



Name: Cadence Minge

Age: 25

I have always marvelled at the beautiful and perfect way nature has designed the cells that make up all the living things we see around us. Such delights in understanding the way things work naturally lead me to a career in science! Everyday I am able to contribute to human knowledge of cell biology, without which we would not be able to help those of us who have diseases or are unwell because of problems with the way our cells work.

I attended high school at Henley High School, and completed a Bachelor of Science at the University of Adelaide in 2002 majoring in Biochemistry and Anatomy. I obtained honours in 2003 in the department of Obstetrics and Gynaecology describing the regulated expression of important receptors in the insulin-signalling pathways of ovarian immune cells (1).

I am presently studying towards my PhD as a member of the University of Adelaide's Research Centre for Reproductive Health. My project, entitled "Obesity, Insulin-Resistance and Female Fertility" aims to establish a proposed link between excess bodyweight and impaired female reproductive potential, particularly to identify the molecular pathways that are perturbed in the ovary of obese women with concomitant insulin resistance. Such knowledge would assist the development of improved laboratory media and techniques for embryologists in IVF clinics to help produce the healthiest babies possible.

I now currently live in Alberton with my husband and our cocker spaniel-cross, Harvey.

1. Minge CE, Ryan NK, Van Der Hoek KH, Robker RL, Norman RJ: Troglitazone regulates peroxisome proliferator-activated receptors and inducible nitric oxide synthase in murine ovarian macrophages. *Biol Reprod* 74:153-160, 2006



- **Name:** Kylie Dunning
- **Age:** 27
- **Suburb:** Wynn Vale
- **High school :** Golden Grove High School (completed 1997)
- **Undergraduate degree :** Bachelor of Science at the University of Adelaide majoring in Genetics and Biochemistry (completed 2001). Completed Honours degree in Genetics at the University of Adelaide in 2002.
- **Postgraduate degree :** Current: PhD in the Research Centre for Reproductive Health, Discipline of Obstetrics and Gynaecology, University of Adelaide.

I've always been interested in biological science. My path toward a career in health and medical research was a logical choice as subjects including Chemistry and Physics could never hold my interest. When given the opportunity to begin my PhD in reproductive medicine I jumped at the chance. I was interested in this area of science, as when I listened to couples that had difficulty in conceiving and they described the process of IVF, I wanted to do something that could one day help couples like these.

For women undergoing IVF treatment they are currently given large doses of hormones, which stimulate many oocytes (or eggs) to grow and mature in the ovary. These mature eggs are then surgically removed and can be fertilized in culture.

The hormones used to stimulate and mature oocytes can have unpleasant side effects and are expensive. A useful technique is maturing eggs in culture and thus avoiding hormonal stimulation, which would subsequently reduce the risk of side effects, the cost of the procedure and the inconvenience of hormonal stimulation.

The maturation of eggs in culture is currently not as efficient as the hormonal stimulation. My work focuses on improving the culture conditions and understanding what the oocyte needs to grow and mature in order to be fertilized, thus making it a viable option for patients undergoing fertility treatment.



- **Name:** Hannah Brown
- **Age:** 23
- **Suburb:** Woodville Park
- **High school :** Woodville High School and completed in 2000
- **Undergraduate degree :** Bachelor of Science (Biomedical Science) Honours in 2004
- **Postgraduate degree :** Is currently undertaking a PhD at the University of Adelaide in the Discipline of Obstetrics and Gynaecology

Growth, development and maturation of the human egg takes 12 months to occur; which interestingly, is longer than it takes the human embryo to grow into a fully developed baby. This implies the importance of this period of growth and maturation and evidence suggests that disruptions during this time result in a poorly developed egg. My work focuses on the “support network” for the growing egg, and the role that it plays in providing the growing egg with the nutrients it requires to potentially develop into a healthy baby if fertilised. This work is helping to determine what the egg requires to produce a healthy baby and may provide new opportunities for treatment of some forms of human infertility.

I was always interested in science as a kid and was always keen to know why and how things worked the way they did. After completing a science degree at the University of Adelaide, I developed a keen interest in reproductive biology and decided that medical research was a way of perusing this interest further.

Hannah enjoys going to the beach, spending time with her friends and listening to her favourite band, Kings of Leon.



- **Name:** Leigh Guerin
- **Age:** 23
- **Suburb:** Happy Valley
- **High school:** Unley High (completed 2000)
- **Undergraduate degree:** Bachelor of Medical and Pharmaceutical Biotechnology with Honours (completed 2005) at the University of South Australia

My work focuses on a distinctive subset of white blood cells known as T regulatory cells. As the name suggests, these cells are important regulators of the immune system. Recently these cells have been shown to be critical in pregnancy success with their dysfunction been related to infertility and miscarriage. My research endeavours to identify the factors that control the function of these cells throughout pregnancy. A proper understanding of this may lead to new diagnostics and treatment for previously untreatable infertility.

