>.

Miriam Maas, Sanne van den End, Annika van Roon, Jaap Mulder, Frits Franssen, Cecile Dam-Deisz, Margriet Montizaan, Joke van der Giessen, [First findings of *Trichinella spiralis* and DNA of *Echinococcus multilocularis* in wild raccoon dogs in the Netherlands](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 277-279, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.09.001>.

Julia Angélica Gonçalves Silveira, Mirella Lauria D'Elia, Isabela de Oliveira Avelar, Lara Ribeiro de Almeida, Hudson Andrade dos Santos, Danielle Ferreira de Magalhães Soares, Múcio Flávio Barbosa Ribeiro, Walter dos Santos Lima, Roselene Ecco, [Rangelia vitalii in a free-ranging maned wolf \(*Chrysocyon brachyurus*\) and co-infections](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 280-285, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.09.003>.

Marta Kołodziej-Sobocińska, Aleksander W. Demiaszkiewicz, Jacek Lachowicz, Tomasz Borowik, Rafał Kowalczyk, [Influence of management and biological factors on parasitic invasions in the wild – Spread of the blood-sucking nematode *Ashworthius sidemi* in European bison \(*Bison bonasus*\)](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 286-294, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.09.005>.

Helen J. Esser, Janet E. Foley, Frans Bongers, Edward Allen Herre, Matthew J. Miller, Herbert H.T. Prins, Patrick A. Jansen, [Host body size and the diversity of tick assemblages on Neotropical vertebrates](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 295-304, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.10.001>.

Krysta H. Rogers, Yvette A. Girard, Leslie Woods, Christine K. Johnson, [Avian trichomonosis in spotted owls \(*Strix occidentalis*\): Indication of opportunistic spillover from prey](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 305-311, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.10.002>.

Cassandra Dawn Pauling, Anna R. Oller, Victoria Jackson, [Fecal parasite identification by microscopy and PCR in scimitar-horned oryx, *Oryx dammah*, managed at two sites](#), International Journal for Parasitology: Parasites and Wildlife, Volume 5, Issue 3, December 2016, Pages 312-320, ISSN 2213-2244, <http://dx.doi.org/10.1016/j.ijppaw.2016.11.001>.

Each image relates to the preceding paper and is courtesy of the author of that publication.



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Drugs and Drug Resistance

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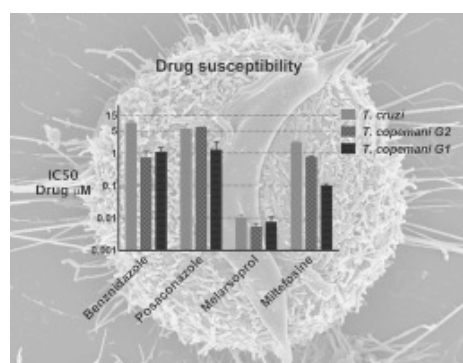
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and some of our articles so we
can promote the journal and
all of the wonderful research
published through *IJP-DDR*

Featured articles from ASP members in International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017

Adriana Botero, Sarah Keatley, Christopher Peacock, R.C. Andrew Thompson, "[In vitro drug susceptibility of two strains of the wildlife trypanosome, *Trypanosoma copemani*. A comparison with *Trypanosoma cruzi*](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 34-41, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2016.12.004>.



Ming Jang Chua, Megan S.J. Arnold, WeiJun Xu, Julien Lancelot, Suzanne Lamotte, Gerald F. Späth, Eric Prina, Raymond J. Pierce, David P. Fairlie, Tina S. Skinner-Adams, Katherine T. Andrews, "[Effect of clinically approved HDAC inhibitors on *Plasmodium*, *Leishmania* and *Schistosoma* parasite growth](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 42-50, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2016.12.005>.

Neil H. Bagnall, Barney M. Hines, Andrew J. Lucke, Praveer K. Gupta, Robert C. Reid, David P. Fairlie, Andrew C. Kotze, "[Insecticidal activities of histone deacetylase inhibitors against a dipteran parasite of sheep, *Lucilia cuprina*](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 51-60, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2017.01.001>.

Gillian M. Fisher, Silvia Bua, Sonia Del Prete, Megan S.J. Arnold, Clemente Capasso, Claudiu T. Supuran, Katherine T. Andrews, Sally-Ann Poulsen, "[Investigating the antiparasitic activity of primary sulfonamide compounds identified in open source malaria data](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 61-70, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2017.01.003>.



Christopher J.S. Hart, Taylah Munro, Katherine T. Andrews, John H. Ryan, Andrew G. Riches, Tina S. Skinner-Adams, "[A novel in vitro image-based assay identifies new drug leads for giardiasis](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 83-89, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2017.01.005>.

This next article has been published by our International Journal for Parasitology: Drugs and Drug Resistance Invited Speaker at the 2017 ASP Annual Conference, Dr Ron Kaminsky along with both of our Editors of IJP: DDR Kevin Saliba and Andrew Kotze. We hope to see you there! <http://parasite.org.au/2017conference/>

Sandra Schorderet-Weber, Sandra Noack, Paul M. Selzer, Ronald Kaminsky, "[Blocking transmission of vector-borne diseases](#)", International Journal for Parasitology: Drugs and Drug Resistance, Volume 7, Issue 1, April 2017, Pages 90-109, ISSN 2211-3207, <http://dx.doi.org/10.1016/j.ijpddr.2017.01.004>.

Each image relates to the paper directly above and is courtesy of the author of that publication.



Jobs



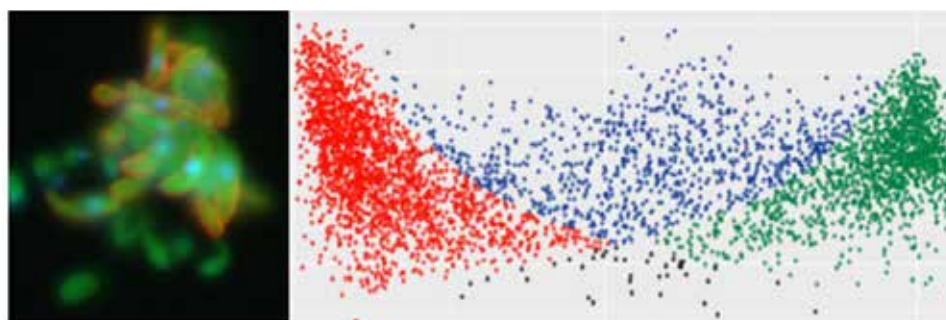
Postdoctoral Fellow – Billker Lab. Single Cell Biology of Malaria Parasites

Location: Cambridge, UK.

