

**MARINA ALEXANDER**  
**Young researcher fights HIV/AIDS epidemic**

HIV/AIDS has killed more than 25 million people worldwide since its discovery. Unearthing just how the HIV virus destroys the human immune system is what Ms Marina Alexander, a talented PhD student from The University of Melbourne, does.

On tour with the Australian Society for Medical Research's 2007 Regional Schools Tours, Alexander will be speaking to high school students in northern Victoria about her work on HIV and how she has become engrossed in medical research.

"I love putting all the bits of the puzzle together so we can get a clearer picture of the very tiny world of viruses....medical research offers many exciting puzzles."

After completing her VCE, Alexander travelled overseas to work at the renowned Oxford University.

"The stimulating learning environment at Oxford inspired me to pursue a career in science. I have always been fascinated by DNA and how it determines how and why our bodies work, it may also hold a clue to solving the HIV/AIDS epidemic."

Now studying in the Department of Microbiology and Immunology, Alexander is investigating how HIV makes its proteins or "building blocks" that allow this virus to spread throughout the body. She adds,

"This understanding will help us design new drugs to treat HIV, and as a bonus, will tell us a lot about how our own cells work which has benefits for treating cancer and genetic disorders."

Ms Alexander joins three other young researchers visiting high schools in Benalla, Cobram and Wangaratta on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**Hsiu-Wen Chan**  
**Young scientist uses medical research skills to travel the world**

The typical picture of a PhD student is someone who is stuck in a lab for years on end while the world passes them by. Not Hsiu-Wen Chan! So far she has visited America, England, France, New Zealand and different states of Australia as part of her PhD at the Baker Heart Research Institute.

Speaking of her travels as part of the Australian Society for Medical Research's Medical Research Week® 2007 Regional Schools Tours, Chan states "I have had the opportunity to meet and present my work to world experts in cardiac research".

In her research, Chan investigates which signals are switched on to tell the heart muscle cells to grow. This will provide information about potential drug targets so that a successful treatment can be developed to prevent heart failure or at least reduce its effects.

The research has a personal angle, as Chan's father had a pace maker fitted several years ago, "I hope that if anything happens to him medically, my work will help him in some way."

Ms Chan and three other inspiring researchers are speak with students at high schools in Ballarat, Stawell and Horsham on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**Hayley Dickinson**  
**Are stem cells really a 'cure all' remedy?**

Stem cells are touted as the cure of tomorrow, with scientists promising to use stem cells to cure everything from Alzheimer's disease to multiple sclerosis. But can they actually deliver on these promises? Dr Hayley Dickinson, a Research Fellow at the Monash Immunology and Stem Cell Laboratories at Monash University in Melbourne, is trying to do just that.

"Many people, both young and old, are struck down with debilitating disease for which there are no cures. Stem cells offer the possibility of a treatment for these diseases, as they have the potential to replace damaged cells, organs or tissues."

Dickinson spoke of her role in the research: "I am studying the fate of different types of stem cells, i.e. where do they go and what do they do? If I could see into the future, I would hope that the consequence of my research is that stem cells do fulfil their potential to cure disease."

Dickinson will be sharing her experiences in medical research with high school students in the Victorian Wimmera as part of the Australian Society for Medical Research's Medical Research Week® 2007 Regional Schools Tours.

"I love the quest for knowledge, particular the moments in time when you are the only person who knows a particular piece of information, something that you have discovered for the first time – it's a real buzz!"

Dr Dickinson joins three other inspiring young researchers on a tour of high schools in Ballarat, Stawell and Horsham on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**DR SHARYN FITZGERALD**  
**Gippsland scientist to inspire next generation of researchers**

A love of biology and a curious mind led South Gippsland girl, Dr Sharyn Fitzgerald, to pursue a career in medical science. Fitzgerald is promoting medical research careers in the Gippsland region on behalf of the Australian Society for Medical Research's 2007 Regional Schools Tours.

Fitzgerald holds an RD Wright Research Fellowship at the Baker Heart Research Institute, Melbourne where she is a lead investigator in a study of the long-term effects of stroke on physical and mental well-being. On a broader scale, her laboratory team researches blood pressure regulation to better understand how it is adversely affected by obesity and diabetes.

"I am a curious person and I like to find out how and why things work. I enjoy learning and with my job I am always learning new things specifically about my research and in general across the whole field of medicine."

Fitzgerald is still amazed at the opportunities her career has given her. She has presented her findings at many conferences around Australia and internationally at

more than a dozen meetings across three continents. In addition she has worked overseas in both America and Sweden,

“During my travels to scientific meetings, I have had the chance to meet two Nobel prize winners and three Australians of the Year – including Prof. Peter Doherty who discovered how immune system T cells work, Sir Gustav Nossal a chief advisor on the WHO vaccine program and Prof. Ian Frazer who discovered the cervical cancer vaccine.”

