

SLIPS



FIGHTING DISEASE ON A UNITED FRONT.

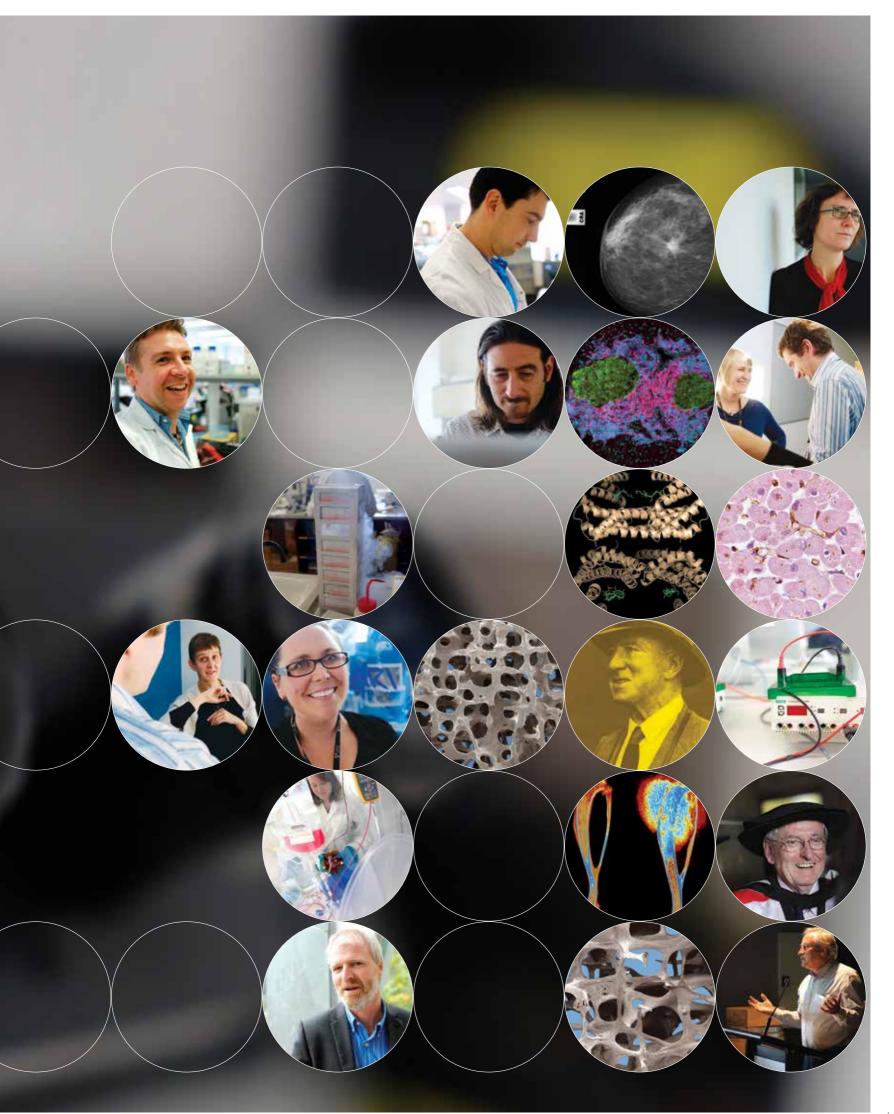
THIS IS SVI

For more than 50 years, researchers at St Vincent's Institute (SVI) have been conducting medical research into the cause, prevention and treatment of common diseases. SVI is committed to improving the health and life expectancy of Australians through medical research.

RESEARCHING

Type 1 diabetes Cancer Obesity and type 2 diabetes Heart disease Arthritis and osteoporosis Infectious disease Alzheimer's disease









Brenda Shanahan

Chair, SVI Board

Despite the funding difficulties that the medical research sector has faced over the last few years, 2013 saw a number of exciting advances for research at SVI. Our researchers continue to work towards finding treatments for common diseases that are faced by many Australians. We have facilitated this in 2013 by exploiting philanthropic resources to help us support our researchers, as well as provide them with the best tools to make discoveries with the potential to transform lives.

The past year has seen a continuation of very restricted funding from the National Health and Medical Research Council (NHMRC). The Federal allocation for research increasing significantly, as well as there being more applications for NHMRC Project Grant roughly only one in six grants was funded. This is a terrible situation for scientists supporting their group and their own research and livelihoods. It also sends a dismal signal to young scientists considering their future careers. It is a time when SVI is grateful for the financial strength we have built up, cautious with spending despite the requirements of our scientific groups.

One partial answer is to look for funds from elsewhere and fortunately we have spent many years now developing a strong philanthropic effort at SVI. The SVI Foundation is 10 years old and goes from

Of course long before the SVI Foundation, the Institute was founded by a generous bequest from racehorse trainer John Holt. We are very grateful to all of our donors, but I particularly want to mention the SVI Macquarie Leasing Charity Golf long-term support of Newcrest Mining. Claire O'Callaghan's SVI Support Group Dinner raised a record \$60,000 in October Foundation Chair Sue Alberti - the inaugural Mother's Day Luncheon and the SAMRF Signature Ball were a great success. The \$10,000 Discovery Fund, headed by Chair Christine Tarascio continues to be a vital initiative.

A further answer for us is to follow the advice of the McKeon Strategic Review of Health and Medical Research. The Review concluded that medical research should be closely entwined with the healthcare system. A strong competitive advantage for us is the close connection with St Vincent's Hospital, keeping our scientists problems faced by patients. We have tried to make our relationships with clinicians

First, SVI is helping to build infrastructure platforms for clinical research. These include better databases to track and research patients of interest

from the Helen McPherson Smith Trust and others for a biobank – a highly research. We have recently completed a facility for producing cells from tissues for new forms of cellular transplantation. We have also partnered to support of these initiatives is to break down the SVI scientists and Hospital clinicians.

An even more important initiative is to build greater links between our about some of these in this Annual Report.

Once again, the critical thing is that these joint appointments would not be commemoration of the prominent planned Aikenhead Centre fo<u>r Medical</u> disciplinary research on our campus.

Thank you to the many people who help SVI. In particular, thanks to our Board agreed to continue on our Finance and Audit Committee. Also, thanks to our funding agencies, especially the Federal Government and the State Government through the Operational Infrastructure Support Scheme. We are grateful to the Mary Aikenhead Ministries' Trustees for their guidance and support and finally, will visit during the coming year to see the work of our outstanding scientists first-hand – work done on behalf of the community to improve health.

Anneslitton

Tom Kay SVI Director

Burda M. Shonakan

Brenda Shanahan Chair, SVI Board

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6	Cancer Research Units
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CANCER RESEARCH

STEM CELL REGULATION, MOLECULAR GENETICS, GENOME STABILITY UNITS

CANCER

Andrew.



Anthony's brother Andrew was diagnosed with bone cancer when he was 16. "Andrew was diagnosed with osteosarcoma in February 1995. He was a typically active teenager who grew up idolising the Hawthorn Football Club...

He played lots of sport so when he complained of a sore knee my parents weren't too concerned. When the pain increased in the next couple of weeks, my dad took him to see our GP. He said Andrew was experiencing growing pains and that it should pass. Over the next week the pain in his leg became worse and was accompanied with redness and swelling. Eventually an orthopaedic specialist took x-rays and sent them to a surgeon. We were then told that Andrew had a malignant bone tumour called osteosarcoma and the chances of survival were around 75-80%. The surgeon seemed quite positive but the initial diagnosis floored us.

We had never heard of osteosarcoma but soon found out it was most common in teenage boys. When you hear the word 'cancer' your natural reaction is one of fear. My brother and I were close and played a lot of sport together so one of my first reactions was worrying about whether Andrew would be able to play competitive sports again. My parents were very courageous and tried to keep a positive frame of mind, even though at times this was tested. They also had three other kids in primary school so it was a juggling act to make sure we were taken care of as well.

Andrew had a bone graft operation that involved replacing his knee with a donor bone, meaning he would no longer be able to run around. After receiving this news, he had to endure months of chemotherapy. It is very hard to watch people go through something like that and when that person is your own brother, it is 100 times as difficult.

Unfortunately, 6 months after Andrew's diagnosis we were told that the cancer had spread to his lungs. Within a year he had passed away.

I hope that one day more advanced and less invasive treatments and even cures are found. It is very encouraging to hear that research is being conducted on osteosarcoma. I would like to think that more advances have been made since my brother's death and that no-one else would have to endure what he and others have gone through. Andrew is very much still close to our hearts and I know he would be extremely grateful for the research being undertaken at SVI in the hope of one day finding a cure."

Cancer

Cancer is a complex and varied disease, which is why, at SVI, we approach it from different angles. The Stem Cell Regulation Unit focuses on the role of stem cells in cancer; the Molecular Genetics Unit works on understanding how the DNA damage that underlies cancer develops; while the Genome Stability Unit investigates the cellular mechanisms that protect us from cancer-causing mutations.

THE RESEARCH STEM CELL REGULATION UNIT New tools to treat bone cancer

Osteosarcoma is the most common type of bone cancer and is most often diagnosed in teenagers or young adults. The cancer commonly starts growing at the ends of the long bones in the arm or leg, where new bone tissue forms as a young person grows.

A teenager diagnosed with osteosarcoma today will receive treatment not substantially different from that given 30 years ago.