Background: The Malaria Programme at the Wellcome Trust Sanger Institute has recently achieved major breakthroughs in scaling reverse genetic screening for the systematic identification of gene functions in *Plasmodium*. The Institute is also a leading centre for single cell genomics.

Position: We are now looking to recruit a 3-year Postdoctoral Research Fellow to work on an exciting project to bridge these areas. If you have recently received your PhD, have a passion for parasite biology and genetics and are interested in working with large datasets we would like to hear from you! The project offers an opportunity to combine our recently developed screening platform with state-of-the-art single cell phenotyping by transcriptomics. By bringing these approaches together you will be able to generate deep new insights into fascinating aspects of parasite biology, including sexual development, and host parasite interactions. This position will work

Image from Sanger Institute



between the Billker team in the Malaria Programme and the Cellular Genetics Programme led by Sarah Teichmann. It will offer training opportunities in both wet lab and computational areas, but the wet lab component will be essential.

Further information: For more details about the position and our research, visit our laboratory website (www.sanger.ac.uk/science/groups/billkergroup) or contact Oliver Billker (ob4@sanger.ac.uk)

How to apply: <https://jobs.sanger.ac.uk>



Postdoctoral Research Associate Positions

Location: St Louis, Missouri, USA

Background New opportunities to join a highly productive laboratory focused on developing new approaches for studying host-pathogen interactions at the molecular level. The human pathogen *Toxoplasma gondii* enjoys excellent forward and reverse genetic tools as well as animal models, making it an attractive model for studying host-pathogen interactions. Projects offer potential for independent career advancement and are supported by excellent core facilities for animal studies, biological imaging, genomics, and immunological profiling.

Project 1: Develop small animal models for chronic infection with *Toxoplasma gondii* as a platform to explore genetic determinants of pathogenesis and regulation of host immunity (Ann. Rev. Micro. 2016, 70: 63-81). Prior experience with immunology, microbiology, and molecular biology are highly desirable.

Project 2: Utilize biochemical analysis of protein complexes and reverse genetic strategies to define the molecular basis of a novel parasite effector that blocks interferon signaling in human cells (Cell Host Microbe 2016, 20: 72-82). Prior experience with molecular genetics, biochemical analysis of protein interactions, and analysis of genome-wide datasets are highly desirable.

Project 3: Discover new pathogenesis determinants by combining CRISPR/Cas9 mediated screening with reverse genetics to define the molecular basis of pathogenesis (Methods Molec. Biol. 2017: 1498, 79-103). Prior experience with molecular genetics, comparative genomics, and analysis of genome-wide datasets are highly desirable.

Criteria Recent Ph.D. in Microbiology, Immunology, or Molecular Biology. Good command of the English language (speaking and writing), analytical, and computational skills are considered essential.

Benefits Washington University offers a highly diverse intellectual community with outstanding training opportunities for postdoctoral fellows. Salary and benefits along with educational and training opportunities are summarized at the Office of Post Graduate Affairs. See <http://dbbs.wustl.edu/PostDocs/Pages/PostDocs.aspx>

How to apply Submit a current C.V. and names of three references to:

Dr. David Sibley, Professor, (sibley@wustl.edu), Dept. Molecular Microbiology, Washington University Sch. Med., St. Louis, MO 63110.

Strategic Planning Review

Summary of the recent review of the 2010 Strategic Plan: "What are the priorities for the ASP?"

On the 8th February 2017 the Strategic Planning Review team analysed the activities of the 2010 Strategic Plan under the "four pillars" of that plan to identify the activities required over the next 3 years. The team worked in small groups and categorised the actions as Completed, In Progress or Halted and also listed any additional action items. The results are shown below. Explanatory notes for each decision are in the accompanying "Strategic planning review meeting notes" document which ASP members can access through the ASP WildApricot membership website in the resource section (<http://asp.wildapricot.org/memberresources>) to access this "members only section" you will need to login with your username and password. Alternatively please request these documents and any additional minutes and reports from ASP meetings from the ASP secretary secretary@parasite.org.au

Over the next three years the ASP Executive will work with ASP members to develop the next ASP Strategic Plan to cover the period 2020-2030. If you would like to be involved in this process please email the ASP secretary and indicate your preferred level of involvement secretary@parasite.org.au

The ASP will shortly launch an online feedback survey as a mechanism for gaining feedback from ASP members. This survey will be open so that ASP members can give their feedback, suggestions, and ideas at any time of the year, anonymously if preferred.

STRATEGIC PILLAR 1: RECOGNISING EXCELLENCE

Refers to Goals 1,2,3,4,6.

Three Years Actions

Sustain current ASP Awards and Prizes through investment income – completed



- Clarify the criteria for the BM award;
- Raise awareness of the Sprent Prize to ensure that students and supervisors know about it;
- Increase the value of Undergraduate Awards;

Explore the financial and political viability of reintroducing Honours scholarships - Halted

Explore the financial and political viability of offering post graduate and postdoctoral scholarships and fellowships - Halted

Five Year Actions

Consider possibilities for new prizes and awards - Halted

Begin offering such new awards as have been approved - Halted

Develop sponsorship initiatives for awards - Halted

Undertake dialogue with Research Institutes and University Research Departments to determine possibilities for collegiate cooperation for awards - Halted

Ten Year Actions

Review portfolio of prizes and awards - completed

Review sponsorship and networking initiatives – Halted

ASP/cross institutional fellowship

established - Halted

STRATEGIC PILLAR 2: ADVANCING KNOWLEDGE

Refers to Goals 1,2,4,6

Three Year Actions

Ensure a well-managed Editorial succession process for the ASP Journals - completed

Increase the financial return from the IJP - In Progress

Launch a new open access IJP: Drugs and Drug Resistance building on the reputation of the IJP - completed

Continue to offer the annual ASP Conference with input from scientists of international standing, fostering diversity in the plenary sessions as well as the contributed sessions in the program, ensuring a profile for all research areas in parasitology - In Progress

Engage with New Zealand and the Asia-Pacific Region - In Progress

Consider as invited speakers, where appropriate, and include a New Zealand location in an (8 Year) cycle for our annual meetings;

- Seek sponsorship through ACIAR if ASP have a joint conference in SE Asia;
- Institute flexible, sustainable policies for use of the WAAVP 2013 surplus funds to facilitate links with SE Asia.

