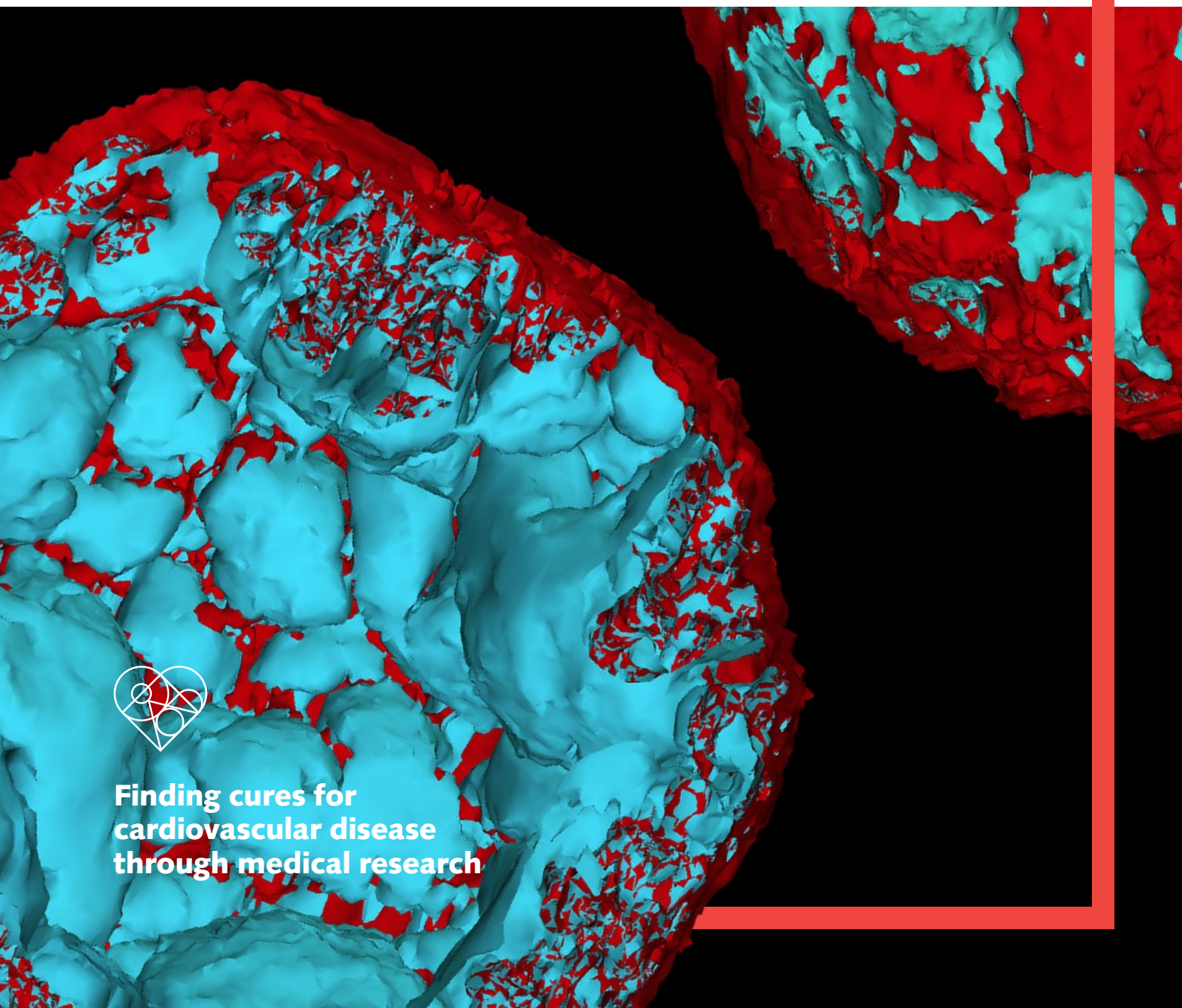
IMPACT
REPORT 2018

Victor Chang
Cardiac Research Institute



Finding cures for cardiovascular disease through medical research

Life-saving research

Heart attacks + stroke

Stem cells

Pregnancy + birth defects

Inherited heart disease

Heart transplants

Genetic analysis

Cardiac arrests

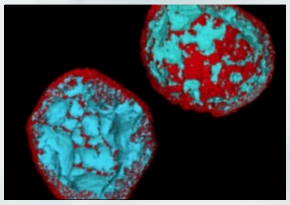
Contents

No.1

Cardiovascular disease is the number one cause of death globally

42/wk

42 babies are born with a heart defect every week

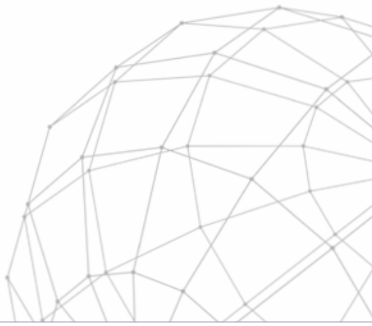


Cover image. In a recent paper published in the prestigious journal *Nature*, Dr Gonzalo Del Monte Nieto, Professor Richard Harvey and their colleagues put forward a new model for how the pumping chambers of the heart form in the developing embryo. Central to this model is how fibrous extracellular material, called extracellular matrix, organises the growth of cardiac muscle cells, necessary for proper heart function. This image is a view from inside the ventricles of the main pumping chamber of a developing heart, with cardiac muscle shown in red, and the extracellular matrix shown in blue. In normal (wild type – left) hearts, you can see the extracellular matrix material organised into a series of domes separated at their base by threads of cardiac muscle. However, the growth of the cardiac muscle occurs mostly within the matrix domes. In hearts that carry a defect in the gene for Neuregulin 1 (Nrg1tm/tm – right), responsible for the synthesis of the extracellular matrix, the domes do not form well and the underlying muscle becomes exposed and does not grow properly, severely affecting heart function. This study will provide a new framework for understanding heart development and the causation of congenital heart disease. Read more about these findings on page 16.

