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The Australian Society for Parasitology Inc.

NEWSLETTER

Volume 31 Issue No.4 September 2020

IMAGE: *Bloodsucking flea* by Isaiah Ang (5), and entry to the ASP's inaugural Portrait of a Parasite competition.

2020 GEORGINA SWEET AWARDS

For Women in Quantitative Biomedical Science

MONDAY 12th OCTOBER

Please join us for a virtual event to celebrate the six winners of the Georgina Sweet Awards for Women in Quantitative Biomedical Science

Zoom chat room open	2.15PM
Presentations	**2.30PM**
Discussion Panel	4.10PM
Farewell	5.00PM

The Award Ceremony including Discussion panel will take place virtually via Zoom on Monday 12th October.

RSVP by 05/10/20 via;
www.eventbrite.com.au/e/119039240573

For more information please visit:
http://go.unimelb.edu.au/hh7a

Queries to:
Gslf-tilleyadmin@unimelb.edu.au

The Georgina Sweet Awards for Women in Quantitative Biomedical Science were created by Professor Leann Tilley as part of her Australian Research Council Laureate Fellowship program to promote and support female scientists.

Australian Government
Australian Research Council

Georgina Sweet Award for Women in Quantitative Biomedical Science

THE UNIVERSITY OF MELBOURNE

bio21 institute

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The Australian Society for Parasitology Inc.

NEWSLETTER

Volume 31 Issue No.4 September 2020

IN THIS ISSUE

From the President's Desk

Dear Members,

The ASP has been very fortunate in winning a National Science Week Queensland grant to run "Parasites Online" virtual outreach events run through 15-23 August 2020 on ASP Facebook page. Our Newsletter cover shows one of the entries to 2020 National Science Week Science Art competition. This one depicts blood-sucking flea submitted by Isaiah Ang (5) and it is a really great picture, I wish I could draw like this. Other submissions are included further in this Newsletter and all are amazing. Congratulations to Isaiah and all other competitors and the winners: Ethan Ang, Connie Harris and Thorey Jonsdottir. Big thanks to Lisa Jones who wrote the application and coordinated the events.

COVID 19 continues to challenge our research, with access to laboratories and field work limited by the social distancing and lockdown. I would like to acknowledge ASP members who are involved in COVID-19 response – on the frontline or doing research or developing or doing testing or being involved in advisory groups and other support roles. COVID 19 also affects the way we meet, so this year for the first time ASP had virtual AGM, which included announcements of new ASP Fellows and award winners. I would like to congratulate Katherine Andrews and David Piedrafita on becoming ASP Fellows, Katja Fischer for winning 2020 Bancroft-Mackerras Medal for Excellence and Kathryn Parker, the winner of the 2020 John Frederick Adrian Sprent Prize. At the AGM we have elected new members of the ASP Council. This Newsletter introduces President Elect Bec Traub, Fellows Rep Ian Beveridge, ACT Rep Cibelly Goulart. I am looking forward to working together with all of the new and returning members of the ASP Council who were elected at the 2020 ASP AGM. I would like to thank those ASP Council members who stepped down at the AGM as they made huge contribution to ASP, in particular Una Ryan, ASP Past President. I would also like to thank Lisa Jones for organising the virtual AGM and to everybody who attended for making it a success.

I have attended our virtual ASP meeting Parasitravaganza, where our PhD students and ECRs gave excellent presentations, please see more details in the Newsletter. Congratulations to all who won prizes, all talks were great and all speakers deserved recognition, but in particularly those who joined us from other continents often in the middle of the night. Thank you to all organisers, Coralie Boulet, Siobhon Egan, Lisa Jones, Thorey Jonsdottir, Michelle Power, Stuart Ralph, Lily Tran and Mae White who showed so much initiative and passion.

It is hard to be a research student or an ECR at the best of times, but particularly during COVID. As your Society we would like to support all of you, please contact us through your Council rep or directly if you have any ideas how we could help. Please also see the news from ASP student

From the President's Desk continued

Above: Dan Huston co-presented fish parasites session at CiP 2019
Below left: Mai Dang at ASP outreach event she organised in 2018
Below right: Cecilia Power working in the lab during Melbourne lockdown.

representative, Coralie Boulet, and in particular an invitation to "Shut up and write" sessions, the next one on Monday 5th October 1.30 -5 pm. This is a great way to write and network at the same time and I would like to encourage everybody to attend. I would like to congratulate all ASP student members on achieving their significant milestones, for example Mai Dang, who has been a very active member

of ASP and now having fulfilled all the PhD requirements returned to Vietnam. We wish Mai all the best. I would also like to congratulate PhD student Cecilia Power on being a runner-up at RMIT 3MT finals and publishing a great review on blood flukes in the special issue of IJP.

Editing this special issue of IJP on fish parasites gave me an immense pleasure, it was a bit of silver lining. This issue was supposed to coincide with the ISFP and ASP conference this year. While COVID 19 resulted in the conference being postponed, the issue has been still published as planned. Working with Maria and Brian has always been great and we invited a number of leading fish parasitologists who contributed amazing papers. More information, including fantastic cover is presented in this Newsletter. Hope that even if you do not work on fish parasites you will still find something interesting in this special issue of IJP.

In this newsletter we have included a celebration of Jack Arundel's life, who passed away earlier this year. Jack has contributed a lot to ASP and parasitology, in particular wildlife parasitology, as reflected in the obituary telling the story of a life well lived. Jack will be missed by many ASP members.

Congratulations to Dan Huston on his move to Canberra to take up a postdoc position at CSIRO. While we will miss Dan from fish parasitology (some of you will remember him from CiP 2019 as shown on the photo), at least he will still be working on parasites (taxonomy of plant-parasitic nematode taxonomy) so looking forward to hear about Dan's research at the next ASP conference.

I would like to welcome all the new Council members, looking forward to working together. I am grateful for all the enthusiastic support from the ASP Executive and ASP Council, in particular Lisa Jones, who I would also like to thank for putting this wonderful newsletter together.

Best regards,

Barbara Nowak

President of the ASP

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

Vale Jack Arundel (1925-2020)

John Henry (Jack) Arundel AM DipChem BVSc DVSc honoris causa.
Jan. 18, 1925 - Aug. 8, 2020.

by Ian K. Barker & Ian Beveridge

Jack Arundel, prominent educator, parasitologist and member of the veterinary profession, recently passed away in his 96th year.

Jack was quite conscious of his humble background. His father, a veteran who settled in Melbourne after the Great War, was descended from a line of Irish Catholics from rural northeastern Victoria, while his mother was a postwar Scottish Presbyterian immigrant to Footscray. With his older sister and younger brother, Jack grew up in a small weatherboard house with a backyard dunny in Spotswood, an inner industrial suburb of Melbourne, where life was difficult during The Depression, since his father often was out of work.

After completing his secondary education, Jack began a night course in industrial chemistry at the Melbourne Technical College, precursor of the Royal Melbourne Institute of Technology, and took a series of day jobs, mainly as a chemistry technician, until, upon joining the RAAF once he was of age, he was seconded to the Commonwealth Serum Laboratories, where he was involved in the early production of penicillin.

Following graduation with a Diploma in Applied Chemistry in 1947, Jack obtained a Victorian government scholarship to study Veterinary Science, taking the first year in Melbourne in 1948, and graduating BVSc, 3rd in a class of 72, from the University of Sydney in 1952.

In early 1953, Jack married Margaret Fitzgerald, his wife of 50 years until her death, and the mother of two girls and three boys. Jack initially was assigned as a Victorian government veterinary officer in a number of towns in rural Victoria, finally settling in Bendigo. However, in late 1955 he took up a research position at the recently-opened Nicholas Institute for Medical and Veterinary Research, in Sassafras in the Dandenong Ranges east of Melbourne . Here he was engaged in developing drugs for control of coccidiosis in poultry and internal parasites of sheep and cattle. He also gained expertise in poultry management and diseases, and Jack's first scientific publication, in Nature in 1958, was on 'slipped tendons' in chickens.

Above: Jack teaching students in 1970

In 1964, Jack was appointed Senior Lecturer in Parasitology in the then recently resurrected University of Melbourne Faculty of Veterinary Science, where he taught more than a thousand students and carried out research over the next 25 years, retiring at the end of 1988. Jack had an enthusiastic and memorable teaching style, and parasitology was recognized by the students of his era as the best taught course. Following his death, this announcement appeared in the Melbourne Herald newspaper: "Arundel, John (Jack) - Jack was a Veterinary Educator all his working life. But he was more than a teacher. He was a true mentor and friend

Jack Arundel continued

to us all. We all loved Jack - he is a legend. Melbourne University Veterinary Students."

Soon after taking up his University appointment, Jack began to carry out research and supervise graduate students, despite the onerous task of getting the parasitology course established. Geoffrey Ford's MVSc (1968) was the first graduate degree to emerge from the Faculty, and Rupert Herd's one of the first two PhDs (1970). Barry Munday (MVSc 1970), Ralph Salisbury (MVSc 1972), Ian Barker (PhD 1974), and others followed over succeeding years. During this period, Jack continued to publish papers on anthelmintics, as well as their application to control nematode parasites of sheep and cattle in winter rainfall areas. He was particularly interested in anthelmintic treatments associated with the peri-parturient rise in faecal egg counts and in alternate grazing with sheep and cattle.

Jack's scientific interests were exceptionally broad and encompassed the full spectrum of 'veterinary parasitology'. Referring to his years at the Nicholas Institute, he often commented that the most significant research that he had conducted, he had never actually published. In some respects, this was typical of Jack's attitude, in which authorship of publications was not a priority. He frequently responded to requests from post-graduate students to include him as a co-author of their work by saying that his job was to supervise and not to be a co-author of their original work, a degree of generosity not seen frequently in post-graduate supervision. As a consequence, many publications in which Jack was intimately involved do not include him as a co-author.

The American ban on importation of Australian sheep meat in the late 1960s, on the spurious grounds that it was infected with cysticerci of Taenia ovis (which also occurred in the USA), led to the Australian Meat Research Committee launching a major research programme into the epidemiology of T. ovis. Jack was at the forefront of this research, initiating surveys of domestic animals and facilitating surveys of feral animals. Together with Mike Rickard, who investigated the immunology of taeniid metacestodes with the aim of developing a vaccine, they worked on various aspects of the epidemiology of the taeniids, including the effects of various sewage treatment systems, and on the efficacy of vaccination against Taenia saginata in cattle. In addition, there was renewed research on echinococcosis as a potentially significant zoonosis in mainland Australia.

In the early 1970s, Jack became increasingly interested in parasitic diseases in wildlife, initially through Barry Munday at the Mount Pleasant veterinary laboratory in Tasmania, looking at coccidiosis in mutton birds, as well as with Karl Harrigan at the veterinary school, investigating diseases in waterbirds at Serendip Sanctuary near Lara and penguins on Phillip Island. Jack also investigated annual mortalities in juvenile kangaroos at Yan Yean Reservoir, north of Melbourne, showing that they were primarily due to parasitic nematodes.

Realising how little was known about diseases in Australian wildlife, Jack obtained Commonwealth funding for three years to set up a wildlife disease research unit at the Melbourne veterinary school. He employed Ian Barker as pathologist and Ian Beveridge as parasitologist, who, with Karl Harrigan, investigated die-offs in waterfowl and other waterbirds, poxvirus infections in wild birds, the mortality of breeding male antechinuses , coccidiosis in kangaroos, and carried out general surveys of parasites in kangaroos. Jack had little support from within the Faculty for this initiative, and promised Victorian government funding to continue the programme failed to materialize. But he managed to obtain Commonwealth grants for a further three years to study parasites and diseases of red kangaroos in New South Wales, funding truncated after two years by the Fraser government, forcing disbandment of the unit. Although numerous publications emanated from this activity, including a book chapter led by Jack, reviewing diseases of Australian marsupials, he (typically) declined many co-authorships.

A year of sabbatical leave at the veterinary school in Nairobi reignited Jack's interest in hydatid disease, and there he collaborated with Calum Macpherson, with whom he published several papers on echinococcosis in Africa. On his return to Melbourne, Jack continued to publish case reports and articles on anthelmintics, while retaining a strong interest in wildlife, representing the Australian Veterinary Association on the Commonwealth Kangaroo Advisory Committee as well as on Victorian committees advising on kangaroo culling and whale strandings.

Jack wrote the parasitic diseases sections for the 5th-7th editions of the text book "Veterinary Medicine", edited by Blood, Henderson and Radostits (later Blood and Radostits), the standard text on the subject for veterinary students for many years, and contributed to Blood and Studdert's veterinary dictionary. Together with A.K. (Sandy) Sutherland, he also wrote Volume 10, on ectoparasitic diseases, in the 'Animal Health in Australia' monograph series published by the Australian Government. He contributed a substantial number of reviews to the Veterinary Refresher Courses run by the University of Sydney Post-Graduate Committee in Veterinary Science, ranging from parasite control in ruminants and parasitic diseases of companion animals, to parasites of marine mammals, and he also authored two major monographs for the same committee, on veterinary anthelmintics, and parasitic diseases of horses in Australia.

