Australian National University

Research School of Biology Newsletter

Issue 35 | 6 March 2012

ANU COLLEGE OF MEDICINE, BIOLOGY AND ENVIRONMENT

NEWS

Ralph Slatyer Medal

The Vice-Chancellor has approved the establishment of the Ralph Slatyer Medal for outstanding research in the field of biology. The medal has been established in honour of Emeritus Professor Ralph Slatyer AO, FAA, FRS, a former Director of the Research School of Biological Sciences, and the first Chief Scientist of Australia (1989-1992). The Medal shall normally be awarded annually, to a person who has made an outstanding contribution to biological science and is an Australian citizen, or an Australian resident, or a person whose work has a significant Australian relevance. The award may be made for either a major discovery or for a lifetime's achievement in biological research. Nominations will be invited each year, with a closing date of 31 July.

Teaching and Learning update

The new academic year is well underway, with a sausage sizzle held for 250 first year biology students on 22 February.

Several practical sessions have now been held in the new Teaching Building (see photos below). The transition into this teaching space has been highly successful, thanks to our dedicated teaching lab staff.

First year undergraduate student numbers have increased by about 15% this year. Student numbers have also increased in most second and third year courses, though comparisons are difficult due to the changes that were made in the curriculum review last year.

Presidential Early Career Award

Sonja Best, former PhD student supervised by Peter Kerr and Peter Janssens and now heading a lab at the National Institute of Allergy and Infectious Disease in the US, has been awarded a Presidential Early Career Award for Scientists and Engineers for her work on flavivirus suppression of innate immune responses (see photo below).

Presidential Early Career Award winners with President Barack Obama

CONGRATULATIONS

Sylvain Foret (EEG) has received the JCU Award for Excellence in Research and Innovation for successful research on genomics and metagenomics of coral reefs.

Jochen Zeil (EEG) has been elected as a corresponding member of the Bavarian Academy of Sciences and Humanities.

Ajay Narendra (Zeil lab, EEG) has been invited to be on the Editorial Advisory Board of *Myrmecological News*.

Simon Dwyer (Von Caemmerer lab, PS) has just been awarded his PhD. He studied the photosynthetic consequences of an antisense reduction in the PsbO protein of photosystem II in *Arabidopsis thaliana.*

Yik Chun (Michael) Wong (Tscharke lab, BSB) has been awarded a travel grant from the Australasian Society for Immunology worth $3,000. Michael will be going to the USA to attend the Viral Immunity Keystone Symposium, to give seminars and visit laboratories at the NIH, Bethesda and Fox Chase Cancer Centre, Philadelphia.

WELCOME

The Atkin lab (PS) has expanded with **Chathuri Batuwaththagamage** commencing her PhD on the impacts of climate change variables on nutrient use efficiency of selected crops. Chathuri is a Sri Lankan national funded by an Australian Government Endeavour Award. Also joining the lab is Visiting Fellow and recent collaborator, **Yoko Ishida** from the Brazilian National Council of Research and Technology and, as a Visiting Scholar, **Keith Bloomfield** from Leeds University.

Morgane Merlin has arrived from Ecole Normale Supérieure in Paris (ENS, Ulm Paris, France) to work with in Marilyn Ball's lab (PS) on interactive effects of temperature and water status on photosynthetic activity in Antarctic mosses.

Regan Ashby has joined the Maleszka lab (EEG) as a Visiting Fellow and will be working part-time on a joint project with Iain Searle (BSB). Another new member in the 'B-lab' is **Kenny Petit**, a visiting student from the FUND University in Namur, who will be studying the epigenetics of coral in collaboration with **Sylvain Foret, Eldon Ball** and **David Hayward**.

Mariano Jordi Murià González has joined the Solomon lab (PS) as a PhD student working on characterising the role of fungal secondary metabolites in establishing a dominant wheat pathogen. Jordi is from Mexico and is recipient of an Australian Government Endeavour Award.

