Australian National University

Research School of Biology Newsletter

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ANU COLLEGE OF MEDICINE, BIOLOGY AND ENVIRONMENT

NEWS

Two new Group Leaders join RSB

Denisse Leyton has joined the Division of Biomedical Science and Biochemistry as a new Group Leader (see Group Leader profile overleaf). Denisse is working on a group of proteins called 'autotransporters' that bring themselves and a payload to the cell surface in bacteria.

Denisse is employed by the Medical School and will teach Microbiology in the postgraduate medicine program. She is located in room 3.017.

Guillaume Tcherkez has joined the Division Plant Sciences as a new Group Leader and ARC Future Fellow. He is an expert on the metabolism of respiration and photorespiration. Using isotopic labelling and NMR, he has revealed that the 'text book' view of the tricarboxylic acid cycle is misleading in plants. He is initially located in Linnaeus room 2.092.

Level E Professor promotions

Congratulations to the following RSB members who have been promoted to Level E Professor as of 1 January. The Level E Academic Promotion represents an acknowledgement of outstanding leadership in Research, Education and Service recognised by the University and the wider academic community.

Professor **Patricia Backwell** (EEG)

Professor **Justin Borevitz** (PS & EEG)

Professor **Michael Djordjevic** (PS)

Professor **Susan Howitt** (BTLC & BSB)

Professor **Graeme (Dean) Price** (PS)

Professor **David Rowell** (BTLC & EEG).

PHDs SUBMITTED

Ana Clarissa Alves Negrini (Atkin Group, PS) 'Role of alanine aminotransferase in improved nitrogen use efficiency in cereals'.

Damien Esquerré Gheur (Keogh Group, EEG) 'Parallel selective pressures drive convergent phenotypic diversification in the morphologically and ecologically diverse pythons and boas'.

New Group Leaders Denisse Leyton (BSB) and Guillaume Tcherkez (PS) (see under NEWS.)

Jakhetia Richa (Verma Group, BSB) 'Isolation and characterisation of Bacteriophages in 1a and 1c serotypes of *Shigella flexneri*'.

Vinson Tran (O'Neill Group, BSB) 'Molecular characterisations of niches for hematopoiesis in murine spleen'.

PHDs AWARDED

Ying Ying Hey (O'Neill Group, BSB) 'Characterisation of novel dendritic-like cells in spleen'.

Nelson Simbiken (Cooper Group, EEG) 'Feeding behaviour, biology and ecology of Grapevine Scale and Frosted Scale on grapevines'.

Katarzyna Walczwska-Szewc (Corry Group, BSB) 'Interpreting resonance energy transfer experiments with Monte-Carlo and molecular dynamics simulations'.

NOTICES

RSB photography services recommence

The RSB photography studio has been reestablished in Room 019 and 015 of the R.N. Robertson Building. The studio is stocked with a wide range of equipment to support the portrait and scientific photography needs of the School. All staff and students are encouraged to have their portrait photograph taken for use on photo boards and the RSB websites.

The studio will recommence portrait photography sessions from the end of January every Tuesday from 10-11am, and Thursday from 3-4pm, and during inductions (by arrangement). Requests for scientific photography should be made through the studio manager Sharyn Wragg on 6125 5060, or sharyn.wragg@anu.edu.au

Battery recycling comes to RSB

All battery types (except car batteries) can be left in collection bins at these locations: Robertson 46 – front counter at the Store. Linnaeus 134 – BSB DA office 3.026, PS STO team office 2.084, on deliveries fridge in the loading bay. Gould 116 – front office under mail boxes. Contact Jan Elliott on 6125 6422, or jan.elliott@anu.edu.au

WELCOME

Postdoctoral Scientists **Brendan O'Leary** and **Andrew Scafaro** have joined the Atkin Group (PS, and ARC CoE in Plant Energy Biology). Also joining the Group is PhD student **Zara Rashid**, who is funded by a Malaysian scholarship.

Group Leader profile: Denisse Leyton (BSB)

Group research focus

Our research is focused on understanding the basic biology of autotransporters, outer membrane proteins typically found in bacterial pathogens responsible for infectious diseases such as diarrhea, whooping cough, cholera, chlamydia, and bacterial meningitis. By blending microbiology, biochemistry and biophysics, we take a multidisciplinary approach to understand how autotransporters are assembled into bacterial outer membranes and how they function to mediate disease once they get there. We are also interested in reengineering autotransporters as recombinant protein production devices for use in basic research, biotechnology, or medical and pharmaceutical applications.