About Us

The Victor Chang Cardiac Research Institute is dedicated to finding cures for cardiovascular disease through world class medical research.

Renowned for the quality of its breakthroughs, the Victor Chang Cardiac Research Institute uses innovative transplantation techniques and conducts complex molecular and genetic analysis. It integrates advanced stem cell research, regenerative medicine and bio-engineering, to discover better ways of diagnosing, treating and ultimately preventing the onset of heart disease.



Our Mission

The relief of pain and suffering, and the promotion of wellbeing, through an understanding of the fundamental mechanisms of cardiovascular biology in health and disease.

Our Values

Excellence:
to achieve excellence in research

Creativity:
to demonstrate creativity in the pursuit of scientific discovery

Integrity:
to act with honesty, integrity and fairness at all times

Impact:
to undertake research that has significant impact and makes a difference

Teamwork:
to promote a sense of teamwork and collegiality amongst staff and collaborators

Our 2018 Statistics

320
researchers and staff

114
scientific publications

23
laboratories

80
seminars hosted at the Victor Chang Cardiac Research Institute

10,035
people tested by the Health Check Booth

800
people toured the Victor Chang Cardiac Research Institute

No.1
Heart disease is the single biggest killer of Australians

12min
One Australian dies from cardiovascular disease every 12 minutes

$12bn
Cardiovascular disease costs the economy up to $12 billion a year

10min
One Australian suffers a heart attack every 10 minutes

3×
Three times more women die of heart disease than breast cancer

22/day
Heart disease kills 22 Australian women every day

1/500
One in 500 people are affected by cardiomyopathy

40/day
Forty Australians die of a heart rhythm disorder every day

The Problem

Cardiovascular disease is the leading cause of death globally. It claims the life of one Australian every 12 minutes and can affect anyone regardless of age or gender. Labelled Australia's most expensive disease, it currently costs more than $12 billion in healthcare expenditure per year.

The Victor Chang Cardiac Research Institute is a key part of a global community working towards making a difference for the 4.2 million Australians living with effects of heart disease. Our job doesn't stop until we find a cure to end all suffering.

Preventing Heartbreak

At the Victor Chang Cardiac Research Institute, we're striving towards transforming the lives of millions of people living with heart disease. Every day we search for answers. Answers for the people living with its devastating effects. We are striving to solve the unsolved.

William's Story

"Our introduction to the world of heart disease was sudden, unexpected and truly terrifying. It was August 2015 and our little boy, William, had been unwell with suspected gastro. But he wasn't recovering, so we took him to a GP. We were told to take him home and give him Panadol because the doctor thought he had a virus. Six hours later we were in emergency. William was actually in end-stage heart failure, with a diagnosis of dilated cardiomyopathy.

Everything was surreal. The next day we were told William was in a critical state and that he'd be put on ECMO, or short-term life support, and then most likely be given a ventricular assist device until a heart transplant became our only option. We remember it was midnight and we were sitting with two cardiologists being told the news … we just sat there thinking 'how did this happen? How did we not know?'

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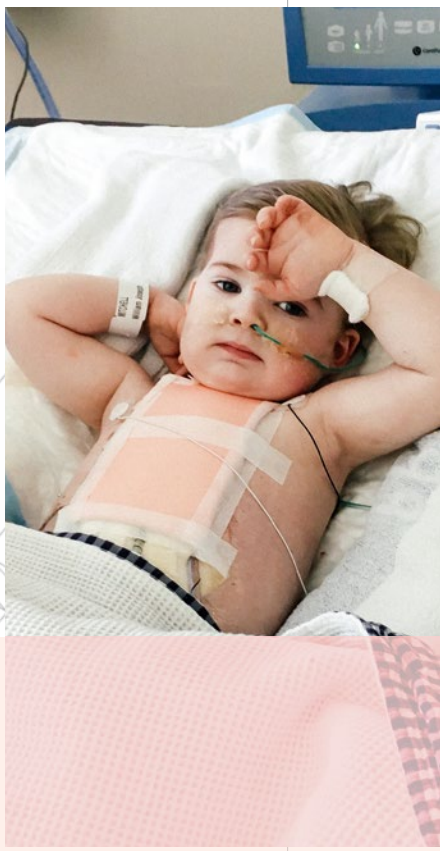
JULIA, WILLIAM'S MUM

We are so grateful to the incredible doctors and surgeons we have, and how modern medicine has given our son a future.



