

Yeast SIG: an ASBMB Special Interest Group



The Yeast SIG was established in 2005 with the purpose of assembling Australia's yeast researchers prior to bringing the International Conference on Yeast Genetics and Molecular Biology to Australia for the first time in 2007. The Yeast SIG office bearers are Alan Munn (Griffith University) (President), Birgitta Ebert (University of Queensland) (Treasurer) and Ben Schulz (University of Queensland) (Secretary). Birgitta was elected in 2020 when James Fraser stepped down. Thanks to James for his valuable contribution as Treasurer for many years.

The main activity of the Yeast SIG is organising the biennial Yeast: Products and Discovery (YPD) meeting. The most recent YPD meeting was held at the University of Sydney from 4–6 December 2019 (YPD2019). YPD2019 was the most well-attended YPD meeting to date with 109 registrants. The YPD2019 local organising committee included Dee Carter (Chair) and Aidan Kane (University of Sydney), Justin Beardsley (Marie Bashir Institute (MBI), University of Sydney), Oliver Morton (Western Sydney University (WSU)), Marc Wilkins (UNSW) and Heinrich Kroukamp (Macquarie University).

The ASBMB kindly provided financial assistance for student travel to YPD2019. Other YPD2019 sponsors were the Marie Bashir Institute, the Australian Society for Microbiology, the Australasian Mycological Society, AB Biotek and the Ramaciotti Centre for Genomics.

The program organising committee was chaired by Julianne Djordjevic (Centre for Infectious Diseases and Microbiology (CIDM), Westmead Institute for Medical Research (WIMR) and MBI, University of Sydney). Members included Laszlo Irinyi and Vanessa Rossetto Marcelino (CIDM, WIMR), James Fraser and Benjamin

Schulz (University of Queensland), Traude Beilharz and Jiyoti Verma (Monash University), Austen Ganley (University of Auckland), Simon Schmidt and Anthony Borneman (Australian Wine Research Institute (AWRI)), Alex Andrianopoulos (University of Melbourne), Oliver Rackham (Perkins Institute and Curtin Health Innovation Research Institute (CHIRI), Curtin University) and Evelyn Sattlegger (Massey University).

Speakers came from academic, commercial and government laboratories around Australia and New Zealand to take part in this meeting.

Topics covered included:

- Building the world's first functional synthetic eukaryotic genome: Plenary lecture (S Pretorius, Macquarie University)
- Creating new industrial yeast for the biofuel (P Bell, Microbiogen) and the cosmetic industry (V Haritos, Monash University)
- Understanding the Indigenous yeast present in Australian Aboriginal fermentations (C Varela, AWRI)
- Understanding the role of yeast and fungi in the microbiome by developing a novel *in vitro* model to study *C. albicans* colonisation of the human colon (M Lenardon, UNSW) and developing novel metagenomics approaches to overcome the challenges of identifying fungi in the human microbiome (V Rosetto Marcelino, MBI)
- Developing antifungal surface coatings for preventing biofilm formation (BR Coad, University of Adelaide)
- Tackling the global threat posed by life-threatening invasive yeast infections, including *Candida auris*, the first yeast 'superbug' causing great concern in British and North American hospitals and recently emerged in Australia (R Cannon, University of Otago, C Simm, Monash University, and J McKenna, La Trobe University)
- Developing new antifungals (L Guddat, University of Queensland, and L Wilkinson-White, Sydney Analytical, University of Sydney)
- Determining the impact of fungal plant diseases on food security (D Guest, University of Sydney)
- Using infection models to study the interaction between *Aspergillus fumigatus* and the host (O Morton, WSU)
- Understanding DNA repair systems (A Idnurm, University of Melbourne), chromatin dynamics (J Verma, Monash University) and inflammasome activation and metabolic control of innate immunity (T Tucey, Monash University) during fungal infection
- Proteomic characterisation of *S. cerevisiae* and *C. albicans* extracellular vesicles to identify biomarkers and a potential role in antifungal drug tolerance (M Bleackley, La Trobe University)
- Using microbes to synthesise psilocybin from 'magic' mushrooms, a compound being investigated as a



Left: Attendees chatting over coffee and viewing posters during a break.

Below: YPD2019 conference dinner at the Great Hall, University of Sydney.



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- treatment for depression, addiction and post-traumatic stress disorder (N Coleman, University of Sydney)
- Elucidating the biosynthetic potential of fungi to accelerate the discovery of bioactive molecules by developing episomal expression systems for rapid reconstruction and elucidation of cryptic fungal biosynthetic pathways (Y-H Chooi, University of Western Australia)
 - Using yeast to discover next generation tools for manipulating genes (O Rackham Perkins, CHIRI)
 - Using crosslinking mass spectrometry to comprehensively characterise the protein–protein interaction network (interactome) in yeast nuclei (M Wilkins, UNSW)
 - Understanding how dispersal, environmental variability and competition shape metabolic potential of wild nectar yeasts (M Dhami, Manaaki Whenua Landcare Research, New Zealand)
 - Assessing fungal diversity of Australian tree hollows in connection to the *Cryptococcus gattii* and *C. neoformans* species complexes (L Irinyi, WIMR)
 - Understanding how the human pathogenic fungus, *Talaromyces marneffeii*, adapts to the host niche through cell shape control (A Andrianopoulos, University of Melbourne)
 - Building Rube Goldberg machines in yeast to explore unnecessary complexity in biology (A Ganley, University of Auckland)
 - Understanding the challenges of membrane protein research in *S. cerevisiae* (E Lamping, University of Otago)
 - Determining whether SO₂ tolerance in *Brettanomyces bruxellensis* is a developing concern in the wine industry (A Borneman, AWRI)

The early career researcher award, which enables the successful recipient to attend the next ASBMB meeting, was awarded to Nikolay Shirokikh (John Curtin School of Medical Research, ANU) who spoke about 'Rapid RNA-level responses to stress as revealed by translation complex profile sequencing in yeast'.



Alan Munn
(left) with
Yeast SIG
ECR awardee
Nikolay
Shirokikh.

Enjoying some
yeast products
during the
microbrewery
tour.



The conference also showcased the important work of PhD students with an afternoon dedicated to lightning presentations and follow-up poster sessions chaired by Justin Beardsley. The lightning presentations were judged by the audience via a QR code registration system. From a total of 28 presentations, five prizes were awarded for best poster to: Paige Erpf (University of Queensland), 'Identification and characterisation of sPEPs in *C. neoformans*'; Ryan Separovich (UNSW), 'The role of upstream phosphorylation in the regulation of histone methylation'; Christina Stephenson (University of Queensland), 'The *Cryptococcus neoformans* SAGA: the epigenetic impact of the transcriptional coactivator on virulence in a global fungal pathogen'; Aidan Kane (University of Sydney), 'Using bisphosphonates to overcome azole resistance in *Candida*' and Monica Espinosa (Macquarie University), 'Methanol assimilation in native and synthetic strains of *Saccharomyces cerevisiae*'. A prize for the best lightning talk was also awarded to Kenya Fernandes (University of Sydney), 'Lactoferrin and amphotericin B synergise against yeasts'.

A wine tasting and networking session, featuring a combination of commercial and experimental wines, was held in the quadrangle, followed by dinner in the Great Hall at University of Sydney. Conference delegates visited breweries in Marrickville followed by a networking dinner at the Imperial Hotel, Erskineville.

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