Few Australian veterinary parasitologists have worked and published across the range of topics covered in Jack's publications. A legacy befitting his involvement in wildlife parasitology has been the parasites named for him: the coccidian Eimeria arundeli from wombats and the nematodes Arundelia dissimilis, Thylonema arundeli and Macroponema arundeli from kangaroos and wallabies.

Upon his retirement from the University of Melbourne in 1988, he was the recipient of the degree Doctor of Veterinary Science honoris causa, in recognition of his many

Jack Arundel continued

Above: Jack celebrating his 90th birthday

academic contributions.

Against the background of his research and academic activity, Jack also was very involved in scientific and veterinary professional organizations. During his Nicholas period and the early phase of his university career, Jack was active in the Victorian Divisions of the World Poultry Science Association and the Australian Society for Animal Production, and on the national council of the latter. From 1976-84, he represented the Universities on the Australian Poultry Research Advisory Committee.

He made a very significant contribution to the Australian Veterinary Association (AVA) throughout his career, serving on the editorial board and as Editor of the Australian Veterinary Journal; for the Victorian Division in a number of capacities, including President in 1966-67; and on the national council of the AVA, ultimately becoming National President in 1983-84. In recognition of his contributions, he was elected a Fellow of the AVA in 1973, and was awarded the Gilruth Prize, its highest honour, in 1987. He was invited to give the Kendall Oration to the annual conference in 1996, and received the associated medal.

In 1993, Jack was honoured by the Australian College of Veterinary Scientists, being invited to deliver the College Oration.

In 1975, Jack was a founding member of the Australasian Section of the Wildlife Disease Association (WDA), of which he was President 1981-83. He was elected an Emeritus Life Member by the international WDA in 1989.

Jack was a founding member of the Australian Society for Parasitology (ASP) in 1964, and was involved in drawing up the basis for the first meeting . He served as President of the ASP in 1973-74, and was named a Fellow in 1988. Jack was the primary mover in the 1970s to establish a national parasite collection. This resulted eventually in the appointment of a curator of helminths at the South Australian museum, and a database at the Queensland Museum listing all parasites in Australian museum collections. He was able to attend the 50th anniversary of the founding of the Society in Canberra in 2014, where he enjoyed interrogating students during the poster sessions, even though he admitted that he had relatively little understanding of the (molecular) work they were presenting.

In retirement, Jack maintained several commercial consultancies, and until 1996 continued his work on the Production Research Advisory Committee of the Australian Wool Corporation, to which he was appointed in 1984.

In 2002, he was surprised but pleased to be made a Member of the Order of Australia “For service to veterinary science as an educator and researcher, and to the profession through participation in the Australian Veterinary Association”.

Jack and his family were mutually fortunate to maintain a close relationship, extending to the third generation, following Margaret’s passing in 2003. Jack was keenly aware of events around him, and for the past several decades, undaunted by increasing infirmity, enjoyed an active and interactive life with his diminishing number of long-term friends, and among his children and grandchildren. He leaves Penny, Helen, Peter, Michael and Brian, their partners, and 15 grandchildren to mourn, yet celebrate with us, a life well-lived.

Rebecca Traub, President-elect of the Society

We are thrilled to announce that Professor Rebecca Traub has been elected for the position of President-Elect at the ASP AGM, 29 July 2020,

Rebecca was nominated by Barbara Nowak and Una Ryan.

She was awarded the John Frederick Adrian Sprent Prize of the Australian Society for Parasitology in 2005, for her outstanding PhD thesis on "Dogs, humans and gastrointestinal parasites; unravelling epidemiological and zoonotic relationships."

In 2019, she was awarded the Bancroft-Mackerras Medal of the Australian Society for Parasitology for her enormous contributions to veterinary public health, with a focus on the epidemiology, diagnosis and control of companion animal parasites and vector-borne diseases transmitted between animals and humans.

Undergraduate Prizes

Congratulations to **Daniel Jeremy Isaac Greenberg** who has been awarded the 2019 UTS Undergraduate Australian Society for Parasitology Prize!

Congratulations to **Freja Svendsgaard** (right), winner of the University of Tasmania: Best Undergraduate Student Prize in Parasitology 2019.

$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 2020 prizes must be made by the eligible University to the ASP Treasurer by the 30th September 2020. Please complete the online application form:**

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

2020 AGM

Congratulations to the ASP Council members who were elected at the ASP AGM held on 30th July 2020.

Download and read all of the reports and the minutes for the 2020 ASP AGM online in the Members only Resources section of the WildApricot website

https://asp.wildapricot.org/memberresources/

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David Piedrafita, 2020 Fellow of the ASP

Congratulations to 2020 Fellow of the Australian Society for Parasitology, David Piedrafita!

David Piedrafita is Associate Professor and Associate Dean for Research at Federation University in Victoria.

David obtained a BSc Hons in 1991 from ANU and a PhD in 1996 in Parasite Immunology from La Trobe University. In 1997, David was awarded a prestigious Wellcome Trust Research Fellowship working with Professor Liew at Glasgow University on DNA vaccines against Leishmania, which resulted in multiple high impact publications. eturning to Australia in 2000, David has focused on understanding the immunological control of helminth parasites, particularly Fasciola (liver fluke) and Haemonchus contortus (Barber's Pole worm) at Monash University until 2014, and since then at Federation University.

David collaborates widely and is internationally recognised as one of the principal authorities on advancing understanding of immunological responses for parasites in veterinary animals. He is regularly invited to present at international conferences/universities and publishes in the highest impact journals of his field. In recognition of his broad international reputation, in 2007 he was invited to join the Club Melbourne Ambassador program by the Victorian Premier, to assist in raising the scientific profile of Australia and in securing major international events.

Key research outcomes include the development of in vitro culture systems for Fasciola, and the first and only demonstration and identification of an immunological killing mechanism against Fasciola. He is also leading research in the international community on novel helminth resistance mechanisms in production animals from developing countries, which have coevolved with pathogenic parasites, allowing survival even in the presence of high parasite transmission. In particular, David discovered a novel resistance mechanism against the blood feeding nematode, *H. contortus*, in a native breed of sheep, indigenous to the Canary Islands and demonstrated an immunological basis of resistance against liver fluke in an Indonesian sheep breed. These studies are making significant advancements in our understanding of parasite resistance by production animals and will be critical to the development of efficacious vaccines and new drugs. More recent work has seen David trialing a native antigen vaccine against *H. contortus* in both Australia and the Canary Islands and developing of a vaccine delivery device against the influenza virus.

David has published >90 research articles, book chapters and conference proceedings and has successfully obtained research funding totaling ~$3M, from a range of organisations including ACIAR, NHMRC, Meat and Livestock Australia (MLA), Australian Wool Innovation (AWI) and Pfizer Animal Health Ltd. This includes a 4 year project as sole Chief Investigator in the Sheep Genomic Program, a $30M MLA/AWI initiative with 11 leading research organisations in Australia and New Zealand, which generated resources and new technologies to allow a rapid advancement in our understanding of parasite resistance and control. As a leading international researcher, David has also mentored over 30 emerging scientists from developing countries in his laboratories as he feels this is critical to science development in these countries. This includes students from China, India, Bangladesh, South America, Spain, Thailand, Sudan, Peru, the Philippines, Iraq, Nepal and Iran. He has also mentored over 25 PhD students to completion, the majority being from developing countries.

David has also been a very active member of the ASP and served as President Elect and President from 2004-2006 and Executive Secretary from 2013-2015. During his presidency in 2006, he coordinated and led a successful bid for ICOPA 2010 in Melbourne and was elected as co-chair for this international conference (with Professor Alan Cowman). Since 2014, he has been the Executive Secretary of the World Federation for Parasitologists. This is an international board with overarching responsibility for promoting international parasitology and is the umbrella organisation that all substantial international parasitology societies are members of. The society solicits international governmental, political and scientific promotion through various activities. It also governs the organisation of the ICOPA congresses.

In view of his outstanding contributions to science, parasitology and the society, David Piedrafita is an extremely worthy recipient of the title Fellow of the Australian Society for Parasitology.

Katherine Andrews, 2020 Fellow of the ASP

Congratulations to 2020 Fellow of the Australian Society for Parasitology, Katherine Andrews!

Professor Katherine Andrews is head of the Tropical Parasitology Group at the Griffith Institute for Drug Discovery and currently Acting Director of the Institute.

She obtained a BSc Hons in 1990 and a PhD in 1998 in Microbiology from Griffith University. Katherine conducted postdoctoral research at the Queensland Institute of Medical Research (QIMR) before being awarded a prestigious Alexander von Humboldt Fellowship in 1998 to work on pregnancy malaria at the University of Heidelberg, Germany. Katherine returned to Queensland Institute of Medical Research (QIMR) in 2003, developing a research program focused on malaria drug discovery. During that time, she was the Executive Officer of the Griffith Medical Research College (2006-2009) and recipient of the Queensland Premiers Award for Medical Research. In 2009, Katherine returned to Griffith University as an ARC Future Fellow. She was awarded her professorship at the Griffith Institute for Drug Discovery in 2017. She also holds an Adjunct Scientist position at QIMR Berghofer Medical Research Institute since 2013. Between 2009-2011, Katherine served as the national Director of the Australian Society for Medical Research.

Katherine is a leading expert in the field of early phase antimalarial drug discovery and is committed to trying to improve the lives of people who suffer from this significant global health issue.

She leads research under two key research themes. The first focuses on the discovery and development of new drug leads for malaria prevention. Under this theme (funded by two current NHMRC Project grants on which she is CIA; ~$1.2million) she leads a team that is developing novel malaria prevention drug leads from a unique CSIRO chemical compound library comprising largely novel structures not previously reported in the literature. This is important, as any new drugs developed for malaria should ideally be different to those used currently in order to kill the parasite in new ways and to limit potential issues of cross-resistance with existing drugs. The second theme, focuses on the discovery and development of potential treatment drug leads, including novel fast killing chemotypes (NHMRC Project grant as CIA; ~$800K) and compounds that target epigenetic regulatory enzymes.

Katherine is an internationally recognised scientist and has published >97 articles and has also been very successful in obtaining research funding. She has been CI on a range of grants from various funding bodies including NHMRC, ARC and Gates Grand Challenges totaling ~$14.6M.

Katherine is an outstanding science communicator, having been involved in public outreach since 2008 and organizing many Outreach events both within her institution and externally. In 2016 Katherine began a project with the aim of bringing STEM careers alive for young children through the development of a series of picture books for primary school children (grades Prep-3) which are simple and engaging and authored by inspiring Queensland women in STEM with a vision to inspire as many children as possible. As the Project Developer and Director of That's RAD! Science STEM outreach project Katherine has authored/produced books on parasites (Prof Kathy Andrews), nanotech (A/Prof Qin Li), forensics (Senior Sergeant Donna Stewart) and crystal science (Prof Jenny Martin). Impacts include >4000 books to Australian children/libraries and numerous outreach events. Content includes information about the interesting fields of the woman in STEM authors (from a child's "voice"), fascinating facts, engaging colour graphics and hands-on science experiments.

Katherine has been a champion for women in science and in 2017 was awarded the Women in Technology Life Sciences Research Leader award, which celebrates women that make a "significant contribution to growth and development of their teams and Queensland technology, serving as role models for others".

Katherine has also been a very active member of the ASP and served as Executive Council Member and Treasurer from 2011-2013 and since 2011 has been an Associate Editor for the International Journal for Parasitology: Drugs and Drug Resistance. She also plays a major role in STEM and parasitology outreach activities.

In view of her outstanding contributions to science, parasitology and the Society, Katherine Andrews is an extremely worthy recipient of the title, Fellow of the Australian Society for Parasitology.

Katja Fischer, winner of the 2020 Bancroft-Mackerras Medal for Excellence

Congratulations to Dr. Katja Fischer who was awarded the 2020 Bancroft-Mackerras Medal for Excellence from the Australian Society for Parasitology..

Katja Fischer heads the Scabies laboratory at the QIMR Berghofer Medical Research Institute in Brisbane.

She completed a Diploma in Biology/ Parasitology in 1991 from the University of Freiburg, Germany and in 1998 completed her PhD in Molecular Parasitology from the University of Würzburg. After graduating from her PhD, she migrated to Australia as a research officer and then senior research officer at the QIMR Berghofer Medical Research Institute. In 2013, she was awarded an ARC Future Fellowship, which she recently completed in 2018. She has been group leader since 2014 and is currently an NHMRC senior research fellow (2019-23). She also holds Adjunct appointments at the University of Queensland (2000-) and Griffith University (2005-).

Katja is an excellent scientist and next to the most influential clinicians in this field, she is the most prolific author of basic scabies research worldwide ('Web of Science') with >80 papers (and 44 as lead/ senior author). Her research is published in journals ranking highest in the fields of Tropical Diseases and Parasitology. Her original research papers published prior to 2013 in the Journal of Immunology, Journal of Molecular Biology and the Journal of Biological Chemistry are the only original research manuscripts on scabies ever published in higher ranking mainstream journals.