Carl Walkley, co-head of SVI's Stem Cell Regulation Unit, explains, "Until recently, there has been no rapid way to test new treatments for the disease. This is because the cancer is relatively rare and obviously it is not ideal to test experimental drugs in young people who might respond better to treatments such as surgical removal of the tumour and conventional chemotherapy".

Another complicating factor is that osteosarcoma presents as one of a number

of subtypes, involving different cells within the bone. It is currently unknown how these subtypes relate to each other.

Carl's group has developed new models to mimic the different

subtypes of osteosarcoma. Their most recent research, published in 2013 in the journal Bone, describes a mouse which develops a type of osteosarcoma that

CARL'S GROUP HAS DEVELOPED NEW MODELS TO MIMIC THE DIFFERENT SUBTYPES OF OSTEOSARCOMA.

behaves in a very similar way to the human disease and represents the most common clinical subtype of the cancer.

Carl says that the work will help develop new treatments for this disease,

which can carry a dire prognosis. "In 20% of patients the cancer has already spread at diagnosis. These patients have a less than 20% chance of survival. We already understand a lot more about the cells involved in the cancer and the underlying biology of the disease than we

did 30 years ago, and we hope that our insights will lead to improved treatments, which are sorely needed."

THE TALENT STEM CELL REGULATION UNIT

SVI researchers Louise Purton and Carl Walkley describe Dr Meg Wall as a master mouse pathologist. Meg originally trained as a haemaotologist (specialist in blood disorders) but now works as a cancer cytogeneticist: an expert at detecting genetic aberrations in cancer samples.

Meg is one of only two people in Victoria trained in this specialist area. "Our laboratory at St Vincent's Hospital provides a state-wide service for cancer cytogenetics analysis. This means that we receive samples from patients throughout Victoria to aid diagnosis and assess remission or relapse in response to treatment," she says.

Meg is also a researcher. She did her PhD at the Peter MacCallum Cancer Centre, where she got to know Louise and then-PhD student Carl. Meg's major research interest since finishing her PhD has been in the group of diseases collectively known as myelodysplastic syndromes (MDS).

MDS is a malignant blood condition found most commonly in people over the age of 65. Meg says that the incidence of MDS is rising, partly because of increased lifespans and partly due to our success at treating other cancers. Some cancer survivors develop therapy-related MDS as a result of genetic changes caused by chemotherapy. In Meg's clinical role she analyses samples from patients with MDS to help with diagnosis and treatment decisions.

MDS is also a major focus of Louise and Carl, now co-heads of SVI's Stem Cell Regulation Unit. The trio is undertaking work together to find new ways to treat the disease. "Louise and Carl do clever things with mice that help us understand why people get MDS and what we can do to fix it," says Meg. "We don't have a good understanding of the initial changes that lead to the development of MDS, and the studies going on at SVI are allowing us to look at ground zero."

"We are really bringing together the two ends of the spectrum," says Louise. "At SVI, we can manipulate mouse genes to allow us to explore human disease, and Meg is expert in interpreting the changes we see in the mouse genome, in the context of what happens in humans."

With this convergence of research and the clinical expertise, the team is poised to make some major discoveries to aid people diagnosed with MDS.

С

SUPPORTING THE BEST AND BRIGHTEST

SVI's students are trained by Australia's leading researchers to learn the skills to combat common diseases such as cancer, Alzheimer's, bone disease and diabetes.

SVI Foundation Board member Claire O'Callaghan and her dedicated SVI Support Group have raised more than \$280,000 over the last 14 years to support students at SVI.

In that time more than 27 Honours and 30 PhD students have been awarded SVI Student Scholarships. The Scholarships provide \$5,000 to Honours students and boost PhD stipends by \$5,000 per year. This relieves some of the financial strain on SVI's committed young students, giving them the opportunity to dedicate themselves more fully to their studies.

Some of these newly fledged researchers have now begun their independent research careers in labs around the world.

The SVI Support Group raises funds through an annual black tie dinner. In 2013 over 160 guests attended the event at The Athenaeum Club, raising a record \$60,000.

At the dinner, PhD student Leni Green moved the audience with her speech, in which she explained the inspiration for her career in medical research.

Leni said, "When I was in early high school my father developed breast cancer. I can remember at the time I wasn't really worried about it because he seemed fine but as he became sicker I saw first hand how diseases like cancer take hold. Sadly, my father passed away when I was in year 12. Because of this I developed an interest in research."

Driven by her passion, Leni is now working on improving outcomes for people with cancer. Generous donors to the Institute, Margaret and Tony Reeves, funded Leni's PhD Scholarship in honour of Margaret's mother, Margaret Mocatta. Leni says, "My Top-up Scholarship adds an additional \$5,000 a year to my \$25,000 PhD stipend. Without this support I would have to work to cover the cost of my rent and living expenses. This would be on top of the 50 hours a week I already spend in the lab."

Leni's hard work has already paid off – she has been awarded an American Society of Bone and Mineral Research travel grant to fund her travel to the 2014 Bone Research Society Annual Meeting in Sheffield, U.K. to present the results of her PhD research so far. For information on becoming a student at SVI visit www.svi.edu.au/careers_ students/students/

For more information on supporting the SVI Student Scholarship Fund or naming a Scholarship in honour of a loved one, contact Madeleine Whiting on (03) 9288 2480, or email us at foundation@svi.edu.au.

SVI Support Group

Mrs Margaret Batrouney Mrs Maureen Breheny Mrs Colleen Bolton Mrs Cathy Clancy Ms Bernadette Dennis Mrs Cathy Gilbert Mrs Angela Griss Ms Barbara Handley Mrs Carole Hart Mrs Jo Lonergan Mrs Margaret Lorkin Mrs Gail McHale Mrs Claire O'Callaghan (Chair) Mrs Geraldine Peck Ms Faye Reeve Mrs Dawn Hill-Regan Mrs Judy Ryan Mrs Christina Westmore-Peyton Mrs Therese Whiting Mrs Thecla Xipell





1D

IMMUNOLOGY AND DIABETES UNIT

TYPE 1 DIABETES



Justin & Michael.

Jade's husband was diagnosed with type 1 diabetes when he was 16. Their son was just 4 when he was diagnosed.

"I met Michael when I was 18 and he was 20. He had had type 1 diabetes for just over 3 years...

He needed to inject insulin four times a day and if he was 'low' he needed a sugar fix. It was a general consideration in our lives, but there didn't seem to be much to worry about... little did I know!

After being together for 12 years, our daughter Jaimi was born. Then 15 months later we had Justin. We had discussed the possibility of our children developing type 1 diabetes, but it was never enough of a concern to stop us from having children, or to be overly worried about it developing once they were born.

It was Justin's first week at 4 year old kinder. He had needed to go to the toilet a few more times than usual over a couple of days and I told Michael that I was worried. Seeing as we had Michael's glucometer at home, we tested Justin. His level was so high that the meter couldn't show the count, it just read 'HI'. We rushed him to the hospital and on that day – 3rd of February 2013 – Justin was diagnosed with type 1 diabetes.

As time passed, we became accustomed to the routines that were essential for Justin's well being. We make sure that we have lots of family conversations about carbohydrate counting, weighing and measuring, testing, insulin doses, emotions and everything else that goes with living with type 1. Michael is a great role model for Justin – showing that the condition won't stop him from doing anything he wants to do.

Justin's diabetes takes up much of my head space. Have I given him the right amount of insulin? Did I weigh his food correctly? Did I add up all the carbohydrates properly? Birthday parties and other social situations can be hard to handle at times. I am constantly trying to figure out why his blood sugar is high or low. But sometimes there is no reason - type 1 diabetes has a mind of its own. I still find this part hard to deal with but I'm sure it will lessen as time passes.

As Justin matures, he will be able to take on some of the responsibility for himself. But for now, we want him to live a carefree childhood, with type 1 in the background. We are concerned about the effect that diabetes may have on Justin's future health, but we know that we are doing everything possible to prevent or delay possible complications. We are confident that research will come up with better treatment options and eventually a cure.

We have been very excited to read about islet transplantation. It is an amazing feeling to think that one day Justin and Michael may live without the burden of type 1 diabetes because of research and technology advances such as these.

We hope for a cure!"

Type 1 diabetes

Researchers at SVI are dedicated to finding effective prevention and treatment strategies for type 1 diabetes. Research at SVI incorporates basic and clinical studies, using both mouse and human cells to study the causes and mechanisms of the disease, as well as exploring new treatment options.

The body does it best

In 2013, the State Government announced that it would fund islet transplantation on the St Vincent's campus as a treatment for people with severe type 1 diabetes.

At the launch of the Nationally Funded Centre for Islet Transplantation, Professor Tom Kay, Head of the Islet Transplant Program at SVI, described the importance of insulin.

"When you eat a meal, nutrients have to be removed from your blood and stored for later use. These stores are needed not only when you exercise, but also for all normal bodily functions – like being conscious. The hormones made by the pancreatic islet cells, insulin and glucagon, carry out this complex process in a remarkably exact and delicate way.

A good analogy is ordering supermarket groceries online. When the bags of groceries are delivered, you don't need them straight off and they have to be put away so the corridor is clear and the food can be taken out later to prepare dinner. This is what the islet hormones of the pancreas do: they make sure that everything is stored in the right place for later access.

