



Research Strategy corner

Thanks to all the RSB members who responded to the RSB Research Themes survey earlier in the year. Your input and suggestions are being included in ongoing discussions in the Divisions as they develop Divisional and School level research strategies. I am available if you have any questions or comments on the process.

There are exciting major research initiatives on the horizon for RSB researchers. To better support development of research bids, the School is working to get a better understanding of who among the RSB Group Leaders has an interest in being part of the leadership of large initiatives bids and are asking for suggestions about how to best support major bid development activities. Among respondents to a recent survey of RSB faculty, 85% indicated they were potentially or definitely interested in leadership opportunities in major research initiatives.

The RSB Research Committee and I recognise that proposal development is time intensive and success rates are relatively low, however the high level of longer-term funding arising from major initiatives can transform divisions and research programs, accelerate research impact, and unlock new advanced training opportunities for EMCRs.

Feedback from Faculty was that we could lower the barriers to leadership of major bids in a number of ways: facilitating discussions in working groups and retreats, targeted investments to initiate and develop networks and partnerships, and leadership mentoring. Additional ideas included continued investment in business development and operational resources to help connect with external industry/non-academic partners and stakeholders, and a refresh of our research impact communication strategy.

The importance of leadership mentoring came up several times and is important considering the large number of EMCRs who are keen to be involved in future bids. Keep an eye out for invitations to informal brown bag lunches to explore how EMCRs can be develop leadership skills for future bids and also engage in emerging major initiatives.

Charlie Morgan, Research Development Strategist.

Congratulations

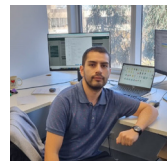
The annual RSB 3 Minute Thesis competition was held on 20 June with five participants. The quality of these talks are improving every year, resulting in outstanding standard of talks, well done to all. Special congratulations to **SaiShyam Ramesh** (Maier Group, BSB) and **Audrey Prasetya** (Moritz Group, E&E) for taking out a joint winner prize. Also, congratulations to Audrey for winning the People's Choice Prize.



RSB was represented by five of the eight presenters in the College of Science 3MT competition. All talks were fantastic, but with special congratulations to the winner **Ryan O'Donnell** (Linde Group, E&E). The third position went to **Saishyam Ramesh** (Maier Group, BSB) and although Sai did not win a cash prize, both he and Ryan are eligible to compete in the University level 3MT competition. A special mention to **Kate O'Hara** (Moritz Group, E&E) who came a close fourth.



Congratulations to **Ute Roessner** (PS) who has been awarded the 2023 ANZSMS Morrison Medal for her achievements in mass spectrometry.



Congratulations to PhD student **Jesús Ruiz Flores** (Brock Group, BSB) who was recently awarded a CSIRO Synthetic Biology top up scholarship.

Grants awarded

Owen Atkin (PS), **Danielle Way** (PS), **Andrew Bowerman** (Pogson Group, PS), **Andrew Scafaro** (Atkin Group, PS), **Florence Danila** (PS), **Robert Furbank** (PS), **Barry Pogson** (PS), **Frederike Stock** (APPF, PS) and **Meredith Thomas** (CEAT) on this most recent successful GRDC tender. *Improving wheat yield through increases in heat tolerance of leaf carbon exchange.* \$1,995,478.



Peter Solomon and Simon Williams (both PS) GRDC grant - *Dissecting the molecular basis of disease and resistance to Septoria tritici blotch.* \$690,000.

Peter Solomon (PS) GRDC grant - *Improving our knowledge of the genetic mechanisms involved in host plant resistance and pathogen virulence of Septoria tritici blotch in wheat.* \$550,000.

Benjamin Schwessinger (PS) Department of Foreign Affairs and Trade - Australia Awards Fellowship. \$23,254.



Celeste Linde (E&E) Hermon Slade Foundation has awarded a grant - *Identifying genes involved in mycorrhizal fungal recognition and nutrient exchange in an Australian orchid-fungal interaction*. \$50,000.