Research Update

Professor Diane Fatkin and her team of researchers are using cutting-edge technology, including next generation sequencing techniques, to find genetic variants in families with dilated cardiomyopathy. Professor Fatkin and her team are hoping to identify new approaches that can assist in the diagnosis, treatment and prevention of inherited heart disease.

a.

b.

a. William recovering after his heart transplant
b. William with his brother, Mason, dad, Tristan, mum, Julia and sister, Eliza

129

In 2018, 129 Australians received a life-saving heart transplant

Now we understand the grunting breaths, the puffiness, the excessive sweating, the dry cough … they were all signs of heart failure. We couldn't believe it. Just that morning, William had been diving off the couch like any other crazy, unstoppable 17-month-old baby.

We spent just over six months in hospital – four-and-a-half months waiting for a heart transplant and another two-and-a-half months recovering after the transplant. It was incredibly tough on our family. Our life is now complicated and full of anxieties. But William is alive. And we know each day is a blessing."

Research Update

Professor Peter Macdonald's laboratory is pioneering a new era of heart transplantation, which is expected to be implemented around the globe. His team is working on novel methods of donor heart preservation with the hope of extending this life-saving treatment to more Australians.

Chairman's Report

Perseverance is something our scientists have in abundance. Not to mention endurance and imagination.

It takes years of pragmatic, methodical and meticulous investigation to make a life-changing breakthrough in heart research. That's the commitment the scientists at the Victor Chang Cardiac Research Institute make. These gifted and passionate men and women have devoted their lives to help bring us closer to the future they imagine. A future in which no baby will be born with a heart defect and there will be better and more effective cures for cardiovascular disease.

The research breakthroughs continue

Through this ongoing work, again this year our scientists have made discoveries that will change the lives of people around the globe. One such landmark breakthrough was accomplished by Professor Richard Harvey and his team, shedding new light on heart defects in babies. Our hope is that this groundbreaking research will provide insights into how we might coax the human heart to regenerate its own cells.

Imagine that.

And then imagine the possibilities to come from the work of Professor Roland Stocker and his team, who have developed the first non-invasive test to diagnose those likely to suffer a heart attack.

c. Matthew Grounds, Chairman

Further still, Professor Bob Graham, our founding Executive Director, and his team, in collaboration with international colleagues, discovered the first genetic marker of spontaneous coronary artery dissection or SCAD, which is killing otherwise fit women in their 40s and 50s.

NSW Government support

While the advances our scientists make are genuinely life-changing (as detailed in the Executive Director's Report), cardiovascular disease continues to wreak havoc in our community. It claims the life of one Australian every 12 minutes; every four hours a baby in this country is born with a heart defect, and it kills three times more women than breast cancer. Astonishingly, cardiovascular disease costs Australia $12 billion annually in healthcare expenditure.

> Our hope is that this groundbreaking research will provide insights into how we might coax the human heart to regenerate its own cells. Imagine that.

The NSW Government recognises the cost of cardiovascular disease on society. We have been fortunate to receive $25 million from the NSW Government to develop the world class Victor Chang Cardiac Research Institute Innovation Centre. Most recently, the NSW Government has made a game-changing $150 million investment in cardiovascular research which is set to revolutionise the treatment and prevention of heart disease and stroke. Over the next decade, NSW medical research institutes, universities and hospitals will benefit from this generous contribution. We are delighted that the NSW Government is being so supportive of our outstanding scientists.

> The need for philanthropic support of our cardiovascular researchers has never been greater. With you on our side the possibilities are endless.

Hearts and Minds Conference and Fund

We are grateful to again be beneficiaries of the third Sohn Hearts and Minds Investment Leaders Conference, in which Australia's and the world's top fund managers share their best investment ideas as a contribution to medical research. The conference goes from strength to strength with almost 1,000 people attending in Melbourne in November.

Building on the success of the conference, in a world first, we have established a listed investment vehicle which has, as one of its objectives, the generation of revenue to benefit medical research. Known as Hearts and Minds Investments Limited (ASX: HM1), this vehicle provides investors with exposure to the investment ideas presented at the conference, plus a few others. The fund managers provide their ideas pro bono and in lieu of management fees, and the fund makes a donation to medical research equal to 1.5% of the fund annually.

HM1 is an ingenious idea from fellow board member, Hamish Douglass, and my long-time colleague at UBS, Guy Fowler. The initial public offering was a great success, raising $500 million and will be a major contributor of funding for medical research both at the Institute and other medical research organisations around Australia.

A very big thank you to all the participating fund managers and in particular the Core Fund Managers, Caledonia Investments, Cooper Investors, Magellan Financial Group, Paradice Investment Management and Regal Funds Management, together with the board of HM1, all of whom are donating their services.

The Institute

It has certainly been a busy and successful year for the Institute, not only on the research front but also from a finance and administration perspective. None of our successes would be possible without the dedication and significant contribution from all of our board members, and in particular David Craig, our Deputy Chairman and Chairman of the Finance Committee. David spends a significant amount of time supporting the Institute in so many ways.

Congratulations to all our board members and faculty, whose unwavering commitment is exemplary.

And, a special mention of Professor Graham, who has fostered excellence and innovation at the Institute for 25 years. Bob works tirelessly to champion the critical need for cardiovascular research in Australia.

We are indeed very fortunate to have had his strong leadership at the Institute for so many years, and so, too, are the scores of up-and-coming young scientists who have flourished under his mentorship.

Bob would be the first to tell you that research is a long-distance journey, and that an endurance runner needs an incredible support crew, prepared to go the distance with them. I know he joins me in thanking the 320 scientists and staff at the Institute for their perseverance, imagination and endurance in helping to fight cardiovascular disease.