When the insulin-producing cells in

islets are destroyed by the immune system in type 1 diabetes, glucose builds up in the bloodstream and is not stored appropriately. It is as if the grocery bags are not put away after delivery: they pile up in the corridor, food is put in the wrong place and meals are not prepared at the right time.

Insulin treatment is able to keep people with type 1 diabetes alive, but it doesn't do as good a job as insulin secreted by the islet. For some people, treatment with injected insulin is not accurate enough and serious, life-threatening problems develop.

A major problem for these people is hypoglycemia, when slightly too much insulin has been given, making glucose

go into storage. There is not enough glucose in the bloodstream and more cannot be got out of storage – it is as if the groceries are locked in the cupboard and the family is starving. Without glucose, cells in the brain cannot function

and the person may lose consciousness or have a seizure, which can have disastrous consequences.

The only option for a healthier life for

many of these people is islet transplantation, where they are given islets extracted from an organ donor. Islet transplantation is remarkably effective at treating severe hypoglycemia because it allows restoration of normal islet functions and balance of supply and demand."

Since the inception of the Australian Islet Transplant Program in 2007, 46 transplants have been carried out into 22 patients. In addition to the eight patients who have been transplanted at St Vincent's, the Melbourne-based team has also provided islets for five transplants in Adelaide.

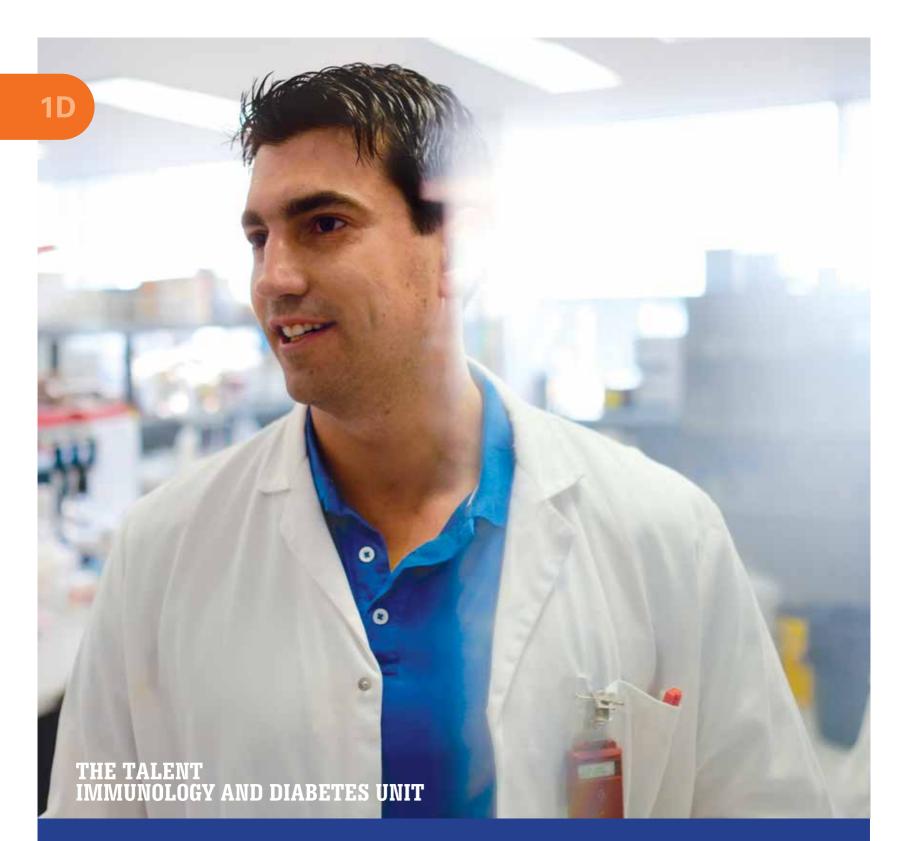
More than half of these recipients no longer need to take insulin. The presence

of properly functioning islets prevents severe hypoglycemia and recipients have been able to resume active and enjoyable lives.

The bottom line is that islets from the pancreas are superior at sensing glucose and delivering insulin compared with currently

available strategies. For some people with type 1 diabetes, islet transplantation is a life-changing procedure.

FOR SOME PEOPLE WITH TYPE 1 DIABETES, ISLET TRANSPLANTATION IS A LIFE-CHANGING PROCEDURE.



When Esteban Gurzov was a small boy growing up in Rosario, Argentina, his ambition was to understand the universe.

"When I was 10, my Dad bought me Carl Sagan's book 'Cosmos', and I was amazed. I started writing to NASA and used to wait anxiously for the replies to arrive, in envelopes with the NASA logos and pictures of the space missions. I eventually came to the decision that the whole universe was maybe too ambitious and I thought that I could start by trying to understand the biology of the cell!"

Esteban arrived at SVI via Argentina, Spain and Belgium. Last year he was the recipient of a prestigious Advanced Postdoctoral Fellowship from JDRF and a New Investigator Project Grant from the NHMRC. This funding secures his research for at least the next 3 years.

Esteban's research interest is type 1 diabetes: the autoimmune disease that occurs when the body's immune system attacks and kills its own insulin-producing beta cells. People with type 1 diabetes are reliant on the injection of insulin to regulate the level of sugar in their blood. Esteban uses sophisticated molecular techniques to try and dissect the signals that sensitise the beta cell to destruction.

"In addition to trying to understand exactly how the beta cells are killed, we are also designing new molecules that will hopefully allow us to detect the disease before the irreversible loss of the beta cells occurs. This will result in more efficient treatments."

Esteban is sure that his quest to understand the cell will keep him happy for the rest of his career. "I would like to reach the point where I look back and realize that all the sacrifice, effort and hard work was worth it. It doesn't matter if you are a Nobel laureate or just a hard-working scientist, because we are contributing to one of the most relevant human activities."

WOMEN IN RESEARCH

Three of SVI's women were celebrated in 2013 for their role at SVI, in the laboratory and in the Boardroom.

Women have made an important contribution to SVI, from the female scientists who helped first establish research at St Vincent's Institute 55 years ago, to the pioneers of today.

Brenda Shanahan has been Chair of the SVI Board since 2004. With an influential business career in senior executive and board roles for more than 30 years, including being the first female member of the Australian Stock Exchange, Brenda has been a pioneer female leader in a male dominated profession. In addition to her leadership role at SVI, Brenda has made an important philanthropic contribution to the Institute over many years, with her support particularly directed to research into heart disease.

Brenda was presented with an award acknowledging her dedication and advocacy for medical research and philanthropy at the Susan Alberti Medical Research Foundation Charitable Ball in 2013.

Susan Alberti has chaired the SVI Foundation since 2004. In 2013 she received the Research Australia Macquarie Group Foundation Great Australian Philanthropy Award. The award recognises Sue's long and outstanding contribution as a philanthropist, particularly in the area of type 1 diabetes research. SVI Director Tom Kay said, "This is a fantastic achievement and well and truly deserved. Through her philanthropic spirit, Sue has made a real impact on our ability to tackle diseases such as type 1 diabetes. It is heartening to see her efforts recognised in the community."

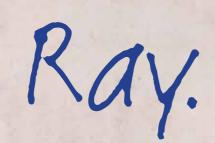
In May, SVI researcher Dr Kate Graham was awarded the Susan Alberti Women in Research Award. The inaugural Award aims to support the work of an outstanding female scientist by helping to alleviate the adverse impact on their research caused by maternity leave. The grant helped to fund a research assistant to continue experiments for Kate while she was on maternity leave after the birth of her second son, Harrison.

Kate says, "It is inspirational to have such strong female leadership at SVI. Not only do we have amazing examples of female leaders in the form of Brenda and Sue on both the Institute and SVI Foundation Boards, but remarkably, half of the senior researchers at SVI are women. All of these women have juggled demanding careers with family commitments and are a great example to other young female researchers who aim to make a difference through their work."



2D

PROTEIN CHEMISTRY AND METABOLISM UNIT





Ray was diagnosed with type 2 diabetes when he was 57.

"I was diagnosed in 2004, following a routine GP check-up. The doctor was quite angry as he relayed this news...

On previous visits he had issued warnings that my weight and dietary habits were contributing to a high indication of future diabetes, and drastic life-style changes could prevent this happening.

However, following his rigid dietary guidelines led to severe bouts of gout (ouch!), so I had relapsed into my former habits. Now the worst had happened. Before diagnosis, I suffered semi-regular dizzy spells, ocular disturbances and significant leg pain.

As far as my family history is concerned, all I know is that my father (same body shape, same penchant for snacking, same avoidance of health check-ups) died suddenly and unexpectedly at the age of 69, and I feel that he may have been an undiagnosed diabetic.

I accepted the diagnosis and consider it a controllable medical condition. Life goes on. Medication twice daily, and frequent finger-pricks are just a part of my daily routine. The condition seems to be reasonably controlled and I do have regular medical check-ups, including visits to the podiatrist and eye specialist. (Incidentally, I have never smoked and rarely drink alcohol, and neither did my father.) Interestingly, my bout of prostate cancer in 2008 really did scare me. Without even trying, I lost a significant amount of weight and became relatively fit – so much so that the diabetes educator at the hospital said I no longer came under the 'diabetes umbrella'. I am now cancer free, but the diabetic indicators returned with a vengeance. I know if I lost weight (maybe up to 15 kg), exercised more and managed my diet more carefully, I might not have to take as much medication. I am trying but I feel quite fine and as I said before, life goes on.

