Australian National University

Research School of Biology Newsletter

Issue 62 | 27 March 2015

ANU COLLEGE OF MEDICINE, BIOLOGY AND ENVIRONMENT

NEWS

Awards and funding success

Amber Beavis, who completed her Honours and PhD with the Rowell Group (EEG), is one of the 2015 winners of the Top 5 Under 40 competition. This program is jointly run by ABC Radio National and the University of New South Wales, and aims to find the new generation of scientific communicators. As a *Top 5 Under 40*, Amber will undertake a 2-week program at the ABC's Sydney offices as a Scientist in Residence. She will use this opportunity to make a serialised radio show, which will play on Radio National, in addition to other scientific outreach activities.

Stefan Bröer signed a sponsored research contract with Sanofi-Aventis. The project is entitled 'Slc6a19 – Tissue-specific contribution to the metabolic phenotype Investigates the relative contribution of kidney and intestine to the metabolic phenotype of Slc6a19-deficient mice'.

Thomas Merkling (Divisional Visitor, Keogh Group, EEG) received a 'Godfrey Hewitt mobility award' from the European Society of Evolutionary Society. The grant will allow Thomas to collaborate with Lisa Schwanz from UNSW for about 10 days in September, to study the evolution of temperature-dependent sex determination in lizards.

Claire O'Brien (Visiting Fellow, BSB) received a 'Best short talk' award at the European Crohn's Colitis Organisation meeting in Barcelona, Spain.

RSB grant submission summary

March has been a big month for ARC & NHMRC funding deadlines. RSB submitted:

- 12 NHMRC Project Grants,
- 19 ARC Discovery Projects,
- 5 externally led ARC Discovery Projects as a Partner Organisation,
- 12 ARC Discovery Early Career Researcher Awards,
- 1 NHMRC Research Fellowship, and
- 4 Linkage project rejoinders.

The NHMRC Career Development Fellowships, Early Career Fellowships and ARC Linkage Infrastructure, Equipment and Facilities applications are due in April. Linkage project announcements are expected in June; Discovery and DECRA in November/December.

For any Research Management queries, email your Research Office: science.robertson.rm@anu.edu.au

Dr Megan Head in her evolutionary biology lab. Image: Regina Vega-Trejo (see IN THE MEDIA.)

Australian Biology Olympiad

Juliey Beckman (First Year Coordinator, Lecturer, BTLC) has been nominated to accompany four of Australia's brightest senior high school students, and the Australian Biology Olympiad's Director, Julie Cook (UC), to the International Biology Olympiad to be held at Aarhus University, Denmark in July. The students will participate in friendly competition with Biology students from around the world for Gold, Silver and Bronze medals, by completing rigorous practical and theoretical examinations. An intensive course for the preparation of students will be hosted at RSB during the Easter teaching break.

Tamara Kayali Browne (Lecturer and Academic Coordinator, BTLC) has been offered a contract to publish her book *Depression and the Self* with Cambridge University Press.

IN THE MEDIA

A paper by **Megan Head, Luke Holman, Rob Lanfear, and Michael Jennions** and **Ryan Phillips** (EEG) entitled 'The extent and consequences of P-hacking in science' and published in *PLoS Biology* and has been featured in the ANU Media.

PHDs SUBMITTED

Kai Xun Chan (Atkin Group, PS), 'Proteome mapping of the model fungal plant pathogen *Stagonospora nodorum* using LC-LC-MS/MS'.

Bee Fong (Bee) Gunn (Crisp Group, PS), Phylogeography of wild and domesticated populations of coconut (*Cocos nucifera*).

PHDs AWARDED

Jason Bertram (Solomon Group, PS), 'Entropy-related principles for non-equilibrium systems: theoretical foundations and applications to ecology and fluid mechanics'.

WELCOME

Hannah Birke has joined the groups of Susanne von Caemmerer and John Evans (PS) to work on photosynthetic electron transport as part of the ARC Centre of Excellence for Translational Photosynthesis. She will be located in the Linnaeus building room 1.102.