Strategic Planning Review continued

- Enquire into the possibility of establishing a mechanism for providing support for the maintenance and expansion of ASP-sponsored parasite collections - In Progress

Investigate the efficacy of the various travel awards available to members - In Progress

Conduct audit of scheme with results feeding into the next Strategic Plan.

Consider whether additional journal offerings are needed - Halted

Consider balance between promotion of parasitology and research through journals, Institutional open access channels or social media platforms? - In Progress

- The Society's social media responsibility offered as a rotational scheme amongst interested members.

Five Year Actions

Review both ASP Journals to ensure excellence and relevance - In Progress

Review conference programs - In Progress

Establish mechanisms for support of parasite collections; if validated (see above) - In Progress

- Consideration of development of mechanisms to support parasite collections as it is currently a central statement in the Object of the Society as written in Article II of the ASP Constitution.

Meet members' needs and ensure Societies' resources are adequate – In Progress

Establish new open access journal IJP: Parasites and Wildlife - completed

Revise e-textbook - In Progress

Ten Year Actions

Continue to review ASP Journals to ensure

excellence and relevance - In Progress

Monitor the changing face of parasitology to determine which are the disciplines that might need enhanced support - In Progress

Conduct a survey of members to decide on preferred conference organization and content - In Progress

STRATEGIC PILLAR 3: SERVING MEMBERS

refers to ASP goals 1, 2, 4, 6.

Three Year Actions

Identify the needs of our members through a variety of communication media; in particular to survey younger members to determine their needs In Progress

Establish new opportunities for members to engage with the Society and to improve collegiality In Progress

Consider encompassing plant parasitologists in the ASP - Halted

Provide professional support for the Treasurer and other members of the Executive - completed

Prepare a paper redefining the roles of key management personnel - Halted

Continue to improve and update the web page - In Progress

Address any previously unknown needs of the members as indicated through improved communication channels - completed

Maintain the quality of the Newsletter - completed

Review the Constitution to ensure relevance to the current ASP - In Progress

Revision of the ASP Constitution commenced in 2016

- Detail roles of the Executive and other Council members

- Review of the election and voting rights of Council members

- Consider addition of student and early career researcher representatives to the Council

- Other revisions of various anomalies and inconsistencies in the current Constitution.

Apply for ARC Linkage or other grant to obtain data for a paper advocating for change to National Research Priorities to recognise the socio-economic impact of parasites; publish data in a high impact Journal - Halted

Ensure active membership of STA, including lobbying for parasitology as a research priority - In Progress

- Critically evaluate ASP memberships like STA for political lobbying purposes.

Five Year Actions

Complete a grant and write a paper to inform, and advocate for, changes to National Research Priorities - Halted

Continue lobbying for parasitology as a research priority through membership of STA - Halted

Develop and implement new initiatives identified as needed to meet members' needs - completed

Ten Year Actions

Continue to advocate for changes in National Research Priorities to recognise the socio-economic impact of parasites - Halted

Continue lobbying for parasitology as a research priority through membership of STA - Halted

Increase public awareness of socio-

Strategic Planning Review continued

economic impact of parasites by continuing to educate government, universities, industry, and general public In Progress

- Formally establish an ASP Educational committee and, within 12 months, the committee needs to determine its terms of reference and identify 3-5 key initiatives for the ASP to facilitate, for secondary and tertiary level education – development of flexible modules for teaching could be a priority for achieving this goal.

STRATEGIC PILLAR 4: DELIVERING TRAINING AND EDUCATION

Refers to ASP goals 1, 2, 3, 4, 5, 6.

Three Year Actions

Ensure face-to-face activities are maintained - completed

Establish the new entity as an operating unit of the ASP to raise cash and in-kind support to ensure the long-term future of our training and education activities – In Progress

- ASP formally establish an educational committee and, within 12 months, the committee needs to determine its terms of reference and identify 3-5 key initiatives for the ASP to facilitate, for secondary and tertiary level education – development of flexible modules for teaching in veterinary, biomedical and general parasitology could be a priority for achieving this goal.

Establish and staff the new ASP Network - completed

Foster research exchanges and mentoring - completed

Conduct/facilitate workshops on targeted topics - completed

Develop/facilitate focused satellite training courses for postgraduates around each ASP Annual Conference: identify a course topic and develop a pilot model for implementation in Cairns in 2011 and beyond - completed

Closely monitor Charity status from income- be aware of implications and have a Plan B – completed N/A

Five Year Actions

Increase international linkages through connections to other Societies, joint meetings with New Zealand and Asia-Pacific Societies, and shared membership with other Societies - In Progress

- The ASP should consider hosting and maintaining the website of the World Federation of Parasitologists as a way of increasing international linkages;
- Investigate placements on CIP for developing nations to facilitate links, increase networking and engagement

Explore ways to use technology to facilitate international linkages – In progress

Encourage early career parasitology researchers by increasing travel awards and further developing mentoring scheme - In Progress Develop nationally and internationally recognised training program, and bring in trainees from the Asia-Pacific

region - In Progress

- Consider offering award scheme from WAVVP2013 surplus to support travel and participation from international students from developing countries.

Continue to expand revenue-raising opportunities In Progress

- The three IJP journals are seen as the primary future potential revenue streams for the Society.
- Investigate co-funded industry placements on CIP to increase networking and engagement.

Continue to offer Workshops and the like - completed

Ten Year Actions

Create an Australia-based 'Woods Hole-like' training course in Parasitology In Progress

- The training course in parasitology should continue to be supported strongly by the Society

Interact with High school educators to provide curriculum enrichment for High school students In Progress

- ASP Educational committee identify initiatives for secondary level education utilising the flexible modules for parasitology teaching.