While we have put some plans in place for long-term support of the Institute's work, the need for philanthropic support of our cardiovascular researchers has never been greater. Why don't you join us for the journey – with you on our side the possibilities are endless.

Matthew Grounds
CHAIRMAN

Executive Director's Report

2018 was a very successful year for the Institute, both in terms of scientific achievements and financially. My thanks to all involved including our fundraising team, our faculty and staff, our Finance and Risk Committee, our Board, and the Sohn Hearts and Minds Conference organisers.

The highlight of the year was our success in getting the NSW Government to commit $150 million over 10 years to build capacity in cardiovascular research in the state – this the result of a two-year campaign involving our Chairman, Matthew Grounds, the Chairman of the Heart Research Institute (HRI), Stephen Hollings, the Scientific Director of the HRI, Shaun Jackson, and myself, with great assistance from Professor Ben Freedman (HRI) and, importantly, from Britt Granath, Victor Chang Cardiac Research Institute, who worked tirelessly to develop the business plan.

Also, particularly thanks to NSW Premier, the Hon. Gladys Berijiklian, our Health and Medical Research Minister, the Hon. Brad Hazzard, and Treasurer, the Hon. Dominic Perrottet, for getting behind this initiative and showing such enormous leadership to bolster funding for research into the number one killer in this country, which costs the nation $12 billion annually in healthcare costs.

I'd like to thank our Chairman and board member, Gary Weiss, and also Guy Fowler of UBS, for not only continuing to co-ordinate another successful Sohn Hearts and Minds Conference – this time in Melbourne – but also for setting up the Hearts and Minds Listed Investment Company, which will provide much-needed financial support, not just to our Institute, but for research into diabetes and children's diseases.

Our annual international symposium was hosted by the Heart Research Institute after we joined forces with them last year to morph the event into the Sydney Cardiovascular Symposium.

The Symposium was very well attended with researchers from around the state and featured as our Princesses' Lecturer, Professor Jonathan Cohen, who, together with Professor Helen Hobbs, discovered the PCSK9 pathway for cholesterol, which has led to a very powerful treatment for high cholesterol.

This year saw further progress with the development of the Victor Chang Cardiac Research Institute Innovation Centre – again generously supported by the NSW Government – which will feature state-of-the-art equipment so NSW scientists can investigate cardiovascular research problems at a level of sophistication only possible in a few places in the world.

I would like to thank Professor Roland Stocker for advancing the facility to this point, together with Professor Sally Dunwoodie as Deputy Director, who has now taken over from Roland to lead the Victor Chang Cardiac Research Institute Innovation Centre into the next decade.

In 2018 the Institute published major papers in leading journals, such as *Nature*, *Nature Genetics*, *Nature Communications* and the *European Heart Journal* (EHJ). The EHJ paper from Roland Stocker's laboratory reported on the development of a molecular imaging tool that discriminates vulnerable from stable plaque, as well as a therapeutic approach to convert vulnerable to stable plaque. His team is now actively working to translate these findings into powerful new approaches to prevent heart attacks.

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> The Hearts and Minds Listed Investment Company will provide much-needed financial support, not just to our Institute, but for research into diabetes and children's diseases.

d. Professor Bob Graham, Executive Director

Several of our people also received major recognition of their work, including Professor Dunwoodie, who was awarded the Eureka Prize for Scientific Research; Professors Jamie Vandenberg and Livia Hool, who were elected to the Fellowship of the International Society of Heart Research; Professor Richard Harvey, who received the NSW Premier's Prize for Excellence in Medical Biological Sciences – the second year in a row that a member of the Institute's faculty has received this award – and our Chairman was deservedly awarded the Research Champion Award by Research Australia, for his efforts in advocating for medical research.

Our fundraising events continue to help us spread the word that 54,000 Australians will suffer a heart attack every year – that's one every 10 minutes – and cardiovascular disease will kill one in three of us.

My thanks to The Heart of the West Charity Ball, hosted by the Marconi Soccer Club, the Women Against Heart Disease Lunch and the Des Renford Charity Gala Day, which all raised much-needed funds for the Institute's work.

Thank you to all our supporters, our board, the Trustees of the Mary Aikenhead Ministries, St Vincent's Hospital Australia; our administrative and scientific staff, and the Sisters of Charity, who continue to inspire us and support our work.

But it is our donors, who are the lifeblood of the organisation, that I particularly want to acknowledge, because none of our groundbreaking discoveries would be possible without them.

Professor Robert M. Graham AO
EXECUTIVE DIRECTOR

Preventing Heartbreak

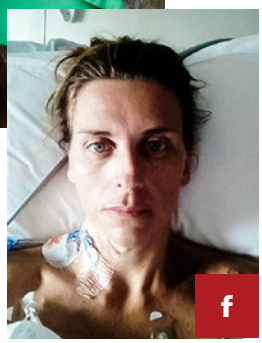
Liza's Story

"I was a fit, healthy mum of two young children when I had my heart attack. There were absolutely no signs and I had no risk factors. It all happened while I was at an open house inspection with my husband. I started to feel a pain in my arm that radiated down from around my shoulder and I was unusually hot and sweaty. I didn't want to cause a scene because I was surrounded by people I didn't know, but my husband insisted he call an ambulance. He recognised the signs of a heart attack.