Fitzgerald speaks of the importance of her work, “Cardiovascular disease is the leading cause of death in Australia. I hope my research increases our understanding of the risk factors and determines ways we can prevent or reduce the development of cardiovascular disease.”

Dr Fitzgerald joins three other inspirational scientists visiting high schools in Sale, Bairnsdale and Orbost on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**Laura Forrest**  
**Help for families to communicate genetic information**

Imagine your cousin tells you he’s been diagnosed with a genetic condition. He can’t remember all the information the doctor gave him but he does know the doctor said you need to have a genetic test.

This scenario is becoming increasingly common as more tests become available for genetic conditions, and this is why Laura Forrest, a PhD student at the Murdoch Childrens Research Institute in Melbourne, is investigating how families communicate information about genetic conditions.

“I’m trying to find out how families communicate about a genetic condition to inform each other.”

Forrest is using interviews with families and surveys of health professionals to try and provide guidelines for professionals and families.

“I had always thought medical research involved a lab bench and test tubes, so I jumped at the opportunity to do research that involved a lot of people contact. I’d like to see people with genetic conditions getting more support so they can communicate more effectively with their family.”

As part of the Australian Society for Medical Research’s Medical Research Week® 2007 Regional Schools Tours, Forrest will be sharing her enthusiasm for medical research with high school students in the Victorian Wimmera.

“I have the privilege of learning about people’s stories - about their personal experience of living with a genetic condition.”

Ms Forrest and three other enthusiastic young researchers will present careers talks to high schools in Ballarat, Stawell and Horsham on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**CATHRYN HOGARTH**  
**USA attracts local talent**

Returning to Wangaratta with the Australian Society for Medical Research's 2007 Regional Schools Tours, Dr Cathryn Hogarth will be visiting her former high school to motivate young, up-and-coming scientists to consider a career in medical research.

Hogarth, now based at Monash's Institute of Medical Research in Clayton, grew up with a keen love of biology,

"I was always interested in science but it was learning that my father had a rare genetic disorder that made me want to know more about how our genes influence our development and our health."

Hogarth was recently awarded her PhD qualifications for investigating how sperm matures in the testis and invited to do a two-year placement with the School of Molecular Biosciences at Washington State University, USA. She will continue her fascinating research and learn new techniques to broaden her scientific skills,

"This is a very exciting opportunity for me. I'll be working with an international expert in testis development. I'll also get to experience living in a different country which I am really looking forward to."

Dr Hogarth joins three other inspirational researchers visiting high schools in Benalla, Cobram, Wodonga and Wangaratta on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**MELANIE IVEY**  
**Myrtleford researcher follows her heart**

Growing up in Myrtleford Ms Melanie Ivey was inspired by her high school science teachers to pursue a career in biological science. Ivey is bringing this message home as she promotes medical research careers with the Australian Society for Medical Research's 2007 Regional Schools Tours.

Ivey investigates the process where "bad" cholesterol sticks to blood vessels and blocks them, called atherosclerosis, at the Baker Heart Research Institute, Melbourne. Remarking on her work,

"Cardiovascular disease is such a huge burden on the community. It is estimated that 40% of Australians over 65 are affected by it. Knowing that the research I do may one day lead to a better treatment to reduce atherosclerosis, and thus lower morbidity and mortality, is a huge motivation to continue my research."

So far, Ivey's medical research career has taken her to Holland, Italy and USA to attend scientific conferences. She has also been fortunate to work for 3 months in a laboratory in Seattle.

"I hope in 5 years time, we would have enough evidence that a particular family of sugar-containing proteins in the blood vessel, that bind and retain cholesterol causing atherosclerosis, are able to be modified with specific drugs, so we can begin doing patient trials in order to reduce atherosclerosis."

Ms Ivey joins three other young researchers visiting high schools in Benalla, Cobram and Wangaratta on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**Bill Li**  
**Heart research to save lives**

Bill Li, a senior researcher at the Baker Heart Research Institute in Melbourne, is trying to understand how complications such as heart and kidney disease arise due to diabetes. Cardiovascular side-effects, such as heart attack and stroke, cause the significant mortality of diabetes sufferers due to years of uncontrolled blood sugars.

Li became convinced medical research was where he needed to focus his efforts when his mother did not recover from a straight forward heart operation.

“After open-heart surgery failed to cure my mum’s coronary heart disease I wanted to find new ways of treating such health problems.”

As a result Li is investigating the roles of genes in the growth of fatty plaques on the walls of arteries in the heart (atherosclerosis). He adds,

“We have shown that a single gene change could significantly reduce arterial plaques forming under diabetic conditions.”

This means that Li and his colleagues are one step closer to designing better therapeutics to treat diabetes-related atherosclerosis.