\$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 2017 prizes must be made by the eligible University to the ASP Treasurer by the 30th September 2017. Please complete the online application form:**

www.parasite.org.au/awards/asp-undergraduate-prizes/

Parasites: Friends Without Benefits (Part 2)

We continue the transcript of Peter O'Donoghue 2013 parasitology outreach event, Science in the Pub, a social interactive occasion where (POD points out) many liberties were taken with content and language in the pursuit of entertainment,

In part 1, we described three core concepts of parasitology:

1. Parasites are friends without benefits!
2. The pathology of parasitism is cumulative.
3. Parasites exhibit tissue tropism.

Here are some more...

4

Parasites undergo cyclic transmission between hosts!

Infected hosts act as sources of infection for other individuals in the population. Various modes of transmission have been identified, each being particularly suited to parasites from different body compartments. Ask yourself the following questions!

- **How do parasites get from the gut of one host to the gut of another?**
Many enteric parasites use faecal-oral transmission strategies whereby environmentally resistant cysts or eggs survive outside their hosts and contaminate food and water supplies (so do not eat poo!).
- **How do parasites get from the**

blood of one host to the blood of another? Many blood parasites use haematophagous (blood-sucking) arthropods as vectors or transport hosts to journey between individuals (so don't get bitten!).

- **How do parasites get from the internal organs of one host to those of another?** Many tissue parasites undergo predator-prey transmission whereby encysted stages in the tissues of prey animals are eaten by predators which then produce cysts or eggs to contaminate prey food supplies (so as a predator, do not eat raw meat!).

There are some variations on these themes:

- **How do parasites get from the urogenital tract of one host to that of another?** Some parasites do not form resistant stages but rely on intimate body contact between hosts for their transmission; such as occurs during sex (venereal transmission) (so do not have sex!).
- **How do parasites get from infected mothers to their babies?** Regrettably, some parasites may cross the placenta during pregnancy and infect the developing foetus, often with disastrous consequences (so do not get pregnant!). Alternatively, some parasites may be transmitted through the mother's milk when the newborn suckles (so do not breast-feed!).

Transplacental and transmammary transmission are forms of vertical transmission as the parasites are passed between different host generations, whereas all other types of transmission are referred to as horizontal transmission as the parasites are usually passed between individuals of the same host generation. Understanding parasite modes of transmission is central to effective control. So is an understanding of the different patterns of infection.

5

Parasites discriminate!

Infections are not uniformly distributed throughout populations. Most individuals have few parasites, while a few individuals have most parasites. - This is known as overdispersion or aggregated distribution [this guy in the front row may have 1,000 worms while the rest of us have only one or none - Why is it so? Greed, avarice, bad luck? Or does he demonstrate some predisposing behaviour (poor hygiene, nail-biter, night-soil gardener, ravenous carnivore, etc.). He should drink more anthelmintic! - A toast then, to the few among us with the most passengers.

Overdispersion may mean that the prevalence of infection is low (small number of individuals infected at any one time), but over time, infections may resolve and new individuals become infected. The incidence of infection (that is, the change in prevalence) may wax and wane, but eventually many individuals may have been exposed and infected. This would account for the high seroprevalence found in many populations; that is, the number of individuals found with antibodies against parasites, if not parasites themselves (remember that antibodies may persist for years after the infection has resolved).

People also vary in their susceptibility to infection:

- by age (the very young and very old are more susceptible presumably due to their developing or senescent immune systems);
- by nutritional status (malnourished and 'stressed' individuals are more susceptible);

Parasites: Friends Without Benefits continued

- by immune status (some people are born with congenital immuno-deficiencies while others acquire immuno-deficiencies due to infection (e.g. HIV-AIDS) or treatment (immuno-suppressive chemotherapy due to cancer or transplantation); and also
- by gender (yes, females may be more susceptible to parasites – why?). When women become pregnant, they are carrying a foetus that is half-self and half-nonself, so they undergo partial immunosuppression to avoid rejecting the foetus, but this makes them more susceptible to infections - for example, most of the one million deaths due to malaria each year are pregnant women and very young children.

Some parasites even prefer female hosts.

- Head lice prefer girls (who have clean hair and huddle together in schoolyards in groups, while the dirty-haired boys are running amok in the playground)
- Women suffer urogenital problems with *Trichomonas* infections while males are mostly asymptomatic carriers (the parasites like the environment

of the vagina and uterus, which men lack!).

- Vertical transmission will only occur between females and their offspring (because the parasites either cross the placenta during pregnancy or are transmitted in mother's milk during lactation - males get off scot-free because, yes you guessed it, they do not have wombs or breasts).

Parasites themselves even display a marked gender inequity:

- Many parasites exhibit marked sexual dimorphism, that is, males and females are built differently. In most cases, the female parasites are bigger, better, live longer, feed more and cause more problems.
- Parasite sex can be a rough encounter. Some male worms have spicules which are spikes used to stab the female during coitus to hang on. Some male arthropods are just little guys, little packets of sperm, so they need to get in and get out quickly to avoid an unhappy ending.
- Some parasites have even learnt a

cute trick. The females can do without males and have babies without mating. This is known as parthenogenesis (often a form of male redundancy).

- Other parasites have become quite hedonistic, and have both male and female reproductive organs. These hermaphrodites can cross-fertilize as well as self-fertilize (they literally can do themselves).
- There has recently been some interesting work on bacterial infections in ectoparasites such as mosquitoes. Infections by the bacterium *Wohlbachia* exert some strange effects on males: they can selectively kill males (murderers!), selectively sterilize males (emasculators!), or induce male feminization (turning the guys into girls). Scary concepts!

Given the extraordinary range of ways parasites and hosts come together and the possible devastating consequences of infections, we need to have very good methods for detecting infections in the first place.

A flyer for the original Inspiring Australia funded joint ASP and SciTech talk in August 2013



Parasites: Friends Without Benefits continued

6

Differential diagnosis is difficult!

