



Thursday, 1 February 2007

Dear Network Participant,

The first edition for 2007 of the ARC/NHMRC Research Network for Parasitology Newsletter holds the following items for you:

- [1] **2007 ASP & ARC/NHMRC Research Network for Parasitology Annual Conference...p2**
- [2] **EPIDEMIOLOGY & CONTROL OF INFECTIOUS DISEASES: Introduction to mathematical models of global and emerging infections, Imperial College London...p4**
- [3] **A new look for the Network website – have your say!...p5**

Awards

- [4] **Network Travel Award Winners...p6**

Interview

- [5] **Dr Jacqui Upcroft and Prof. Peter Upcroft's role in sequencing *T.vaginalis*...p6**

Positions vacant

- [6] **Research Opportunities in Molecular Parasitology The University of Melbourne (Professor Robin B. Gasser's laboratory)...p8**
- [7] **Diagnostic services for rural community in Victoria (Benalla region)...p10**

**[1] 2007 ASP & ARC/NHMRC Research Network for Parasitology
Annual Conference will take place from Sunday 8 – Wednesday 11
July at the Marque Hotel*, Canberra**

* formerly The Chifley Hotel

The following speakers and sessions have been confirmed for the Scientific Programme of the 2007 ASP & Network Annual Conference:

Functional Genomics

- Artur Scherf (Institut Pasteur, Paris, France)
- Eileen Devaney (University of Glasgow, UK)
- Alan Cowman (Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia)
- Carolyn Behm (Australian National University, Canberra, Australia)

Evolutionary Biology of Parasites

- Robert Poulin (University of Otago, Dunedin, New Zealand)
- Ian Beveridge (The University of Melbourne, Australia)
- David Blair (James Cook University, Townsville, Queensland)

Parasites in Wildlife and Conservation Biology

- Peter Daszak (Consortium for Conservation Medicine, New York, USA)
- Michael Bull (Flinders University, Adelaide, Australia)
- David Jenkins (SE Australian Hydatid Control and Epidemiology Campaign, Canberra, Australia)

Immunology, Immunomodulation and Vaccines

- Maria Yazdanbakhsh (Leiden University, The Netherlands)
- Sheila Donnelly (Institute for the Biotechnology of Infectious Diseases, UTS, Sydney, Australia)
- Christian Engwerda (Queensland Institute of Medical Research, Brisbane, Australia)
- Magdalena Plebanski (Austin Research Institute, Melbourne, Australia)
- Nick Smith (Institute for the Biotechnology of Infectious Diseases, UTS, Sydney, Australia)

Drug Targets, Drugs and Drug Resistance in Tropical Parasites

This theme is co-sponsored by the Royal Society of Tropical Medicine and Hygiene as part of its Centenary Year Celebrations

- Michael Barrett (University of Glasgow, UK)
- Sanjeev Krishnan (St George's University of London, UK)
- Kiaran Kirk (Australian National University, Canberra, Australia)
- Kathy Andrews (Queensland Institute of Medical Research, Brisbane, Australia)

This conference is an opportunity for parasitologists from Australia, and around the world, to discuss the latest research in parasitology. It will run over four days beginning with a Welcome reception on Sunday evening (8th), the scientific program will start Monday (9th) morning, and will culminate with the conference dinner on Wednesday (11th) evening. There will be plenty of opportunities for contributed talks and posters on any and every topic parasitological.

Registration

	ASP Members+		Non-Society Members	
	Student	Regular delegate	Student	Regular Delegate
Early Bird registration on or before 30/03/06	\$200	\$350	\$300	\$450
Registration after 30/03/06	\$300	\$450	\$400	\$550

+ Or another parasitological society (COST B22, COST 857, BioMalPar, Quebec Centre for Host-Parasite Interactions, NZSP) please specify which society when registering.

Conference Registration will close after 11 May 2006.

Please register online for this conference

<http://www.parasite.org.au/arcnet/conference>

Registration fees are quoted in Australian dollars and include: Entrance to all sessions; meals from 9/7/07 – 11/7/07 inclusive which means evening meals, lunches, and morning and afternoon teas; Entrance to Poster Viewing sessions with free drinks and snacks; the Conference Dinner with pre dinner drinks; the evening Welcome reception on 8 July; and other social events.

Please note that registration does not include accommodation.

Conference delegates must book their own accommodation for this conference.

Don't forget that student ASP members are eligible for generous financial assistance to attend the conference from the ASP provided they have been members for a minimum period before the conference – so download an ASP membership application form now from the ASP website

<http://www.parasite.org.au/member.htm>

Abstracts

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Supported by the Australian Research Council, the National Health and Medical Research Council and the Australian Society for Parasitology.