I live in hope that medical research will find a cure for diabetes, especially type 1 diabetes as we do have a family history of that horrible disease."

Type 2 diabetes

A major focus of SVI research is an enzyme known as AMP activated protein kinase (AMPK). AMPK acts as the body's fuel gauge: it regulates the burning and storage of fats and sugars, and affects the levels of sugars, fats and cholesterol in the blood. SVI researchers are investigating the effects of AMPK at the whole body and single cell level to develop therapies that may benefit the 500,000 Australians living with type 2 diabetes.

THE RESEARCH New understanding of old drug

It is estimated that 120 million people around the world take the drug metformin to treat their type 2 diabetes. The drug originates from the French lily and was first described in 1922, when it was shown to have an effect on the levels of blood sugar in rabbits.

Despite its front-line role in the treatment of type 2 diabetes, until recently no-one could explain how metformin lowers blood sugar. The mystery was solved in 2013, when researchers at SVI, in collaboration with Canadian colleagues, described its mechanism of action for the first time in the prestigious journal Nature Medicine.

The research may help to develop more effective therapies for the more than 1 million Australians currently living with type 2 diabetes.

People with type 2 diabetes do not produce enough insulin, leading to increased levels of sugar in their blood. When this is combined with a condition known as 'insulin resistance' where muscles no longer react appropriately to the presence of insulin, type 2 diabetes results.

First author on the study, SVI's Sandra Galic says, "Fat is likely to be a key trigger for prediabetes in humans. Our study indicates that metformin doesn't directly reduce sugar metabolism,

as previously suspected, but instead reduces fat in the liver, which in turn allows insulin to work effectively."

Professor Bruce Kemp, who has worked closely on the project with former SVI researcher Associate Professor Greg Steinberg, now at McMaster University, said, "This work, the result of a great international collaboration, has the potential to help develop more effective

treatments for type 2 diabetes.

FAT IS LIKELY
TO BE A KEY
TRIGGER FOR
PRE-DIABETES
IN HUMANS.The more that we can understand
about the way the body responds
to conditions of excess energy,
the more likely we are to be able
to develop new means of fighting
type 2 diabetes, which represents
an ever-growing burden on our

health system."

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2D

THE TALENT PROTEIN CHEMISTRY AND METABOLISM UNIT

Since doing his PhD at the University of Dundee in Scotland in 2002, John Scott has been fascinated by an enzyme called AMP kinase. It is only in more recent years that the rest of the world has caught up.

AMP kinase acts as the body's fuel gauge. It has become a major focus of interest to the pharmaceutical industry because of its role in mediating the beneficial effects of diet and exercise. Drugs that activate the enzyme have potential to help people battling obesity, heart disease and type 2 diabetes. More recent studies into the metabolic dimensions of cancer have further encouraged interest in the enzyme.

John Scott and his colleagues in SVI's Protein Chemistry and Metabolism Unit lead the world in AMP kinase research. The enzyme was originally identified at SVI in 1994 and research in the Unit since that time has revealed the complex mechanisms behind the enzyme's activation and regulation.

John's most recent research, published in the journal Chemistry & Biology, reveals for the first time that drugs can bind to a previously unidentified region in the enzyme, leading to a change in the enzyme's shape and its subsequent

activation.

"Our studies are significant because they show a new site in the enzyme which could be used to develop drugs to activate AMP kinase. Not only that, we now think these drugs are mimicking an unidentified natural metabolite, which is an exciting concept as it would indicate a missing link in our understanding of way that AMP kinase is regulated," says John.

Despite the intensive studies that have been carried out since the discovery of AMP kinase at SVI in 1994, the enzyme continues to surprise researchers.

2D

BEFRIEND US

Join us in celebrating SVI successes and learn more about SVI research at events held throughout the year.

The events calendar kicked off to a captivating start in 2013, with a Friends of SVI evening event on the topic 'Food for Thought in Sport'. The second in SVI's Food Matters series, the evening's discussion was led by Dr David Buttifant, Sports Science Director at the Collingwood Football Club, Simone Austin, Dietitian for the Hawthom Football Club and Andrew Redmayne, Goalkeeper for the Melbourne Heart.

In May, SVI staff and supporters gathered at the Deakin Edge at Fed Square on a stormy Melbourne afternoon to explore the topic 'Unleashing Innovation' at SVI's Annual Forum.

SVI's new Breakthrough Committee held a special opening night screening of The Great Gatsby in May. Held at the Kino Cinemas, over 200 guests were treated to drinks and a live jazz band upon arrival. In August, the 28th Annual Susan Alberti Medical Research Foundation (SAMRF) Signature Ball, held in the Crown Palladium Ballroom, raised in excess of \$400,000. The funds were split between SVI and the Walter and Eliza Hall Institute to support research into type 1 diabetes and cancer.

On Australia Day 2014, over 130 guests attended an evening cocktail function on the lawns of Oak Hill farm in Marcus Hill on the Bellarine Peninsula. With the afternoon sun, light sea breezes and a breathtaking view of the coastline serving as the perfect backdrop, guests heard from SVI Director, Professor Tom Kay and former Director, Professor Jack Martin, about SVI's medical research into diseases such as type 1 diabetes, cancer, heart disease and Alzheimer's disease.

If you would like to be informed of events being held by the SVI Foundation, contact us on (03) 9288 2480, or email foundation@svi.edu.au.

You can also find out more by following us on Twitter, Facebook, or visit our website, www.svi.edu.au.

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🥑 @SVIResearch





SB

ALZHEIMER'S DISEASE

STRUCTURAL BIOLOGY UNIT

MUM.



Erena's mother was diagnosed with early onset Alzheimer's at the age of 59. "When mum was diagnosed in late November 2006, she was 59 years old. Her own mother had suffered from the same condition and I've often wondered about its heredity..

A former solicitor and barrister, mum was a voracious reader and a formidable opponent in any argument. The diagnosis was a tragedy for someone with so much spirit and wit. Mum had had a brain tumor removed 2 years earlier and during her recovery some of the symptoms such as forgetfulness, confusion and anger that had led to her tumor diagnosis were returning.

After plenty of tests and scans, mum was diagnosed with early onset Alzheimer's. Whilst our family was devastated, it was as if the disease was happening to someone else. Strangely, Mum was completely detached from the diagnosis and she simply wasn't interested in the fact she had Alzheimer's disease.

For a few years, mum went on with her life as if there was nothing wrong, she had a busy social life and spent plenty of time with her friends and family.

In the early stages of her disease, many people did not know about her diagnosis and the progression of the disease meant she didn't realise what she couldn't do. Gradually though, as her symptoms became more pronounced, she became less and less independent.

Finally, she was no longer was able to drive or read, and her forgetfulness and confusion became overwhelming. Slowly, as her abilities lessened her life became considerably quieter and she

spent her time with dad at home on our family vineyard where she needed constant care.

Last year, nearly 7 years after her initial diagnosis, her condition deteriorated to the point that dad was no longer able to care for her at home and she was moved into an aged care home in nearby Ocean Grove. There, she is relaxed and happy and cared for by experts who manage her condition beautifully.

Soon after her diagnosis, mum agreed to take part in medical research trials. Whilst they were often invasive and time consuming, it is our hope that some of the research she was part of will one day enable scientists to find a cure for Alzheimer's disease."

Structural biology

Understanding a protein's 3D structure allows us to 'see' biological processes at their most fundamental level: through knowledge of 3D structure, we can identify which proteins interact, and how they do so, how drugs act, and how certain diseases proceed at an atomic level. SVI researchers use this knowledge to focus on diseases such as cancer, Alzheimer's and infectious diseases.

RATIONAL DRUG DISCOVERY CENTRE

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Austrolion

THE RESEARCH Finding a cure

In 2013, a \$2 million grant from the Australian Cancer Research Foundation (ACRF) funded the ACRF Rational Drug Discovery Centre at SVI, providing Victorian cancer researchers with cutting edge equipment to discover new drugs for cancer therapy.

The Centre focuses on early drug discovery for new cancer treatments. It includes a number of cutting-edge instruments, including a Laser Scanning Cytometer – the first of its kind in Australia – which will give Victorian researchers a glimpse of how potential cancer drugs work inside the body.

ACRF Chief Executive David Brettell, who attended the opening of the Centre in May 2013, acknowledged the work and expertise of the Centre's Chief Investigators, Professor Michael Parker from the Structural Biology Unit, and the Stem Cell Regulation Unit's Associate Professor Louise Purton and Doctor Carl Walkley.

"The research taking place in this new

Centre is laying the groundwork for the kind of major advances in cancer research in Victoria that the ACRF is committed to funding," said Mr Brettell.

Finding cures means not only identifying how cancer arises, but also developing drugs that target the cancer cells. The new Centre will allow SVI's researchers to move from identifying the cause to finding a cure, studies which are led by SVI's Structural Biology Unit.

THE CENTRE

FOCUSES ON EARLY

DRUG DISCOVERY

FOR NEW CANCER

TREATMENTS.

Since the opening, the Centre has allowed Michael's team to make exciting progress on a number of cancer projects. For example, the researchers have been able to figure out the threedimensional structure of a promising anti-leukaemia drug bound to a cell surface receptor. The drug, an antibody called CSL362, is being developed by CSL and is entering human clinical trials for acute myeloid leukaemia. The structure reveals the details of how the drug stops the receptor from signalling cancer cells to multiply.