Other new members of the RSB team include **Mitzy Pepper** (Postdoc in Keogh Lab, EEG), **Karen Ford** (Postdoc in Foley Lab, EEG), **Ranamalie Amarasinghe** (Postdoc in Peakall Lab, EEG), **Janet Gardner** (Visiting Fellow, Keogh Lab, EEG), **Kenny Petit** (Visiting Student, Maleszka Lab, EEG) and **Crystal Vincent** (Visiting Student, Jennions Lab, EEG).

Photos from left to right: Kai Xun Chan making use of technology in the new teaching labs; Barry Pogson's pipetting technique being projected onto screens throughout the lab; 105 students working at the bench; students enjoying the new labs.

Lab Leader Profile
Giel van Dooren, BSB

Lab researching? I am looking at the organism *Toxoplasma gondii*, which is related to malaria. My work focuses on the organelles called apicoplasts. These are similar to chloroplasts but aren't able to photosynthesise so we are trying to work out their function using modern genetic techniques like gene knockouts and generating inducible mutants.

Greatest achievement? Using modern genetic techniques to work out the way a protein splits the apicoplast when the parasite divides.

Next big thing? Looking at the proteins that transport metabolites into and out of the apicoplast and using this information to figure out why the parasite needs the organelle.

Science hero? Antonie van Leeuwenhoek, a Dutch microscopist and lens maker in the late 17th century. He was the very first person to see many things because his microscopes were so powerful for that time. He looked at all sorts of things like pond scum, elephant skin and muscle fibres. He inspires my science because there are few things more exciting than looking down a microscope and being the first person in the world to see something.

MEDIA

Haylee Weaver (BSB) is featured on the ANU YouTube channel for her *Know your Science* video on parasite taxonomy.

Sophia Callander (Jennions lab, EEG) was featured in ANU Reporter for her work on fiddler crabs.

Amber Beavis (Rowell lab, EEG) was interviewed on ABC Melbourne about the Bush Blitz project.

Andrew Kahn (Jennions/Kokko labs, EEG) wrote for The Conversation on his work on female mosquitofish preferring well-fed males.

This monthly newsletter is archived at biology.anu.edu.au/newsletter.

Content: Casey Hamilton.
Editing: Kiaran Kirk & Casey Hamilton.

Contact Casey Hamilton to submit content or to be added to the newlsletter distribution list.

Janine Deakin's (EEG) press release on the scrambled Tasmanian Devil genome gained wide media coverage including articles in The Age, The Canberra Times, Australian Life Scientist online, Australian Geographic online as well as an interview on ABC 666.
Chris Fulton (EEG) was interviewed on ABC Radio and by several NSW newspapers about the release of the scientific audit of NSW Marine Parks

An interview with Ryszard Maleszka (EEG) and visual materials from his lab were used by the German TV station Bayerischer Rundfunk BR Alpha in a documentary about epigenomics, as well as two books.

PAPERS ACCEPTED

Bromham, L. The genome as a life history character: why rate of molecular evolution varies between mammal species. *Philosophical Transactions of the Royal Society: Biological Sciences.*

Brouwer, L., Richardson, D.S. & Komdeur, J. Helpers at the nest improve late-life offspring performance: evidence from a long-term study and a cross-foster experiment. *PLoS ONE.*

Dalziell, A. & Magrath, R. Fooling the experts: accurate vocal mimicry in the song of the superb lyrebird, *Menura novaehollandiae*. *Animal Behaviour.*

Foret, S., Kucharski, R., Pellegrini, M., Jacobsen, S.E., Robinson, G.E., & Maleszka, R. DNA methylation dynamics, metabolic fluxes, gene splicing and alternative phenotypes in honey bees. *Proc. Natl Acad Sci USA.*

Goldie, X., Lanfear, R., & Bromham, L. Diversification and the rate of molecular evolution: no evidence of a link in mammals. *BMC Evolutionary Biology.*

Hinton, R.A. & O'Neill, H.C. Extramedullary hematopoiesis leading to the production of a novel antigen-presenting cell types in murine spleen. In *Hematopoietic Stem Cells: New Research.* Nova Science Publishers. New York.