As part of the Australian Society for Medical Research’s Medical Research Week® 2007 Regional Schools Tours, Li will be sharing his enthusiasm for medical research with high school students in the Victorian Wimmera.

“There are always new ideas in my mind about the research I am doing. I am always excited if they really work!”

Mr Li and two other inspiring researchers are conducting a speaking tour of high schools in Birchip, Warracknabeal and Nhill on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

**LOUISA LUDBROOK**  
**Medical research into sex determination**

When a healthy baby is born the first thing we ask is - is it a boy or a girl? Now, imagine **not** being able to answer that question. In rare cases, babies are born with X and Y chromosomes that do not match their physical sex. Ms Louisa Ludbrook from Prince Henry’s Institute of Medical Research investigates just what triggers the human embryo to develop into a boy or a girl.

Ludbrook, an inspirational young scientist, will be speaking to high school students in Gippsland as part of the Australian Society for Medical Research’s 2007 Regional Schools Tours.

During her PhD training, Ludbrook travelled to London and worked at the National Institute for Medical Research in the highly regarded laboratory of Professor Lovell-Badge.

“I had a fantastic opportunity to study a sex reversal condition caused by the presence of an ‘anti-testis’ gene on the X chromosome which can lead to male-to-

female sex reversal in rare cases. It was a tremendous time of learning for me, despite the freezing cold winter! “

Now in the final stages of completing her PhD, Ludbrook reflects,

“Human genetics simply fascinates me. The correct formation of testicles, ovaries and genitals is a critical first step for successful fertility. By investigating which genes are involved and how they decide an embryo's sex, we can better understand this important process of human development.”

Ms Ludbrook joins three other inspirational scientists visiting high schools in Sale, Bairnsdale and Orbost on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

## **JOHN-LUIS MORETTI**

### **Manpower needed in medical research**

You may not realise it but women outnumber men in medical research jobs. You only have to walk into a laboratory to see two or three gals for every bloke. The Australian Society for Medical Research's 2007 Regional Schools Tours are aware of this difference. Visiting young scientist, Mr John-Luis Moretti, will speak to high school students about pursuing a rewarding medical research career.

“A turning point for me was when my university lecturers would talk about the research they were doing - it was so new, even the textbooks hadn't caught up! It felt really exciting to be learning up to the point where the lecturers said... *and we don't know why that happens but we are currently investigating A, B and C and that might come up with an answer.*”

Moretti is studying at the Baker Heart Research Institute in Melbourne and shares a laboratory with 4 female and 2 male colleagues. Moretti investigates how the nervous system is involved in the development of high blood pressure - a condition suffered by one in three Australians. Moretti comments,

“Hypertension is a very exciting area of research and understanding its causes will most likely shake some of the traditional ideas on treating high blood pressure.”

He reflects on his chosen profession, “I love adding to the wealth of knowledge and knowing that I'm the only person in the world doing this particular research - no one else has done what I'm doing and no one knows what answers I may get.”

Mr Moretti joins three female researchers speaking to students at high schools in Benalla, Cobram and Wangaratta on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

## **Senem Eren**

### **What happens to children with head injuries in the long run?**

Suffering a head injury as a child, whether from a car accident or another circumstance, is a distressing experience. The head injury, in some cases, can lead to post-traumatic stress symptoms so Senem Eren, a trainee psychologist and PhD student at the Murdoch Childrens Research Institute in Melbourne, is investigating the issue further.

“I'm trying to understand the brain regions involved when a child or adolescent with a head injury displays symptoms of post-traumatic stress.”

Using functional magnetic resonance imaging (MRI), to see parts of the brain used for particular tasks, Eren is investigating the underlying function of these injured children's brains.

As part of the Australian Society for Medical Research's Medical Research Week® 2007 Regional Schools Tours, Eren will be sharing her hopes for the outcomes of her research with high school students in the Victorian Wimmera.

"I hope that the research will guide health professionals' rehabilitation efforts to reduce the burden of disability by successful treatment of the emotional difficulties."

Ms Eren and two other enthusiastic young researchers will present careers talks to high schools in Birchip, Warracknabeal and Nhill on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

For more information or to speak to the researchers, please contact Shahan Campbell (0433 113 454) or Amy Nisselle (0404 942 577). High resolution photographs are available upon request.

**Carly Siebentritt**  
**Young researcher tackles HIV/AIDS epidemic**

That's the question young researcher Carly Siebentritt is trying to answer as part of her work at the Microbiology and Immunology Department at The University of Melbourne.

Siebentritt is investigating an HIV vaccine, "so instead of giving a person a cocktail of drugs to fight their HIV virus we can give them a vaccine which helps their own immune system fight the virus and maybe even cure them".

As part of the Australian Society for Medical Research's Medical Research Week® 2007 Regional Schools Tours, Siebentritt will be sharing her enthusiasm for medical research with high school students in the Victorian Wimmera.