Michael and collaborators were also recently awarded a highly competitive 5-year National Health and Medical Research Council (NHMRC) Program Grant to fund their work into leukaemia. This research will be expedited by use of the facilities in the Centre.

> "The new Centre has state-of-the-art equipment for measuring the interaction between cancer proteins and molecules, greatly accelerating our development of molecules into drugs that can be tested in the clinic. This is aiding our current drug discovery projects aimed at finding more effecitve

ways to treat leukaemia, breast and prostate cancer," says Michael.

19

THE TALENT STRUCTURAL BIOLOGY UNIT

Like many procrastinating students, at university Jess Holien found herself spending hours in front of tetris, the strangely addictive block stacking game. She went on to forge a career that uses some of the same concepts: Jess says her job as a structure-based computational molecular modeler at SVI is a bit like playing tetris with proteins.

"My work involves designing chemical compounds to fit into the spaces between proteins, a bit like maneuvering a block to fit into a space in tetris. By stopping two proteins from fitting together, we aim to block a disease process from occurring."

Today Jess is a Postdoctoral Fellow in SVI's Structural Biology Unit. She became inspired by the power of computation to solve health problems while she was studying third year science at

The University of Melbourne.

In 2014, Jess was awarded a Postdoctoral Fellowship co-funded by The Leukaemia Foundation and Cure Cancer Australia. Her work focuses on finding new treatments for leukaemia.

"More than 3200 Australians will be diagnosed with leukaemia this year. While huge strides have been made with treatment of specific types of leukaemia, more than 1000 Australians still die of

She explains that her project is focused on two protein families, known as homeobox proteins and 14-3-3. "My Postdoctoral Fellowship will fund me to design compounds that can specifically interfere with the interactions between these proteins and their binding partners. We already know that these interactions

play a role in leukaemia, but up to this point no-one has been able to design drugs to interfere with their function. I aim to develop new tools that will allow us to do this. In the long-term, we hope that these approaches could be extended to other types of cancers."

Jess says that the Fellowship gives her job security for 3 years. She is happy to be entering the next phase of her career, and returning to full-time employment, having worked part-time for 4 years to care for her two small children, Lila and Sam.

"Although I love every moment I spend with my kids, I also love my work. It fulfills me as a person and makes the time I spend with my family even more precious and enjoyable. I certainly have no spare time for tetris these days!"

the disease every year."

COMMUNITY SUPPORT

SVI has some wonderful supporters in the community who not only raise funds, but also provide much appreciated moral support for our research.

Lodge Amicus and Seavic Lodge of Freemasons, Victoria raised \$55,000 at their My Fair Lady Ball in February, which will purchase equipment for type 1 diabetes research at SVI.

SVI supporter Clare Cooney hosted a breakfast in her own home and invited friends along to meet SVI researcher Dr Tom Brodnicki and raise funds for type 1 diabetes research at SVI.

Patricia and Bill Snell hosted a fundraising dinner in July at the Box Hill Golf Club, in support of SVI's Islet Transplant Program. Patricia is herself a recipient of an islet transplant.

Thanks to Susan Alberti, The Victorian Women's Football League donated the profits raised from their 2013 VWFL Grand Final Luncheon to SVI's Women in Research Award.

Team SVI raised money for SVI Student Scholarships by running in the Melbourne Marathon and the City2Sea and also participated in JDRF's Walk to Cure Diabetes.

Freehills Patent Attorneys raised \$1,000 for SVI's Women in Research Award through the auction of three paintings at their 2013 Women in Science and Technology Lunch.

If you would like to know more about supporting SVI, contact Madeleine Whiting on (03) 9288 2480, or email us at foundation@svi.edu.au. SB



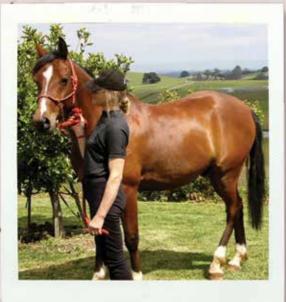


BD

BONE CELL BIOLOGY AND DISEASE UNIT

BONE DISEASE

Mary.



Mary has an active life, despite being affected by osteoarthritis.

"Gnarled female hands were the norm for me when I was a child. I did not know that they were part of a medical condition that I was to inherit...

Both my grandmothers had knotty, uncomfortable hands yet both women worked uncomplainingly. My mother played beautiful Chopin and Beethoven on the piano, stretching her arthritic fingers an octave or more. My time came when I was 45 years old. The first indication was a strange clicking sensation in one finger, then another.

Over the next 10 years the unmistakable Heberden's nodes of osteoarthritis appeared. Further down the track my feet began to manifest the same misshapen form. Both hands and feet developed stiffness on top of deformity. Some loss of function, or at least reduced function, then began to challenge me.

As I have always loved and lived an active, outdoors life, I was not deterred, until a spinal condition was added to the skeletal scene in 2011 – spinal stenosis and a disc problem.

All in all I had to accept that I was diagnosed with degenerative processes. Not so acceptable when one has a rural existence and when manual activity is my daily choice and routine.

I have had foot and spinal surgery. I am on anti-inflammatory

medication. It provides some relief, but I am constantly reminded of that term – 'degenerative'. However, I intend to be active, to ride my horses, prune my roses, run with the dog and clean my own gutters for as long as I can.

I have strong links to science and have always been interested in how to manage my own health. Yet it would be wonderful if medical research could deliver a means to halt the progress, if not to reverse my arthritis. There are regular headlines about the huge economic impact of arthritic conditions on the workforce. Perhaps there will be greater incentive for research into nonsurgical, non-drug means of relief, if not cure, for conditions like mine."

Bone

By studying the cells that build bone, the cells that destroy bone, and the way these cells interact with each other and their environment, researchers in SVI's Bone Cell Biology and Disease Unit have identified new therapeutic targets that may be used to treat osteoporosis and arthritis. THE RESEARCH BONE CELL BIOLOGY AND DISEASE UNIT

Improving the quality and quantity of bone

In 2013, researchers in SVI's Bone Cell Biology and Disease Unit identified a signaling pathway that may help them to develop a more effective treatment for osteoporosis.

Osteoporosis is known as the silent disease because bone loss occurs gradually over many years and without symptoms. Many people do not know that they have the disease until they suffer a fracture caused by osteoporosis. The direct health costs of the disease are estimated to be \$1.76 billion per year.

The adult skeleton renews itself every 10 years, thanks to cells that resorb the old bone, called osteoclasts, and those that lay down new bone, called osteoblasts. The strength of our bones relies on the delicate balance between these two types of cells. Osteoporosis results when too much bone is removed, and poor quality bone is made to replace it.

SVI's Dr Rachelle Johnson and colleagues removed a protein known

as gp130 from the bone forming cells of mice, and found that the bones formed in gp130's absence had a lower mass. In addition, the researchers found that the bone material itself was defective and was more susceptible to fracture.

These results may have implications for the development of new treatments for osteoporosis. There is currently only one treatment for increasing bone mass, and this can only be used for a maximum period of 18 months. Once the treatment has stopped, bone mass returns to original levels.

By showing that gp130's main role

is to maintain bone formation and strength, the researchers hope to be able to manipulate the pathway in order to develop treatments to improve bone strength.

.. The goal of the researchers is to help develop a treatment that encourages good quality bone to be built and discourages loss of bone.

THE ADULT SKELETON RENEWS ITSELF EVERY 10 YEARS... EOPOROSIS

BD

THE TALENT BONE CELL BIOLOGY AND DISEASE UNIT

In 2013, SVI researcher Associate Professor Natalie Sims was awarded the Herbert A. Fleisch Award at the 2nd Joint Meeting of The International Bone and Mineral Society (IBMS) and the Japanese Society for Bone and Mineral Research in Kobe, Japan.

Named in honour of Swiss researcher the late Professor Herbert Fleisch, the Award recognises outstanding achievement by an IBMS member aged less than 45 years in the field of bone and mineral research.

Natalie is head of SVI's Bone Cell Biology and Disease Unit and is recognised internationally as one of the new generation of leaders in bone research. Her work focuses on identifying signaling molecules within bone cells with a view to developing new therapeutic pathways for the management of bone and joint disorders such as osteoporosis, rheumatoid arthritis and osteoarthritis.

She says, "Professor Fleisch was a pioneer in osteoporosis therapy, and a charismatic leader - a good role model for any scientist. He developed bisphosphonates, the most commonly used therapy for osteoporosis, and the first therapy capable of stopping further damage to the skeleton."

Natalie says that she is especially

honoured to receive the Award named after Professor Fleisch, as one of the first projects she worked on after coming to SVI in 2001 showed that the therapy that Professor Fleisch developed could also be used to treat the bone destruction that occurs in rheumatoid arthritis.

Natalie hopes that by understanding how bone cells communicate with each other, her team at SVI will be able to find new ways to treat skeletal disorders, and make an impact on patient outcomes, following closely in the footsteps of Herbert Fleisch.

BEHIND THE SCENES AT SVI

Learn what it takes to make a breakthrough, hear about the cutting edge of medical research and discover what researchers at SVI are doing to help Australians affected by disease.

Tour SVI

SVI researchers regularly host tours of their labs. They relish the opportunity to explain their research to their guests and enjoy meeting people with an interest in the disease to which they dedicate their time.