To submit an abstract for this conference you will first need to register as a participant and then, once you have logged on, submit a contribution through the online conference system.

To register and submit an abstract, please visit our online conference system at www.conftool.net/parasitology2007

Participants who wish to contribute a paper are requested to register and submit an abstract online before 30 March 2007. The Organising Committee will be responsible for selection of the final form of presentation (either poster or oral) but if you do not wish to give an oral presentation you may request to submit a poster display only. You may also request to give an oral poster presentation rather than a contributed paper presentation.

Please check the website for all matters regarding the conference, including additional tickets for guests, hotel accommodation, the social programme and submitting an abstract. Details about the conference will also be sent by post to ASP members.

**[2] EPIDEMIOLOGY & CONTROL OF INFECTIOUS DISEASES:
Introduction to mathematical models of global and emerging
infections, 3-14 September 2007, Imperial College London
Department of Infectious Disease Epidemiology**

Further information & application form available at

<http://www.imperial.ac.uk/cpd/epidemiology/>

Brochure in Adobe pdf format available at

<http://www3.imperial.ac.uk/portal/pls/portal/portal/docs/1/7337797.pdf>

In recent years our understanding of infectious-disease epidemiology and control has been greatly increased through mathematical modelling. Insights from this increasingly-important, exciting field are now informing policymaking at the highest levels – including in pandemic influenza planning, which involves Imperial College – and playing a growing role in research.

Since 1990, this short course has 'demystified' mathematical modelling, and kept public-health professionals, policy makers, and medical and veterinary infectious disease researchers, up-to-date with what they need to know about this fast-moving field, taught by active researchers who advise leading public health professionals, policy-makers, governments, international organisations, and pharmaceutical companies, both nationally and internationally, including on pandemic influenza, SARS, HIV/AIDS, foot-and-mouth disease and others. Two of the presenters are Fellows of the Royal Society and three have received British national honours (a knighthood and two OBEs) for their work, including Professor Sir Roy Anderson FRS.

Imperial College London's Department of Infectious Disease Epidemiology (www.imperial.ac.uk/medicine/research/researchthemes/publicandint/ide) has been a world leader in mathematical modelling of the epidemiology and

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control of infectious diseases of humans and animals in both industrialised and developing countries for 20 years. It hosts the UNAIDS Epidemiology Reference Group, Partnership for Child Development, and the Gates Foundation-funded Schistosomiasis Control Initiative that has treated over 12 million children to date in six countries in Africa. This multi-disciplinary department publishes frequently in Nature, Science, Lancet, PNAS, AIDS, and other leading journals. It has developed models of pandemic influenza, SARS, HIV, TB, foot-and-mouth-disease, vector-borne diseases including malaria and dengue, helminth infections, childhood vaccine-preventable infections, sexually-transmitted infections, drug-resistant bacterial infections and others. Current studies involve the UK, Burkina Faso, Ecuador, Guatemala, India, Mali, Mexico, Netherlands, Niger, Peru, Russia, South Africa, Tanzania, Thailand, Uganda, USA, Venezuela, Zambia, and Zimbabwe.

Participants only need a very basic mathematical ability (high school level is more than sufficient): since most participants do not use maths regularly, if at all, we introduce concepts gently, step-by-step, and provide support throughout the course. In addition, we offer the reassurance of an optional 'maths refresher' day on Sunday 2 September, that some participants may wish to attend. Calculation is done using Excel and the user-friendly modelling package, Berkeley Madonna; hence manipulation of equations is not required. We emphasise how to express biological and clinical principles in a model, and how to interpret results from a biological and clinical perspective.

If you have any questions then please contact:

Dr Peter J White PhD

*Coordinator, UNAIDS Epidemiology Reference Group: www.epidem.org

*Organiser, Short Course on "Epidemiology & Control of Infectious Diseases: Introduction to mathematical models of global and emerging infections", 3-14 Sept 2007. See www.imperial.ac.uk/cpd/epidemiology

*Personal webpage: www.imperial.ac.uk/medicine/people/p.white/

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[3] New look for the Network website – have your say!

Our Network website has been redesigned so that you can access information easily.

Migration of content

Most of the content has been migrated from the old site, but a number of items remain. If you wish to see the old website, you can do so on:

<http://www.parasite.org.au/arcnet/2006>

The Registry of Members is one area where the new website requires significant work and this will be taking place of the next few weeks.