I was attracted to a career in medical science due to the fact that I'm generally a curious person and I thought science would be a good outlet for this.

I enjoy outdoor activities including fishing and snorkelling



- **Name:** Emily Alvino
- **Age:** 22
- **Suburb:** Aberfoyle Park
- **High school :** Aberfoyle Park High School, 2001
- **Undergraduate degree :** Completed Bachelor of Science and Business Flinders University 2004, Honours in Health Science Adelaide University 2005
- **Postgraduate degree :** Currently undertaking a PhD at the University of Adelaide in the Discipline of Obstetrics and Gynaecology

Of vital importance to human reproduction is the expulsion of an egg from the female ovary, resulting in its fertilisation by the sperm. However, the mechanisms involved in this process, known as ovulation, remain relatively unknown and my research focuses on explaining these. Ovulation is precisely timed and relies on communication between various cells within an ovary, and also signals from the mother.

A major cause of infertility is a woman's failure to ovulate, thus understanding the ovulation process would offer insight into the mechanisms involved in this multifaceted event and assist in treating this type of infertility in women.

I have always been interested in discovering how and why things work, thus after highschool I went on to complete a Science degree and honours research project. This developed my interest and allowed me to become involved in medical research.

Emily enjoys listening to live music and watching the football



- **Name:** Gabrielle Todd
- **Age:** 29
- **Suburb:** Hallett Cove
- **High school :** Moruya High School, NSW, 1995
- **Undergraduate degree :** BSc (Hon), The University of Wollongong, 1999
- **Postgraduate degree :** 2005, The University of NSW

I study how the brain controls muscles during movement. In particular, I'm interested in the processes that underlie the learning of new motor skills. This work has important implications for the rehabilitation of patients with brain damage from example, stroke.

Medical research is both exciting and rewarding. Each day is different and there is always the possibility of making a new discovery that furthers our understanding of the human body.

I'm married with one dog (Sam) and I like outdoor activities such as surfing and sailing.



- Name: Lachlan Moldenhauer
- Age: 25
- Suburb: Novar Gardens
- High school (include year completed): Immanuel College 2003
- Undergraduate degree: BSc (hons) Adelaide Uni, 2003
- Postgraduate degree: PhD due for completion 2007, at Adelaide Uni

My research focuses on the cells of the female's immune system after insemination and during pregnancy. I have discovered that through a series of white blood cells interacting with each other, they send signals which allow the mother's immune system to become aware of pregnancy. This is important as it allows the mother's immune system to be tolerant of the fetus. This 'immune tolerance' is critical in establishing a healthy pregnancy. If the mother's immune system doesn't become tolerance it can become aggressive and attack the fetus, in a similar way to your immune system attacking viral or bacterial infections. An attacking immune response can lead to pathologies of pregnancy including pre-term labour and miscarriage or even infertility. My research is continuing to unlock the secrets of exactly how the mother's immune system becomes tolerant in pregnancy and then translate that research into therapeutics that will enhance pregnancy outcomes for expectant mothers.

Being a member of the Faculty of Health Sciences gave me the opportunity to apply for Faculty funding to attend the International Conference for Experimental and Clinical Reproductive Immunobiology in Canada. This conference provided me with the chance to communicate my data to leading researchers in the field, thus raising my own profile as a young scientist. I was also fortunate to be named co-winner of the best oral presentation award. This was my first international conference and enabled me to meet with many prominent investigators from all four corners of the globe and learn about their cutting-edge science. Furthermore, I was privileged to discuss my own work with many of these leading scientists, including possible future experiments. In addition, I was fortunate to be invited to speak at a number of laboratories in Cambridge and Oxford that provided me with the chance to discuss my work and possible future job opportunities in the UK.

I have been a student in the within the Faculty of Health Sciences since starting my honours project in 2003. I am currently a third year PhD student in the Reproductive Immunology laboratory of Associate Professor Sarah Robertson within the Research Centre for Reproductive Health.

I always liked science at school so naturally started a Bachelor of Science at Adelaide University. Now being in medical research allows me to be involved in science and research which allows me to fulfil my curiosity of how things work. It is particularly interesting to discover how one's own body systems function. Plus one day I hope that the medical research that I carry out will help people to live healthier lives.

Lachlan currently lives in Novar Gardens and enjoys cycling and going to the footy to watch the Power win!