



**2007 ASP & ARC/NHMRC Research Network for Parasitology
Annual Conference, Sunday 8 – Wednesday 11 July at the
Marque Hotel, Canberra**

Wednesday, 14 March 2007

Dear Network Participant,

This special conference edition of the Network Newsletter has the following items of interest for you:

- [1] **Highlights of the upcoming 2007 ASP & Network Conference...p2**
- [2] **Interviews with some of our international speakers at the 2006 ASP & Network Conference ...p3**
- [3] **Information for the 2007 ASP & Network Annual Conference...p11**

Don't forget – early registration and submission of abstracts closes on March 30.

[1] Highlights of the upcoming 2007 ASP & Network Conference

early career researchers and students breakfast...

The Network is organising and sponsoring a free early career researchers and students breakfast on Monday 9 July 2007 to enable postdoctoral researchers and students to speak to prominent parasitologists about their career and to meet like-minded peers. To attend this breakfast please confirm your booking with Lisa Jones by email lisa.jones@uts.edu.au or by telephone 02 95144006 by 11 May 2006.

early career researchers prize...

Don't forget that the Network will, once again, be awarding up to two prizes to "Early Career Researchers". The prizes will be for the best conference presentations (whether poster or oral presentations) by postdoctoral researchers (currently based in Australian institutions) who are within 10 years of receipt of their PhD. To be eligible for consideration, candidates must be in non-tenured positions and be the first author and presenter of a talk or poster at the annual conference. The prizes will be in the form of travel grants (valued up to \$4000-5000) to attend, and present at, the annual meetings of one of our sister networks in Europe, Canada or Southeast Asia.

If you would like to be considered for one of the Early Career Researcher Awards, you should register with Lisa lisa.jones@uts.edu.au with the title of your presentation and a statement about your qualifications (i.e. date and place of award of PhD) and your current position. Please note that if it is more than 10 years since the award of your PhD but you have experienced career interruptions, you may still be eligible for consideration - please include a statement explaining why you believe you should be eligible despite more than 10 years passing since the award of your PhD.

ASP student members who have a poster or who are presenting at the conference should register with Lisa lisa.jones@uts.edu.au so that they are eligible for the ASP student prizes.

opening session at Questacon – The National Science and Technology Centre...

This year we will open the conference at Questacon – The National Science and Technology Centre with a cocktail reception, parasite photography exhibition and interactive science experiences that mix rollercoaster rides, sports, music, earthquake simulators and the undercover world of secret agents. For more information visit their website <http://www.questacon.edu.au>

photography exhibition....

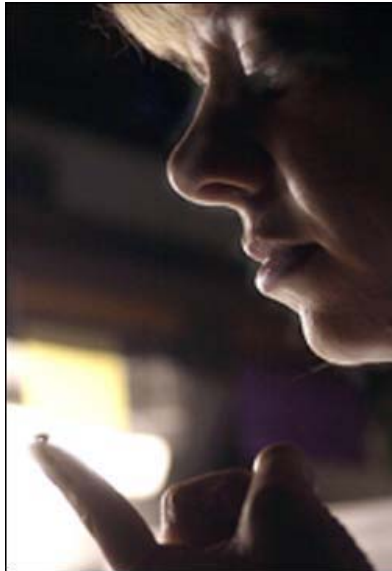
Do you have some beautiful images of parasites? We are looking for images for our parasite photography exhibition, please contact Lisa for more information lisa.jones@uts.edu.au or telephone 02 95144006.

hypothetical hosted by ABC's Robyn Williams at Parliament House

Our Conference Dinner will be held at new Parliament House and feature a hypothetical hosted by Robyn Williams (ABC) where scientists will debate about global warming, climate change and the effects on parasites. *What do you think will happen? How will this affect the spread of parasitic diseases? Who will be most affected? Could this scenario be real? Join us for what promises to be a highly entertaining and lively debate in a spectacular location.*

[2] To whet your appetite for the 2007 conference, here are a few interviews with some of our international speakers from the 2006 Conference:

- **Cate Hill...p3**
- **Simon Croft...p5**
- **Peter Hotez...p7**
- **Alistair Dove...p9**



Engorged deer tick sits on Catherine Hill's fingertip (Purdue University photo)

Dr Catherine Hill from Purdue University in USA was an invited speaker for the Vector Biology Symposium at the 2006 ASP & Network Annual conference and gave a presentation entitled, "Genome Studies of the Ixodidae".