Please send us your feedback

If you have anything to say about the new design, particularly if you are encountering any difficulties with either content or functionality, please e-mail me your feedback at the following e-mail address:

lisa.jones@uts.edu.au or call me on 02-95144006

Our plan for the first few months this year is to:

- Complete migration of existing content
- Continue tests for accessibility and browser compatibility
- Investigate the addition of search functionality
- Add a gallery of parasite images
- Investigate the use of metatags
- Improve the aesthetics of a number of pages

Awards

[4] Network Travel Award Winners

Congratulations to the most recent Network Researcher Exchange, Training and Travel Award winners:

- Ms **Catherine James**, PhD candidate from the Institute for the Biotechnology of Infectious Diseases at the University of Technology, Sydney for a Researcher Exchange to visit the laboratory of Professor Roger Prichard at McGill University, Institute for Parasitology, Quebec, Canada for 4 months from February/March 2007 through to June/July 2007;
- Miss **Annette Dougall**, a Doctor of Philosophy candidate from Menzies School of Health Research, Charles Darwin University for a Researcher Exchange for 4 weeks of research and training at the Liverpool School of Tropical Medicine, UK and 2 weeks field training and laboratory teaching Teresina, Brazil in June and July 2007; and
- Miss **Melanie Andrews**, PHD Candidate from the Tasmanian Aquaculture and Fisheries Institute, University of Tasmania for a six week Researcher Exchange at the Norwegian School of Veterinary Science, National Veterinary Institute in Oslo, Norway from 5 August – 15 September 2007.

Interview

[5] Dr Jacqui Upcroft and Prof. Peter Upcroft

Dr Jacqui Upcroft and Prof. Peter Upcroft, parasitologists from the Queensland Institute of Medical Research (QIMR), and their PhD student, Rebecca Dunne, are part of a group of 64 researchers worldwide who have

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recently published “Draft Genome Sequence of the Sexually Transmitted Pathogen *Trichomonas vaginalis*” in *Science* (Vol 315 12 January 2007 www.sciencemag.org).

Trichomonas vaginalis is a flagellated protist that causes trichomoniasis, a common but often overlooked sexually transmitted human infection with approximately 170 million cases worldwide. The extracellular parasite resides in the urogenital tract of both sexes. Acute infections are associated with pelvic inflammatory disease, increased risk of HIV-1 infection and adverse pregnancy outcomes.

Jane Carlton, of The Institute for Genomic Research (TIGR) and now at New York University School of Medicine, was the leader of this very successful project, in collaboration with Patricia Johnson, University of California, Los Angeles and with funding from the U.S. National Institutes of Health. Additionally, the *Trichomonas* research community collaborated together over the past 2 years to help analyze the *T. vaginalis* genome data. Each research group was responsible for different aspects of the analysis and everyone shared their data.

The QIMR researchers played a dual role in mapping the *T. vaginalis* genome: they were involved in analyzing the proteins involved in drug resistance to metronidazole in *T. vaginalis*, taking advantage of their 20+ years of experience on the same subject in another anaerobic protist, *Giardia*, and they also used pulse field gels to separate chromosomes to genotype for preliminary mapping.

“*Trichomonas vaginalis* is very difficult to map” Jacqui said, adding that, “CC Wang postulated many years ago that it has a very large genome but this idea was initially shunned by the parasitological world. However, we soon realised that we were either looking at something very unusual or something very large – and it turned out to be large. CC was right!” The assembly size of the *T. vaginalis* genome is estimated at 160Mb and the research group identified a core set of 60,000 protein-coding genes endowing *T. vaginalis* with one of the highest coding capacities among eukaryotes.

Jacqui says that, “*T. vaginalis* parasite has no business being what it is.” It appears that *T. vaginalis* genome expansion may have occurred when the parasite moved from a gut to a urogenital tract environment, in comparison to the oral parasite, *Trichomonas tenax*, which doesn’t appear to have the same repeated genome and is likely smaller in cell size.

Why so large? The *T. vaginalis* genome has lots of repeated elements: at least 65% of it is repetitive and analysis of the large gene families shows there are more than 900 protein kinases, but that they are not involved in signalling, and more than 650 in the BspA-like gene family. The size of the genome and the volume of the typical *T. vaginalis* cell are positively correlated. This large cell size may be adaptive; *T. vaginalis* is a highly predatory parasite that

phagocytoses bacteria, vaginal epithelial cells, and host erythrocytes and is itself ingested by macrophages. The group speculate that given these interactions, an increase in cell size could have been selected for to augment the parasite's phagocytosis of bacteria and to reduce its own phagocytosis by host cells. Increased surface area may confer advantages for colonisation of vaginal mucosa.

The *Trichomonas vaginalis* genome consortium has at least two remaining burning ambitions: to secure further funding to sequence another *Trichomonas* (for valuable comparative studies); and to use the information from the genome to develop new therapies and novel methods for diagnosis.