Teaching and research achievements

My most memorable research achievement is having been awarded the Australian Academy of Science Bede Morris Fellowship for Early Career Research in 2012. This fellowship funded a 12-week training visit to the Institut Pasteur in Paris and positively impacted my career in many ways; it led to new collaborations, top publications, and exciting new hypotheses that form the basis my current and future research efforts. Somewhat curiously, this fellowship also resulted in lunch with Tony Abbott, François Hollande, and someone much more enchanting… Manu Feildel from My Kitchen Rules!

What do you enjoy most about teaching?

I find teaching incredibly rewarding in that I have the opportunity to stimulate interest and curiosity in Microbiology, my field of expertise and a subject that I am passionate about.

What do you enjoy most about research?

I feel incredibly privileged to be in the position where I am able to ask and then address the questions that drive my curiosity and research interests. I also enjoy the exciting anticipation of discovery that is triggered when all the pieces of the puzzle finally start to fall into place.

The School welcomes the 50 students who are commencing Honours on 2 February.

NEW APPOINTMENTS

Ying Ying Hey (O'Neill Group, BSB) has passed the examination for her PhD degree, and has begun work as a Postdoctoral Scientist with the O'Neill Group on an ARC-funded project entitled 'Microenvironments which support hematopoiesis'.

FAREWELL

Vinson Tran (O'Neill Group, BSB) has submitted his PhD thesis, and has moved to the University of Western Australia to study medicine.

PAPERS ACCEPTED

Banea, JP, Bradbury JH, Nahimana D, Denton IC, *et al*. Survey of the konzo prevalence of village people and their nutrition in Kwilu District, Bandundu Province, DRC. *African Journal of Food Science*

Bertram J, Maximum kinetic energy dissipation and the stability of turbulent Poiseuille flow. *Journal of Fluid Mechanics.*

Bertam J, Maximum entropy models of ecosystem functioning. *AIP Conference Proceedings*

Bromham, L, Hua, X, Fitzpatrick, TG, & Greenhill, SJ, Rate of language evolution is affected by population size. *Proceedings of the National Academy of Sciences USA*

Conover, AE, Cook, EG, Boronow, KE, & Muñoz, MM, Effects of ectoparasitism on behavioral thermoregulation in the tropical lizards, *Anolis cybotes* and *A. armouri, Breviora*

Dewar, RC, A general maximum entropy framework for thermodynamic variational principles. *AIP Conference Proceedings*

Duchêne, D, Duchêne, S, & Ho, SY, Tree imbalance causes a bias in phylogenetic estimation of evolutionary timescales using heterochronous sequences. *Molecular Ecology Resources*

Eaton, CJ, Dupont, P-Y, Solomon, PS, Clayton, W, Scott, B, & Cox MP, A core gene set describes the molecular basis of mutualism and antagonism in *Epichloë.* *Molecular Plant-Microbe Interactions*

Hayward, DC, Grasso, LC, Saint R, Miller, DJ, & Ball, EE. The organizer in evolution-gastrulation and organizer gene expression highlight the importance of Brachyury during development of the coral, *Acropora millepora. Developmental Biology*

Head, ML, Holman, L, Lanfear, R, Kahn, AT, & Jennions, MD, The extent and consequences of P-hacking in science, *PLoS Biology*

Holman, L, Price, TAR, Wedell, N, & Kokko, H, Coevolutionary dynamics of polyandry and sex-linked meiotic drive, *Evolution*

Kokko, H, & Jennions, MD. Describing mate choice in a biased world, *Behavioural Ecology*

Lehtonen, J, & Kokko, H. Why inclusive fitness can make it adaptive to produce less fit extra-pair offspring, *Proceedings of the Royal Society B*

Lin, HC, Chiou, G, Chooi, YH, *et al*, Elucidation of the concise biosynthetic pathway of the communesin indole alkaloids, *Angewandte Chemie International Edition English*

Muñoz, MM, Crandell, KE, Campbell-Staton, S, *et al,* Herrel Multiple paths to aquatic specialization in four species of Central American aquatic Anolis lizards, *Journal of Natural History*

Morton, SK, Chaston, DJ, Fairweather, S, Bröer, S, *et al*, Loss of functional endothelial connexin40 results in exercise-induced hypertension in mice, *Hypertension*

Pascovici, D, Song, X, Solomon, PS, Winterberg, B, *et al,* Combining protein ratio p-values as a pragmatic approach to the analysis of multi-run iTRAQ experiments, *Journal of Proteome Research*

Meijaard, E, Cardillo, M, Meijaard, EM, & Possingham, HP, Geographic bias in citation rates of conservation research, *Conservation Biology*

Thynne, E, McDonald, MC, & Solomon, PS, Phytopathogen emergence in the genomics era, *Trends in Plant Science.*

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