

**A SHOWCASE OF ADELAIDE'S BEST AND BRIGHTEST AT THE ASMR
SOUTH AUSTRALIA SCIENTIFIC MEETING
ADELAIDE CONVENTION CENTRE**

The prestigious Ross Wishart Memorial Award, for most outstanding senior PhD student finalists are:

Sarah Bernhardt, Queen Elizabeth Hospital and Robinson Research Institute, University of Adelaide

Sarah is investigating new breast cancer tests to help doctors to decide on the best chemotherapy treatments for their patients. She is at the forefront of research using a variety of mouse models and coordinating two clinical projects at The Queen Elizabeth Hospital. Her research studies how a woman's menstrual cycle influences her breast cancer treatment. This could have profound impacts for treatment choice and understanding why some women respond poorly to certain treatments.

Anya Arthurs, Flinders University, Adelaide

Anya has just moved to Flinders University, Adelaide, after recently completing her PhD at the Hunter Medical Research Institute, University of Newcastle, NSW. She studied the role of tiny molecules called 'microRNAs' in the development of the placenta, essential for healthy pregnancy. MicroRNAs guide a process that inhibits the conversion of DNA instructions into functional proteins in our bodies. Anya has contributed to unravelling a pathway controlled by microRNAs that controls placental cell growth in culture and *in vivo* experiments. This could have major impacts for future research investigating whether dysfunction of this pathway contributes to pregnancy complications.

Nathan Wong, South Australian Health and Medical Research Institute, Adelaide

Nathan is based at the Vascular Research Centre at the South Australian Health and Medical Research Institute (SAHMRI). His PhD research completed in NSW, focuses on characterising novel gene targets that regulate angiogenesis - the process of new blood vessel formation from pre-existing vessels. The process is essential to boost tissue function during periods of blood flow and oxygen deprivation, but it can be harmful by promoting tumours, or inflamed tissues in the body. Nathan's new research findings offer new insights into the regulation of angiogenesis by 'good' cholesterol and identifies target proteins for new drug development.

Kirsty Kolc, University of Adelaide

Kirsty is completing a PhD at the University of Adelaide, investigating a rare early onset seizure disorder called "girls clustering epilepsy", caused by a genetic mutation. It affects males and females differently, even impacting individuals of the same sex, same family, or twins differently. She has found an association between age at seizure onset and severity of the disorder. This information is currently being used to guide development of a large clinical trial. Kirsty was also the first to employ a standardized assessment in three languages (English, Italian, and French), administered to over 100 individuals globally, to underpin a website and written guide for affected families to access.

Other exciting presentations include:

Bandaging up superbugs

Antibiotic resistance will likely become one of the greatest threats to human health. To increase the efficacy of antibiotics, Melanie Fuller has paired them with nanoparticles in a 'nanomesh' bandage. This new method of delivering the treatment to treat infections directly at the wound source, could contain the effects of the antibiotics to the affected tissue, without a total body response that potentially becomes antibiotic resistant.

Reducing inflammation, reducing depression?

Emma Karen Sampson's PhD is working on a clinical trial testing anti-inflammatories as a new treatment for depression. By measuring parameters of inflammation before patient treatment, the trial aims to optimize the treatment for those most likely to benefit from this drug. (University of Adelaide)

Optimizing joint replacements

Dr Renee Ormsby (University of Adelaide) is a bone cell researcher studying the ways in which diseases like osteoarthritis change the makeup of the bone. In particular, she has found that bone cells that are respond to organic and inorganic factors, including particles produced from hip replacements. Her findings could have major implications for developing treatments that prevent implant failure, reducing further surgeries for patients with osteoarthritis.

Anti-booze drug and copper team up against superbugs

Golden Staph infections cause major clinical complications and tremendous healthcare costs. The rise of superbugs and the lack of effective treatments urgently call for better therapies. Katharina Richter (University of Adelaide) has tested a new treatment combining an anti-booze drug and copper, which shows promise against devastating Golden Staph infections. This is a cocktail that potentially saves lives.

Ensuring proper skull development in all children

Clara Pribadi's (SAHMRI) research focuses on a medical condition called craniosynostosis where the joints separating the skull bones, which normally stay flexible during childhood, close prematurely. Currently, the only treatment for craniosynostosis involves major invasive surgeries. Thus, developing a novel drug treatment for these children through Clara's studies would be highly beneficial.

Boosting blood supply for diabetes sufferers

Diabetes mellitus affects 1.2 million Australians. Vascular complications, the major causes of morbidity in patients with diabetes, result from impaired blood vessel formation. Emma Solly (SAHMRI) has identified a novel target involved in diabetes impaired blood vessel growth that may help in the development of new treatment approaches for diabetic vascular complications.

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