Ho. S.Y.W., Lanfear, R., Bromham, L., Phillips, M.J., Soubrier, J., Rodrigo, A.G., & Cooper, A. Time-dependent rates of molecular evolution. *Molecular Ecology.*

Langmore, N.E., Feeney, W., Crowe-Riddell, J., Luan, H., Louwrens, K.M., & Cockburn, A. Learned recognition of brood parasitic cuckoos in the superb fairy-wren *Malurus cyaneus*. *Behavioral Ecology.*

Lockett, G.A., Kucharski, R., & Maleszka, R. DNA methylation changes elicited by social stimuli in the brains of worker honey bees. *Genes Brain Behav.*

Manuel, M., & Forêt, S. Searching for Eve: Basal metazoans and the evolution of multicellular complexity. *BioEssays.*

Martin, R.E., Butterworth, A.S. Kirk, K., Gardiner, D.L., McCarthy, J.S. & Skinner-Adams, T.S. Saquinavir inhibits the malaria parasite's chloroquine resistance transporter. *Antimicrob. Agents Chemother.*

Merlin, S., Horng, S., Marotte, L.R., Sur, M., Sawatari, A., & Leamey, C.A. Deletion of Ten-m3 induces the formation of eye-dominance domains in mouse visual cortex. *Cerebral Cortex.*

Moya, A., Huisman, L., Ball, E.E., Hayward, D.C., Grasso, L.C., Chua, C.M., Woo, H.N., Gattuso, J-P, Foret, S. & Miller, D.J. Whole transcriptome analysis of the coral *Acropora millepora* reveals complex responses to CO2-driven acidification during the initiation of calcification. *Molecular Ecology.*

Rahimi, F. & Bitan, G. Overview of fibrillar and oligomeric assemblies of amyloidogenic proteins In: Rahimi, F. & Bitan, G. (eds.) *Non-fibrillar Amyloidogenic Protein Assemblies—Common Cytotoxins Underlying Degenerative Diseases.* Netherlands: Springer Netherlands.

Ramakrishnan, S., Docampo, M.D., Macrae, J.I., Pujol, F.M., Brooks, C.F., van Dooren, G.G., Hiltunen, J.K., Kastaniotis, A.J., McConville, M.J., Striepen, B. The apicoplast and endoplasmic reticulum cooperate in fatty acid biosynthesis in the apicomplexan parasite *Toxoplasma gondii. Journal of Biological Chemistry.*

Sauquet, H., Ho, S.Y.W., Gandolfo, M.A., Jordan, G.J., Wilf, P., Cantrill, D.J., Bayly, M.J., Bromham, L., Brown, G.K., Carpenter, R.J., Lee, D.M., Murphy, D.J., Sniderman, J.M.K., & Udovicic, F. Testing the impact of calibration on molecular divergence times using a fossil-rich group: the case of *Nothofagus (Fagales)*. *Syst. Biol.*

Slatyer, R.A., Jennions, M.D., & Backwell, P.R.Y. Polyandry occurs because females initially trade sex for protection. *Animal Behaviour.*

Taylor, R.W. Ants of the genus *Lordomyrma* Emery (2) The Japanese *L. azumai* (Santschi) and six new species from India, Viet Nam and the Philippines (*Hymenoptera: Formicidae: Myrmicinae*). *Zootaxa.*

van Dooren, G.G., Kennedy, A.T., McFadden, G.I. The use and abuse of haem in apicomplexan parasites. *Antioxidants and Redox Signaling.*

Winterberg, M., Rajendran, E., Baumeister, S., Bietz, S., Kirk, K., & Lingelbach, K. Chemical activation of a high-affinity glutamate transporter in human erythrocytes and its implications for malaria-parasite induced glutamate uptake. *Blood.*