Within three minutes of the paramedics arriving, I went into cardiac arrest. My heart stopped beating for over half an hour. The ambulance team performed CPR for 32 minutes, I had seven defibrillation shocks. I turned blue and my eyes were bulging from all the compressions. I had several broken ribs and I didn't look in a great way. I was taken to hospital and rushed into emergency where they placed three stents in my heart. I spent six weeks in hospital and also had an ICD fitted before I left.

I now know I suffered from a condition known as spontaneous coronary artery dissection (SCAD), which is when an inner layer of one of the blood vessels in the heart tears. I just presumed it wouldn't happen to me and I always imagined that heart problems were for men over 60 who carried a little bit of weight. I would never have thought that someone as healthy and as active as I was, could or would suffer such a heart attack.

It's terrifying to think what could've happened that day. Ever since, I've begun to look at the world differently. I cherish every day and focus on the important things, like my kids, my husband and my family."



e. Liza with her daughter, Ella
f. Liza in hospital after suffering a SCAD heart attack

25%

SCAD is responsible for around 25% of heart attacks in women under the age of 50

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LIZA

My husband thought that he'd be telling my kids that mummy died today.

Research Update

Professor Bob Graham and his team are leading Australian research into SCAD. They now have more than 230 SCAD survivors, including 10 families with more than one affected member participating in this cutting-edge study. Our researchers are currently looking to identify genetic variations that contribute to the development of this disease.

Organisational Structure

Victor Chang Cardiac Research Institute

Board of Directors

CHAIRMAN
Matthew Grounds

DEPUTY CHAIRMAN
David Craig

EXECUTIVE DIRECTOR
Professor Robert Graham AO

DEPUTY DIRECTORS
Professor Richard Harvey AM
Professor Jamie Vandenberg

CHIEF OPERATING OFFICER
Janina Jancu

Administration and Core Facilities

- Essential Services
- Finance
- Governance and Policy
- Human Resources
- Information Technology

DIRECTOR OF FUND DEVELOPMENT
Ariane Gallop

Fund Development

- Bequests
- Corporate Partnerships
- Direct Marketing
- Media and Communications
- Philanthropy

Board Committees

Finance and Risk
CHAIR
David Craig

Media and Communications
CHAIR
Jill Margo AM

Western Sydney
CHAIR
Louise Di Francesco

Scientific Advisory Board

Research Divisions

Cardiac Physiology and Transplantation
HEAD
Professor Peter Macdonald AM

Developmental and Stem Cell Biology
HEAD
Professor Richard Harvey AM

Molecular Cardiology and Biophysics
HEAD
Professor Robert Graham AO

Molecular, Structural and Computational Biology
HEAD
Dr Joshua Ho

Vascular Biology
HEAD
Professor Roland Stocker

Victor Chang Cardiac Research Institute Innovation Centre

DIRECTOR
Professor Sally Dunwoodie

CENTRE MANAGER
Milad Melhem

Member

St Vincent's Health Australia
CHAIR Paul Robertson AO

Affiliation

UNSW Sydney

Board of Directors

Matthew Grounds
CHAIRMAN

"Heart disease is the leading cause of death for both men and women in Australia, with 1 in 5 Australians currently suffering from some form of heart disease. Our researchers at the Institute are at the global forefront of making new discoveries that help the significant populations around the world who suffer from cardiovascular disease."

David Craig
DEPUTY CHAIRMAN

"We have assembled a world-class team of scientists and doctors to address Australia's number one killer – heart disease."

The successful operations of the Victor Chang Cardiac Research Institute are heavily reliant on the dedication, commitment and vision provided by our Board of Directors, led by Mr Matthew Grounds.

Robert M Graham AO
EXECUTIVE DIRECTOR

"Regrettably, almost everyone has been touched by someone who has died of heart disease. Despite great progress, heart disease remains amongst our leading killers. We still have much work to do, and we need your help."

Angelos Frangopoulos AM

"It's impossible not to be impressed by the depth of talent that makes up the Institute's researchers. Their scientific work is truly world class, and would make Victor Chang very proud of his legacy."

Louise Di Francesco

"The vital work done by the Victor Chang Cardiac Research Institute scientists, who year after year strive to change the medical landscape with exciting new discoveries, make a difference not just nationally but globally."

Peter K Allen

"The Institute's medical research breakthroughs save lives. This is an extraordinary outcome, yet given the prevalence of cardiovascular disease globally, the Institute's world-class research and mission to promote well-being is more important than ever."

Terry Campbell AM

"The great thing about independent medical research facilities such as the Victor Chang Cardiac Research Institute is that they attract top research talent because, unlike universities, they are dedicated entirely to research at the highest levels."

John Kean OAM

"One of my heroes, Neil Armstrong, described research as creating new knowledge. In the case of the Victor Chang Cardiac Research Institute, using this knowledge is helping solve heart disease."

Shangjin (Jin) Lin

"The heart is where life starts. The work that the Victor Chang Cardiac Research Institute does is world class and critical in helping to mitigate one of Australia's biggest killers – heart disease."

Hamish Douglass

"My father was incredibly lucky to have received a heart transplant in 1990 at St Vincent's hospital, which extended his life by 16 years. My family have experienced first-hand the benefits of breakthrough cardiac research."

Jennifer Doubell

"The Victor Chang Cardiac Research Institute is host to some of the world's brightest minds in cardiac research. We're fortunate in Australia to have such a powerhouse focussed on finding better ways of preventing, detecting and treating cardiovascular disease, addressing one of the greatest burdens in our community."

