

Newsletter: Issue 9, December 2010

University of Otago, Dunedin, NZ

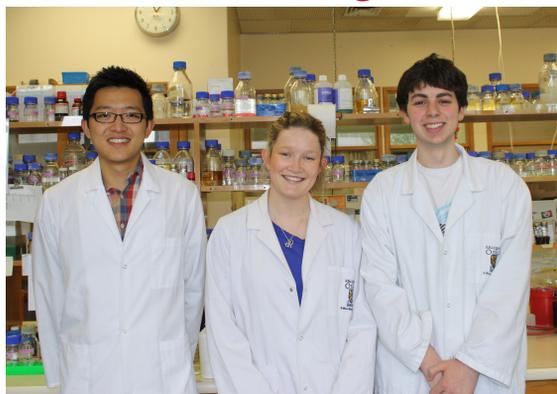
## *A Message from the Director:*



Professor Kurt Krause  
Webster Centre Director

Welcome to the 2010 holiday issue of the Webster Centre Newsletter. As the year has been winding down, the Webster Centre has been quite active. This month we interview the always-entertaining Russell Poulter as he describes his twin passions of frogs and fungi. In this issue you will read about our Summer Studentship awardees Hyon-Xhi Tan, Liam Brennan and Katy Booth and their summer projects. We also announce the awarding of our Student Travel Scholarships to Becky Edgar and Julia Prier. We are tinkering with our website to bring it up to date and would love to add members profiles in the coming year. Plans are underway for a Webster Centre Symposia next year in mid-September probably the 15th or 16th. Please save those dates and consult our website for more details. For me, it's always a privilege to make contact with the infectious diseases research community in New Zealand on behalf of the Webster Centre and I hope that you will continue to write with ideas and recommendations about how to improve our Centre. Have a great holiday break and I look forward to seeing you in Dunedin in September 2011.

## Undergraduate Summer Student Scholarships



Hyon-Xhi Tan, Katy Booth and Liam Brennan

The Webster Centre for Infectious Diseases is pleased to announce Hyon-Xhi Tan, Liam Brennan, and Katy Booth as the recipients of the 2010 Undergraduate Summer Student Scholarships.

Hyon-Xhi Tan will be working with Associate Professor Russell Poulter of the Department of Biochemistry. Hyon-Xhi is currently doing a Bachelor of Applied Science with Honours in Molecular Biotechnology. The research he will be undertaking involves the biosynthesis of cyclic peptides.

Liam Brennan will be working with Associate Professor Alex McLellan in the Department of Microbiology and Immunology. Liam is completing a Bachelor of Science with Honours in Microbiology. His research over the summer will be on the 'Development of lipophilic drug conjugates to target intracellular mycobacteria'.

Katy Booth will be working with Professor Iain Lamont, also from the Department of Biochemistry. Katy is currently working towards a Bachelor of Biomedical Science in Infection and Immunity. Over the next couple of months Katy will be doing research on the study of the outer membrane proteins of *Pseudomonas aeruginosa* isolated from the lungs of cystic fibrosis patients.

## Prof Tate Wins Rutherford Medal



Professor Warren Tate of the Biochemistry Department, University of Otago was awarded the 2010 Rutherford Medal at the Royal Society Annual Dinner in Christchurch near the beginning of November. Professor Tate was awarded the medal for "outstanding scientific achievements in molecular biology and molecular neuroscience, for enthusiastic support and

mentoring of researchers, for tireless contributions to science policy and funding at national and international levels, and for public outreach with respect to molecular science". The Rutherford Medal is New Zealand's highest scientific honour. The Webster centre is appreciative of having Warren as not only a member, but also as part of the Steering Committee.

## Promotion for WCID Member



The Webster Centre for Infectious Diseases is very pleased to announce the promotion of one of our valued members, Alex McLellan, to Associate Professor. Alex has been on the faculty in the Department of Microbiology & Immunology at the University of Otago since 2003. The McLellan Laboratory studies the cells and the molecules involved in immune responses to infection, cancer and allogeneic transplants.

As well as running his laboratory, Alex also takes on teaching roles in HUBS191, MICR221, PHCY219, MICR334 (convenor), MICR337, MICR360, MICR463, MICR464 and the University of the Third Age (U3A). Alex comments on "... the high level of support and encouragement I have received in my time here from Otago colleagues in the Health Sciences Division. It seems no one was ever too busy to help me out!" Congratulations on your promotion, we are without a doubt that there are many more successes to come in the future.

