

Reproductive biology is alive and well in the west

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Additional keywords: assisted reproductive technology, behaviour, developmental biology, endocrinology, fetal programming, livestock.

Received 30 July 2019, accepted 30 July 2019, published online 21 November 2019

I was privileged to attend the annual meeting of ERBSWA on July 23, 2019 (<https://www.facebook.com/erbswesternaustralia/>, accessed 30 October 2019). This is a forum that allows local graduate students and researchers the opportunity to report on their research and to get practice and feedback before the national conferences of the Society for Reproductive Biology (SRB) and the Endocrine Society of Australia (ESA). To quote from the program, ‘The Society was founded in 1973 through the initiative of Dr Peter Hartmann and consisted of an Executive Committee comprised of Dr Hartmann and Drs M Carrick and Donald Gutteridge.’ It was initially known as the Endocrine Society of Western Australia, but was formalised in 1975 as the Endocrine and Reproductive Biology Society of WA (ERBSWA). ERBSWA was successful and active throughout the 70s, 80s and 90s, but lapsed towards the end of the Millennium. The Society was re-invigorated in 2002 and has since been holding meetings every few months. I should point out that I am a life member of SRB (since 2014) and an Associate Editor of *Reproductive Biology and Medicine*.

There were three keynote speakers. Professor Alan Tilbock (University of Queensland) gave the Norman R Adams Memorial Lecture, ‘Understanding hormones, stress and animal welfare’. I guess I came away with the message that it is very hard to define animal ‘stress’, ‘naturalness’ and ‘welfare’ by hormonal means (e.g., cortisol levels in most mammals or corticosterone in birds and rodents) when the very act of sampling can be stressful.

Dr Caitlin Wyrwoll (University of Western Australia) spoke on ‘Developmental origins of adult disease’. One strong message I got was how climate change is likely to affect animal development via placental function, with exposure of pregnant mice to 900 ppm of carbon dioxide (one likely consequence of anthropogenic factors) leading to striking changes in subsequent adult physiology and behaviour. Interested readers might like to consult ‘Have you got climate zombies? We debunk the myths that refuse to die’ at <https://www.abc.net.au/news/science/2019-07-27/climate-change-denial-zombies-killed/11291724> (accessed 30 October 2019).

Professor Sanjay Patole (King Edward Memorial Hospital for Women and UWA) spoke on ‘Probiotics for preterm

infants: current evidence and controversies’. For me, this was an eye-opener as I had never realised how uncontrolled the probiotic market is in Australia or worldwide (a Google search on ‘probiotics’ gives ~57 million hits). While it’s barely possible to open a women’s magazine these days in your GP’s or dentist’s waiting room without reading about the wonders of probiotic food supplements, Professor Patole pointed out that there are at least 27 different mechanisms by which these might work. Studies have been bedevilled by poor controls and uneven product quality, particularly for the use of live organisms: thus, one randomised control trial (RCT) reportedly went for 5 years, well beyond the life expectancy of the bacterial strain being tested!

Finally, Professor Lois Salamonsen (Centre for Reproductive Health, Hudson Institute of Medical Research, Victoria) gave the keynote address, ‘Establishing a healthy pregnancy: the importance of the uterine microenvironment’. For me, the most important message was the complexity of the uterine secretome, including not just soluble factors but extracellular vesicles or exosomes, and the important roles these play in preparing the human endometrium for implantation. It’s no wonder the successful implantation rates with conventional *in vitro* fertilisation (IVF) and embryo transfer have remained stubbornly low at around 20%; hence the general trend to cryopreserving IVF-derived embryos and replacing them in subsequent ‘natural’ cycles without hormonal interventions.

Besides those speakers, we had 10 students giving presentations and seven of them competing for one of three prizes. As one of three on the judging panel, I was struck by the quality of science and audiovisuals used. Things have come a long way since the days of Letraset (‘What’s that?’ one student asked) and laboriously typed/drawn and photographed slides. Unfortunately, many of the supervisors of the students didn’t attend. The top prize of \$750 (sponsored by ERBSWA) was won by Reanne Ko (UWA) who reported on her MSc project, ‘Investigating the anti-inflammatory effects of TLR inhibitors in human decidual cells’. The second prize of \$500 (sponsored by Edith Cowan University) was won by Michele Tree (Murdoch University Honours project) for ‘Sperm preservation protocol for the Western Grey Kangaroo, *Macropus*

fuliginosus'. The third prize of \$250 (ERBSWA) went to Jade Hallam (UWA and Concept Fertility Centre PhD student) for 'Does treatment of sperm with zinc, D-aspartic acid and coenzyme Q10 protect against oxidative stress before use in assisted reproductive technology?' (the short answer is 'no').

Conflicts of interest

The author declares no conflicts of interest.

Acknowledgements

This paper did not receive any specific funding.