Dr Gary Weiss

"Cardiovascular disease is a major cause of death in Australia, and one of our largest health problems. Our institute provides first-class medical research with groundbreaking results. From this research, we also strive to give all Australians the tools to maintain good heart health and thus prevent cardiovascular disease."

Jill Margo AM

"In extending the boundaries of knowledge about cardiovascular disease, this Institute does not only save lives, it continues to provide solid blocks of research upon which other scientists can safely build."

Annabel Spring

"Heart disease is the leading cause of death for all Australians. Already the research results of the Institute are helping prevent birth defects, inherited heart diseases and heart attacks."

Leslie Field AM

"The Institute brings together the best minds in cardiovascular research and the hands-on clinical care of real patients. The research teams are passionate in their pursuit for a better understanding of the complex causes of cardiac disease."

The Power of Discovery

Rewriting the textbooks on heart formation

DEVELOPMENTAL AND STEM CELL BIOLOGY LABORATORY

Professor Richard Harvey and his team have shed a new light on heart defects in babies.

The findings, published in the prestigious journal *Nature*, have generated new understanding of how the chambers in the heart form and, importantly, how certain structural heart defects can occur in babies.

Even before most women know they are pregnant, their baby's heart is already beating in the womb. By this stage, the foetus is approximately 24 days old and its heart is required for the development of all the other organs in the body. This means the correct formation of the heart in the earliest stages is essential for a healthy baby.

Using a mouse model, the team led by Professor Richard Harvey and senior scientist Dr Gonzalo del Monte Nieto, provided fresh insights into fetal heart development, and in particular chamber growth. Key to this advance is understanding the role and behaviour of the heart's various tissue layers.

This discovery centres around three innovations:

1. Professor Harvey's team have shown exactly how the heart chambers grow in a fetus.
2. Scientists have now shown that the endocardium (cells that line the foetal heart tube) does some exciting gymnastics, which are vital for correct heart formation.
3. The research has revealed that the chambers of the heart begin to form at a much earlier stage than previously believed.

"This new knowledge is vital for understanding heart defects in babies and, in the future, for how we might approach the design of new treatments," says Professor Harvey.

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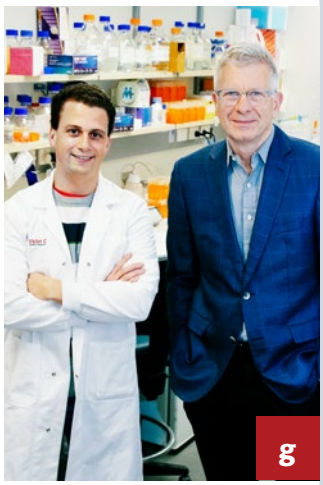
PROFESSOR HARVEY

This discovery could provide insights into how we might coax the human heart to regenerate, which is the holy grail for heart researchers and cardiologists alike.



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PROFESSOR STOCKER

Aside from leading a healthy lifestyle, this 'early warning system' could be our best defence against heart attacks, many of which may be fatal. Identifying in whom and when heart attacks will occur remains a holy grail of clinical cardiology and personalised medicine.

World first heart attack breakthrough

VASCULAR BIOLOGY LABORATORY

Research led by Professor Roland Stocker has shown it may be possible to both identify those at risk of a heart attack and prevent it from happening.

The underlying cause of a heart attack is a build-up of plaque composed of fatty material and inflammatory cells on the inside of the heart's arteries. Some plaques are known as 'unstable', resulting in the formation of a clot that blocks blood flow to the heart, causing a heart attack.

Using a highly sophisticated mouse model, Professor Stocker and his team discovered that the activity of an inflammatory enzyme, known as myeloperoxidase, is significantly higher in unstable compared to stable plaques.

The researchers then demonstrated that an MRI scan, after injection of a chemical probe, can be used to accurately and selectively identify the presence of dangerous plaques in coronary arteries. Administered into the blood stream, the chemical probe highlights the dangerous plaques, making it easily visible on an MRI scan.

The team then investigated whether elevated enzyme activity causes plaque destabilisation. The results were really exciting. When researchers administered a drug that inhibits myeloperoxidase activity, they discovered it stabilised the plaque by making its lining sturdier and less prone to rupture.

The next step is to adjust the chemical MRI probe for human use, and then carry out clinical trials to confirm the utility of both the new imaging techniques to identify and treat, high-risk patients.

Harnessing the power of DNA

INHERITED HEART DISEASES LABORATORY

A better diagnostic test could potentially support families affected by cardiomyopathy by helping pinpoint those at risk at the earliest possible stage.

In the largest patient study of its kind, an investigation has put whole genome sequencing to the test, measuring its effectiveness as a first-line clinical diagnostic tool for dilated cardiomyopathy.

After two decades of heart disease research and three years of genetic analysis, the study found there are clear benefits of using a whole genome sequencing test to help find the causes of cardiomyopathy. In particular, it is a sensitive and more comprehensive test than is currently used clinically, and it provides rich additional information likely to be valuable in the future.

Using the whole genome test, which looks at a person's entire DNA sequence, scientists were able to find the genetic causes of more cases of dilated cardiomyopathy than the standard test, which only looks at a restricted set of heart disease genes. So far, though, whole genome sequencing has only been integrated into routine patient care in a select few instances.

