

- 2016 EDITION -

Life-changing Research: Artificial Skin to Treat Type 1 Diabetes

Artificial skin used to revolutionise treatment of burns patients across the globe is now being trialled as a potential site to transplant specialised cells used in the treatment of type 1 diabetes.

Thank you for making research discoveries like this a reality!

This exciting work is being led by two Royal Adelaide Hospital clinicians, Professor Toby Coates, Director of Kidney and Pancreatic Islet Transplantation and Dr John Greenwood AM, Director of the Burns Unit. In collaboration they are looking into the effectiveness of transplanting islet cells into artificial skin made of biodegradable polymer, rather than into the liver.

Type 1 diabetes occurs when the insulin-producing islets in the pancreas are destroyed. Without insulin the body cannot convert glucose (sugar) into energy, and patients are at greater risk of developing kidney disease, stroke and heart attack.

This breakthrough in world-class transplantation science is only a reality thanks to past research in this area undertaken by Prof Coates, supported by the generous donor base of Kidney, Transplant and Diabetes Research Australia

along with collaborating partner The Hospital Research Foundation (THRF).

The work has attracted attention all over the world with the Juvenile Diabetes Research Foundation (JDRF) International contributing nearly \$1 million to develop the new transplant procedure.

“Traditionally we transplant islet cells into the liver to help treat type 1 diabetes patients, however the harsh and unforgiving environment of the liver means that a large number of islet cells die during the process,” explained Prof Coates.

“The key component of this research is to modify and optimise the artificial skin to create a new site to transplant islet cells in people with type 1 diabetes.

**280 AUSTRALIANS
DEVELOP DIABETES
EVERY DAY – IT IS THE
FASTEST GROWING
CHRONIC CONDITION
IN AUSTRALIA.**

“This approach is now possible through the breakthrough in artificial skin technology pioneered by 2016 South Australian of the year Dr Greenwood who has changed the way burns

are treated globally.

“Transplanting islets into the artificial skin instead of the liver is potentially a much safer procedure, which will reduce the total number of islets needed to transplant for diabetes and allow more people access to this life-changing transplant procedure.”

This research has the ability to change the lives of thousands of Australians living with type 1 diabetes. Thank you for your support. You make it possible for research like this to progress from the lab to a potential life-changing treatment.

Pictured above: Professor Toby Coates is hopeful this research will lead to more people having access to the islet transplant procedure.



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0840.**

Our aim is simple – to reduce and ultimately eliminate the high incidence of these chronic diseases in Australia and around the world.

A New Beginning – Diabetes Free



For 53-year-old Peter, health issues began from an early age. He first began developing signs of type 1 diabetes in primary school and due to a lack of research and awareness, he remained undiagnosed until he was 15 years old.

“I was coming home with the shakes and the doctor back in those days wasn’t sure what it was because it was unheard of,” Peter said.

Interestingly, it was an accident in high school that led to the discovery of his type 1 diabetes. Peter stepped on a loin chop bone, and it went straight through his foot.

“I got rushed to hospital where they thought I was allergic to morphine so they flew me to the Royal Adelaide Hospital (RAH). I was in a coma for two days, they thought I wasn’t going to make it,” he said.



Do you have a story to share? Email us at contactus@kidneydiabetesresearch.com.au or phone 08 7002 0840.

“I was diagnosed and became insulin dependent when I was just 15 years old.”

At the age of 34, Peter unfortunately needed amputations which began with his toes and then his right leg in 1999. His left leg was eventually amputated in 2010 leaving Peter now with two prosthetic legs.

“My kidney failure happened after my second leg amputation,” Peter said.

“I was put on dialysis for six months which wasn’t working and I was coming home with chronic headaches. It was a really bad point in my life.”

Peter underwent a kidney transplant at the RAH, performed by Professor Toby Coates, whom Peter had been seeing for a few years prior.

“Luckily I’m a rare blood type and I had a very successful kidney transplant.

“Prof Coates was extremely happy with my progress after my transplant and he was then willing to do a pancreas transplant.

“We got in touch with Monash Hospital in Melbourne and they agreed to do the procedure as it cannot be done here in Adelaide.

Pictured left: Peter with his loving wife Sherrie.

Pictured right: Thanks to advances in research Peter is able to live life to fullest, enjoying time with his grandchildren.



“Now I am no longer a diabetic, I have the freedom of not having to take insulin each and every day.

“I am on anti-rejection drugs from the pancreas transplant and am on the lowest dosage, which can give me an extra 20-30 years more to live. That’s pretty amazing.

“I hope somewhere along the way researchers will be able to prevent diabetes and kidney disease. Transplantation research is such an achievement and I would love if more people could be lucky enough to be cured like me.”

Today, a positive Peter is hitting the burn-out track, determined to help other people like him. You can join him!

On December 17th this year Peter will be raising money with a team at the Adelaide Motor Sport Park. Donations will be taken at the door and go towards research supported by KTDRA. **Mark the date in your diary and stay tuned for details on how you can get behind this exciting cause!**

THANKS TO YOUR SUPPORT, RESEARCH HAS ENABLED PEOPLE LIKE PETER TO HAVE A SECOND CHANCE AT A HEALTHY LIFE.

Informing Future Mothers with Kidney Disease



For young women and men living with kidney disease, the decision to start a family can be a difficult one. What are their risks if they do decide to have children, and when is the right time?

