

# **JAMES RENNIE BEQUEST**

## **REPORT ON EXPEDITION/PROJECT/CONFERENCE**

**Expedition/Project/Conference Title:** 12<sup>th</sup> International Congress of Parasitology (ICOPA XII)

**Travel Dates:** 13<sup>th</sup> August – 23<sup>rd</sup> August 2010

**Location:** Melbourne, Australia

**Group Member(s):** Claire Bourke

**Aims:**

- Present PhD research project in a poster entitled: ‘Changes in schistosome stage-specific cytokine responses after treatment with Praziquantel’
- Attend academic programme of plenary talks, oral presentations and posters
- Meet and discuss research with international parasitologists

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### **OUTCOME (not less than 300 words):-**

#### **ICOPA XII Melbourne 2010: Conference Report**

The 12th International Congress of Parasitology was held in Melbourne and provided an opportunity for parasitologists from all over the world to discuss advances made in the field since the previous meeting in Glasgow 2006. As both my first international conference and my first time in Melbourne I was excited to be able to present some of my PhD research and get feedback from a varied audience whilst also spending time in such a beautiful city.

This year’s conference theme was ‘Understanding the global impact of parasites – from genomes to function and disease’ and the academic programme ranged from in-depth molecular studies through to mapping global prevalence of infections. Since my PhD is focused on trying to understand how systemic changes in immune responses affect population level patterns in schistosome infection it was fantastic to see so many sessions devoted to parasite immunology and complemented by broad scale epidemiological and clinical investigations. That morbidity in helminth infections can be alleviated by simple socio-economic interventions as well as elegant recombinant vaccines was a reminder of the need for a variety of approaches to combat parasitic disease.

The week was made up of plenary sessions showcasing some of the major issues facing parasitologists today, followed by smaller themed sessions comprising short talks from researchers and longer presentations by the session chairs. The impressive range of delegates and breadth of research topics often made it difficult to choose which of the many parallel sessions to attend!

The burden of parasitic disease to public health was a running theme in the conference and the scene was set by Monday’s plenary speakers. Gustav Nossal opened the conference with his challenging address ‘Conquering parasitic diseases: the time has come’ and the specific importance of parasitology research in Australia was introduced by Jonathan Carapetis who works with remote aboriginal communities in the Northern Territory.

As my PhD focus is on parasitic helminths it was fascinating to get an update on the current status of helminth vaccines – Jeff Bethony and Marshall Lightowers gave insights into developing anti-hookworm and cysticercosis transmission blocking vaccines respectively. The challenge of limiting pathological IgE in

a hookworm endemic setting was particularly interesting and attempts to de-allergenise the current leading vaccine and alternative vaccine targets were the subject of a series of subsequent workshops and talks. Workshops stood out as a chance both to ask questions and to watch experts in the field share and debate their views. The relative importance of vaccine development vs. chemotherapy as a means of helminth control was of particular note as it is rare to see such a balanced split of opinion.

On Tuesday Maria Yazdanbakhsh and Taniawati Supali chaired a fascinating session on the immunobiology of polyparasitism investigated in field studies in Brazil and Indonesia. The specific impact of co-infection on vaccine efficacy was discussed in workshops later the same day. The session highlighted how this area of research has emerged from field observations and cross-links so many of the issues raised by speakers investigating individual species infections. As part of our fieldwork we have collected data on co-infections in a Zimbabwean community and it will be interesting to see whether our data shows any of the patterns discussed over the course of the session.

The importance of theoretical studies as tools for parasite control were discussed in Wednesday's mathematical modelling session, chaired by Maria-Gloria Basanez. Talks ranged from tracking the impact of seasonality on malaria transmission (Michelle Gatton) through to managing the outbreak of an infectious facial tumour threatening Tasmanian Devils (Hamish McCallum). The questions posed by models are often difficult to broach with empirical research and Dr. Basanez proposed that greater integration of the two approaches would be beneficial for both sides. Excellent examples were provided by presentations proposing a means of assessing malaria vaccine efficacy (Michael White) and adapting the R0 concept to more effectively describe the progress of mass treatment in the Onchocerciasis Control Programme (Manoj Gambhir).

There were a variety of presentations showing how novel techniques can be used to investigate complex immune responses to a variety of parasitic infections. On Thursday Magdalena Plebanski discussed how she used transwell cultures to identify contact-independent immunomodulatory secretions derived from malaria-infected red blood cells. Speakers in later sessions presented work using antibodies isolated from specific lymph nodes in schistosome-infected rats to identify parasite life cycle stage-specific responses (Hamish McWilliam) and protein microarray to screen schistosome proteins for immunogenicity in resistant and susceptible individuals (Soraya Gaze).

Elsewhere Simon Brooker's plenary demonstrated how geospatial mapping can be applied to give an overview of countrywide helminth prevalence studies and provide a tool for developing national control strategies. He took the opportunity to launch [www.thiswormyworld.org](http://www.thiswormyworld.org) – the website for his ambitious 'Global Atlas of Helminth Infections' project, which aims to provide this information for all countries affected by helminthiasis. 'Mapping' nematode neuropeptides (Aaron Maule) and global parasite biodiversity (Janine Caira) were further examples of how characterising suits of molecules and organisms can contribute to our understanding of parasitic infection.

Poster sessions ran every evening and were a great chance to discuss the projects being presented and talk to the day's speakers. When presenting my poster I was pleased to be asked a variety of technical and theoretical questions about my work, which will certainly inform my research. It was also great to get advice from experienced researchers and discuss some of the draw-backs and benefits of different practical approaches.

Attending ICOPA XII has more than exceeded my original objectives. Presenting my poster provided an unparalleled chance for me to discuss my project with interdisciplinary scientists. The academic programme of formal talks, informal discussions and posters was very inspiring and definitely an impetus to continue working in the field. Not least the social programme and friendly atmosphere meant that I was never short of opportunities to ask questions, meet and discuss with fellow delegates. My attendance at the conference was made possible by a generous Travel Grant from the James Rennie Bequest, to whom I would like to express my sincere thanks.