Ticks (subphylum Chelicerata; class Arachnida; family Ixodidae) are of vast medical and veterinary importance due to their ability to transmit a greater variety of infectious agents than any other blood feeding arthropod and the direct damage they cause through attachment and feeding.

Cate describes herself as a "vector biologist from South Australia" and her major area of work is in tick genomics. She says that she has a "macabre fascination with blood-feeding ectoparasites and how they've evolved to be so highly effective as a parasite."

ARC/NHMRC Research Network for Parasitology, Institute for the Biotechnology of Infectious Diseases, University of Technology, Sydney, PO Box 123, Broadway, NSW, 2007, Australia. Telephone: +61-2-9514 4006; FAX: +61-2-9514 4201; E-mail: Lisa.Jones@uts.edu.au Website: <http://www.parasite.org.au/arcnet>

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

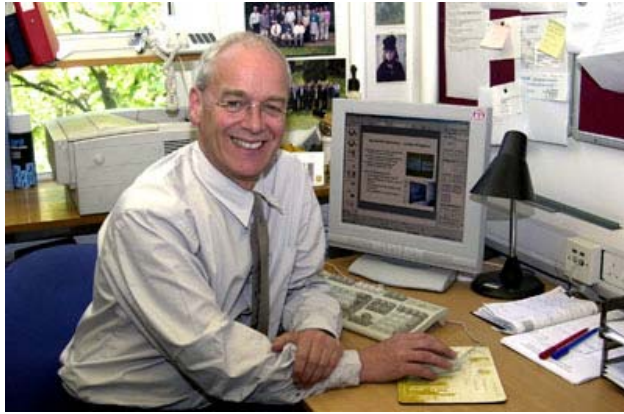
The National Institutes of Health and the international tick research community are currently sequencing the genome of the prostriate tick, *Ixodes scapularis*. In the U.S. *I. scapularis* transmits the causative agents of Lyme disease, babesiosis and anaplasmosis. Large-scale genomic studies have also been initiated for the metastriate tick, *Rhipicephalus (Boophilus microplus)*, the vector of bovine babesiosis and a significant pest of cattle worldwide.

Cate uses genome sequencing to help understand the biology of the tick, and she has been sequencing the Lyme disease tick genome, which is due for completion in August 2008. Cate and her team use a bioinformatics approach to look at the gene sequence to find genes or regions of the genome that are unusually interesting. They use cytogenetic approaches to understand what is going on at the chromosome level. She says “Genetics enables me to see the ‘big picture’, to see all the genes, all the biology at once – systems biology.”

Cate and her team are particularly fascinated by the Ixodidae. Their aim is to understand the biology of these ticks – Cate especially wants to know the answer to the question, “How do they vector diseases?” The diseases these ticks transmit are threats to human health and livestock production. Cate hopes to find novel targets for control strategies - chemotherapy and vaccines.

Cate said, “It was good to come to this conference and see leading research done in Australia.” She finds it highly rewarding to work in animal and human health and says that, “You have to be flexible to be successful, look long term, find the gaps and address those gaps and needs.” This is how Cate and her team started the tick genome project. Cate believes that parasites are constantly evolving and always finding new vectors depending on their geographic ranges, where they live, and the climate. “Climate change will have a big influence on diseases transmission and range in the future,” she says.

For more information go to their website: <http://www.ncbi.nlm.nih.gov/>



Prof. Simon Croft

Professor Simon Croft, from the Drugs for Neglected Diseases initiative (DNDi) based in Geneva, Switzerland gave the 2006 International Journal for Parasitology Lecture entitled, “Drug discovery and development for trypanosomiasis and leishmaniasis: needs and potential solutions” at the 2006 ASP & Network Conference.