"I had this wonderful biological sciences teacher in Year 10 who introduced me to genetics, then at uni it was immunology that caught my interest. When you've been leading up to a certain result for a long time and you know that you finally have a piece of data which will make or break your current hypothesis – then it's easy to rush into the lab on Monday!"

Ms Siebentritt joins two other leading young researchers on a speaking tour of high schools in Birchip, Warracknabeal and Nhill on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

For more information or to speak to the researchers, please contact Shahan Campbell (0433 113 454) or Amy Nisselle (0404 942 577). High resolution photographs are available upon request.

**BELINDA SMITH AND JULIANA SOOSAIRAJAH**  
**Heart researchers don't miss a beat**

Did you know one in three people die from heart, stroke and vascular-related disease worldwide? Two young researchers from Melbourne's Baker Heart Research Institute are finding ways to reduce this statistic. Dr Belinda Smith and Dr Juliana Soosairajah have diverse upbringings yet together work toward a common goal.

Soosairajah fled ethnic war in Sri Lanka, migrating to Australia when she was a young adult. She obtained her scientific qualifications in Australia and now searches for better drugs for people who suffer from stroke and heart attack.

"My childhood dream was to become a medical doctor because we didn't have medical facilities in my village. In Sri Lanka I could have become a medical doctor or engineer or lawyer or accountant.....however I couldn't be a research scientist!. I thought, when I came to Australia, I 'd study something I couldn't do in Sri Lanka and be of much more help to the medical field."

Smith, an Australian-born cardiology research fellow and PhD student, investigates why blood vessels become inflamed and blocked, causing heart attacks and stroke.

"Hopefully if we can understand why these blockages form we can design drugs more intelligently to prevent them."

She adds "During my cardiology training at St Vincent's hospital over the last two years, I have been frustrated with the limitations of the drugs and therapies. This was the big motivation for me to undertake cardiac research."

Drs Smith and Soosairajah will speak to high school students at Gisborne Secondary College on Wednesday 27<sup>th</sup> June as part of the Australian Society for Medical Research's 2007 Regional Schools Tours.

**KANE TREBLE**  
**CSI fan turned medical researcher**

Growing up with an avid interest in "whodunits" and CSI thrillers, Mr Kane Treble turned to medical science as his chosen profession.

On tour with the Australian Society for Medical Research's 2007 Regional Schools Tours, Treble will visit high schools in Gippsland to inspire fellow CSI fans to consider medical research as a career.

"I think it was growing up watching murder mysteries and the forensic science behind it that got me really interested. In high school I realised medical research was the direction I would take - it was much better to try and keep people alive than working out their final moments..."

Treble is researching HIV/AIDS at the Burnet Institute in Melbourne. He is investigating the link between HIV and human molecules to understand how HIV infects cells and make more copies of itself. At last count, there are 40 million HIV-positive people worldwide.

"My work has great potential in understanding how HIV works as well as providing potential new targets for designing therapies to help inhibit the spread of HIV."



Mr Treble joins three other inspirational scientists visiting high schools in Sale, Bairnsdale and Orbost on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

For more information or to speak to the researchers, please contact Shahan Campbell (0433 113 454) or Amy Nisselle (0404 942 577). High-resolution photographs are available upon request.

**Alex Umbers**  
**International collaboration attracts overseas scientist**

Malaria kills two million mothers and their children every year. Understanding how malaria infects pregnant women and their unborn babies, and how to prevent it, is research being conducted by Ms Alex Umbers at The University of Melbourne.

Umbers, a talented New Zealand scientist, was backpacking in South America when she became aware of the impact that malaria has in different parts of the world. The opportunity to research malaria in Malawi, East Africa by undertaking a PhD project at The University of Melbourne was too good to pass up.

Speaking to high school students in the Victorian Wimmera as part of the Australian Society for Medical Research's Medical Research Week® 2007 Regional Schools Tours, Umbers spoke of her unique opportunity:

"We're one of the few labs in the world working on the specific problem of malaria in pregnant women. My lab collaborates with a malaria hospital in Malawi so I plan to spend some of my PhD in Africa working in the field and doing research that is not possible in Melbourne."

"We hope to develop new ways to treat malaria infection during pregnancy, preventing disease in newborns and their mothers. Babies born to mothers with malaria are more likely to develop malaria themselves. By preventing the disease in mothers we will reduce the risk of disease in the next generation. We are attacking malaria on a scientific and social scale".

Ms Umbers joins three other leading young researchers on a speaking tour of high schools in Ballarat, Stawell and Horsham on Tuesday 26<sup>th</sup> June and Wednesday 27<sup>th</sup> June.

For more information or to speak to the researchers, please contact Shahan Campbell (0433 113 454) or Amy Nisselle (0404 942 577). High resolution photographs are available upon request.