



Kelly Bailey

Age 24

I have always been curious about how things work in nature, especially something as complex as the human body. As my curiosity grew, so did my interest in science subjects at high school. Now I have been to University I can see that science teachers are often restricted by the curriculum, which can make it hard to create exciting lessons. I joined ASMR because of their outreach program to rural and regional high school students. It was a chance to not only give students an exciting alternative to normal classes but to motivate them to want to learn more, and become capable of understanding and making informed decisions about current issues, such as bird flu, bioterrorism and cloning.

After finishing school at Cardijn College in 1999, I enrolled in a Bachelor of Science Nanotechnology at Flinders University, and by 2004 had graduated with 1st class honours. From there I began my PhD at CSIRO, Molecular and Health Technologies, which I am still currently undertaking. My research focuses on a family of proteins (known as G-proteins) which help control cellular activity throughout the body including the heart, lungs, adrenal glands, liver and the brain.

As G-proteins are involved the regulation of many different cell types, they have become the targets of many pharmaceuticals including antihistamines, antidepressants drugs to treat blood pressure. The aim of my work is to develop a novel technology that will allow us to screen new drugs without using traditional cell based or animal systems. Ultimately this could lead to testing which is more cost and time efficient.

This is my second year as part of the Education Subcommittee, and I am hoping to inspire the students to consider careers in Medical Research by providing them with information about education, career options, personal experiences from the young scientists that make up our team, and a first hand look at biotechnology in action with a DNA fingerprinting demonstration.



Dr Thomas Ohnesorg

Age: 34

Thomas is originally from Munich, Germany and recently moved to Adelaide to further his career in medical research. Thomas is a relatively new member of the ASMR and, being an international visitor, is looking forward to visiting regional areas of SA for the first time. Whilst visiting the schools, Thomas will be giving the students a more international perspective on research in SA and why he chose Adelaide as his new "home" as opposed to laboratories in Europe and the USA.

Thomas started his scientific career studying biology at the Technical University of Munich majoring in microbiology. His diploma thesis researched inter-bacterial communication by small signalling molecules, a mechanism by which bacteria can change their behaviour as a collective group.

Thomas widened his scientific horizon by completing a PhD in molecular biology and genetics at the GSF-National Research Centre for Health and Environment in Neuherberg, near Munich. During this time he worked on cholesterol biosynthesis and how it is regulated at the genetic level.

Thomas is currently working as a postdoctoral research officer in the Discipline of Obstetrics and Gynaecology and the Research Centre for Reproductive Health at the University of Adelaide. His current research addresses ovarian follicular development and function. Thomas' work has implications in understanding polycystic ovarian disease and premature ageing of the ovary.



Cadence Minge

Age: 24

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 Henley High School, and completed a Bachelor of Science at the University of Adelaide in 2002 majoring in both Biochemistry and Anatomy. I obtained honours in 2003 in the department of Obstetrics and Gynaecology by describing the hormonal regulation of important insulin-regulating receptors in ovarian immune cells (1).

I am currently 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. In particular I am aiming to identify the molecular pathways that are disrupted in the ovary of obese women with early signs of type II diabetes. Such knowledge would assist the development of improved techniques for embryologists in IVF clinics and help to produce the healthiest babies possible.

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

Scientific papers published in relation to this work:

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



Tamara Cooper

Age 22

I have been involved in ASMR since 2005 and being from a rural area myself I took an interest in the activities that promote young people to take an interest in medical research and particularly the rural schools trip which we took to the south east of the state last year. This year we have planned a trip that spans from the Riverland to the Barossa and Clare valleys including my own old high school Riverton and I am looking forward to talking to students about what to expect when making the transition from a country school to university.

In 2001, after leaving family and friends, I moved to Adelaide so I could go to Flinders University. In 2004 I completed a Bachelor Biotechnology with 1st class Honours. I am currently pursuing a PhD with the University of Adelaide at CSIRO Molecular and Health Technologies. My research involves developing exciting new technologies which will allow us to look at protein interactions. The proteins I look at come together in very specific formations known as G-protein coupled receptors which are the target of over 50% of drugs currently available on the market.

The proteins we study, mediate many physiological functions including those of the immune, hormonal and neuronal systems as well as the senses of sight, taste and smell. The technology that I am working on will lead to the discovery of new and potentially better therapeutics.



Amanda Aloia

Age: 24

I have always been interested in the “why” and “how” of life and my passion for science started at a very young age. One of my earliest memories involves my Dad explaining to me how gravity works using an orange and some strawberries! As I went through school my interest turned to the science of biology, what could be more interesting than learning how my very own body, and how all the natural things around it worked? I was fortunate to be further encouraged by an excellent biology teacher in year 12, who not only taught me the basics, but also helped me to think outside the square.

It was then that I started to realise the impact a teacher can make, and have since tried to be actively involved in teaching. I believe quality education is very important in life and my own education has provided me with many great opportunities and experiences. I have travelled to different parts of the world and met and worked with some incredible people. I would love for everyone to have as many wonderful experiences as I have had, which is why I joined the ASMR rural schools trip. I believe that everyone should be aware of the many fantastic and varied opportunities that are available to them, and hopefully I can help achieve this.

Once I had graduated from oranges, strawberries and gravity, I completed an Honours degree in Nanotechnology from Flinders University in 2003. I spent the next year working for the CSIRO and then went on an around-the-world holiday. In late 2004 I started a PhD in Biochemistry through Flinders University and the CSIRO. I study membrane receptor proteins. These particular membrane receptors are the way that cells “talk” to each other, which makes them a really interesting topic to study! Around 50% of current drug therapies work on these receptors but there is still so much we don’t know. My research aim is to be able to make these proteins so that we can find out as much about them as possible. If we can do this, there is huge potential to find new and more specific drugs to treat a huge variety of diseases.