In 2013, SVI opened its doors to the general public, participating for the first time in Open House Melbourne. Joining 110 other buildings as part of the program, the Institute had more than 300 visitors enjoying tours of the labs over two days.

Since then we have welcomed secondary school groups, Probus clubs, the Brighton Soroptomists, State and Federal politicians, SVI donors and members of the public who are interested in and/or affected by one of the diseases that we study.

For the last 3 years, students from FCJ Benalla have made the more than 200 km trip to Melbourne to visit the researchers at SVI and hear Professor Jack Martin from the Bone Cell Biology and Disease Unit speak about medical research as a career.

FCJ Benalla's Deputy Principal Joseph Mount says it has been an invaluable experience. "The tours of the laboratories, talking formally and informally with the SVI scientists and being invited to share in the latest research is a wonderfully valuable experience for our students. The scientists have always been humble about their achievements and speak on a level that is inviting, stimulating and inspiring. We feel as though we, for a day, are part of a very determined, prestigious and happy community."

If you would like to tour the Institute and find out more about our research, contact Madeleine Whiting on (03) 9288 2480 or email us at foundation@svi.edu.au

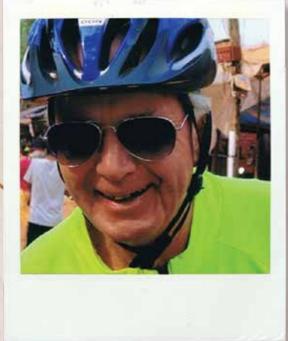
Tours take about one hour and can be tailored to suit your availability and interest in a particular disease area. BD





HD

MOLECULAR CARDIOLOGY UNIT



Twenty-eight years after Don's heart surgery, he is still going strong. "As it happens, heart disease proved to be a positive influence on my life! At the age of 52 I had no symptoms to indicate illness, but both my parents had died from heart disease so I was keen to know more about myself...

Don.

Based on the results of a stress test the doctor recommended that I have an angiogram. When they got the results, the staff would hardly let me out of hospital! I was only allowed to go home to pack a bag and return immediately for admission for surgery. I had surgery involving five coronary artery grafts using two arteries (taken with difficulty from my chest) and three veins taken from my legs. Recovery over 6 weeks depended, I believe, on my attitude, which remained extremely positive at all times.

That was in 1986. I was very fortunate as the steps I took, almost accidentally, to arrive at surgery meant that actual heart damage was prevented. Since then I have had three stents inserted into various narrowings in the grafts. I regard these procedures as maintenance and accompanied by moderate exercise, I see the future of my heart health as excellent.

Several years ago I took up cycling and rode with a group in Laos on a fundraising mission for Care Australia. Since then I have regularly visited the Indo China Peninsula to cycle. Last year I celebrated my 80th birthday and hope to ride in Vietnam later this year.

I believe medical research has made significant progress in heart disease. Stents are used far more frequently than the invasive surgery that was, more or less, the only option 30 years ago.

I like to hope that my success story offers encouragement to others and to the field of medical research."

Heart

Research at SVI is directed towards improved understanding of why heart disease occurs and finding better ways to prevent and treat it. Through clinical studies, SVI researchers are investigating the mechanisms of heart disease and ways to help identify those at increased risk of heart disease so that they can be given treatment to prevent it occurring.



THE RESEARCH MOLECULAR CARDIOLOGY UNIT At the heart of it

One in five people will develop heart failure. a serious condition in which the heart is unable to pump sufficient blood for normal daily activities. In addition to poor quality of life and premature death, hospitalisations for heart failure cost the economy more that \$1 billion every year.

A particular concern, given the obesity epidemic, is that obese people are more likely to develop heart failure, independent of their age, blood pressure and the presence of diabetes.

To understand why obese people develop heart failure, SVI's Associate Professor Jock Campbell studied heart muscle biopsies from patients undergoing open-heart surgery. This research was

done in collaboration with the heart surgeons and cardiologists at St. Vincent's Hospital, and with the patients' consent.

Jock's research showed that heart muscle from obese people has fewer small

blood vessels that deliver oxygen and nutrients to the heart muscle cells.

The heart muscle works continuously throughout life. Each heart muscle cell is like a small engine that requires a continuous supply of oxygen and fuel in order to do its work. The

lower number of small blood vessels in the heart muscle of obese people means

that their cells do not receive sufficient oxygen and fuel to work effectively.

These findings provide new mechanistic understanding of why obese subjects are more likely to experience

heart failure.

JOCK'S RESEARCH

SHOWED THAT

HEART MUSCLE

FROM OBESE PEOPLE

HAS FEWER SMALL

BLOOD VESSELS..

The first approach to prevention and treatment of heart failure in obese people is lifestyle advice to reduce weight. Jock's research also opens the door to new therapies aimed at restoring the number of small blood vessels in heart muscle. Such therapies may also help non-obese people

with heart failure and people who have heart attacks.



THE TALENT MOLECULAR CARDIOLOGY UNIT

Sudden cardiac death was brought to the world's attention in 2004, when Hungarian footballer Miklós Fehér died on the field during a televised football match in Portugal.

At around the same time, Associate Professor David Prior became interested in elite athletes and the changes that are wrought on their hearts by their exercise regimes.

David says, "It is not surprising that an elite athlete's heart adapts to the need for more oxygen and higher blood flow by increasing its size. However, sometimes these changes can mask more serious problems that put the athletes at risk of cardiac arrest."

David is a cardiologist at St Vincent's

Hospital and an expert in cardiac imaging: the study of the structure and function of the heart using ultrasound and magnetic resonance imaging.

This expertise led him to be asked to assess the heart health of the Socceroos playing in the 2006 World Cup as well as to advise the AFL on the heart health of their footballers.

David's interests extend to the heart health of those less athletically gifted. For the last 8 years, he has used his skills in collaboration with SVI's Associate Professor Jock Campbell in a communitybased study that assesses the heart health of a group of 4000 at-risk people. The study aims to track the effectiveness of a marker in blood called B-type natriuretic peptide to predict heart failure. The team's goal is to improve our ability to identify those at risk of the disease.

David says, "We have available therapies for the treatment and prevention of heart failure, but what we don't have is a very effective way of screening to identify who would benefit from the treatments."

The researchers are keen to learn more about how changes in the heart's structure can affect its function, and to be able to identify the cases where these changes may confer an advantage, as in the case of some elite athletes, and where they may have more disastrous consequences.

SVI GOLF DAY

HD

TEEING UP FOR MEDICAL RESEARCH For the sixth year running, SVI's Charity Golf Day was a huge success.

The SVI/Macquarie Leasing 2013 Charity Golf Day was held on the 28th of October at the Albert Park Golf Course. The day saw ominous rain clouds replaced by clear, bright skies just in time for tee off. With 28 teams competing from 22 organisations, we had a great turnout for the day.

The Melbourne Racing Club team of Wayne Sampson, Jake Norton, Ian Chapman and Dianna McKain finished first, winning the Jack Holt trophy. Runners up were SVI's own Professor Jack Martin, with Joel Meek and Tom Hennessey from Newcrest Mining. The annual 'Michael Dwyer Memorial Trophy' was won by Michael Collins from Ernst & Young for the longest drive on Hole 6.

In all, the day raised over \$111,000 in profit for SVI, setting a new record. All proceeds from the event will go to support medical research at SVI into diseases including type 2 diabetes, heart disease and cancer.

Success of the Charity Golf Day is dependent upon the support and commitment of a great many people and organisations. We would like to thank Gold Sponsor Macquarie Leasing, as well as Silver Sponsors Deloitte, Ernst & Young, Jayco and Virgin Australia. We would especially like to thank Newcrest Mining who have been long-term sponsors of the SVI Charity Golf Day. They have been an integral part of the day's success and their support has been greatly appreciated.

SVI would like to thank the 2013 SVI Golf Committee in particular for their dedication and time throughout the year. Chaired by Leon Wiegard, the Committee consisted of Michael Kay, Mark Kerr, Barry Holbrook, Charlie Happell, Damian Murphy and Peter McCarthy. Peter McCarthy has now stepped down from the Committee and we thank him for the support and dedication he showed as a member.

For information on how you can be part of the SVI Charity Golf Day in 2014, contact the SVI Foundation on (03) 9288 2480 or email foundation@svi.edu.au.