## Webster Centre Profiled Researcher: Associate Professor Russell Poulter



Associate Professor  
Russell Poulter

**You are often described as “the scientist at Otago who knows the most about fungal genetics”. How does fungal genetics fit in with infectious diseases?**

There are a number of serious human infection due to fungi. Two common examples are candidiasis (due to yeast *Candida albicans*) and aspergillosis (due to the mould *Aspergillus fumigatus*). Just occasionally these two fungi can cause very serious infection. Usually the infection occurs in people who have some other underlying condition that causes the weakening of their immune system. AIDS patients for example, commonly develop oral candidiasis (thrush). *Aspergillus fumigatus* grows on decaying vegetation and the spores are everywhere. Aspergillosis is a leading cause of death in acute leukaemia and following hematopoietic stem cell transplantation. *Candida* infections can often be controlled if you treat them early with modern drugs especially imidazoles. Aspergillosis is more difficult to cure.

**Are any other infectious diseases of particular interest to you?**

We are interested in all the fungal diseases. Recently we became actively involved in studying the fungal infection of frogs caused by a recently discovered chytrid pathogen. Of the fungal infections that we work on, aspergillosis, candidiasis and chytridiomycosis are the ones that take the most time.

**How did your work with frogs begin?**

About 15 years ago, in Australia and California, it was noticed that frogs were dying in very large numbers. In Australia the chytrid disease was first described from southern Queensland in 1993. It has now spread to most of Australia, including Tasmania. The Australians have lost half a dozen species of frogs and the species that have become extinct include frogs living in national parks that are in pristine condition with no development and no pollution. The chytrid fungus is able to infect a large number of species and it is estimated one third of the 6000 known amphibian species are under immediate threat of extinction. One of the declining species in Australia is the iconic Southern Corroberree frog, which used to be numbered in many thousands is now probably extinct in the wild. The ecological effects of these extinctions are profound, therefore, finding a cure is quite important.

The chytrid is what is called a ‘newly emerged disease’; and the question is, what does that mean? Where did it emerge from and how did it emerge? HIV is an example of a newly emerged disease, it didn’t exist 100 years ago. As we move biological material around the planet we also move the associated micro-organisms. The trade in exotic amphibians spreads any exotic pathogens that the amphibians may be carrying. However the chytrid even managed to get into New Zealand and we do not import amphibians.

**You have been a faculty member of the Department of Biochemistry for quite a period of time now. Are there any key ways that you can think of in which the University has changed throughout your time here?**

Looking at the broad University, apart from the numbers of students, I’m not sure that things have changed that much. We examine the students in a different way now, the whole thing used to rest on a sudden death exam at the end of the year, whereas now we have some courses that are completely examined by internal assessment. I think as a result the students are much more motivated, serious and hardworking than they used to be. When I first started many of the students spent the whole lecture carefully engraving various abusive messages into the desks. You could tell how the lectures were going by wandering along the back two rows and seeing if your name was appearing and if so, what they were saying about you. Now we have HEDC student feedback. It was also in the days before computers, before Blackboard, it was before whiteboards, so we used to do everything in chalk on blackboards. Coloured chalk was considered to be quite exotic and revolutionary. It was before the days of photocopiers so you couldn’t give the students handouts, you had to write everything by hand on the blackboard. So the technology of lecturing has changed hugely.

Thank you Russell for your time and insights.

## Postgraduate Travel Scholarship Winners

Congratulations to Becky Edgar of the Department of Biochemistry, and Julia Prier from the Department of Microbiology and Immunology, who are the recipients of the 2010 Postgraduate Travel Scholarships. Both Becky and Julia have won \$2000 to attend conferences of their choice.

Becky has completed a Bachelor of Science in Biochemistry with first class Honours, and is currently working towards her PhD. Becky’s research is on regulation of iron transport genes in the human pathogen *Pseudomonas aeruginosa*. She will be going to The XIII International Congress on Pseudomonas in Sydney, Australia in September 2011.

Julia has graduated with a Bachelor of Science in Microbiology and Immunology with Honours, and is planning on beginning her PhD in 2011. Julia’s research during the year has yielded some very interesting results in the field of vaccine development against infectious diseases, and at the start of this month she had the opportunity to attend the Australasian Society of Immunology’s annual conference in Perth Australia. Julia had the chance to present her research and attend a postgraduate workshop.

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