Bori Cser and **Tom Rowell** have joined the Magrath Group (EEG) as PhD Students. Bori is studying how magpies integrate information on danger from personal surveillance and from eavesdropping on the alarm calls of other species. Tom will be involved in the conservation of helmeted honeyeaters, an endangered subspecies, by training captive-bred birds to enhance anti-predator behaviour before release into the wild.

Neha Patel has joined the Djordjevic Group (PS), for six months on an Endeavour Post Doctoral Fellowship.

Chaminda Ratnayaka has joined the Magrath Group (EEG) as a Visiting Fellow. Chaminda is a behavioural ecologist and ornithologist who completed his PhD at the University of Colombo, Sri Lanka, before carrying our post-doctoral research at the University of Turku, Finland. He will be working on acoustic communication.

Honorary Group Leader profile: Carol Behm (BSB)

Group research focus

We use the powerful molecular genetic tools of the model nematode *Caenorhabditis elegans* for a variety of collaborative projects to discover and validate new molecular targets for control of animal- and plant-parasitic nematodes, to investigate mechanisms of bacterial pathogenesis, and to identify olfactory receptors for use in biosensor research.

Teaching and research achievements

We have discovered a number of new control targets for parasitic nematodes, some of which have been patented and used in the field. Many students have contributed to this work.

What do you enjoy most about teaching?

I particularly enjoy interacting with students at all levels and backgrounds, from 1st year undergraduates to PhD students, encouraging them to ask questions and working with them to work out ways to address them. It is a great pleasure to see students develop in their understanding and insight as they progress through their degree courses.

Who is your science hero?

My science hero is Sydney Brenner, a biologist of great vision who decided in the early 1960s to establish a laboratory-friendly model organism - *Caenorhabditis elegans* – to investigate animal behaviour at the molecular level. In the last 50 years research using *C. elegans* has achieved major discoveries, won a number of Nobel Prizes, and made many important contributions to biology and medicine.

This newsletter is archived at biology.anu.edu.au/newsletter.
Content & layout: Sharyn Wragg.
Editing: Stefan Bröer & Sharyn Wragg.

FAREWELL

David Barwick is retiring from his role as Electronics Technical Officer in school workshop. David joined RSBS in 1994 as a Trainee Technical Officer, completed his training, and has since made significant contributions to support the school's research. He played a pivotal role in setting up the out of hours on call system, growth chamber and freezer alarms, and many early morning breakfast barbeques. He has happily gone out of his way to assist other school members in both their business and often personal pursuits. Something we are all going to miss. David will be putting more time into his own private business and getting some well-earned leisure time.

Samira Hassan (Mathesius Group, PS) has finished her PhD on the role of flavonoids in root-microbe interactions, and has started new position at the Department of Industry and Science doing Innovation Research.

Nadiatul Mohd Radzman (Djordjevic Group, PS) has taken up a position in Norwich as a postdoc.

Britta and **Markus Winterberg** arrived in Australia in 2009. Britta worked in the Mathesius Group (PS) before moving to the Solomon Group (BSB). Markus worked as Postdoc and Lab Manger in the Kirk Group (BSB) until the end of 2014, after which he worked in the Mass Spectrometry team, overseeing HPLC facilities. Markus will take up a position as Lab Head with the University of Oxford, Mahidol-Oxford Tropical Medicine Research Unit in Bangkok. His lab, in the Department of Clinical Pharmacology, will investigate malaria, TB drug metabolism, and biomarker discovery. Britta will work as a postdoc in the Department of Microbiology. Their delicious German cakes will be missed by the RSB community.