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SVI STAFF 2013-2014

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Prof Thomas WH Kay (Director)

Prof Michael W Parker (Deputy Director) A/Prof Jörg Heierhorst (Associate Director) A/Prof Natalie Sims (Associate Director) A/Prof Louise Purton (Associate Director) Prof Jack Martin (John Holt Fellow) Prof Bruce E Kemp (Pehr Edman Fellow)

Research units Structural Biology Unit

Prof Michael Parker David Ascher Ivana Atmaja (Honours Student) Dr Brett Bennetts Dr Sophie Broughton Gabriella Crespi Dr Urmi Dhagat Larissa Doughty Dr Susanne Feil Chen Gao (PhD student) Dr Michael Gorman Nancy Hancock Dr Stefan Hermans Dr Jessica Holien Stephanie Kusomo (Honours Student) Dr Sara Lawrence Dr Belinda Michell Dr Luke Miles Dr Tracy Nero Dr Lorien Parker Holly Sun ((Honours Student) Chrystal Tiong (Honours Student) Dr Jerome Wielens

Immunology and Diabetes Unit Prof Thomas Kay **A/Prof Helen Thomas** Dr Tom Brodnicki Dr Mark Chong **Dr Stuart Mannering** May Abdulaziz Alsayb Nicole Bleasdale Michelle Ashton (PhD student) Jonathan Chee (PhD student) Edward Chu (PhD student) Marek Cmero Lorraine Elkerbout Dr Colleen Elso Stacey Fynch Jingjing Ge (PhD Student) Hannah Graham Dr Kate Graham Dr Esteban Gurzov Allison Irvin Gaurang Jhala (PhD student) Joyce Kant (UROP student) Ashleigh Keown Aimee Khoo (UROPStudent) Dr Bala Krishnamurthy Janine Kuehlich Dr Amit Kumar Yue Li Adrianna Liu (Masters Bioinformatics Student) Dr Thomas Loudovaris Leanne Mackin Lina Mariana

Ellen Mathieson (UROP Student) Dr Zia Mollah Dr Vimukthi Pathiraja (PhD student) Hong Sheng Quah (PhD Student) Natalie Sanders Nick Scott (PhD Student) Claudia Selk Jarrod Skinner Dr Andrew Sutherland Michael Thomson Dr Anne Thorburn Sam Thorburn Prerak Trivedi (PhD student) Chitra Varanasi Paul Vrazas Jibran Wali (PhD student) Lara Yachou-Wos Janet Yeo (PhD Student) Dr Yuxing Zhao

Protein Chemistry and Metabolism Unit Prof Bruce E. Kemp

Dr Zhi-Ping Chen Toby Dite (Honours student) Dr Sandra Galic Vy Hoang (PhD student) Samah Issa Frosa Katsis Dr Nicky Konstantopoulos Christopher Langendorf Naomi Ling Lisa Murray-Segal Dr Jonathon Oakhill Matthew O'Brien (PhD Student) Dr Hayley O'Neill Dr Suzanne Rogers Dr John W. Scott

Molecular Cardiology Unit

A/Prof Duncan Campbell Francoise Campbell Suang Suang Koid (PhD student) A/Prof David Prior Samantha Stevenson

Bone Cell Biology and Disease Unit A/Prof Natalie A Sims Prof Jack Martin Dr Nicole C Walsh Holly Brennan Ling Yeong Chia (PhD student) Blessing Crimeen-Irwin Pat Ho Joshua Johnson Dr Rachelle Johnson Emma McGowan Narelle McGregor Ingrid Poulton Dr Therese Standal (Visiting Academic) A/Prof Kong Wah Ng A/Prof Evange Romas Aurelius Sladen (Honours Student) Christopher Tham (Honours Student) Brett Tonkin Dr Stephen Tonna Christina Vrahnas (PhD student)

Stem Cell Regulation Unit A/Prof Louise Purton

Dr Carl Walkley Dr Emma Baker Shreya Bhattacharya (PhD student) Dr Alistair Chalk Elisabetta DeLuca Dr Paola Divieti Pajevic (Visiting Academic) Amal Ghali (Honours Student) Ankita Goradia Alanna Green (PhD Student) Tania Jovic Chacko Joseph (PhD student) Brian Liddicoat (PhD student) Alvin Ng (PhD student) Dr Julie Ouach Lenny Straszkowski (Honours Student) Scott Taylor Dr Mannu Walia

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Dr Monique Smeets

Molecular Genetics Unit

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Genome Stability Unit

Dr Andrew Deans Joybrata Banerjee Vince Murphy Julienne O'Rourke (Honours Student) Dr Fenil Shah Sylvie van Twest

S

Cell Cycle and Cancer Unit Dr Boris Sarcevic

Ain Roesley (PhD student) Emma Morrish (Honours student) Randy Suryadinata George Yang

Pharmacogenomics Unit

Dr Mark Waltham Walter Pfister (PhD student)

Invasion and Metastasis Unit Prof Erik (Rik) Thompson

Tony Blick Vijani Dissanayake Dr Annet Hammacher Dexing Huang Cletus Pinto (PhD student) Eliza Soo (PhD student) Anthony Tachtsidis (PhD student) Dr Eva Tomaskovic-Crook Edwin Widodo (PhD student) Dr Bryce van Denderen

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Prof Peter Choong Prof Anthony d'Apice Prof Kong Wah Ng

Principal Research Associates

A/Prof Ora Bernard Prof Peter Cowan Prof Michael Henderson Prof Darren Kelly Dr Craig Morton A/Prof John Slavin A/Prof Gregory Steinberg

Senior Associates

Dr Lance Macaulay Prof Harshal Nandurkar A/Prof Evange Romas

Associates

Dr Julian Adams Dr Renwick Dobson Dr Nirupa Sachithanandan

SVI Foundation Madeleine Whiting

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Higher Degrees Conferred 2013

Nancy Wang, PhD, University of Melbourne Nicolas Hoch, PhD, University of Melbourne Kevin Mittelstaedt, PhD, University of Melbourne Hayley O'Neill, PhD, University of Melbourne Xianning Lai, PhD, University of Melbourne Anthony Tachtsidis, PhD, University of Melbourne

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FINANCIAL SNAPSHOT

Income

5

5%

Competitive Research Grants

Legacies, Bequests & Donations

Government Infrastructure Support Service

Contracts & Other Income

Investment Income

Industry Grants

Expenditure

Research

%

51

2%

%

%

Administration

Laboratory Support Services

Building Operations

Transfers to Collaborators

Foundation

Commercial Development

F

Statement of Financial Position as at 31 December 2013

ASSES		
Current assets	14,668,008	16,107,995
Non-current assets	13,979,401	13,145,309
TOTAL AUSETS	20,647,400	29,253,304
LASILITIES		
Current liabilities	4,734,337	4,565,921
Non-current liabilities	177,048	128,554
TOTAL LAULTICS	4,911,385	4,694,475
NOV ASSENS	23,736,024	24,558,829
EQUITY		
– Retained surplus	23,007,833	24,314,304
– Reserves	728,191	244,525
TOTAL ZOUTTY	23,736,024	24,558,829

STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME FOR THE YEAR ENDED 31 DECEMBER 2013

		2013 (6)	2002 (8)
Revenue	1	16,454,707	16,182,772
Other income		5,161,092	6,716,759
TOTAL REVENUE		21,615,799	22,899,531
Consumables and general research expenses		(3,810,110)	(4,026,292)
Employee benefits expense		(12,701,179)	(12,465,207)
Depreciation and amortisation		(2,099,035)	(2,031,513)
Administration expenses		(1,746,437)	(1,735,264)
Transfers to collaborators		(2,565,509)	(985,487)
TOVAL EXPENSES		(22,922,270)	(21,243,763)
Surplus/(Deficit) for the year		(1,306,471)	1,655,768
Other Comprehensive income:			
Net gain/(loss) on revaluation of financial assets		483,666	561,864
Total Comprehensive income for the year		(822,805)	2,217,632
Total Comprehensive income attributable		(822,805)	2.217.532
to members of the entity			
NOTE 1: GOVERNMENT GRANTS			
National Health and Medical Research Council:			
– Independent Research Institutes Infrastructure Support Scheme		1,775,746	1,467,519
– Research grants		9,136,002	7,846,493
Australian Research Council		282,779	213,251
Total Commonwealth grants		11,104,527	9,527,263

Victorian State Government, Department of Business and Innovation – Operational Infrastructure Support Program

The summary financial information shown above does not include all the information and notes normally included in the statutory set of financial statements. A full set of financial statements can be obtained from the SVI website: www.svi.edu.au/our_story/annual_reports/. The full Statutory Financial Statements comply with the Australian Accounting Standards and were unqualified by the auditors, William Buck Audit (Vic) Pty Ltd.

F

SVI'S TWO GREAT 'JACKS'

SVI was delighted when former Director Professor Jack Martin was selected as the recipient of the 2013 Victorian Senior Australian of the Year Award.

Jack is one of Australia's most esteemed researchers and the founder of skeletal research in Australia. His research has had a major impact on the understanding and treatment of diseases studied at SVI, including osteoporosis and bone tumours, and the spread of cancer to bone. Jack was Director of SVI from 1988 until 2002, and since then he has continued to work in the laboratory, mentoring the next generation of scientists, in the position of John Holt Fellow.

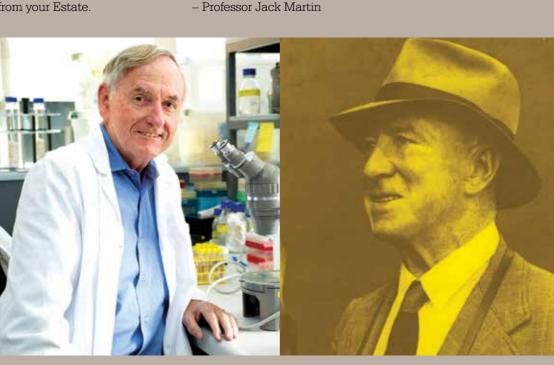
SVI's 'other' Jack is Jack Holt. The Institute was founded thanks to a £200,000 bequest left by Jack Holt in 1951. Arguably Melbourne's most famous racehorse trainer of the 1930s, Jack trained winners in the Melbourne Cup, Caulfield Cups, Cox Plates and a Victorian Derby. He was also well-known for his generosity and philanthropic nature.