Over the course of her career, she has received ~$8M in funding and was sole CI on NHMRC New Investigator Project (2009-12). Scabies (and associated bacterial disease) is a globally increasing problem with widely underrated downstream complications. In Aboriginal and Torres Strait Islander communities of remote northern Australia, scabies prevalence is high and extreme rates of scabies-associated streptococcal and staphylococcal infections cause a significant public health burden. Her group, which has been working on scabies for more than 15 years, is focused on understanding the molecular interactions of scabies mite molecules with host defence systems in the skin, which is central to developing new options for reducing scabies incidence and improving disease outcomes.

Katja's research has resulted in major contributions to our understanding of scabies globally: she

1. Pioneered molecular biology research of scabies (Fischer 2003), resulting in genomic resources that have major impact in the field (evidenced by >20 publications).

2. Produced the first recombinant proteins/ crystal structures for scabies mites, and defined virulence factors that interfere with complement, coagulation and the skin barrier.

3. Identified 8 drug targets and 3 drug candidates with pharmaceutical potential.

4. Defined the molecular mechanisms underlying mite/bacterial co-infections and

5. Developed a unique and internationally recognised porcine in vivo model for scabies (PLoSNTD, 2010), a crucial resource for research and commercialization internationally (PLoSNTD, 2016).

Together with three other colleagues, she also currently holds a patent (WO 2016/201528A1), granted in 2016, for treating inflammation and/or cancer by administration of an isolated EgKI-1 protein. She has been a consultant for Hatchtech Pty Ltd (a head lice treatment

Katja Fischer continued

pharmaceutical company) since 2016, as well as for Sarantis Pty Ltd (recombinant protein expression in Pichia yeast, 2006) and Mayne Pharma, (scabicide testing, 2015).

Katja is a founding member and Lead Scientific Advisor of the International Alliance for the Control of Scabies (IACS), which is the sole international alliance advocating for scabies and achieving a change in its status through WHO. She served on the Cooperative Research Centre for Aboriginal and Torres Strait Islander Health Advisory Board and is currently the Scientific Advisor for 'Orange Sky Australia', a mobile laundry service for people in need. In this role she helps develop community-led initiatives to improve hygiene standards, reduce the spread of infectious diseases, improve health outcomes, increase education and awareness and provide local employment opportunities. She also works to actively recruit, mentor and foster Indigenous researchers and students and on request tests bush medicines, balms and oils from native plants for acaricidal properties.

Her current research involves:

1. national and international partnership with leading experts in bioinformatics to establish the first comprehensive fully assembled and annotated, high quality scabies mite genome, integrated with the mite proteome and transcriptome, which will be an invaluable resource

to identify candidate target proteins for drug discovery and diagnostics.

2. analysing the scabies mite associated microbiota to elucidate the impact of scabies on the microscopic organisms living on healthy skin and to identify new strategies for treating scabies and secondary infections and

3. understanding the molecular mechanisms that underpin the intricate links between mites and bacteria to identify therapeutic options

Her scientific standing in the community is evidenced by 42 invited talks and chairs in past decade, 33 of which were at international conferences and she was on the organising committee for the 2016 International Congress for Tropical Medicine and Malaria in Brisbane. Her profile has resulted in invited reviews in influential journals including Advances in Parasitology, the International Journal for Parasitology, Trends in Parasitology (2019) and Clinical Microbiology Reviews (2019) and she was also invited to become Chief Editor for Springer Nature Book. Katja is a Guest Editor for PLoS Neglected Tropical Diseases, for which she also regularly reviews manuscripts. She is a frequent reviewer for the British Journal of Dermatology, Frontiers in Microbiology and Allergy.

In addition to her scientific contributions to the field of Parasitology, Katja has also made significant contributions to the ASP and has been involved in a wide range of outreach activities.

In view of her outstanding contributions to science, parasitology and the society, Katja Fischer is an extremely worthy recipient of the Bancroft-Mackerras Medal of the Australian Society for Parasitology.

The Bancroft-Mackerras Medal for Excellence 2021

Nominations for the 2021 medal close on September 30th 2020.

Please visit parasite.org.au/bmm for more information and a nomination form.

Kathryn Parker, winner of the 2020 John Frederick Adrian Sprent Prize

Congratulations to recently graduated PhD student Kathryn Parker for winning the 2020 John Frederick Adrian Sprent Prize.

Apicomplexans rely on plasma membrane-localised transporter proteins to take up essential nutrients from their host. Although nutrient uptake is essential for parasite proliferation and virulence, the transporter proteins that mediate the uptake of many essential nutrients, including amino acids, are unknown. Kathryn's PhD project built on work that Kathryn commenced in her Honours thesis to examine a family of predicted solute transporters that were, at the time, of unknown function. The work of Kathryn and others in our group determined that this transporter family mediate the uptake of a range of amino acids from the host, and we now term these the Apicomplexan-specific Amino acid Transporter (ApiAT) family.

In the first experimental chapter of her thesis, Kathryn examined the evolutionary relationships amongst ApiAT proteins. She demonstrated that the family is restricted to apicomplexan parasites, and that members of the family are split into a range of subfamilies. In the second experimental chapter, Kathryn went on to examine the expression and subcellular localisation of the 16 ApiAT-family proteins from toxoplasma gondii, demonstrating that about half are expressed in the disease-causing tachyzoite stage of the parasite, all of which localise to the plasma membrane of the parasites. In collaboration with other members of our research team, Kathryn then demonstrated that four of the 16 ApiAT-family proteins were important for proliferation of the disease-causing stage of the parasite. The first two chapters of Kathryn's thesis made up

part of a comprehensive study on the ApiAT protein family that was published in PLOS Pathogens this year, and on which Kathryn is a co-first author.

In the final three experimental chapters of Kathryn's thesis, she honed in on one of the ApiAT family proteins, ApiAT2, that she had deemed to be important for tachyzoite proliferation. Using a broad range of techniques, including the generation of genetically modified parasite strains, radiolabelled amino acid uptake experiments, metabolomics, and heterologous expression of the transporter in Xenopus oocytes, Kathryn demonstrated that ApiAT2 is the major glutamine transporter in the parasite. Glutamine plays a key role in central carbon metabolism in these parasites, and Kathryn's discoveries (although not yet published) will further our understanding glutamine utilisation in these parasites.

Overall, we believe Kathryn's thesis makes an extremely strong contribution to the knowledge of nutrient uptake transporters in an economically important group of parasites. The thesis is well-written, and Kathryn's examiners were effusive in their praise, as evidenced by their summary statements, which we have included below (we also attach to this nomination the examiner reports in their entirety).

Examiner 1 wrote: Overall, the thesis is of a very high standard. The general presentation is excellent, the text is a pleasure to read and the thesis presents a range of novel findings that will increase greatly our understanding of apicomplexan parasite biology. The candidate has demonstrated an impressive degree of experimental expertise and thoughtful data interpretation and, in my opinion, should now be considered an expert in their chosen field.

Examiner 2 wrote: The candidate should be congratulated for a comprehensive body of work that is set out in a well written and easy to read format. I have never read a thesis with so few typos/mistakes. Congratulations Kathryn!

Examiner 3 wrote: Overall, the thesis is very well written. The document presents a good structure and is illustrated with original striking figures and clear tables. Throughout the text, it is clear the candidate has a strong, clear and extensive understanding of her topic.

Kathryn undertook her thesis as part of a conjoint PhD/MChD (medical) degree. This required Kathryn to complete all the experimental work from her thesis in under three years. Despite these challenges, Kathryn has completed a superb, well-written thesis that breaks important new ground in the field. Kathryn is a very worthy recipient of the John Frederick Adrian Sprent Prize.

Parasitravaganza awards

The ASP organised an online conference 'Parasitravaganza 2020' on July 30-31 this year for early career researchers to connect, present their research, and participate in career-focused workshops.

The organising committee consisted of five PhD students, two senior researchers and the ASP secretary. The team initially thought this would be an online event for Australian-based scientists, however, the online conference attracted delegates from around the world.

Congratulations to the Organising committee who did a great job and we will see a full report in the next ASP newsletter: **Coralie Boulet** (La Trobe University); **Siobhon Egan** (Murdoch University); **Lisa Jones** (James Cook University); **Thorey Jonsdottir** (Burnet Institute and the University of Melbourne); **Michelle Power** (Macquarie University); **Stuart Ralph** (The University of Melbourne); **Lily Tran** (La Trobe University); and **Mae White** (Flinders University.)

Awards

Congratulations to the winners of the ASP student and early career researcher awards for 2020 Parasitravaganza!

Best long talk

Samantha Nixon (The University of Queensland) "Drug discovery: using spider venoms against human and veterinary parasites" was the winner of the Parasitravaganza Best Long Talk Award.

Runner-up: **Samantha Emery-Corbin** (WEHI) "Eukaryote-conserved histone post-translational modification landscape in Giardia duodenalis revealed by mass spectrometry".

Samantha Nixon

Sanduni Hapuarachchi

Best speed talk

Benjamin Liffner (The University of Adelaide) "Identification of Plasmodium falciparum merozoite proteins essential for rhoptry secretion" won the Best Speed Talk Award.

Runner-up: **Liana Theodoridis** (La Trobe University) "Novel 3D compounds to fight malaria in a time of drug resistance"

People's Choice

Sanduni Hapuarachchi (The Australian National University) "A transporter critical for Toxoplasma gondii invasion" won the People's Choice Award.

Runner-up: **Merryn Fraser** (ANU) "Of Monocytes and Malaria: Membrane asymmetry in Plasmodium-infected RBCs and its effect on phagocytic recognition"

Best poster

Thorey Jonsdottir (Burnet Institute) "Identifying the key players of the P. falciparum exportome" won the Best Poster Award.

Runner-up: **Mikha Gabriela** (Burnet Institute) "How does malaria parasite control the trafficking of effector proteins outside its cell?"

Benjamin Liffner

Thorey Jonsdottir

Volume 31 Issue No.4 September 2020

Ian Beveridge, new ASP Fellows Representative

We welcome a familiar face to the role of ASP Fellows Represenative, Professor Ian Beveridge of the University of Melbourne..

Ian Beveridge graduated in Veterinary Science from the University of Melbourne and completed his PhD there on taeniid cestodes. Following completion of his PhD he was employed in the Wildlife Disease Research Unit, newly established by Jack Arundel, at the University of Melbourne vet school, working primarily on parasitic diseases of marsupials. He then obtained a CSIRO Overseas Fellowship to undertake research on anoplocephalid cestodes at the University of Neuchâtel in Switzerland, which at the time was a centre for studies on cestodes. On his return to Australia, he moved to James Cook University in Townsville to work on onchocerciasis in cattle, followed by a move to a permanent position in Adelaide, initially at the Institute of Medical and Veterinary Science, the veterinary division of which was subsequently taken over by the Department of Agriculture. The position entailed oversight of the state veterinary parasitology diagnostic laboratory as well as research projects on parasites of sheep and cattle. He also managed to maintain his interest in parasites of wildlife and due to a completely unexpected funding opportunity, was able to extend into marine parasites, mainly cestodes in sharks and rays. During this period, he also took study leave and spent six months in the laboratory of Prof. A.G. Chabaud at the Muséum national d'Histoire naturelle in Paris, maintaining to the present day an on-going relationship with the museum. Also, during this period, he became an Honorary Associate of the South Australian Museum, an association which is, again, on-going.

In 1989, he returned to the University of Melbourne to fill Jack Arundel's vacated position and taught Veterinary Parasitology there until his retirement. During this period, his main area of research was of parasites of marsupials, although the interest in fish parasites continued, as well as the occasional venture into the realms of various arthropod parasites. He was president of the ASP some time in the Pliocene and has been on and off the ASP Council over an extended period of time. At the request of Prof. J.F.A. Sprent, and together with Peter O'Donoghue, he put together and edited the book, the 'History of Parasitology', and helped David Emery get the electronic text, 'Australian Parasites, Inside and Out', finished and available to students. Other major activities have been publishing checklists, with long – term collaborator Dave Spratt of CSIRO in Canberra, of the parasites of marsupials and, with Malcolm Jones, in contributing the Cestode section to the Zoological Catalogue of Australia. He was a deputy editor for IJP over an eight-year period and continues to have an association with IJP-PAW as a member of the editorial board.

Ian has a strong aversion to "metrics" such as number of papers published and has a paricular hatred of 'impact factors' and all other related 'indices', and has attempted as far as possible to deliberately publish in journals with low impact factors.

Currently, he is continuing to publish papers in low impact factor journals and to co-supervise post-graduate students at the University of Melbourne. He and David Jenkins, somehow appear each year at the Concepts in Parasitology course at Kioloa with an array of dead mammals to either delight or horrify the students with what can be found in mammalian entrails and to introduce some of them to some of the basic elements of "bucket" parasitology. Apart from parasitological activities, Ian is the librarian and an active player in his local amateur symphony orchestra.

New State Representative for the ACT

We warmly welcome Cibelly Goulart as the new state representative for the ACT. Cibelly introduces herself below.