Jacqui and Peter have been researchers at QIMR for the past 25 years and have made a huge contribution to parasitology research worldwide, culminating in their recent collaborations to sequence the *Trichomonas vaginalis* genome. Peter was a founding molecular biologist and developed the technique to transfect genes into viruses. When Jacqui was first working as a post doctoral fellow at Harvard Medical School she was purifying restriction enzymes from scratch! We wish Jacqui and Peter all the best for the future and hope to see more news from their lab this year.

Positions vacant

Check the Network website for all current vacancies

<http://www.parasite.org.au/arcnet/jobs>

[6] Research Opportunities in Molecular Parasitology The University of Melbourne (Professor Robin B. Gasser's laboratory)

Opportunities exist in The University of Melbourne or in collaborating institutions for highly motivated individuals wanting to undertake PhD projects (3-3.5 years) or become involved as research assistants in the parasite genomics and genetics program.

The program is currently supported by funds from the Australian Research Council (ARC), Genetic Technologies Limited (GTG), Meat and Livestock Australia (MLA), the Australian Poultry Cooperative Research Centre (CRC) and Melbourne Water Corporation. The program involves the Queensland Institute of Medical Research (QIMR) (Dr Alex Loukas), the Commonwealth and Industrial Research Organisation (CSIRO) (Dr Peter Hunt), Macquarie University (Prof Shoba Ranganathan), Washington University School of Medicine (Dr Makedonka Mitreva) and CalTech (Prof Paul Sternberg).

Mining for drug targets in parasitic nematodes Australian Research Council (LP0667795)

Genomic and bioinformatic approaches are being used to discover new drug targets in socio-economically important parasites (worms) of animals. The research will lead to improved, fundamental knowledge and understanding of

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reproductive and developmental pathways and will provide a foundation for finding new intervention strategies. This is crucial, given the current, serious resistance problems in parasites against most drug treatments.

**Discovery of early developmental events in the transition to parasitism in the hookworm *Ancylostoma caninum* using genomic technologies
Australian Research Council (DP0665230)**

This project will discover and characterize genes and gene products associated specifically with the transition to parasitism in the blood-feeding hookworm *Ancylostoma caninum*, and define signalling pathways regulating this developmental switch and subsequent physiological pathways dependent on these signalling events.

**Molecular diagnosis of parasitism
Meat and Livestock Australia (MLA)**

Parasitic diseases of animals are predominantly controlled by using chemotherapeutic agents (anthelmintics). Even with optimally-timed (strategic) treatments, this type of control is expensive and, in most cases, only partially effective. Also, the excessive and uncontrolled use of such agents has resulted in serious problems with anthelmintic resistance. The purpose of this project is to develop advanced molecular tools for the diagnosis of gastrointestinal parasitism in sheep, to overcome the major limitations of traditional diagnostic methods.

**Catchment sources of waterborne pathogens
Melbourne Water Corporation**

The surveillance and monitoring of pathogens in water catchments assists in maintaining high quality drinking water. The aims of this project are to determine the prevalence of *Cryptosporidium* in feral, native and production animals in the catchment areas, to develop and employ molecular tools for the genetic characterisation of pathogens from faecal samples from animals in catchments, and to establish whether the species and genotypes of the parasite in animals within the water catchment areas relate to those found in humans.

PhD candidates

The successful applicant will have completed a BSc (H1) or equivalent and will work on one of the projects listed. Applicants must meet all criteria for enrolment in the University of Melbourne (www.unimelb.edu.au/student/postgrad/index.html). Opportunities exist for projects involving international collaborators.

Research Assistant

The successful applicant will have completed a BSc (H1 or H2A) degree and be able to work relatively independently on one of the projects listed. Previous experience in molecular microbiology or molecular parasitology is highly desirable. Twelve month fixed-term appointment, with a view toward a PhD program supported by a scholarship from the University of Melbourne.

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Supported by the Australian Research Council, the National Health and Medical Research Council and the Australian Society for Parasitology.

**Further Information Professor Robin B. Gasser
(robinbg@unimelb.edu.au)**

[7] Diagnostic services for rural community in Victoria (Benalla region)

Parasitologist Tricia Veale would like to find a parasitologist / organisation / laboratory to take over her parasite diagnostic service at Benalla, Victoria.

Most of the work comes directly from farmers and Tricia has some contracts with other organisations. Tricia says the farming community are genuine people who are a pleasure to deal with. Please contact Tricia directly by email triciav@inet.net.au if you can help.

If you have any parasitology news stories please contact me by email Lisa.Jones@uts.edu.au or telephone 02-95144006.

Please send me items for the next newsletter by 21 February 2007.

Best wishes,

Lisa
Communications Coordinator,
ARC/NHMRC Research Network for Parasitology