Thanks to you, Kidney Specialist Dr Shilpa Jesudason based at the Royal Adelaide Hospital (RAH) has set forth to answer these questions with the support of Kidney, Transplant and Diabetes Research Australia (KTDR).

“For those younger people who are looking forward to big life decisions, such as having children, living with kidney disease can leave them feeling overwhelmed,” Dr Jesudason said.

To support these patients Dr Jesudason wanted to first understand the experiences and emotions of women currently living with kidney disease and kidney failure, dialysis or a kidney transplant. With her research collaborators, she undertook a study interviewing patients from the RAH and St George Hospital in Sydney.

“I really wanted to find out from these women what their experiences around pregnancy have been and what we can do as clinicians to improve their experiences and make it better for others,” she said.

“Most of the women said they found issues around motherhood very confronting. They found the decisions they were being asked to make incredibly challenging.

“There was a lot of grief when they couldn’t have children because of the risk to their health, and guilt from those who received a kidney from a donor who felt they were gambling with that very special gift.”

Touched by the responses of these women Dr Jesudason and her team published a paper ‘*Perspectives on Pregnancy in Women with Chronic Kidney Disease: A Semistructured Interview Study*’. Now, Dr Jesudason is using this to develop an improved process of counselling which she is implementing in her monthly pregnancy counselling clinics.

“In this clinic I look after women with kidney disease who want to get pregnant, are already pregnant or who have developed kidney problems during their pregnancy.

“We’ve now developed a strategy for talking about the risks, taking into account what they are going through, their perspectives and the things we learned from the interview study in order to navigate shared decision making.”

Dr Jesudason is preparing to launch a national study looking at kidney disease in pregnancy across 300 maternity hospitals in Australia.

“Nationwide, we are trying to find all women with significant kidney disease in

pregnancy, those who need dialysis or who have had a kidney transplant in pregnancy. These are the highest risk patients and we want to be able to identify and follow these women and their babies through the pregnancy,” she said.

“This will be really important because it’s going to help develop a health policy so we can deliver the best health care to these women.”

Pursuing both studies has given Dr Jesudason and Kidney Specialists like her the opportunity to provide patients with the best possible care as they navigate through their journey.

Do you want to regularly give back to support research like Dr Jesudason’s? Please contact our Donor Relations Specialist Bonnie Stewart on **08 7002 0807** or email bstewart@kidneydiabetesresearch.com.au.

Pictured below: Dr Shilpa Jesudason



Australia's First Islet Auto Transplant Procedure is Kicking Goals

Making medical history at just seven years of age, Gary Wanganeen was Australia's first paediatric patient to undergo a successful islet auto transplantation procedure on July 14 2015.

Pancreatitis is inflammation of the pancreas, which produces the hormone insulin, regulating blood sugar levels. Gary's hereditary disease came from his father, who was diagnosed with pancreatitis at the age of 21.

"Gary just turned four when he started showing symptoms – rocking back and forth, having pains. He refused to eat and drink. It was heartbreaking for me," Gary's loving mother Chanel Brown said.

It was Chanel who made her son's procedure a reality, dedicating her days and nights to extensive research, finding out the procedure had been successful overseas.

After frequent visits to the hospital in their hometown of Moonta, Gary was flown to Adelaide where he was diagnosed.

Chanel's path crossed with Professor Toby Coates after she saw him on television and contacted him for help.

"He was in America at the time and our family was brought up in conversation as I had contacted both Prof Coates and doctors in America. I was so relieved when he told me he was willing to help.

"The day of the operation Gary was under anaesthetic from 5:30am. After taking his pancreas, spleen and gall bladder out; they flew his pancreas to Melbourne where the islets were isolated and brought back to be injected into his liver on the same day."

Following the procedure, it was a long recovery process and Gary was in Womens and Children's Hospital Intensive Care Unit for two weeks.

Now over a year later, Gary is back on the football field and enjoying a much better quality of life.

"We are hoping that Gary's islet cells kick in properly and produces enough insulin to run without an insulin pump. It is a huge waiting game but his surgery has made his quality of life so much better thanks to Professor Coates and his team," Chanel said.

"He is no longer on narcotic medication and he is playing two games of football a week, which we never thought was possible before the operation."

This procedure was only possible thanks to advances in medical



research! You can read about more amazing breakthroughs by visiting our website, www.kidneydiabetesresearch.com.au.

Pictured above: Prof Toby Coates, Chanel, Gary's father Gary Sr and Gary Jr at the 10 years of islet transplantation celebration.

In August 2016 we were thrilled to host a special event – the celebration of 10 years of translational islet transplantation research in South Australia! Held at Ayers House Conservatory, guests were treated to talks from our research team and personal stories from transplant patients – including Chanel and Gary. Check out our Facebook page for more photos!

Become a KTD Champion!

You've met some inspiring people in this newsletter, whose lives have changed thanks to incredible research breakthroughs. With your support we can continue this research long into the future!

While you may already support us regularly, by becoming a KTD Champion and providing monthly support you are joining a community of people who are passionate about improving the lives of people living with kidney disease and diabetes.

Translating research to patients does take time. It's for this reason our world-class research team need your regular support to ensure their hard-work now can benefit people in the future. Your monthly donation also helps reduce our administration costs giving us more time to support the research you are making a reality! You will receive a tax receipt each year to allow you to easily claim your donations as a tax deduction.

How does this work? It's easy! Please fill in the enclosed form and send it back in the reply paid envelope or phone Bonnie Stewart, your Donor Relations Specialist on **08 7002 0807**.

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