I obtained my PhD from the University of São Paulo (Brazil) for my work on the development of recombinant vaccines. I joined Prof Nick Smith's (University of Technology Sydney – UTS) research team in 2018 as a Postdoctoral Research Associate on the NHMRC project "A Transmission-Blocking Vaccine to Prevent Toxoplasmosis". I am, simultaneously, a Visiting Fellow at The Australian National University (ANU) where I work with Dr Giel van Dooren at the Research School of Biology (RSB). I have a strong interest in infectious organisms and host-pathogen interactions and became passionate about Toxoplasma and its distinct cellular stages.

From the Student Representative

Shut Up And Write

The second ASP Shut Up And Write took place on Monday 14th of September: student members virtually joined from different places in Australia to work together. Every half-an-hour, we took a break from our writing: we chatted and got to know each other. It was very well received: we all managed to be productive while connecting with peers (especially those of us in locked-down Victoria!).

Please join us for the next Shut Up And Write session on Monday 5th October, 1:30-5pm (AEST). You will receive the Zoom link in your emails, closer to the date. Feel free to contact me directly if you do not receive the link: C.Boulet@latrobe.edu.au

Facebook

If you are on Facebook, please join the ASP Students and ECRs group: connect, get to know each other, share events, workshops and tips...

https://www.facebook.com/groups/235999997706585

Other ideas? Get in touch!

If you have other ideas, please contact me at C.Boulet@latrobe.edu.au. I would love to hear from you!

Coralie

Climate Focus for Parasitology

A new group within the ASP hopes to stir an interest in the relationship between parasitology and the climate.

We are in a climate crisis

With global warming of just over +1°C, we see deadly wildfires, dangerous heat-waves, melting of the Greenland ice-sheets past its recovery point, over 20cm of sea levels rise. Not only have we experienced the four hottest years on record in the last five years, but these will seemingly be among the coldest years of the next century. Without significant climate action now, we are heading towards a nightmarish +5°C world. The climate crisis is also impacting parasitic diseases worldwide due to modifications in the distribution of vectors, population displacements, increase in poverty and conflicts (see the "Climate crisis & Parasitic Diseases" flyer).

What has the ASP done so far?

In 2019, the ASP acknowledged the urgency and severity of the climate crisis by declaring a climate and ecological emergency. The ASP supported the 2019 climate strike (just a year ago, on Friday 20th September): this year, the Australian school climate strike took place on Friday 25th September, with the watchword "Fund our future, not gas". The ASP also circulated the UniSuperDivest campaign, urging the superannuation fund to divest from fossil fuels, providing members with a letter template to be sent to UniSuper. The ASP Treasurer has investigated the ASP investment portfolio and will be gathering further information if the ASP membership decide that they want to move forward with a more sustainable investment fund.

The ASP Climate Focus Group: who are we, and how can you join?

So far, the ASP Climate Focus Group consists of: Andreas Stroehlein (The University of Melbourne), Coralie Boulet (La Trobe University), Lee Yeoh (The University of Melbourne), Lisa Jones (ASP Executive Officer), and Thorey Jonsdottir (Burnet Institute). We meet every two weeks, on Tuesdays 1–2pm. If you are interested in this work, please email Coralie or Lisa (C.Boulet@latrobe.edu.au or secretary@parasite.org.au). We are thinking of what the ASP could implement to alleviate the ongoing climate and ecological crises, for example, providing guidelines for the organisation of the annual ASP conference is on our agenda. In the meantime, we decided to organise virtual workshops and seminars: "Climate-Focus Series".

"Climate-Focus Series" webinars

Our first seminar will be on "Sustainability in the Lab" with My Green Lab, a not-for-profit organisation in San Diego, California that aims to improve sustainability in scientific research with speakers Rachael Relph (Chief Sustainability Officer, My Green Lab) and Eduard Willms (Postdoctoral Researcher, Hill lab at la Trobe.)

Following webinars will alternate between parasitology-focussed discussions (e.g. effects of parasites on climate change and vice-versa) and sustainability in our research practices (e.g. running a net-zero emission conference). We would love to hear what you want to see next! Contact us to let us know: C.Boulet@latrobe.edu.au or secretary@parasite.org.au.

Join ASP on ZOOM for the 1st Climate Focus Seminar | Thursday 22nd of October, 11:30am-12:30pm (AEST)

Please register for this ZOOM meeting with this link:

https://us02web.zoom.us/meeting/register/tZIsceqhrDguHdHUfEefmbCO_p9sHm5od-so

After registering, you will receive a confirmation email containing information about joining the meeting, please then add the event to your calendar so that the meeting link is available to you.

(Please note this meeting will be recorded and available afterwards upon request.)

Parasites Online for National Science Week

The Australian Society for Parasitology hosted "Parasites Online", 26 live events and one competition, on Facebook across National Science Week 15th – 23rd August 2020. These Inspiring Australia events were supported by the Australian Government as part of National Science Week.

We had a wonderful response from our audience with 451 people watching events live and 1790 people engaging with the online event videos. Events are all listed on the ASP website https://www.parasite.org.au/outreach/2020-national-science-week-events/

Five of Dr Rina's events were AUSLAN interpreted and Dr Rina also developed a Sensory Science show for Special Needs. All events were broadcast live through the ASP Facebook page and scientists were available at the time to respond to any audience questions during the livestream or afterwards. We used different online event styles to cater to different audience types, all had an interactive component including; interactive workshops; hands-on science demonstrations where visitors pre-registered and were sent an ingredients list to follow along; book readings; singing; dancing; answering quiz questions; playing augmented reality and other interactive games; watching experiments and then responding to science questions about the results; asking scientists questions live; creating artwork; and engaging in a science workshop that includes resources sent to the participants.

You can watch past Parasites Online events through our ASP Facebook livestream tab and links to individual events are below https://www.facebook.com/ASParasitology/live_videos/

Watch the Parasites Online 2020 National Science Week playlist https://www.youtube.com/playlist?list=PLMF_YOdLuTSV-fJuXuDE5VwT7gIndLJWh on the ASP YouTube channel https://www.youtube.com/user/ASPParasiteNetwork

An Australian Government Initiative | Inspiring Australia | The Australian Society for Parasitology Inc. | national science week 2020

The ***Parasites Online*** program and where to find the recordings

Acknowledgement of Country with Coralie and Cam for National Science Week

https://www.facebook.com/136927439706782/videos/774348340035814

Art Science Competition – the inaugural "Portrait of a Parasite" annual Art-Science competition

https://www.parasite.org.au/outreach/2020-art-competition/

There were seven applicants who created an artwork of a flea parasite using any art technique. The winning artworks in each category were announced online

https://www.facebook.com/ASParasitology/videos/1203467516705094

Parasites and You (from ANU)

ANU Parasitology website with games.

https://biology.anu.edu.au/research/centres-units/anu-parasitology

My Mad Scientist Mummy - play school style and AUSLAN interpreted with Dr Rina Fu

(video available online until end September 2020)

https://www.facebook.com/ASParasitology/videos/630975447417528/

https://www.facebook.com/ASParasitology/videos/326292878519555/

https://www.facebook.com/ASParasitology/videos/329311401586661/

Stories for budding scientists – That's RAD! Science with Dr Kathy Andrews

https://www.facebook.com/ASParasitology/videos/2515555938757249/

https://www.facebook.com/ASParasitology/videos/2766260793662847

https://youtu.be/YP8drs28sFg

Pets and Parasites - a couch talk with a vet with Dr Sarah Preston

https://www.facebook.com/ASParasitology/videos/593419868017998/

https://youtu.be/wWagwW5nTYg

Live from the lab – The War on Scabies with Dr Katja Fischer

National Science Week continued

https://www.facebook.com/ASParasitology/videos/758167941612579/

https://www.facebook.com/ASParasitology/videos/627556354826624

https://youtu.be/9z9QioCAx8A

Little Scientist Workshop: Blood & Stuff Part 1 and AUSLAN interpreted with Dr Rina Fu

(video available online until end September 2020)

https://www.facebook.com/136927439706782/videos/799252237547243

Virtual couch talk: Community led One Health programs with Dr Cam Raw

https://www.facebook.com/ASParasitology/videos/676028513264440/

Little Scientist Workshop: Blood & Stuff Part 2 and AUSLAN interpreted with Dr Rina Fu

https://www.facebook.com/ASParasitology/videos/1024716181281703/

(video available online until end September 2020)

Can chloroquine be used against Covid-19? Interview with PhD student Liana Theodoridis

https://www.facebook.com/ASParasitology/videos/298233898118917/

https://youtu.be/n2Qo5Q4DnYo

Fresh from the field – Bat Colonies and Live from the lab – Poo analysis with Dr Michelle Power

https://www.facebook.com/ASParasitology/videos/638097840154893/

https://youtu.be/xdrmKbiCVgU

Live from the lab – Art and Science workshop with Dr Shokoofeh Shamsi

https://www.facebook.com/ASParasitology/videos/335896034482454

https://youtu.be/cZ3N-3VOJS0

And for the interview with researchers start this movie at 16 minutes in (we had technical difficulties)

https://www.facebook.com/ASParasitology/videos/2750611868372187

Parasite games with Dr Sarah Preston

https://www.facebook.com/ASParasitology/videos/344966416504904

Live from the lab – Malaria, Veterinary Parasitology and VR! with La Trobe University researchers from the Carvalho Laboratory

https://www.facebook.com/ASParasitology/videos/2621227484793614

https://youtu.be/jfW4OSuY1I4

https://youtu.be/3rNBqYhArW4

https://youtu.be/fKrIIx1cH5s

https://youtu.be/SU32WMYFBqU

Scoop a Poop Workshop: antimicrobial resistance in the wild with Dr Michelle Power

https://www.facebook.com/ASParasitology/videos/992006977913262

Couch talk: Dogs as reservoirs of parasitic zoonoses Dr Sarah Preston interviews Dr Richard Bradbury

https://www.facebook.com/ASParasitology/videos/334340684356981

https://youtu.be/DMIy_SDYIrw

Live from the lab – Giardia parasites with Dr Tina Skinner-Adams and Snigdha Tiash

https://www.facebook.com/ASParasitology/videos/772880593447779

https://youtu.be/2SBoIvq-zEs

Art meets Science – Malaria, Claymation and Illustrations with Dr Danny Wilson and PhD student Miguel Balbin

https://www.facebook.com/ASParasitology/videos/3519734874715164

Sensory Science (Special Needs) Science Show with Dr Rina Fu

(videos available online until end September 2020)

https://www.facebook.com/ASParasitology/videos/337903600926153

https://www.facebook.com/136927439706782/videos/303019760991975

Live from the paddock: What the worm is wrong with these sheep? With Dr Sarah Preston

https://www.facebook.com/ASParasitology/videos/3549953055068087

https://youtu.be/OxvK13DYp9A

Art meets Science - Crystals Rock! Family Science Workshop and AUSLAN interpreted with Dr Rina Fu

(video available online until end September 2020)

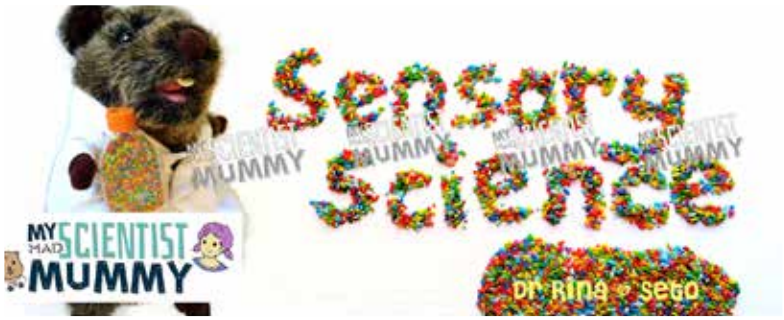
https://www.facebook.com/136927439706782/videos/241028337214302

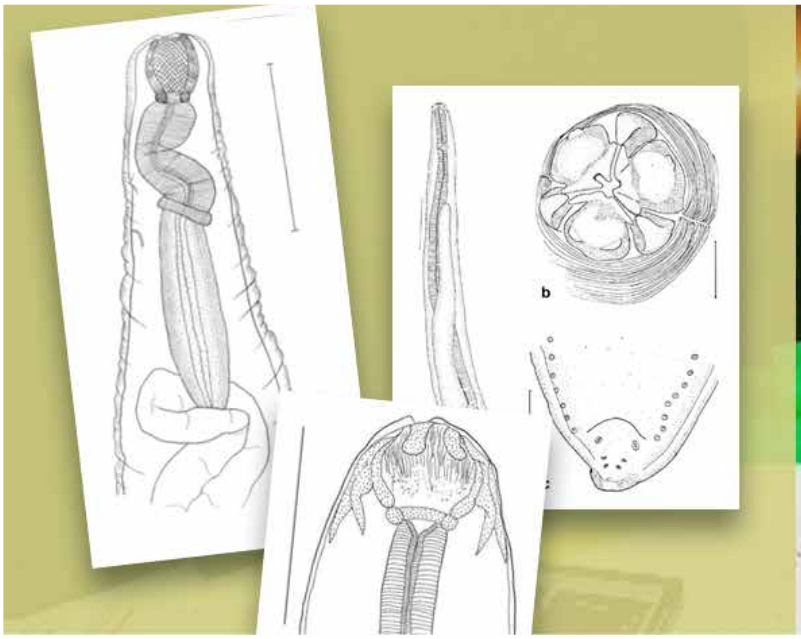
Lisa and Sarah discuss Parasites Online for National Science Week

https://www.facebook.com/136927439706782/videos/731380550989599

National Science Week continued

National Science Week continued





Art Science Competition

The inaugural "Portrait of a Parasite" annual Art-Science competition took place in conjunction with National Science Week.