PAPERS ACCEPTED

Bergstrom, DM, Bricher, P, Raymond, B, Ball, MC, *et al*. Rapid collapse of a sub-Antarctic alpine ecosystem? *Journal of Applied Ecology*

Blyton, MD, Banks, SC, & Peakall, R, The effect of sex-biased dispersal on opposite-sexed spatial genetic structure and inbreeding risk. *Molecular Ecology*

Blyton, MD, Herawati, N, O'Brien, CL, & Gordon DM, Host litter associated dynamics affect *Escherichia coli* abundance and adhesion genotype in rats *Environmental Microbiology Reports*

Croft, NP, de Verteuil, DA, Smith, SA, Tscharke, DC *et al.*, Simultaneous quantification of viral antigen expression kinetics using data-independent mass spectrometry. *Molecular & Cellular Proteomics*

Djordjevic, MA, Bezos, A, Susanti, LM, Rolfe, BG, *et al.,* Lipo-chitin oligosaccharides, plant symbiosis signalling molecules that modulate mammalian angiogenesis in vitro, *Journal of Experimental Botany*.

Doughty, CE, Metcalfe, DB, Girardin, CAJ, Meir, P, *et al.* Impact of drought on Amazonian carbon dynamics and fluxes, *Nature*

Flesch, IE, Randall, KL, Hollett, NA, Tscharke DC, *et al.*, Delayed control of herpes simplex virus infection and impaired CD4+ T cell migration to the skin in mouse models of DOCK8 deficiency. *Immunology & Cell Biology*

Ibáñez-Álamo, JD, Magrath, RD, Oteyza, JC, Haff, TM, *et al.*, Nest predation research: recent findings and future perspectives. *Journal of Ornithology*

Jakhetia, R, & Verma, NK, Identification and molecular characterisation of a novel Mu-like bacteriophage, SfMu, of *Shigella flexneri. PLOS One*

Jiang, Y, Rose, AJ, Sijmonsma, TP, Bröer, A., Bröer, S, *et al.* Mice lacking neutral amino acid transporter B0AT1 (Slc6a19) have elevated levels of FGF21 and GLP-1 and improved glycaemic control, *Molecular Metabolism*

Leu, AO, Pavli, P, Gordon, DM, Allison, GE, O'Brien, CL, *et al.*, Relative abundance of *Mycobacterium* in ovine Johne's disease. *Microbiology Australia*

Long, BM, Bahar, NHA, & Atkin, OK, Contributions of photosynthetic and non-photosynthetic cell types to leaf respiration in *Vicia faba* L. and their responses to growth temperature. *Plant Cell and Environment*

McDonald, MC, Solomon, PS, McDonald, BA, *et al.*, Is *Zymoseptoria tritici* a hemibiotroph? *Fungal Genetics and Biology*

McDonald, MC, Williams, AH, Milgate, A, Solomon, PS, *et al.* Next-generation re-sequencing as a tool for rapid bioinformatic screening of presence and absence of genes and accessory chromosomes across isolates of *Zymoseptoria tritici, Fungal genetics and Biology*

Meir, P, Wood, TE, Galbraith, DR, *et al.* Threshold responses to soil moisture deficit by trees and soil in tropical rain forests: insights from field experiments, *Bioscience*

Merkling, T, Welcker, J, Hewison, AJM, *et al.*, Identifying the selective pressures underlying offspring sex-ratio adjustments: a case study in a wild seabird, *Behavioral Ecology*

Mohd-Radzman, NA, Binos S, Truong TT, Imin N, Djordjevic MA, *et al*., Novel MtCEP1 peptides produced in vivo differentially regulate root development in *Medicago truncatula, Journal of Experimental Botany*

Rivers, J, Warthmann, N, Pogson, BJ, & Borevitz, JO, Genomic Breeding for Food, Environment and Livelihoods, *Food Security*

Russell, TA, Stefanovic, T & Tscharke, DC, Engineering herpes simplex viruses by infection–transfection methods including recombination site targeting by CRISPR/Cas9 nucleases. *Journal of Virological Methods*

Zhang, Q, Zhang, T-J, Chow, WS, *et al.* Photosynthetic characteristics and light energy conversions under different light environments in five tree species occupying dominant status at different stages of forest succession, *Functional Plant Biology.*