Usually, you cannot diagnose parasitic infections on the basis of disease presentation (symptomatology) because most clinical symptoms (described to clinician) and signs (observed by clinician) are vague and nonspecific – other infectious agents such as viruses, bacteria, and fungi may have caused them. Looking specifically for clinical features also does not allow the detection of subclinical or asymptomatic infections (because these hosts often do not know they are infected). To definitively diagnose parasitic infections, we need to either:

- directly detect parasites in host samples or
- find clear indirect evidence of their presence (such as specific host antibodies)

Many techniques have been developed to find parasite developmental stages in clinical samples. Macroscopic and microscopic techniques have been developed so we can see parasites in host samples (WYSIWYG = what you see is what you got/get). This requires a basic understanding of parasite life-cycles. There may be few adult parasites present, but they could be hundreds or thousands of eggs or larval offspring present. These developmental stages are often in high abundance, due to the need for many parasites to have high numbers of offspring as many will not be successfully transmitted to another host and will die. For example, *Ascaris* worms lay thousands of eggs each day which are released in host faeces. It was once estimated that if we piled

all the eggs laid in one year by female *Ascaris* worms, the pile would be bigger than Mount Everest. Of course, not all of those eggs will be ingested and result in infections. Most parasites need to be very fecund to ensure a few survive and lead to propagation of the species. Their transmission patterns could be considered wasteful, but they are still eminently successful as evidenced by the survival and prevalence of parasites in the world.

Looking directly at live parasites also gives us a greater appreciation for their motility. Parasites are generally not slow lumbering beasts, in fact, most exhibit quick furtive movement. They have high metabolic demands and are voracious in order to get enough energy to move, grow and divide. Let us look at parasite movement through interpretive dance:

- amoebae (pseudopodia) creepy crawlers (do softshoe shuffle) using rolling adhesion and microtubules, also exhibit phagocytosis (same processes used by macrophages)
- flagellates (flagella) swimmers, either anterior flagella used as helicopter propellers to pull body forward (do swimming motion) or recurrent flagella used as tail to push body forward (do tail fan) – some even have an attached undulating membrane which functions like the dorsal fin on fish (poor confused trypanosomes have undulating membrane and flagellum but use it in reverse)
- ciliates (cilia) swimmers, multiple hair-like extensions of cell membrane used to swim (do jazz-hands), need good coordination to produce synchronous waves (cross arms and do jazz hands)
- apicomplexa (known for forming spores rather than motility), have anterior apical complex used to facilitate entry in host cells by releasing chemicals (play peek-a-boo and spit)
- nematodes (tubes under pressure with longitudinal bands of muscle) thrashers

(do sideways shaking motion) like a punk rave or more sophisticated like Beyonce dance

- cestodes and trematodes (flat bodies with 3D arrays of muscles) squirmers showing exquisite body motion (do writhing ecstatic movement) like sensual seducer/seductress – who are they seducing – they are all hermaphrodites – “Who’s a pretty boy? I am! Who’s a gorgeous girl? I am too!”
- ticks, mites, lice (cryptic sneaky walkers) move through hair, fur, feathers looking for a good spot to feed and lay eggs (do sneaky stealthy walk through forest) head lice got it easy through forest of upstanding hairs while pubic lice struggle with curly thickets
- fleas (jumpers) compressed resilin pads held under pressure, released when host nearby (do standing jump) definitely not superman!
- flies (fliers) many with wings to find hosts (do butterfly wing dance), but larvae are creepy crawling maggots that breathe through their butts (show butt to audience and extrude two fingers)

Combine it all for new dance sensation (“Prancing Parasites”) (amoebae creeping – flagellates swimming – ciliates rowing – apicomplexa invading – nematodes thrashing – cestodes squirming – ticks questing – fleas leaping – flies flying – maggots breathing)

As laboratories became more advanced, many techniques have been developed to provide indirect evidence of the presence of parasites.

- In particular, numerous immunoserological tests have been developed to test host blood samples for specific antibodies against parasite antigens. The tests have fancy acronyms, such as CFT

Parasites: Friends Without Benefits continued

(complement fixation test), IHAT (indirect haemagglutination test), IFAT (indirect fluorescent antibody test) and ELISA (enzyme-linked immunosorbent assay) and many commercial, test kits are now available. These tests must have good sensitivity and specificity so they do not generate too many false positive or false negative results (with may have disastrous consequences).

- More recently, the molecular biological revolution has generated quite sophisticated techniques to detect parasite proteins or parasite DNA in host samples. Infections can be detected in fresh samples, not so fresh samples and even old museum samples using some techniques. You are not even looking for whole parasites, just some molecules. Whole new fields of study have been opened up by such techniques and we now have many laboratories specializing in molecular detection, molecular epidemiology, and molecular phylogeny.

So what samples are examined? (my wife

says I am the master of inappropriate dinner-table conversation)

- faeces (science called coprology) (samples sometimes collected by digital stimulation of anal sphincter – any volunteers?)
- blood (humans are quite accustomed to providing blood samples, but you should try to bleed a snake, lizard, bird, elephant?)
- tissues (ante-mortem biopsies – lump-ectomies)(post-mortem autopsies – take what you want)

(where do you get bodies – roadkill, cull, shoot...)

Here are some samples I prepared earlier: a tube of blood (actually tomato juice), a container of faeces (actually brown salsa) and a jar of tissue cysts (actually pickled antipasto). You need to use all your senses to examine the matrix under test:

- look at it (sight) – what does it look

like, colour, consistency, content

- listen to it (sound) – shake the tube and listen for sloppiness –pertinent to hydration, volume/weight
- sniff it (smell) – does it have a distinctive odour – some swear they can diagnose giardiasis and cryptosporidiosis by the faecal aroma (like curdled milk)
- handle it (touch) – is it soft, hard, slimy, lumpy, smooth, rough
- put it on your tongue (taste) – does it have a distinctive taste – acidic, sour, sweet, spicy! YUM!!!