Inspired by our Live from the lab – Art and Science workshop with Charles Sturt University researchers Dr Shokoofeh Shamsi and Dr Di Barton the ASP called for artists to create their own artwork of a flea parasite using any art technique; drawing, painting, digital or wearable art, use clay, animation...as part of 2020 National Science Week.

https://www.parasite.org.au/outreach/2020-art-competition/

There were seven applicants who created an artwork of a flea parasite using any art technique. We provided the picture of the flea for inspiration. This lovely image of a flea parasite is copyright Russell Hobbs, Murdoch University, 2007 and was used as the inspiration for our artists.

The flea is the common cat and dog flea, *Ctenocephalides felis*. The photograph was taken through a microscope at low magnification. These fleas infest dogs and cats and are very common throughout the world. In some dogs they cause a hypersensitivity reaction called Flea Allergy Dermatitis, which can be quite debilitating. This particular flea was raised on an artificial dog called FIDO (Flea Incubating Deluxe Oven), as part of a project to investigate the potential for development of a flea vaccine.

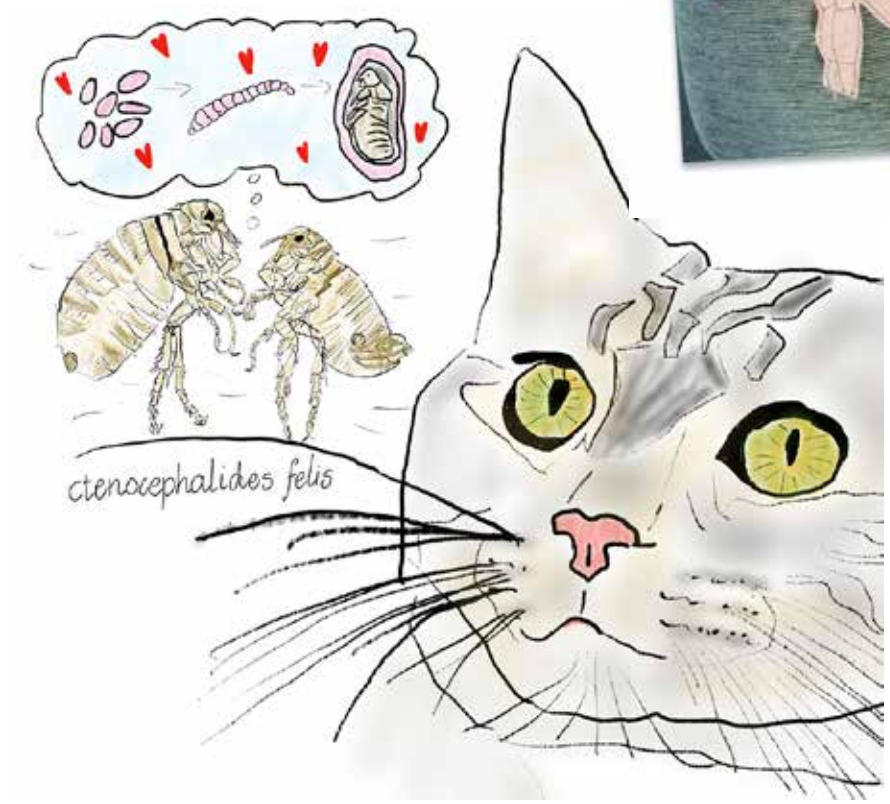
Congratulations to all applicants and to the winners in each category!

- Sebastian (9 months) "Felt artwork of a flea with real cat and dog hair attached to make it more life-like."
- Isaiah Ang "Artwork of a blood sucking flea."
- Ethan Ang "Leeches bite boy's leg near the swamp."
- Ethan Ang "Flea on a Dog." Winner (under 13 years of age)
- Connie Harris "Portrait of a flea. Created with pen and watercolours." Winner (13-17 years)
- Sarah Farrell "Flea using watercolour with outlining in fineliner."
- Thorey Jonsdottir "Flea art." Winner (18 years and older)

The winning artworks in each category were announced online https://www.facebook.com/ASParasitology/videos/1203467516705094 and all entries will receive a t-shirt with Gula guri mayin https://www.parasite.org.au/outreach/gula-guri-mayin/ printed on it and some National Science Week gifts.

This page. Above: Connie Harris's *Portrait of a flea.* Right: Ethan Ang's *Flea on a Dog*

***Art Science* Competition** continued



This page. Clockwise from top left:

Issac Ang's *Artwork of a bloodsucking flea*

Sarah Farrell's *Flea using watercolour with outlining in fineliner*

Sebastian's *Felt artwork of a flea with real cat and dog hair attached to make it more life-like*

Thorey Jonsdottir 's"*Flea art*"

IJP

INTERNATIONAL JOURNAL FOR PARASITOLOGY

www.journals.elsevier.com/international-journal-for-parasitology

Editor In Chief: Brian Cooke

Facebook: www.facebook.com/IJPara
Twitter: @IJPara
Instagram: ijpara

September (50:10/11)

Special Issue: 10th International Symposium on Fish Parasites

Story behind the cover

This issue of International Journal for Parasitology contains invited papers on a wide range of topics on fish parasitology including reviews on current issues and new research results; many by the invited speakers to the 10th International Symposium on Fish Parasites (ISFP).

This year the 10th ISFP was going to be held in July in Cairns, Australia, jointly with the Australian Society for Parasitology annual conference, but due to the COVID-19 outbreak it has been postponed until July 2021. All articles in this issue contribute significantly to our understanding of fish parasitology and create the framework for our discussions at the 10th ISFP in 2021.

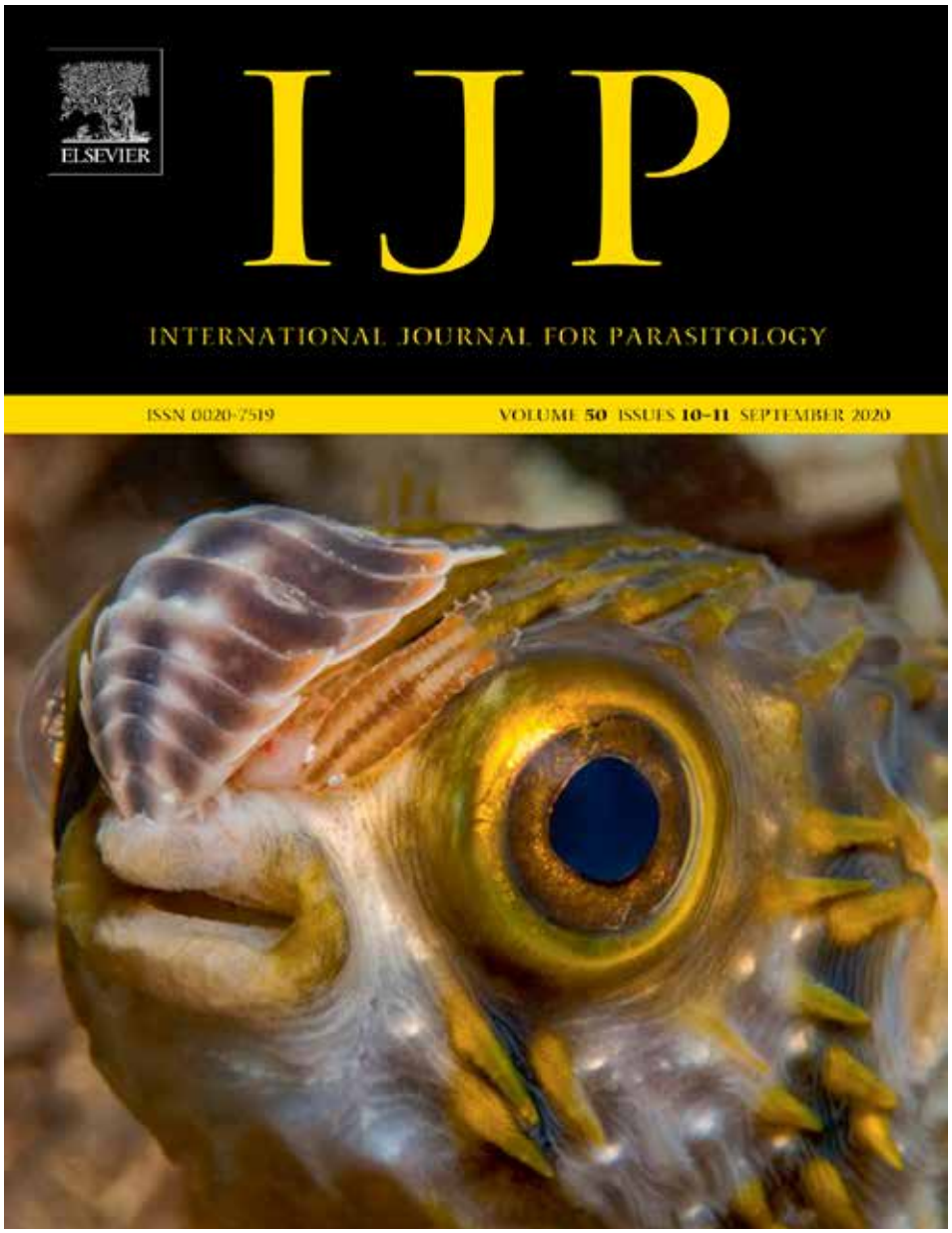
Reference

Nowak, B., 2020. Editorial. Int. J. Parasitol. 50, 731-732. https://doi.org/10.1016/j.ijpara.2020.08.001

https://www.sciencedirect.com/journal/international-journal-for-parasitology/vol/50/issue/10

Highlights of the September edition

- International Symposium for Fish Parasitology #special_issue #IJPpara
- Future of fish parasite discovery #ecology #taxonomy #systematics
- Blood flukes and cultured marine fishes #flukes #disease
- Continental bridges shape gill parasites diversity #phylogeny
- #monogenea #gills
- and more ... https://tinyurl.com/yyytov8z



Isopod *Creniola laticauda* on globefish Diodon nichthemerus Image courtesy of Jon Bryan, Seanature, Australia (www.seanature.southcom.com.au)

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY
Parasites and Wildlife

www.journals.elsevier.com/international-journal-for-parasitology-parasites-and-wildlife/

Editors: R.C. Andrew Thompson, Susan Kutz

Facebook: www.facebook.com/IJPPAW/

Enjoy a recent selection of IJP PAW articles published in Parasites and Wildlife, Volume 12, 2020.

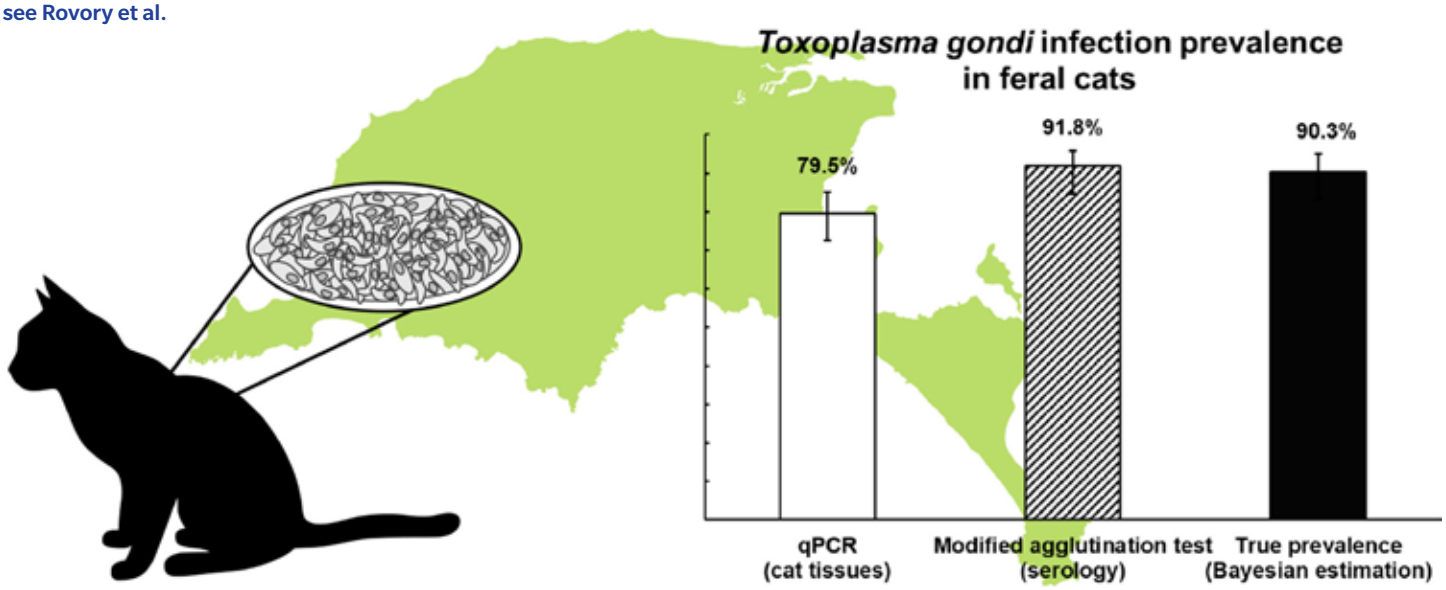
Luisa Giari, Brandon Ruehle, Elisa Anna Fano, Giuseppe Castaldelli, Robert Poulin, "Temporal dynamics of species associations in the parasite community of European eels, *Anguilla anguilla*, from a coastal lagoon", International Journal for Parasitology: Parasites and Wildlife, Volume 12, 2020, Pages 67-75, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2020.05.001. (http://www.sciencedirect.com/science/article/pii/S2213224420300444)