PhD awarded

Ayesha Akram (Jones Group, PS) - *Functional characterisation of the flax rust AvrP effector protein*.

Holly Beckett (Ball Group, PS) - *The role of water relations in the maintenance of hydraulic function in mangroves*.

Meng-Han Chung (Jennions Group, E&E) - *The cost of reproduction: how does it interact with the social and physical environment?*

Sarah Coughlin (Ball Group, PS) - *Tree structure and carbon cycling in a tropical rainforest under long-term drought*.

Jorin Deimer (Kirk Group, BSB) - *A mathematical model for ion homeostasis in the malaria parasite, Plasmodium falciparum*.

Yun Hsiao (Rowell Group, E&E) - *Systematics and evolutionary biology of the Weevils associated with cycads in Australia*.

Kimberley Hunnam (Jennions Group, E&E) - *Small pelagic fisheries in tropical food systems: strengths, challenges and opportunities for Timor-Leste's small-scale sardine fishery*.

Rowarne Lieth (von Caemmerer Group, PS) - *Redesigning phosphoenolpyruvate carboxylase for improved catalysis in C4 photosynthesis*.

Katia Taylor (Djordjevic Group, PS) - *An investigation of the protein interactions underpinning CEP-CEPR1 signalling and the evolutionary conservation of this pathway in crops*.

Aditya Yadav (Broer Group, BSB) - *thesis title confidential*.

PhD submitted

Hannah Carle (Nicotra Group, E&E) - *Complexities of carbon, traits and tree performance in tropical forest*.

Erin Hill (Solomon Group, PS) - *Characterising extracellular vesicles from the wheat pathogen Zymoseptoria tritici*.

Julie Leroux (Pogson Group, PS) - *Exploring mass spectrometry technologies to decipher metabolomic shifts during floral transition in Arabidopsis thaliana*.

Jamie Robertson (Lehane Group, BSB) - *Determining the roles of two key drug resistance proteins in conferring amodiaquine resistance in the malaria parasite*.

News

This month the Australian Plant Phenomics Facility (APPF) received a new plant 3D scanner (Phenospex PlantEye F600 Dualscan).

Equipped with a laser scanner and a multispectral camera the system can extract morphological traits such as 3D leaf area, plant height or digital biomass as well as spectral traits, for example NDVI, PSRI or greenness. The PlantEye



F600 is mobile and currently housed in the Plant Growth Facility (PGF). Users who are interested in using the scanner are encouraged to reach out to the [APPF team](#) to discuss potential projects.

Papers

Barua R, Pavli P, Gordon DM & O'Brien CL Comparative genomics and phenotypic studies to determine site-specificity of Escherichia coli in the lower gastrointestinal tract of humans. *Gut Microbes*. <https://doi.org/10.1080/19490976.2023.2223332>

Bourke T, Gregory KP & Page AJ. Hofmeister effects influence bulk nanostructure in a protic ionic liquid. *Journal of Colloid and Interface Science*. <https://doi.org/10.1016/j.jcis.2023.04.052>

Braby MF, Müller C & Espeland M. Four species in one: taxonomic revision of the Eirmocides helenita (Semper, 1879) complex (Lepidoptera: Lycaenidae) from Australia and New Guinea. *Austral Entomology*. <https://doi-org.virtual.anu.edu.au/10.1111/aen.12646>

Braby MF, Zwick A, Hartley D & Nicholls JA. A new species of trapezitine skipper (Lepidoptera: Hesperidae) from the Kimberley in the Australian Monsoon Tropics. *Australian Journal of Taxonomy*. <https://doi.org/10.54102/ajt.zl4kt>

Gregory KP, Webber GB, Wanless EJ *et al*. Decomposing Hofmeister effects on amino acid residues with symmetry adapted perturbation theory. *Electronic Structure*. <https://doi.org/10.1088/2516-1075/acbe84>

Gupta S, Yildirim S, Andrikopoulos B, Roessner U *et al*. Optimising nitrogen use in the root-soil nexus with urease and nitrification inhibitors. *Agronomy* <https://doi.org/10.3390/agronomy13061603>