[years ago midwives used to lick newborn baby's skin to test saltiness (indicative of cystic fibrosis) and taste newborn baby's urine to test sweetness (indicative of diabetes)]

Having diagnosed an infection, what are you going to do about it? **To be continued**

Fellows of the Society: names to the faces

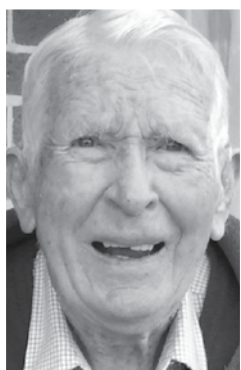
Here are the names of the five ASP Fellows shown on page 13



Bob Roberts
FASP 1967



Ian Mackerras
FASP 1976



Bill Southcott
FASP 1983



Klaus Rohde
FASP 1989



Dave Spratt
FASP 2000

To read a brief biography of each Fellow, visit
parasite.org.au/the-society/fellows-of-the-society/

Events



TTP9-APRC1 ABSTRACT SUBMISSION NOW CLOSING 28 APRIL

The 9th Tick and Tick-borne Pathogen and 1st Asia Pacific Rickettsia Conference (27 August to 1 September 2017 at Pullman Hotel, Cairns, Queensland, Australia) promises to be an exciting meeting.

To assist overseas delegates, the committee has extended the abstract submission until 28 April - a four-week extension from the current closing date of 31 March. If you have already submitted you will receive priority acceptance, and will be advised by 10 May (in time to register at earlybird rates which end on 24th May).

Abstracts submitted after 31 March and before 28 April, will be advised by 19th May - still in time to register at the earlybird rate, by just one week. However, acceptance as an oral presentation will be dependent on whether there is a slot still available in the timetable.

Please submit your abstract via this Abstract Submission Link by close of business Friday 28 April 2017

<https://realevents.conference-services.net/authorlogin.asp?conferenceID=5298&language=en-uk>

Conference Themes

The thematic areas are listed below.

The conference themes are:

- One Health
- Genetics/Genomics
- Epidemiology, Ecology and Modelling
- Epidemiology and Diagnostics
- Vaccines
- Treatments
- Immunology and Immunity
- Taxonomy and Evolution
- Zoonoses

We are accepting abstracts for oral and poster presentations (you can also select either).

For information on abstract preparation and submission please see:

<http://www.cvent.com/d/vfq970/10K?cpc=PLNZ6W8BCY7>

Conference Registration

Online Registration is also open, with earlybird closing on 24 May 2017.

If you have already submitted your abstract, thank you! You will be advised of its status by 10 May.

Conference Organising Committee

Prof. Ala Tabor (Chairperson, Convenor TTP9)

Prof. Stephen Graves (Convenor APRC1)

Prof. John Stenos (Convenor APRC1)

Prof. Manuel Rodriguez Valle (Convenor TTP9)

Conference website

<http://www.ttp9-aprc1.com/>





ALANTA COLLEY

PARASITES LOST



BELLEVILLE

**10TH-15TH
APRIL 7.15
PM**

**TICKETS AVAILABLE FROM
WWW.TRYBOOKING.COM**



'The best science conference I've ever attended'
Dr Chris Smith, The Naked Scientist



If you can only attend one medical research conference this year, make sure it's Science on the Swan 2017: One Health.

Seventy five percent of newly emerging diseases in the last 30 years are the result of zoonotic transmission. Population growth, climate change, lifestyle shifts and rapid transportation are profoundly affecting global disease profiles and acquisition risk. One Health seeks root cause understanding and effective solutions to emergent infectious and acquired diseases through fundamental stem cell and regenerative medical science, public health and environmental remedies.

Invited speakers include:

- **Professor Barry Marshall AC,**
Nobel Laureate
 - **Professor Alan Mackay-Sim,**
Australian of the Year 2017
 - **Professor Ian Frazer, AC,**
President, Australian Academy of Health and Medical Science, Australian of the Year
 - **Professor Elaine Holmes,**
Head of Division of Computational & Systems Medicine, Imperial College
 - **Dr Julie Makani, Principal Investigator,**
Visiting Fellow and Consultant Physician, Dar es Salaam, Tanzania
 - **Dr Christopher Dye, Director of Strategy,**
World Health Organization
 - **Professor Nancy J. Cox, Director,**
Vanderbilt Genetics Institute
 - **Mr Simon Denegri,**
NIHR National Director for Patients & the Public in Research
- and many more...**

For the full list of speakers and program, go to scienceontheswan.com.au

Tuesday 2 May

Microbiome, probiotics & biobanking

Wednesday 3 May

Infectious diseases, immunity & multidisciplinary approaches

Thursday 4 May

Zoonotic diseases, stem cells & international collaboration

Registrations Now Open - Early Bird Closes 29 March 2017

Events continued

World Malaria Day at Griffith University

26th April 2017

The Griffith Institute for Drug Discovery (GRIDD) will celebrate this year's World Malaria Day on the 26th April with a number of events/activities.

On the day there will be a sausage sizzle and sale of malaria themed cupcakes to raise funds to go towards purchasing insecticide treated bed nets through Rotarians Against Malaria.

Leading up to the day the event will be advertised through Griffith University's website/social media and the Rotarians Against Malaria website where donations can also be made. A bed net will be erected at GRIDD prior to the event and all pledges will be symbolised by attaching a toy mosquito (see picture below) to the bed net to track donations received. In addition to this we will be running a "build your own mosquito awareness program" and an online "test your knowledge quiz" which will be hosted on the ASP website and linked to malaria education outreach packs.

More details on how to donate and/or participate in the events/activities will be advertised in the coming weeks via the ASP Facebook page.

Asia Malaria Images Exhibition Opening Talk

9th September 2017,

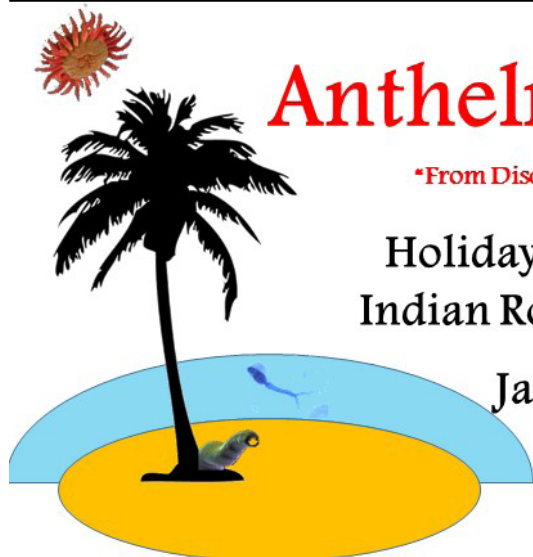
**The Pod, Level 16, National Library Board,
100 Victoria Street Singapore 188064**

Professor Kevin J. Baird
Professor Laurent Renier
Professor Francois Nosten
Professor Peter Preiser
A/Prof Kevin SW Tan

Limited seats are available; kindly RSVP your attendance with Pearl Gan by 15th August 2017. Email: asiamalariaimages@gmail.com or contact Pearl at 9722 9982 (Singapore)



Image copyright Pearl Gan, Singapore 2017, from the Asia Malaria images exhibition.