The resilience of biological communities is of central importance in ecology, but is difficult to investigate in nature. Parasite communities in individual hosts provide good model systems, as they allow a level of replication usually not possible with free-living communities. Here, using temporal data (2005–2017) on the communities of endohelminth parasites in European eels, *Anguilla anguilla*, from brackish-water lagoons in Italy, we test the resilience of interspecific associations to changes in the abundance of some parasite species and the disappearance of others. While most parasite species displayed changes in abundance over time, three trematodes that were present in the early years, two of which at high abundance, completely disappeared from the parasite community by the end of the study period. Possibly other host species required for the completion of their life cycles have declined in abundance, perhaps due to environmental changes. However, despite these marked changes to the overall community, pairwise correlations in abundance among the three most common parasite species (all trematodes) were stable over time and remained mostly unaffected by what happened to other species. We explore possible reasons for these resilient species associations within a temporally unstable parasite community inhabiting a mostly stable host population.

Katherine Adriaanse, Simon M. Firestone, Michael Lynch, Anthony R Rendall, Duncan R. Sutherland, Jasmin Hufschmid, Rebecca Traub, "Comparison of the modified agglutination test and real-time PCR for detection of T*oxoplasma gondii* exposure in feral cats from Phillip Island, Australia, and risk factors associated with infection", International Journal for Parasitology: Parasites and Wildlife, Volume 12, 2020, Pages 126-133, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2020.05.006. (http://www.sciencedirect.com/science/article/pii/S2213224420300493)

Toxoplasma gondii is considered a disease risk for many native Australian species. Feral cats are the key definitive host of *T. gondii* in Australia and therefore, investigating the epidemiology of T. *gondii* in cat populations is essential to understanding the risk posed to wildlife. Test sensitivity and specificity are poorly defined for diagnostic tests targeting *T. gondii* in cats and there is a need for validated techniques. This study focused

This page: See Adriaanse et al. Next page: see Rovory et al.



IJP:PAW continued

on the feral cat population on Phillip Island, Victoria, Australia. We compared a novel real-time PCR (qPCR) protocol to the modified agglutination test (MAT) and used a Bayesian latent class modelling approach to assess the diagnostic parameters of each assay and estimate the true prevalence of *T. gondii* in feral cats. In addition, we performed multivariable logistic regression to determine risk factors associated with *T. gondii* infection in cats. Overall *T. gondii* prevalence by qPCR and MAT was 79.5% (95% confidence interval 72.6–85.0) and 91.8% (84.6–95.8), respectively. Bayesian modelling estimated the sensitivity and specificity of the MAT as 96.2% (95% credible interval 91.8–98.8) and 82.1% (64.9–93.6), and qPCR as 90.1% (83.6–95.5) and 96.0% (82.1–99.8), respectively. True prevalence of *T. gondii* infection in feral cats on Phillip Island was estimated as 90.3% (83.2–95.1). Multivariable logistic regression analysis indicated that *T. gondii* infection was positively associated with weight and this effect was modified by season. Cats trapped in winter had a high probability of infection, regardless of weight. The present study suggests qPCR applied to tissue is a highly sensitive, specific and logistically feasible tool for *T. gondii* testing in feral cat populations. Additionally, *T. gondii* infection is highly prevalent in feral cats on Phillip Island, which may have significant impacts on endemic and introduced marsupial populations.

Phoebe Rivory, Gregory Brown, Cathy Shilton, Richard Shine, Jan Šlapeta, "Apparent lack of spill-over of parasites from an invasive anuran: PCR detects *Entamoeba* in cane toads (*Rhinella marina*) but not in sympatric Australian native frogs", International Journal for Parasitology: Parasites and Wildlife, Volume 12, 2020, Pages 207-213, ISSN 2213-2244, https://doi.org/10.1016/j.ijppaw.2020.06.009. (http://www.sciencedirect.com/science/article/pii/S221322442030064X)

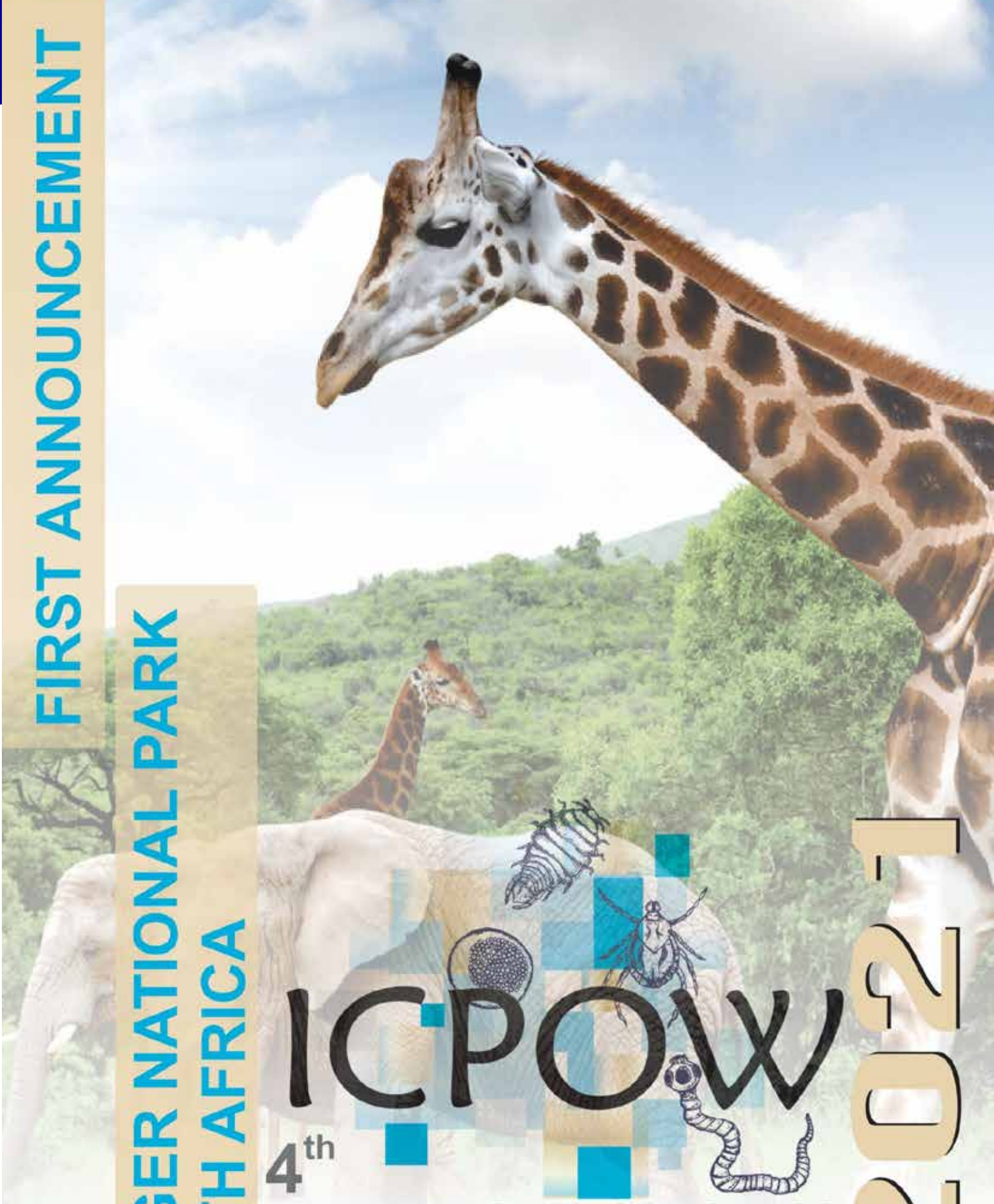
The recent detection of a novel amoebozoan parasite (*Entamoeba* sp. CT1) killing invasive cane toads (*Rhinella marina*) in tropical Australia raises concerns of potential spill-over into native anuran populations. Considering the vulnerability of anuran communities globally, *Entamoeba* sp. CT1 may pose a serious threat to anuran biodiversity. Through PCR-based detection and molecular identification, we investigated the prevalence of *Entamoeba* spp. in the faeces and colon tissue of cane toads (*Rhinella marina*) and eleven native Australian frog species from a single locality in the Northern Territory. No *Entamoeba*

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

DNA was detected in samples of native frog faeces (N = 57) or colons (N = 17). Entamoeba DNA was detected in 24% of 45 cane toads (95%CI 14.08–38.82). Both *E. ranarum* and *Entamoeba* sp. CT1 were present in cane toads. The failure of faecal samples to indicate *Entamoeba* spp. in infected cane toads may be due to cysts in faeces being shed intermittently, degraded before analysis, or impervious to lysis prior to DNA isolation. Our results suggest that native frogs do not carry the pathogen in an area where 20–30% of cane toads are infected with *Entamoeba* sp. CT1. We demonstrate the importance of recognising PCR inhibition prior to molecular diagnostics, and the apparent inadequacy of faecal samples for the detection of *Entamoeba* spp. in anurans.

FIRST ANNOUNCEMENT

KRUGER NATIONAL PARK
SOUTH AFRICA



ICPOW 2021

4th INTERNATIONAL CONGRESS ON PARASITES OF WILDLIFE

19-22 September 2021 | Kruger National Park, South Africa

www.ICPOW2021.co.za

IJP INTERNATIONAL JOURNAL FOR PARASITOLOGY
Drugs and Drug Resistance

www.journals.elsevier.com/international-journal-for-parasitology-drugs-and-drug-resistance/

Editors In Chief: Andrew Kotze & Kevin Saliba

Facebook: www.facebook.com/IJPDDR/

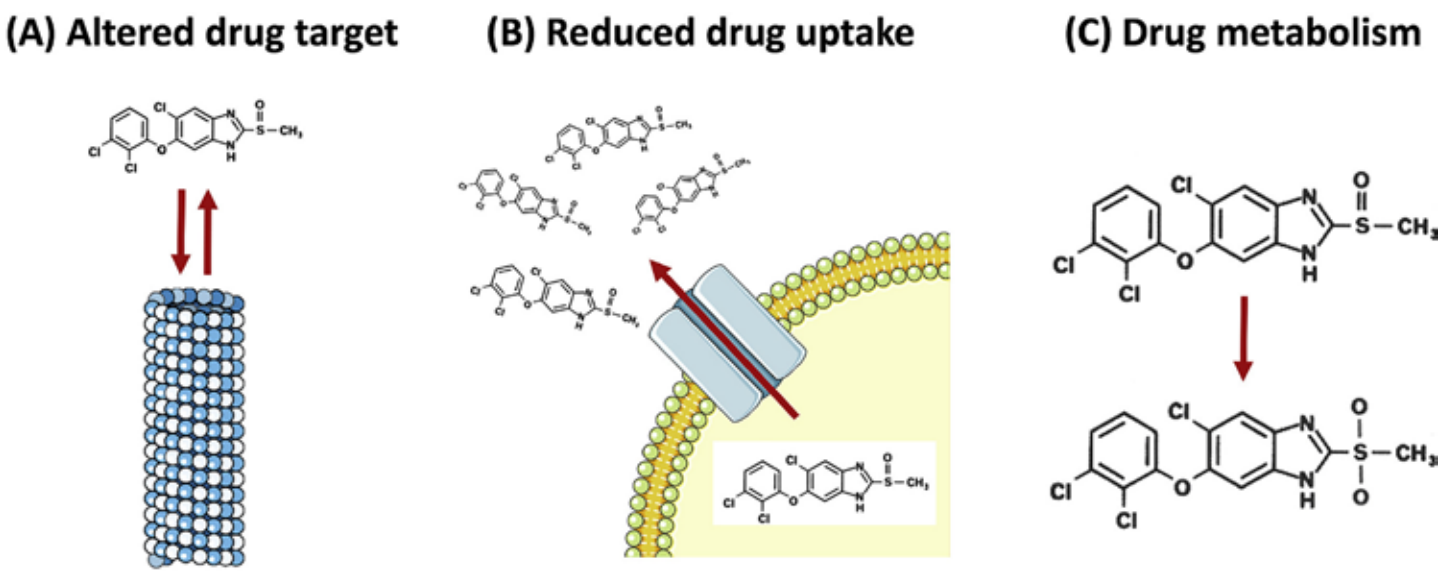
Enjoy a recent selection of IJP DDR articles Drugs and Drug Resistance, Volume 12, 2020.