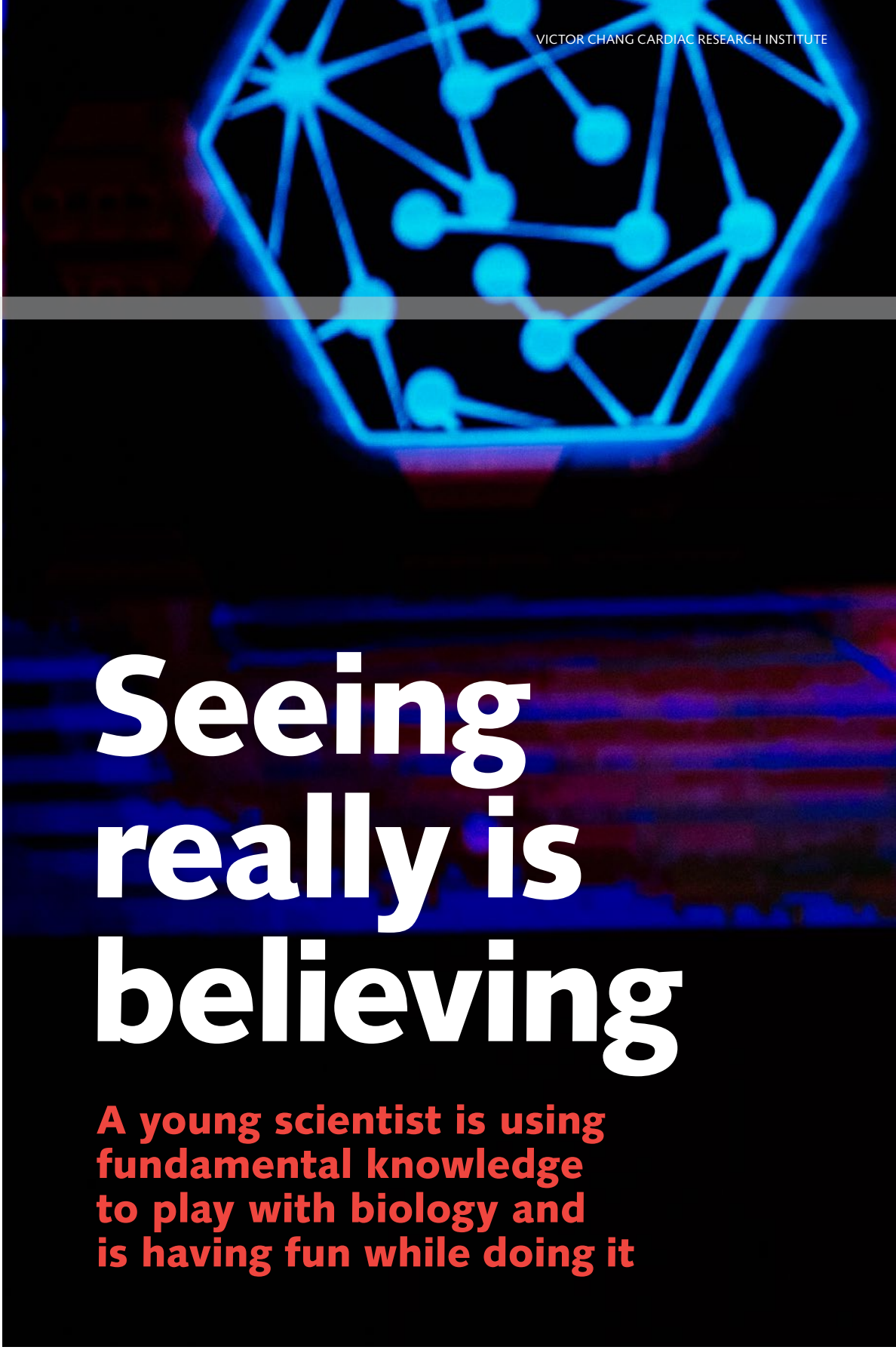
The research, conducted by scientists at the Victor Chang Cardiac Research Institute and the Garvan Institute of Medical Research through the National Cardiogenomics Program, looked at the entire genetic make-up of 42 patients with dilated cardiomyopathy. This inherited disease causes the heart to weaken and enlarge, and can affect up to 1 in 500 Australians. It is also the most common reason for heart transplantation.

PROFESSOR FATKIN

It's hugely satisfying that we can now say to clinicians: yes, you should absolutely consider whole-genome sequencing as the test of choice in families at risk of developing cardiomyopathy.

g. Dr Gonzalo del Monte Nieto and Professor Richard Harvey
h. Professor Roland Stocker
i. Professor Diane Fatkin