Halupka L, Arlt D, Tolvanen, J & Brouwer L. The effect of climate change on avian offspring production: A global meta-analysis. *Proceedings of the National Academy of Sciences*. <https://doi.org/10.1073/pnas.2208389120>

Hurley LL, Ton R, Rowe M, Crino OL *et al*. Longitudinal covariation of testosterone and sperm quality across reproductive stages in the zebra finch. *Hormones and Behavior*. <https://doi.org/10.1016/j.yhbeh.2023.105388>

Jewell OJD, D'Antonio, B, Blane S, Calich HJ & Sequeira AMM *et al*. Back to the wild: movements of a juvenile tiger shark released from a public aquarium. *Journal of Fish Biology*. <https://doi.org/10.1111/jfb.15464>

Newman SJ. Early-life physical performance predicts the aging and death of elite athletes. *Science Advances*. <https://doi.org/10.1126/sciadv.adf1294>

Nguyen W, Dans MG, Currie I, Ramesh S, Maier AG, van Dooren GG *et al*. 7-N-Substituted-3-oxadiazole quinolones with potent antimalarial activity target the cytochrome bc1 complex. *ACS Infectious Diseases*. <https://doi.org/10.1021/acscinfed.2c00607>

Peakall R. Pollination by sexual deception. *Current Biology*. <https://doi.org/10.1016/j.cub.2023.02.066>

Rahimi F & Abadi ATB. Passive contribution of ChatGPT to scientific papers. *Annals of Biomedical Engineering*. <https://doi.org/10.1007/s10439-023-03260-8>

Robertson H, Willott JD, Gregory KP *et al.* From Hofmeister to hydrotrope: Effect of anion hydrocarbon chain length on a polymer brush. *Journal of Colloid and Interface Science*. <https://doi.org/10.1016/j.jcis.2022.12.114>

Tiatragul S, Brennan IG, Broady ES, Keogh JS. Australia's hidden radiation: Phylogenomics analysis reveals rapid Miocene radiation of blindsnakes. *Molecular Phylogenetics and Evolution*. <https://doi.org/10.1016/j.ympev.2023.107812>

Tcherkez G, Holloway-Phillips M, Lothier J, Ball MC *et al.* Revisiting yield in terms of phloem transport to grains suggests phloem sap movement might be homeostatic in wheat. *Plant, Cell and Environment*. <https://doi.org/10.1111/pce.14646>

Turner RS, Lasne OJD, Youngentob KN, Shokirov S, Osmond HL & Kruuk, LEB. Use of Airborne Laser Scanning to assess effects of understorey vegetation structure on nest-site selection and breeding performance in an Australian passerine bird. *Remote Sensing in Ecology and Conservation*. <https://doi.org/10.1002/rse2.342>

Whitney S, Zhou Y. Phylogenetic grafting of bacterial red-type Rubisco to enhance green photosynthesis. *Nature Plants. Research Briefing*. <https://doi.org/10.1038/s41477-023-01437-6>

Yan QL, Zhao Y, Ma R, Hocart CH *et al.* Capping the hydroxyl groups (-OH) of α -cellulose to reduce hygroscopicity for accurate 18O/16O measurement by EA/Py/IRMS. *Talanta*. <https://doi.org/10.1016/j.talanta.2023.124698>

Zeil J. Views from 'crabworld': The spatial distribution of light in a tropical mudflat. *Journal of Comparative Physiology A*

Zhou, Y, Gunn LH, Birch R, Whitney SM *et al.* Grafting *Rhodobacter sphaeroides* with red algae Rubisco to accelerate catalysis and plant growth. *Nature Plants*. <https://doi.org/10.1038/s41477-023-01436-7>

Zhu L, Li Y, Wang C, Ruan YL *et al.* The SnRK2.3-AREB1-TST1/2 cascade activated by cytosolic glucose regulates sugar accumulation across tonoplasts in apple and tomato. *Nature Plants* <https://doi.org/10.1038/s41477-023-01443-8>