J.A. Scare, D.M. Leathwick, C.W. Sauermann, E.T. Lyons, A.E. Steuer, B.A. Jones, M. Clark, M.K. Nielsen, "Dealing with double trouble: Combination deworming against double-drug resistant cyathostomins", International Journal for Parasitology: Drugs and Drug Resistance, Volume 12, 2020, Pages 28-34, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2019.12.002. (http://www.sciencedirect.com/science/article/pii/S2211320719301460)

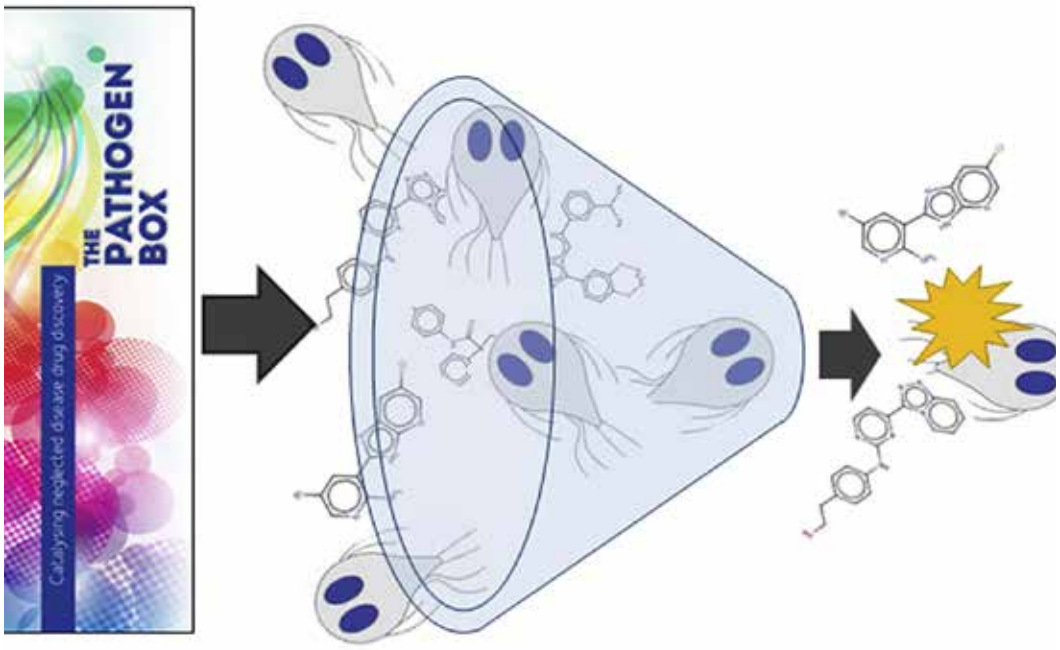
An alternative control regimen for drug-resistant parasites is combination deworming, where two drugs with different modes of action are administered simultaneously to target the same parasite. Few studies have investigated this in equine cyathostomins. We previously reported that an oxibendazole (OBZ) and pyrantel pamoate (PYR) combination was not sustainable against a cyathostomin population with high levels of OBZ and PYR resistance. This study consisted of a field study and two computer simulations to evaluate the efficacy of a moxidectin-oxibendazole (MOX-OBZ) combination against the same cyathostomin population. In the field study, anthelmintic treatments occurred when ten horses exceeded 100 eggs per gram. Fecal egg counts and efficacy evaluations were performed every two weeks. The two simulations utilized weather data as well as equine and parasite population parameters from the field study. The first simulation repeated the treatment schedule used in the field study over a 40 year period. The second evaluated efficacies of combination treatments using selective therapy over 40 years. In the field study, efficacies of MOX and both combination treatments were 100%. The egg reappearance period for MOX was 16 weeks, and the two combination treatments were 12 and 18 weeks. The first (46.7%) and last (40.1%) OBZ efficacies were not significantly different from each other. In the simulation study, the combination treatment delayed MOX resistance development compared to when MOX was used as a single active. This occurred despite the low efficacy of OBZ. The second set of simulations identified combination treatments used with selective therapy to be the most effective at delaying MOX resistance. Overall, this study supports the use of combination treatment against drug-resistant cyathostomins, when one of the actives exhibits high efficacy, and demonstrates benefits of this approach despite substantially lowered efficacy of the other active ingredient.

I. Fairweather, G.P. Brennan, R.E.B. Hanna, M.W. Robinson, P.J. Skuce, "Drug resistance in liver flukes", International Journal for Parasitology: Drugs and Drug Resistance, Volume 12, 2020, Pages 39-59, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2019.11.003. (http://www.sciencedirect.com/science/article/pii/S2211320719301435)

This page: See Fairweather et al. Next page: see Tiash et al.



IJP:DDR continued



Liver flukes include *Fasciola hepatica, Fasciola gigantica, Clonorchis sinensis, Opisthorchis spp., Fascioloides magna, Gigantocotyle explanatum and Dicrocoelium* spp. The two main species, *F. hepatica* and F. *gigantica*, are major parasites of livestock and infections result in huge economic losses. As with *C. sinensis*, *Opisthorchis* spp. and Dicrocoelium spp., they affect millions of people worldwide, causing severe health problems. Collectively, the group is referred to as the Food-Borne Trematodes and their true significance is now being more widely recognised. However, reports of resistance to triclabendazole (TCBZ), the most widely used anti-Fasciola drug, and to other current drugs are increasing. This is a worrying scenario. In this review, progress in understanding the mechanism(s) of resistance to TCBZ is discussed, focusing on tubulin mutations, altered drug uptake and changes in drug metabolism. There is much interest in the development of new drugs and drug combinations, the re-purposing of non-flukicidal drugs, and the development of new drug formulations and delivery systems; all this work will be reviewed. Sound farm management practices also need to be put in place, with effective treatment programmes, so that drugs can be used wisely and their efficacy conserved as much as is possible. This depends on reliable advice being given by veterinarians and other advisors. Accurate diagnosis and identification of drug-resistant fluke populations is central to effective control: to determine the actual extent of the problem and to determine how well or otherwise a treatment has worked; for research on establishing the mechanism of resistance (and identifying molecular markers of resistance); for informing treatment options; and for testing the efficacy of new drug candidates. Several diagnostic methods are available, but there are no recommended guidelines or standardised protocols in place and this is an issue that needs to be addressed.

Snigdha Tiash, Jake Saunders, Christopher J.S. Hart, John H. Ryan, Andrew G. Riches, Tina S. Skinner-Adams, "An image-based Pathogen Box screen identifies new compounds with anti-Giardia activity and highlights the importance of assay choice in phenotypic drug discovery", International Journal for Parasitology: Drugs and Drug Resistance, Volume 12, 2020, Pages 60-67, ISSN 2211-3207, https://doi.org/10.1016/j.ijpddr.2020.03.002. (http://www.sciencedirect.com/science/article/pii/S221132072030004X)

Giardia duodenalis, the most prevalent human intestinal parasite causes the disease, giardiasis. On an annual basis *G. duodenalis* infects ~1 billion people, of which ~280 million develop symptomatic disease. Giardiasis can be severe and chronic, causing malnutrition, stunted growth and poor cognitive development in children. Current treatment options rely on drugs with declining efficacy and side-effects. To improve the health and well-being of millions of people world-wide, new anti-*Giardia* drugs with different modes of action to currently used drugs are required. The Medicines for Malaria Venture's Pathogen Box, a collection of bio-active compounds specifically chosen to stimulate infectious disease drug discovery, represents an opportunity for the discovery of new anti-*Giardia* agents. While the anti-*Giardia* activity of Pathogen Box compounds has been reported, this work failed to identify known anti-*Giardia* controls within the compound set. It also reported the activity of compounds previously screened and shown to be inactive by others, suggesting data may be inaccurate. Given these concerns the anti-*Giardia* activity of Pathogen Box compounds was re-assessed in the current study. Data from this work identified thirteen compounds with anti-*Giardia* IC50 values ≤2 μM. Five of these compounds were reference compounds (marketed drugs with known anti-microbial activity), or analogues of compounds with previously described anti-*Giardia* activity. However, eight, including MMV676358 and MMV028694, which demonstrated potent sub-μM IC50s against assemblage A, B and metronidazole resistant parasites (0.3 μM and 0.9 μM respectively), may represent new leads for future drug development. Interestingly, only four of these compounds were identified in the previously reported Pathogen Box screen highlighting the importance of assay selection and design when assessing compounds for activity against infectious agents.

News from the ASP Network for Parasitology

Travel Awards

In this newsletter read about Mohammad **Farouq Sharifpour** from The University of Adelaide's researcher exchange to Ludwig Maximilian University (LMU) to validate, optimize and improve a new technique to artificially control the expression of genes in Toxoplasma. Regretfully, due to the continuing COVID-19 outbreak and restrictions on travel we have postponed the 2020 rounds of the Researcher Exchange, Travel and Training and JD Smyth Postgraduate Student Travel Awards until 2021, if the situation allows. Keep checking the ASP website (https://www.parasite.org.au/awards/jd-smyth-postgraduate-travel-awards/) for updates and to find out how to apply for a Researcher Exchange, Travel and Training Award including a JD Smyth Postgraduate Travel Award.

Researcher Grant news

Congratulations to **Professor Rebecca Traub** from The University of Melbourne who recently won a grant for $1,087,328. "Traditional diagnostic tests limited by their accuracy and ability to detect more than a few pathogens at one time, presents a major hurdle to protecting Australia's companion animals from a plethora of exotic and emerging vector-borne diseases (VBD). Many of these diseases also pose a major risk to public health. This project aims to develop, validate and verify a highly accurate, cost-effective, portable metabarcoding diagnostic test capable of detecting known, emerging and novel parasitic, bacterial and viral VBD pathogens simultaneously, from clinical samples. The assay will represent a potential paradigm shift in the way VBD are tested, for the purpose of safeguarding Australia against VBD bio-incursions."

ASP Events

As you know, due to the outbreak of COVID-19, the 10th International Symposium for Fish Parasitology and Australian Society for Parasitology Annual Conference, Shangri-la Hotel in Cairns, Australia has been postponed to 5-8 July 2021 http://www.isfpx.org/ We will continue to monitor the COVID-19 outbreak and follow government advice with respect to running face-to-face events. We really hope that we will be able to enjoy face-to-face scientific exchanges in a beautiful part of the world next July; we will keep ASP members up-to-date by email and on our website with any changes to our scheduled events.

We hope you have had a chance to be part of our 2020 online events and details of any future Facebook live events and Zoom seminars will be emailed to all members and posted on our website and social media pages. Congratulations to all who participated in our ASP online conference and outreach events in 2020:

- Parasitravaganza 2020, 31st July with ASP student and Early Career Researcher career development events 30th July 2020
- ASP AGM 2-5pm 30th July 2020 (see minutes and reports for the AGM online in the Members only Resources section of the WildApricot website https://asp.wildapricot.org/memberresources/)
- National Science Week 2020 with Parasites Online www.parasite.org.au/outreach

With best wishes,

Nick and Lisa

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

ASP Network Researcher Exchange, Training and Travel Award Report

Mohammad Farouq Sharifpour of the University of Adelaide reports on his visit to Markus Meissner's lab at the Ludwig Maximilian University in Munich.

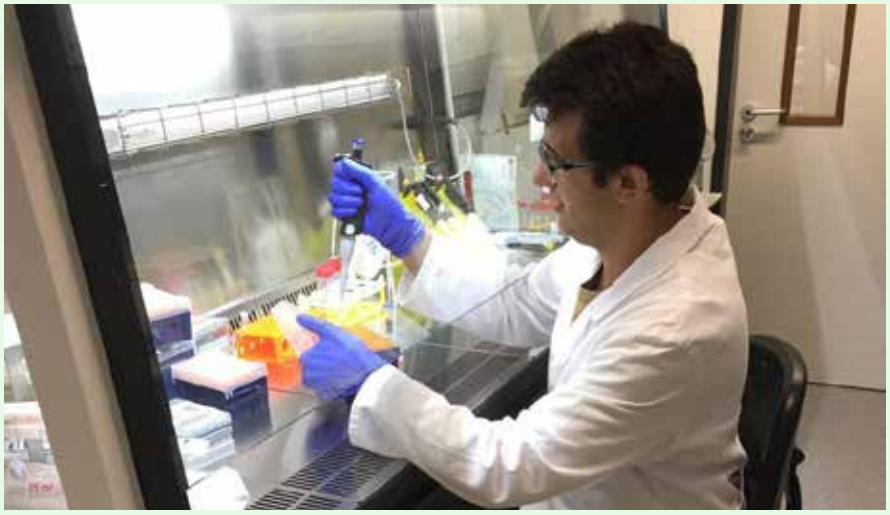
The Research Project Overview

I am working on a project that involves genetic engineering of the pathogen, *Toxoplasma gondii*. This organism belongs to an important group of parasitic organisms known as Apicomplexans which includes other notorious pathogens like the malaria agent.