In 2003, seven organisations from around the world joined forces to establish DNDi: five public sector institutions – the Oswaldo Cruz Foundation from Brazil, the Indian Council for Medical Research, the Kenya Medical Research Institute, the Ministry of Health of Malaysia and France’s Pasteur Institute; one humanitarian organisation, Médecins sans Frontières (MSF); and one international research organisation, the UNDP/World Bank/WHO’s Special Programme for Research and Training in Tropical Diseases (TDR), which acts as a permanent observer to the initiative. DNDi focuses primarily on the public sector, as they believe that this sector should take on the responsibility of addressing the needs of the most neglected patients.

DNDi’s initial focus is on three diseases: visceral leishmaniasis, human African trypanosomiasis, & Chagas disease. Despite the grave impact of these diseases, the world’s poorest patients are left completely marginalized.

In his presentation, Simon reported that the past two decades have seen considerable advances in our knowledge of the biochemistry and cell biology of the three pathogens that cause leishmaniasis or trypanosomiasis, culminating in the publication of the genome sequences of these organisms in July 2005. Many new potential drug targets are now accessible and more methods are available for the rapid validation and characterization of targets. There is also renewed interest in drug discovery and development in academia and industry. There are solutions to the previously identified problems of: (i) access to high-throughput screening (HTS); (ii) increased input from the disciplines of chemistry, pharmacology, toxicology and pharmaceuticals to complement advances in molecular biology; (iii) development of suitable disease models; and (iv) methods for progressing leads and candidate drugs through pre-clinical studies. So why has there been such limited progress in drug R & D for trypanosomiasis and

leishmaniasis in the past two decades? And does the situation look better for the future?

Simon said that a major barrier for drug R & D for the trypanosomiasis and the leishmaniasis has been, first, the lack of economic incentives in the current, for-profit, model of drug development, for the pharmaceutical industry to be fully engaged and, second, the absence of alternative experimental models of the diseases. The estimates of the cost of development of a new chemical entity (NCE) - US\$800 million - are prohibitive for neglected diseases, especially when only 10% of the current global health research and development effort is directed to address the medical needs of 90% of the human population, a result of both market failure and inadequate public policies in endemic countries. The cost of development of drugs for tropical infectious diseases could be significantly lower and realistic estimates need to be made.

Increased awareness of this situation has led to the formation of several not-for-profit product development partnerships (PDPs), such as the Drugs for Neglected Diseases initiative (DNDi), and the Institute for One World Health (IOWH), which add to the efforts of WHO Tropical Diseases Research Programme (TDR), to address this imbalance in the world biomedical R&D effort. The PDPs propose alternative drug R&D models, fostering effective collaborations between the public and private sectors as well as including groups from endemic countries. The major requirement is sustainable funding over a 10-15 period to take drugs through the expensive stages of development and to make them available to patients.

Simon envisages future partnerships between the three kinds of pharmaceutical companies (i.e. multinational pharmaceutical companies, companies in endemic countries, and biotechnology firms). He says they can each contribute through partnership with companies, gaining access to compound libraries and expertise, and by being involved in project implementation and the final stages of drug production.

Simon said that, "Inaccurate figures about the prevalence of neglected diseases has made it difficult to develop drugs". He said, "We need a realistic appraisal by the WHO about how many cases actually occur every year to establish the true prevalence of these diseases. Then DNDi will be able to arrange contracts to develop drugs to combat these diseases".

As of January 2007 the DNDi project portfolio was reported on the website as being healthy, growing, and well-monitored. It has 20 projects - 10 in the discovery phase, 4 in preclinical development and 6 in the clinical phase.

For more information about DNDi go to their website: <http://www.dndi.org/>



Peter Hotez (George Washington Center for Global Health photo)

Walter G. Ross Professor and Chair of the Department of Microbiology, Immunology and Tropical Medicine, at The George Washington University (USA), Peter Hotez, is also the President of the Sabin Vaccine Institute in the USA, the home of the Human Hookworm Vaccine Initiative and the Director of The Global Network for Neglected Tropical Diseases Control (GNNTDC).

Peter gave his lecture, “New Promise for the Control of the Neglected Tropical Diseases”, for the Therapies for Parasitic Diseases Plenary Session at the 2006 ASP & Network Conference.