Anthelmintics III

"From Discovery to Resistance"

**Holiday Inn Harbourside
Indian Rocks Beach, Florida**

**Jan 30th – Feb 2nd
2018**

Organizers: Adrian Wolstenholme, Richard Martin & Conor Caffrey

Organizers: Adrian Wolstenholme, Richard Martin and Conor Caffrey

An international symposium discussing all aspects of anthelmintic discovery, use and resistance

Oral and poster contributions are invited; abstract submission deadline December 1st 2017. <http://register.extension.iastate.edu/anthelmintics>

State News

Western Australia

Murdoch University

Patients need for trial

The Vector and Waterborne pathogens group (VWPG) at Murdoch University (<http://www.murdoch.edu.au/Research-capabilities/Vector-and-Waterborne-Pathogens-Group/>) are conducting a pilot study to identify the possible aetiological agents of Lyme-like disease in Australian humans. We are seeking patients who have previously been bitten by ticks in Australia and have symptoms of a tick-borne illness, as assessed by a medical practitioner. For more information visit our website: <http://www.murdoch.edu.au/Research-capabilities/Vector-and-Waterborne-Pathogens-Group/Pilot-Study/>

New students

The VWPG also have three new PhD students joining the group: **Kamil Braima** supervised by **Una Ryan, Andrea Paparini** and **Simon Reid** on *Cryptosporidium* in swimming pools. **Kimberley Miller** supervised by **Andrea Paparini, Charlotte Oskam** and **Peter Irwin** working on transmission dynamics of tick-borne

pathogens and **Cindy Palermo** supervised by **Una Ryan, Andrea Paparini, Alan Lymbery** and **Susan Kueh** working on Molecular and biological characterisation of *Cryptosporidium* in fish. New Honours students include: **Siobhon Egan** supervised by **Charlotte Oskam** and **Peter Irwin** working on the microbiome of bandicoot ticks. **Anna-Sheree Krige** supervised by **Charlotte Oskam** working on characterising *Candidatus Borrelia* tachyglossi in archived echidna ticks.

New tick bacteria

Kim Loh has characterised and named a new bacterium, *Candidatus Borrelia* tachyglossi, found in echidna ticks, *Bothriocroton concolor* (IJSEM in press). Dr **Charlotte Oskam** has identified a second *Coxiella* species in Australia within brown dog ticks. The implications of this finding with regards to cross reactivity to *Coxiella burnetii* serological tests is not yet known. (Oskam CL, Gofton AW, Greay TL, Yang R, Doggett S, Ryan UM, et al. Molecular investigation into the presence of a *Coxiella* sp. in *Rhipicephalus sanguineus* ticks in Australia. Veterinary Microbiology. 2017;201:141-5.). In November, Charlotte appeared on ABC's Triple J radio station, the 'Hack' program, to talk about Lyme-like illness in Australia.

Community education - healthy wildlife

Professor **Alan Lymbery**, Professor **Andy Thompson** and Dr. **Amanda Ash** from Veterinary Parasitology at Murdoch University are partnering with The Eastern Metropolitan Regional Council (EMRC) on the 'Healthy Wildlife Healthy Lives' - A One Health project, supported by Lotterywest. The project aims to educate the community about how to interact positively with wildlife in urban areas to protect and conserve the environment for the benefit of both wildlife and people. This will be combined with a number of workshops run in conjunction with ASP over the next few months as many of the educational messages will focus on the transmission of parasites to wildlife from humans. The website was launched on Friday the 3rd March to coincide with world wildlife day and can be found here: <https://www.healthywildlife.com.au/#/>

New *Ixodes* tick species

In other news Dr. **Amanda Ash** and colleagues have characterised a new *Ixodes* tick species from the woylie (Ash et al. 2017, Parasites & Vectors, 10:70) – the first in 50 years, which was featured on ABC great Southern (<http://www.abc.net.au/news/2017-03-09/new-australian-tick-discovered-for-first-time-in-more-than-50-y/8338840>), and Australian geographic (http://www.australiangeographic.com.au/news/2017/03/new-tick-species-facing-extinction?adbsc=social_20170308_70614576&adbid=10154398766603339&adbp=fb&adbp=100614418338). Amanda appeared on ABC radio recently to discuss the finding and spread some knowledge about this endangered tick.

EMRC CEO Mr Peter Schneider (second from right) with Associate Professor Alan Lymbery, Murdoch University; Simon Cherriman, Environmental Biologist; and Catherine Nind, Environmental Projects Officer, EMRC (left to right).



University of Western Australia

Australia-China Science Conference

The first Conference on Australia China Science, Technology and Innovation was held on 2-6 Feb at University of Western Australia, Perth. There were 250 registered delegates both from China and Australia participated in this event. The theme of Veterinary

State News continued

Parasitology was chaired by Prof **Una Ryan** from Murdoch University and Prof **Longxian Zhang** from Henan Agricultural University in China. Prof. Zhang is also the secretary for Chinese Association of Veterinary Parasitology. Eleven oral presentations covering most of the advanced progress in veterinary parasitology from Australia and China were extremely impressive. The best oral presentation for the PhD students was awarded to Ms **Shijie Su** who was from Yangzhou University, China. The next meeting would be held in Chongqing University in China in 2019. VWPG

Queensland

Griffith University

Student news

Jessica Engel from the Tropical Parasitology Laboratory at the Griffith Institute for Drug Discovery (GRIDD) was awarded her PhD on the 15th February 2017. Congratulations Dr Engel!

Honours student **Emily Cooper** has joined the Tropical Parasitology Lab to investigate the mode of action of novel antiplasmodial compounds derived from the CSIRO (co-Primary Supervisors Dr **Gillian Fisher**, Prof **Kathy Andrews**; Associate Supervisor Dr **Tina Skinner-Adams**).