A molecular technology termed rapamycin regulated transcription system (RRTS) has been proven to be one of the best conditioning methods for tight regulation of gene expression in mammalian cells. In this technology, rapamycin (a small molecule) acts as an on/off switch for the activation of any desired gene; this enables scientists to take over control of any essential gene in mammalian cells by just adding or removing rapamycin.

RRTS technology has not been adapted to the *Toxoplasma* organism yet; I am working to adapt the mammalian RRTS to control genes in *Toxoplasma* and other closely related pathogens. The ability to strictly regulate gene expression would lead us to produces lines of modified pathogens that can be efficiently controlled by rapamycin, both in laboratory condition and in the animal model. Adapting RRTS technology to *Toxoplasma* will be a huge step forward towards developing an efficient controlling system for *Toxoplasma*, Malaria and other closely related pathogens. *Toxoplasma*, as a model apicomplexan, is the best organism to commence further studies on closely related pathogens.

To date, the best available gene control technology for *Toxoplasma* uses a molecular system termed TATi. The TATi system was originally developed by Markus Meissner and others (2002) who are based at the Ludwig Maximilian University (LMU), Munich. Thus, LMU has world-leading expertise in this area. The new system that we are developing (RRTS) will have certain technical advantages over the TATi system; the most important of which will be improved suitability for use in animal models of disease. The specific goal of this collaborative visit to the Ludwig Maximilian University (LMU) was to validate, optimize and improve a new technique to artificially control the expression of genes in *Toxoplasma*.



List of the activities performed in Meissner lab at LMU

Gene designs and preliminary studies had been performed at the School of Animal and Veterinary Sciences, The University of Adelaide and Walter and Eliza Hall Institute of Medical Research (WEHI), Melbourne. We had also designed and tested a series of synthetic fusion proteins termed 'artificial transcription factors (ATFs)' in *Toxoplasma* as a proof of concept; all the designed artificial proteins were found active and functional in the *Toxoplasma* organism.

At LMU, I have been working with the advice and help of the Meissner research group to optimise the RRTS system by testing the following parameters:

1. The effect of a Nuclear Localisation Signal (one of the key elements

in the system) on background expression level.

2. Detecting the previously designed synthetic fusion proteins (ATFs) in mutant *Toxoplasma* by means of Western blotting and Immunofluorescence Assay (IFA)

3. Design and construct the regulatable version of ATF proteins.

4. The effect of FKBP (another key element in the system) repeats on increasing the level of expression.

5. In addition, learning many important technique and skills such as CRISPR/cas9 gene-editing technique.

Benefits and outcomes of this travel

Reaching my PhD goals in a timely fashion and learn modern techniques in this field of research.

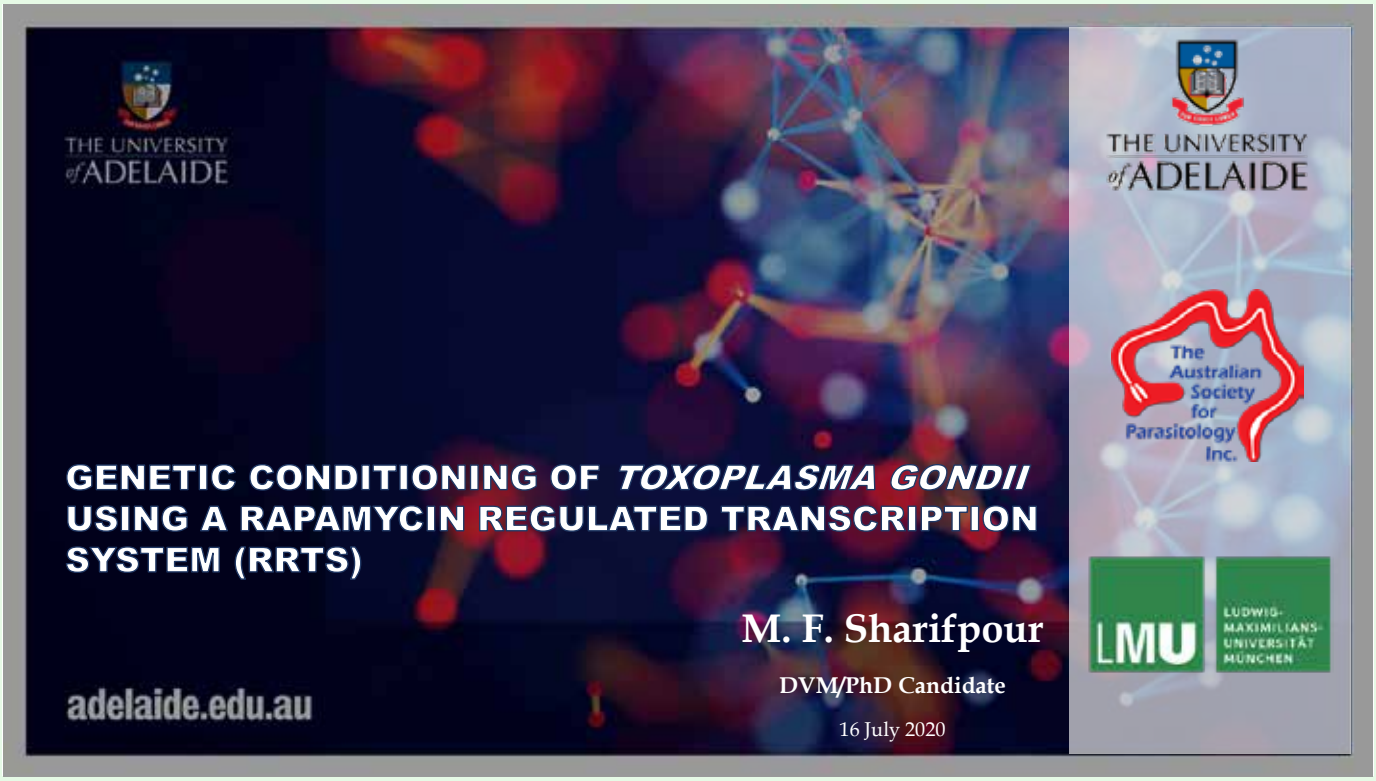
Developing RRTS which lead to further discoveries in the molecular biology of Toxoplasma which will be published in the near future.

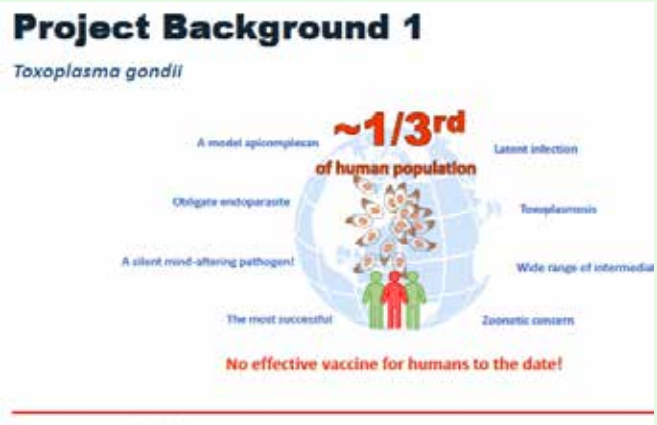
Lead to other opportunities for collaborative research and inter-institutional engagement between the two research groups in particular, and the two universities in general.

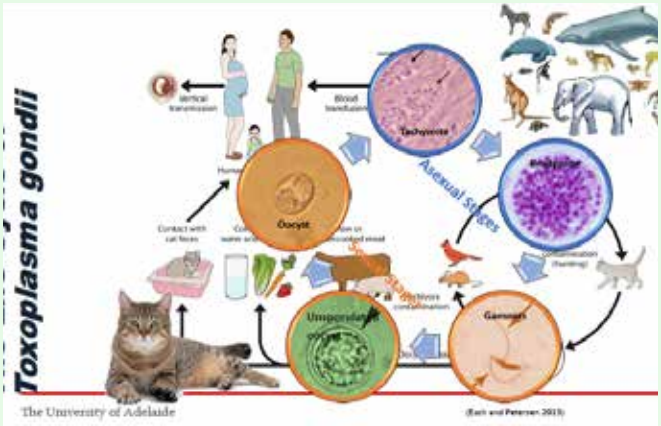
A seminar for the parasitology department at LMU.

Previous page: Farouq Sharifpour at the Ludwig Maximillian University in Munich

Below: slides from the *Toxoplasma* seminar delivered to the LMU parasitology department.







State News

ACT

Australian National University

Funding

Jenni Hayward (PhD student, van Dooren lab) and **Ayman Hemasa** (PhD student, Saliba lab) were awarded a $3000 Student Extracurricular Enrichment Fund (SEEF) grant from the ANU Postgraduate and Research Student's Association (PARSA). The grant is being used to supplement ASP State Outreach funds and support Parasitology outreach. Congratulations Jenni and Ayman!

ANU Parasitology website

ANU Parasitologists have created a website (https://biology.anu.edu.au/research/centres-units/anu-parasitology) that was showcased during National Science Week (August 15-23) and ANU Virtual Open Week (August 22-28).

The site highlights "the good, the bad, and the ugly" of parasites, and features blog pieces, games, videos, artwork, news, and information on parasitology opportunities. The site received over 900 unique visitors during Science Week and ANU Open Week.

Contributing parasitologists included Jeremy Dubrulle, Margot Schneider, Samantha Shippley, Tunan (Nicole) Yu (undergraduate students), Soraya Zwahlen and Cibelly Goulart (van Dooren lab), Merryn Fraser (Maier lab), Sarah Shafik and Sashika Richards (Martin lab), Melanie Rug (Centre for Advanced Microscopy) and Giel van Dooren, as well as Christina Spry (Saliba lab) and Alex Maier, who worked with Sharyn Wragg (webmaster) to put the site together.

Creation of the site was generously supported by ASP State Outreach funding.

Above

The entry page of the new ANU Parasitology website.

ACT Satellite Selfie

ANU Parasitologists contributed to the "Satellite Selfie" coordinated as part of National Science Week. At scheduled satellite flyover times, the parasitologists assembled a giant red blood cell (12 m in diameter) from red material and, all dressed in black, lay in the formation of a ring to mimic a ring-stage malaria parasite. The participating parasitologists included Soraya Zwahlen, Cibelly Goulart and Fadzai (Victor) Makota (van Dooren lab), Stephen Fairweather (O'Mara and van Dooren labs), Merryn Fraser (Maier lab), Sashika Richards and Sarah Shafik (Martin lab), Vanessa Howieson and Christina Spry (Saliba lab), Melanie Rug (Centre for Advanced Microscopy) and Alex Maier. After battling winds to assemble their red blood cell, the parasitologists enjoyed the ten minutes as a ring-stage parasite, watching the sky as the Satellite and drones flew over. They eagerly await the release of the final Satellite image to see how the infected red blood cell looked from space! Thank you to the ASP for State Outreach funding.

Below

Top left: Sashika, Cibelly, Merryn, Vanessa and Alex busily applying safety pins to hold the red blood cell together. Top right: in position for the satellite selfie. Bottom: Sarah, Cibelly, Sashika, Victor, Soraya, Melanie, Christina, Vanessa and Merryn posing for a more traditional-style photo. Photo credits: Alex Maier and Christina Spry.

State News continued

Victoria

University of Melbourne

Georgina Sweet Awards

Please join us to celebrate the winners of the 5th round of Georgina Sweet Awards for Women in Quantitative Biomedical Science hosted by Prof. Leann Tilley

The Virtual Event will be held on Monday 12th October 2020 from 2.30 – 5.00 pm via Zoom.

The Award Ceremony will include brief presentations from each of the six awardees, followed by a panel chaired by award winning science communicator, and a general discussion, with lots of virtual audience participation throughout.

RSVP by 05/10/20 via;
www.eventbrite.com.au/e/119039240573

For further information about the Awards please contact us at:
gslf-tilleyadmin@unimelb.edu.au

New South Wales

University of New England

Interview

Tommy Leung was interviewed recently for an article on the Science Friday website entitled *Why We Should Defend Parasites.*

https://www.sciencefriday.com/articles/defend-parasites/

Below: Professor Leann Tilley with 2019 Georgina Sweet Award Winners Traude Beilharz , Kim-Anh Lê Cao, Sarah Auburn. Image courtesy of the University of Melbourne. https://mdhs.unimelb.edu.au/equity-and-diversity/georgina-sweet-laureate-fellowship/awards

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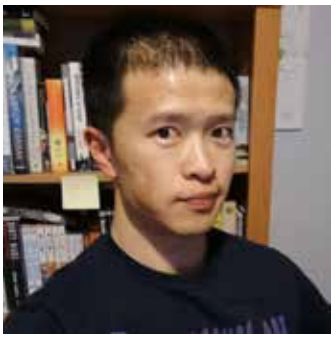

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