The Sabin Vaccine Institute promotes rapid scientific advances in vaccine development, delivery and distribution worldwide. It promotes advocacy for vaccines, new development and testing of anti-poverty vaccines. Peter is passionately interested in the neglected tropical diseases (NTDs), the impact of which is felt – on a staggering scale – by the world’s poorest communities. The NTDs are a group of 13 parasitic and bacterial infections, including soil-transmitted helminthiases, schistosomiasis, lymphatic filariasis, onchocerciasis, dracunculiasis, trachoma, leprosy, Buruli ulcer, leishmaniasis, trypanosomiasis, and Chagas disease.

The NTDs are poverty-promoting conditions that have burdened humanity for centuries, and have notoriety as deforming and disabling diseases. Many of the neglected parasitic diseases can impair childhood development and learning ability (eg, they lower IQs), result in poor outcomes of pregnancy, and reduce worker productivity. In aggregate, NTDs cause approximately 530,000 deaths and 57 million Disability Adjusted Life Years (DALYs), almost equivalent in disease burden to the “big three” diseases - HIV/AIDS, tuberculosis (TB) and malaria. They also promote susceptibility to AIDS, TB and malaria. People are often poly-parasitized (ie, infected simultaneously with several parasites) and drug treatments or vaccines against the neglected diseases could therefore have a huge impact on the big three diseases. For instance, Peter says that, “Recent studies by the Institut Pasteur and

elsewhere have shown that de-worming can reduce the clinical severity of malaria and HIV/AIDS.”

Unlike the “big three” diseases, it is possible to design and implement an effective, “rapid impact” package of therapies - comprised of as little as four drugs – against the neglected tropical diseases. Because these drugs are donated, the package could be deployed for a cost far lower than that required for big three control. Concern about the long-term sustainability of this approach has prompted the search for back-up control tools including new drugs and the anti-poverty vaccines.

Peter started as a MD/PhD student in the 1980’s, interested primarily in the development of an anti-Hookworm vaccine, but in the past few years he has expanded his efforts to develop a new generation of anti-poverty vaccines as well as to maximize global control efforts for parasitic and neglected tropical diseases using existing drugs. The Human Hookworm Vaccine Initiative has developed a first generation recombinant human hookworm vaccine, the *Na*-ASP-2 Hookworm Vaccine, which has completed commercial manufacture and Phase 1 clinical trials. The vaccine, which inhibits larval migration and development will ultimately be incorporated into school-based programs and child-health days designed for the rapid-impact package. In 2006 The Sabin Vaccine Institute announced two grants from the Bill & Melinda Gates Foundation for vaccine research and development integral to its Human Hookworm Vaccine Initiative; this includes funds for clinical testing of the *Na*-ASP-2 Hookworm Vaccine in Brazil as well as for the development of a second adult hookworm antigen, which will be co-formulated with *Na*-ASP-2. Research and development on the second antigen is being conducted in collaboration with Alex Loukas’ Helminth Biology group at Queensland Institute of Medical Research.

Peter hopes in the coming years to expand into other antipoverty vaccines. This includes a vaccine for onchocerciasis (river blindness) that uses antigens similar to the ones used for the hookworm vaccine, a schistosomiasis vaccine, which builds on the antigen discoveries in the Loukas laboratory, as well as vaccines for leptospirosis, trachoma, and Buruli ulcer.

Peter says that, “Drugs are also a crucial weapon in the fight against NTDs and companies are now the “good guys”, donating drugs for NTDs”. The Global Network for Neglected Tropical Disease Control (GNNTDC) was established in 2006 in order to facilitate coordination and integration of the different public private partnerships currently engaged in administering “preventive chemotherapy” packages for the soil-transmitted helminth infections, schistosomiasis, lymphatic filariasis, trachoma, and onchocerciasis. The GNNTDC provides for high level advocacy and resource mobilization of these diseases. Recently, the philanthropic investment organization, Geneva Global, provided \$8.8 million to the GNNTDC for integrated neglected tropical disease control in Rwanda and Burundi. Peter is also committed to tackling neglected tropical diseases in the poorest regions of the Americas. He

commented that public hospitals in Central America are “an inspiration to the world” as they tackle this very issue to try and combat some of the most shocking poverty and disease in the world.