Upon his death in 1951, Jack bequeathed his fortune to establish a centre for medical research, which became SVI. Since 1958, SVI has been carrying out medical research into the cause, prevention and treatment of diseases such as cancer, Alzheimer's, diabetes, arthritis and heart disease.

In honour of Jack Holt, SVI created 'The Jack Holt Society', which recognises generous individuals who have notified the Institute of their intention to leave a bequest in their Will to SVI. Members of this exclusive Society get together a few times a year to share stories and learn more about the research done at the Institute.

Once you have looked after your family and loved ones through your Will you may like to consider including SVI. It doesn't matter how big or small your gift is as this is a deeply personal decision. You could consider a dollar amount, a percentage of your Estate, or a specific item from your Estate. Your bequest could fund the cutting edge work of a scientist; the purchase of vital equipment; or the discovery of a drug to treat devastating diseases such as cancer, diabetes or Alzheimer's. Importantly, alerting us that you have included SVI in your Will not only makes you a part of the Jack Holt Society but it also may influence others to do the same.

"A bequest to SVI will support our research into cancer, diabetes, osteoporosis, Alzheimer's and heart disease. These diseases affect many Australians, so leaving a gift in your Will to SVI benefits the whole community and provides hope for decades to come. Please consider SVI and help us to fulfill a new vision for the health of the next generation."





DF

INVESTING WISELY IN MEDICAL RESEARCH

St Vincent's Institute's \$10,000 Discovery Fund is a vital income vehicle for SVI. The Fund has a capital target of \$5 million, the income from which will enable the continued search for medical discoveries to improve the health of generations to come.

Members of the Fund make a donation commitment of \$10,000 each year for 5 years. The Fund currently has 34 members, who are invited to attend a number of exclusive functions during the year. Members are kept abreast of the latest news and developments in research at SVI, and have direct access to the pioneers of SVI medical discoveries.

2013 saw the Fund grow substantially, both financially and in membership, with six new members joining. We welcomed the following: Peter and Kristine Anastasiou, Anthony Crichton-Brown, John Gillam, Sam and Rita Piedimonte, John and Franca Signorino, and Gerald Snowden. At the end of 2013 the investment balance was \$1,444,300.

Special functions in 2013 included a lunch in March at the home of Christine and Sam Tarascio, and dinner and backstage tour of SVI labs in August with guest speaker Professor Michael Parker.

Already in 2014, founder and Chair of the Fund, Christine Tarascio, and husband Sam hosted 70 members and guests at a lunch held at GG's Restaurant & Bar before guests were invited upstairs to Sam and Christine's home for coffee, dessert and entertainment. Professor Tom Kay and Dr David Ascher spoke with passion about their research and explained why philanthropy is so important to the continuation of this work.

In 2014 we welcome the following members to the Fund: Andrew and Cristiana Bertocchi, John and Deborah Bertocchi, Ian and Maria Cootes, and Nick and Rachele Saraceno. We also welcome Bristol-Myers Squibb as members, with special thanks to Anthony Mancini, BMS' Managing Director in Australia and New Zealand. In addition, we are hugely grateful to the following members who have chosen to renew their membership commitment for another five years: Joe & Gwen Arcaro, and Enzo & Melina Ceravolo.

At the time of writing the balance of the Fund is over \$1.8 million with a further \$700,000 pledged in membership commitments until 2018.

A huge thank you to all current members and supporters of the Fund. New memberships are very welcome, as are any contributions to the Fund. If you would like information about becoming a member please contact Christine Tarascio on 0418 318627.

SVI would like to sincerely thank the members of the \$10,000 Discovery Fund:

Susan Alberti Peter & Kristine Anastasiou Joe & Gwen Arcaro Benni Aroni & Roz Kaldor-Aroni John & Deborah Bertocchi Andrew & Cristiana Bertocchi Graeme & Mabie Briggs Bristol-Myers Sqibb Anthony & Janine Burgess Enzo & Melina Ceravolo Ian & Maria Cootes Frank & Shirley Costa Anthony Crichton-Brown Peter Edwards & Michael Iacobucci (SI Capital) Tony & Maria Foti John & Helen Gillam Jim & Georgina Hatzimoisis Andrew & Lyn Henderson Richard & Liz Jenkings John & Melinda Macfarlane Howard & Sally McDonald Colin North Sam & Rita Piedimonte Barry & Karen Plant Mario Salvo Nick & Rachele Saraceno Tony & Elda Schiavello Brenda Shanahan John & Franca Signorino Gerald Snowden Rod & Janet Spooner Sam & Christine Tarascio Sam & Carmen Tarascio Vic & Toni Zagame

Thanks also to those who have supported the Discovery Fund very generously over the last few years: Rhonda Barro Adrian Blake Michael Cole Michael & Helen Gannon Vince & Gabrielle Giuliano Leon & Judith Gorr Enza Grollo Henry Kalus Michael Lanyon Michael & Miriam Lasky Srecko Lorbek John McMurrick Robert & Lucinda Mills Justin & Sally O'Day Assunta & Nunzio Pellicano Ross & Kaylene Savas Andrew & Glenda Simpson Michael & Maria Smith Geoff & Karen Stansen Graham & Geraldine Terry Ross & Elizabeth Wilkie Bruce & Rosalie Heymanson Jason and Gabby Scillio Ken & Brenda Tregonning Yan Li Wang



DONORS, BEQUESTS AND FOUNDATIONS

On behalf of SVI, I would like to acknowledge all those who donated in 2013. We also thank those donors not listed here and those who wish to remain anonymous. Every donation, no matter how small, has the potential to save lives. Thank you for your support. SUSAN ALBERTI AO, SVI FOUNDATION CHAIR

\$100,000 Plus Alberti, S Shanahan, B Anonymous

\$50,000-\$99,999 The Stuart Leslie Foundation North, C

\$10,000-\$49,999

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Polson, P & R LC & A Bergin, J & P European Truck Repairs P/L Fernandez, T Gourlay, L Heathcote, R Johnston, T C Loder, R & S Mazolum, N McFarlane, M Nicholson, J A North, A Nossal, G Papercorp Unit Trust Petrou, T & C Sakell, T Santamaria, J & S Santamaria, P Simpson, C Webster, N

Donations in lieu of flowers were given in memory of: Patricia Spry-Bailey Paul Stevens

Donations in lieu of presents were given

in celebration of: Roz Kaldor-Aroni's birthday

Trusts & Foundations permanently established for the purpose of allocating funds to St Vincent's Institute on an ongoing basis: DJ & LM Fox Foundation – administered by Nicholas O'Donohue & Co John Holt Medical **Research Endowment** - administered by Perpetual Trustees K & A Bongiorno Research Endowment – administered by Perpetual Trustees The Mary Jane Polinelli Foundation – administered by Perpetual Trustees

The following permanent funds are included in the company's pool of invested funds with income being directed to the Institute's medical research program: Albert H Maggs Endowment Diane B Jones Endowment George Menzies Carson Bequest Laura Sampson Lamb Estate Lorna M Miller Endowment Mary T Porter Estate Merna Dorothea Sheahan Estate The Mary Potter **Research Grant** The Roslyn Smorgon Memorial Fund

Trusts and Foundations. The following Trusts and Foundations granted support based on scientific merit in 2013: **5point Foundation** Alzheimer's Australia Bethlehem Griffiths **Research Foundation** Cure Cancer Australia Foundation Gwen & Edna Jones Foundation JDRF L.E.W. Carty Charitable Fund Leukaemia Foundation Lynne Quayle Charitable Trust, managed by Equity Trustees Limited Margaret Walkom Bequest Sydney Catholic Archdiocese The Ian Potter Foundation The Jack Brockhoff Foundation The Marian & EH Flack Trust The Mason Foundation, managed by ANZ Trustees Victorian Community Foundation – James & Vera Lawson Trust, managed by ANZ Trustees Zig Inge Foundation



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f +61 3 9416 2676 e enquiries@svi.edu.au



DONATING TO SVI

By supporting SVI's medical research, you can make a difference.

1. Donate a single gift to SVI

\$50	\$100	\$250	\$500	\$1000

Other \$

2. Become a 'Friend of SVI'

Donate a regular gift:

Annual gift amount \$

3. Join the SVI \$10,000 Discovery Fund

An investment in the \$10,000 Discovery Fund is an investment in the future of the Institute. For information, contact Dan Mars at the SVI Foundation on (03) 9288 2480.

4. Consider SVI in your Will

If you would like to talk to SVI about a bequest in your Will, contact Madeleine Whiting on (03) 9288 2480.

5.	I am	interest	ted in	the fo	llowing
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_____ Type 1 diabetes

Cancer

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	'l'ype	2	diabe	tes

Heart disease
Bone disease

Other

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DONATING TO SVI

Donation payment details

Cheque (please make payable to St Vincent's Institute)

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Expiry date A	Amount being paid \$	
Name on card		
Signature		
Please make my re	eceipt out to:	
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Surname		
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SVI is endorsed as a tax deductible gift recipient. All donations over \$2 are tax deductible. SVIMR ABN: 52 004 705 640.

Please return to:

St Vincent's Institute of Medical Research, 9 Princes St, Fitzroy, VIC 3065 Tel: 03 9288 2480 Fax: 03 9416 2676 Email: foundation@svi.edu.au Web: www.svi.edu.au