Yeasts: Products and Discovery (YPD) in Australia

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"Consider life without chocolate or good quality coffee" (see Graham Fleet and Hugh Dircks paper, *'Yeast, Cocoa Beans and Chocolate'*, in this Yeast Special Edition of *Microbiology Australia).* And one can add to their list: wine (see papers from Sakkie Pretorius' and Vladimir Jiranek's groups), beer (Vince Higgin's paper) and leavened breads. All require the action of yeasts for their production, and yeasts are of enormous value as hosts for the expression and production of many proteins, including pharmaceuticals (see Ian Macreadie's paper). Clearly, many aspects of the quality of our lives would be greatly diminished without yeasts.

Lest we get carried away with bestowing too many accolades on our favourite fungi, in his paper on *Cryptococcus gattii* we are reminded by Wieland Meyer that not all yeast are benevolent; the disease-causing yeast being a case in point. Then there is spoilage of foods and beverages by yeast. In this context, Chris Curtin, Paul Grbin and Paul Henschke bring us up-to-date with their paper on what is known about one of the most important wine spoilage yeast, namely *Dekkera (Brettanomyces) bruxellensis*; this yeast can turn the aroma of the 'biggest' and best of wines into something approximating the medicinal smell of a box of Band-aid® sticking plasters.

Thus, there are many reasons for researching yeast, but most people working in the field are more interested in the power of yeast as model eukaryotes for fundamental research. Indeed, for many researchers in the biological sciences, yeast (and this generally means *Saccharomyces cerevisiae* or *Schizosaccharomyces pombe)* is the model of choice and this is because (amongst other things), it is easy, safe and cheap to grow, has a short generation time, has sexual and asexual phases to its life cycle, can be genetically modified with ease, and it is probably the most readily accessible and tractable eukaryote for 'omics and systems-based research. It is no accident that *S. cerevisiae* was the first eukaryote to have its genome fully sequenced. In addition, and I suspect of greater importance than we might realise or care to acknowledge, relative to many of the other model organisms biologists work with, such as *Escherichia coli,* fruit flies and mice, many yeast make the laboratory smell good!

Many of the papers in this special edition highlight the diversity of roles that yeast play as model organisms for researching cellular processes and phenomena such as DNA repair (Jörg Heierhorst), mRNA stability and turnover (Traude Beilharz and Thomas Preiss), intracellular trafficking (Parimala Vajjhala and Alan Munn), targetting and maintenance of compartmentalisation (Trevor Lithgow), autophagy (Rod Devenish group), genetic regulation of developmental fates (Alex Andrianopoulos) and stress tolerance (Miguel de Barros Lopes and Grant Stanley). In addition, papers from the Ian Dawes group and Vince Higgins describe the power of yeast for studies in functional genomics as a means of unravelling complex cellular processes.

This special edition of *Microbiology Australia* provides a snapshot of the range of interests in yeast research in Australia, with my apologies to the many colleagues who did not get the opportunity to contribute this time around. On the surface of it, the level of diversity of interests in this scientific community might appear to be too great for it to be held together with a clear identity. However, in the tradition of the British Yeast Group and similar organisations, it was decided to capitalise on complementarities and overlapping interests between antipode yeast scientists and form an Australian Yeast Group (AYG) that has more recently included scientists from New Zealand.

The AYG <http://www.australianyeastgroup.org/> was launched in 2000 at its inaugural Yeast: Products and Discovery (YPD) conference, at Couran Cove in Queensland. Biennial YPD conferences have since been held in Melbourne and the Barossa Valley (South Australia), and this led to organising and hosting the XXIII International Conference of Yeast Genetics and Molecular Biology in Melbourne in July 2007. Thus, the AYG is proving to be a very effective (and enjoyable) way of bringing a remarkably diverse group of scientists together to share their research and ideas. This yeast special edition of *Microbiology Australia* is essentially the product of that group.

The first AYG meeting: Couran Cove, 2000.