Peter commented that we also need the G8 to come on board – “We need support and celebrities!” The “Clinton Global Initiative” (CGI) is a major facilitator for the GNNTDC. The CGI brings together a community of global leaders (CGI “members”) to devise and implement innovative solutions to some of the world’s most pressing challenges. Ongoing working groups focus on issues that include poverty, climate change, global health, and religious and ethnic conflicts. All CGI members - who come from diverse entities including business, non-governmental organisations, foundations, philanthropy, and government - are required to make a specific action commitment each year to help address one or more of these problems. During the 2006 Annual Meeting, NTDs featured in the session “Neglected Health Threats: Silent Killers, Practical Responses” during the “Global Health” focus. For more information go to the Sabin Vaccine Institute website <http://www.sabin.org/>



Al Dove (Cornell University Library, VIVO photo)

Dr Alistair Dove is a Veterinary Services Laboratory Manager at The Georgia Aquarium in Atlanta, USA. In 2006 Al spent two weeks in Australia touring as an ASP lecturer and divided his time between The University of Melbourne and The University of Queensland and gave a symposium presentation, “An ecological approach to parasite biodiversity”, at the 2006 ASP & Network Annual Conference.

Al says that he became interested in parasitology through ASP scientists – he said that he was captivated by these mentors and, of course, the environment (Heron Island, Queensland). Al says that, at the time, The University of Queensland was a “phenomenal gathering of minds”

With a background in systematic parasitology and whilst working at Stony Brook University USA Al established a diagnostic facility for marine disease in New York State. Ecological parasitology is additional to his diagnostic

ARC/NHMRC Research Network for Parasitology, Institute for the Biotechnology of Infectious Diseases, University of Technology, Sydney, PO Box 123, Broadway, NSW, 2007, Australia. Telephone: +61-2-9514 4006; FAX: +61-2-9514 4201; E-mail: Lisa.Jones@uts.edu.au Website: <http://www.parasite.org.au/arcnet>

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

services, which he offers to the state department of environment conservation. Al works on a variety of infections and metabolic diseases with a focus on fin fish and crustaceans; he has also worked on QPX disease in hard clams.

Al says that global warming trends are changing water temperatures and this is a big deal for some species that live at the edge of different water regions. Cold water species are not coping well in the faunal transition zone where New York State lies; a region where southern warm water species are thriving. Al's work involves trying to get a grip on what is happening, manage fisheries industries, educational programmes / public awareness, outreach activities, media activities, and to provide a support network. The main stakeholders are wild fisheries people, New York State, fishermen, aquaculturalists and coastal land use groups.

Although Al's research work has diversified throughout his career he is still very interested in diversity and ecology of parasites and keeps in touch through his ASP colleagues. Al says, "It is hard to demonstrate the economic viability of biodiversity; however, we need to know what is around through biodiversity studies."

Al would love to work on understanding the natural heritage of Australia in the future. He thinks that parasitology has changed its focus from descriptive morphology and taxonomy – now researchers are still doing this but they are also looking at patterns and using new molecular technologies. Diversity studies are placed in a modern, diverse context and technologies are a tool to help understand biodiversity. Al is optimistic about biodiversity flourishing in the future.

[3] General information for the 2007 ASP & ARC/NHMRC Research Network for Parasitology Annual Conference

Early registration and abstract submission closes in less than 3 weeks, on the 30 March 2007, for the 2007 ASP & Network Annual Conference.

Please register online for this conference

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

Conference Registration will close after 11 May 2006.

Registration Fees

	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.

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. For accommodation options please check the advice pages on the conference website

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

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

ARC/NHMRC Research Network for Parasitology, Institute for the Biotechnology of Infectious Diseases, University of Technology, Sydney, PO Box 123, Broadway, NSW, 2007, Australia. Telephone: +61-2-9514 4006; FAX: +61-2-9514 4201; E-mail: Lisa.Jones@uts.edu.au Website: <http://www.parasite.org.au/arcnet>

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.

Please contact me if you have any conference queries.
With best wishes,

Lisa
Communications Coordinator,
ARC/NHMRC Research Network for Parasitology