Highly cited paper

A 2014 paper by members of the Tropical Parasitology Laboratory has been classified as highly cited by Thomson Reuters.

Andrews, K. T., Fisher, G. and Skinner-Adams, T. S. (2014) Drug repurposing and human parasitic protozoan diseases. *International journal for parasitology. IJP: Drugs and Drug Resistance* 4, 95-111.

"As of September/October 2016, this highly cited paper received enough citations to place it in the top 1% of the academic field



The first Conference on Australia China Science, Technology and Innovation. University of Western Australia, Perth, February 2017

of Microbiology based on a highly cited threshold for the field and publication year."

Discovery Biology (Avery Lab)

Dr **Melissa Sykes** and PhD Student **Bilal Zulfiqar** were awarded Tony B. Academic Travel awards covering flights and accommodation to present posters at the The Society for Laboratory Automation and Screening (SLAS) 6th Annual Conference and Exhibition, February 4-8, 2017 in Washington, DC. Whilst at this conference Bilal won the SLAS Academic Poster Award (US\$500) and participated in a podcast interview with the SLAS Lab Man after the awards ceremony. The interview will be available as an audio online shortly. Bilal was also awarded the Griffith University International Experience Incentive Scheme (IEIS) Travel Grant to be

to visit Prof Louis Maes' lab in Belgium in 2017 and was selected to represent Griffith University in this year's International Student Research Forum (ISRF) to be hosted by University of Nebraska Medical Center (UNMC), Omaha Nebraska USA from 4th to 8th June 2017.

Recent publication

Stefano Pegoraro, Maëlle Duffey, Thomas D. Otto, Yulin Wang, Roman Rösemann, Roland Baumgartner, Stefanie K. Fehler, Leonardo Lucantoni, **Vicky M. Avery**, Alicia Moreno-Sabater, Dominique Mazier, Henri J. Vial, Stefan Strobl, Cecilia P. Sanchez and Michael Lanzer. SC83288 is a clinical development candidate for the treatment of severe malaria. **Nature Communications**. 2017 Jan 31; 8: 14193. IF: 11.329.

Toy mosquitoes. Part of World Malaria Day at Griffith



State News continued

ACT

Australian National University

Youth Science Forum

For the third year running, ACT parasitologists ran a "Parasite Detectives" prac for the National Youth Science Forum students that converge on Canberra for two weeks every summer. Demonstrators on the prac come to students with symptoms of a parasitic infection.

Students then have three hours to diagnose the infection using molecular and microscopy techniques, and suggest a course of treatment. Demonstrators on the prac this year were **Esther Rajendran** (Kirk and van Dooren labs), **Erick Tjhin** (Saliba lab), **Edwin Tjhin** (van Dooren lab) and **Giel van Dooren**. We are particularly grateful to **Peta Moisis** and her staff at the ANU Biology Teaching and Learning Centre for providing the facilities and technical assistance.

NHMRC grant success

Kevin Saliba and his collaborator **Karine Auclair** from McGill University in Canada were successful on an NHMRC project grant announced in the last round (but which escaped mention in the previous ASP newsletter). The title of their grant is "Understanding and targeting coenzyme A biosynthesis and utilization in *Plasmodium falciparum*."

New South Wales

Charles Sturt University

Shokoofeh Shami's group

Annabel Stoddart has started her Honours project on parasites of selected farmed

animals in south eastern region of NSW. She also is a recipient of the Graham Centre for Agricultural Innovations Honours scholarship. Another new addition to the group is **Monica Dickson**, Master of Animal Science. Monica is critically reviewing Australian seafood safety policy as part of her Master research project.

Continuing students, **Thomas Williams** is making progress toward his PhD and after another trip to Pakistan now is looking at Australian Buffalos health.

We had two students moving to the next phase of their life: **Anita Poupa**, submitted her honours project last year and now working in the Educational Department and **Eleanor Steller**, also submitted her Honours project and is looking forward to be graduated in August.

The 2016 recipients of ASP undergraduate prizes were **Tiffany Furniss** (enrolled in Animal Science Course) and **Caitlin McFadden** (enrolled in Veterinary Course) for the highest academic marks and commitment to the field of parasitology. For images, see the feature earlier in this newsletter.

CSIRO McMaster Laboratory

Peter Hunt's Laboratory, Armidale

Parasitology at CSIRO Armidale is active again. **Nisha** and **Hiep** are busy with the *Ascaridia galli* work and Nisha is looking forward to ASP in June.

Our success with MLA funding last year for a *Haemonchus contortus* SNP tool is coming to fruition with a new postdoc arriving at the beginning of May, and the collaboration with CSIRO Brisbane and UQ already steaming along with input from **Geoff, Jody, Angela, Russell, Eliza** and **Andrew**.

Runfeng and **Aaron** (in Brisbane) are also busy analysing the sheep gene expression data from our collaboration with **Robert Li** at USDA.

Victoria

University of Melbourne

Science and Innovation Award

Dr Clare Anstead won a 2017 Science and Innovation Award for Young Investigators for her research on blowflies. The award even came with a trophy! Clare has also had a review accepted in *Advances in Parasitology*.

RMIT University

New staff

The School of Science at RMIT welcomes **Dr Bronwyn Campbell**. Bronwyn took up a post-doctoral fellowship on the molecular biology and biochemistry of parasites affecting gut health in poultry in the lab of Prof. Rob Moore in January 2017. From 2013 – 2017, Bronwyn worked with the Parasitology and Mycology group at the Department of Veterinary Medicine, University of Bari, Italy, for Prof. Domenico Otranto. She was involved in a number of projects applying molecular biology and biochemistry to parasites of medical and veterinary importance.

The main project was to assess the suitability of the protein paramyosin for the detection and diagnosis of *Onchocerca lupi*, a zoonotic filarial nematode of dogs and cats. Bronwyn also collaborated on projects investigating feline lungworms, tick and other vector-borne diseases. She did some teaching in next generation sequencing technologies and bioinformatics to veterinary students and also in the parasitology summer course (ParSco) held each year in southern Italy.

Prior to taking up her position in Italy, Bronwyn held a position at the Faculty of Veterinary and Agricultural Sciences, University of Melbourne.

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