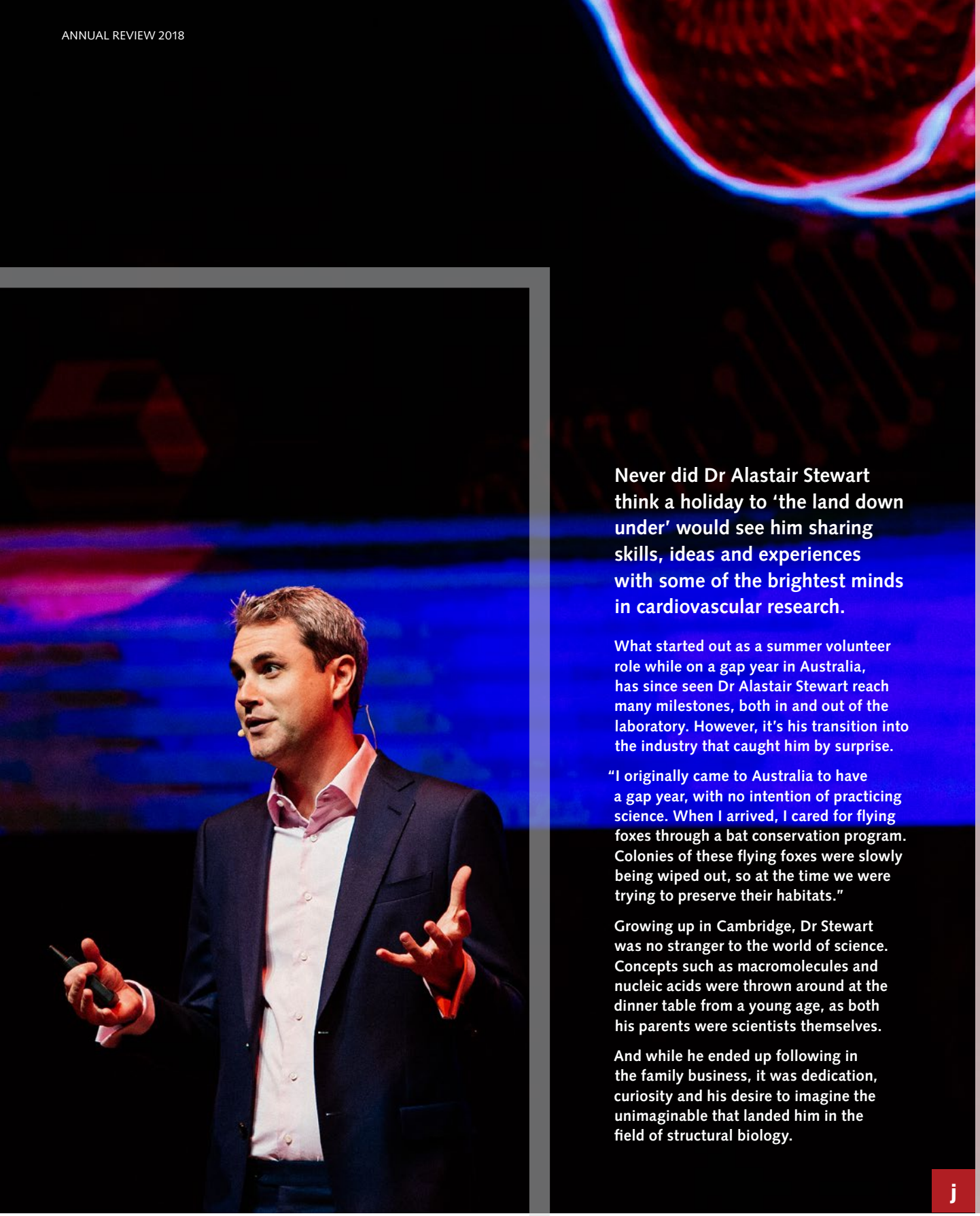
The Solution



Seeing really is believing

A young scientist is using fundamental knowledge to play with biology and is having fun while doing it

j. Dr Alastair Stewart presenting at the 2018 Sohn Hearts & Minds Conference



Never did Dr Alastair Stewart think a holiday to 'the land down under' would see him sharing skills, ideas and experiences with some of the brightest minds in cardiovascular research.

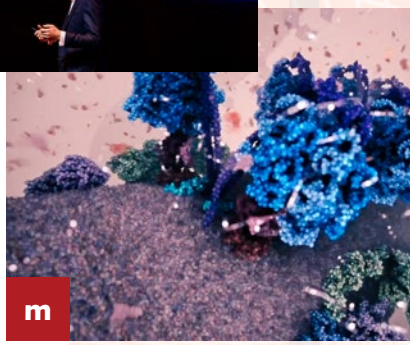
What started out as a summer volunteer role while on a gap year in Australia, has since seen Dr Alastair Stewart reach many milestones, both in and out of the laboratory. However, it's his transition into the industry that caught him by surprise.

"I originally came to Australia to have a gap year, with no intention of practicing science. When I arrived, I cared for flying foxes through a bat conservation program. Colonies of these flying foxes were slowly being wiped out, so at the time we were trying to preserve their habitats."

Growing up in Cambridge, Dr Stewart was no stranger to the world of science. Concepts such as macromolecules and nucleic acids were thrown around at the dinner table from a young age, as both his parents were scientists themselves.

And while he ended up following in the family business, it was dedication, curiosity and his desire to imagine the unimaginable that landed him in the field of structural biology.

The Solution



"In 2007 I started my volunteer role here at the Institute. I was mainly here to gain skills in the laboratory. I was purifying proteins, making enzymes and learning about molecular biology. This experience really made me think about molecules … how they come together and what they're doing. That's really what pulled me into this area of study."

Dr Stewart's determination in the laboratory saw him appointed to Research Assistant in Dr Daniela Stock's Structural Biology team. From there, he completed his PhD, performed a post-doctoral fellowship, before returning to the Institute as a Group Leader to start his own laboratory in 2016.

"My team now researches energy production and how biological energy conversion can play a role in the development of heart disease. We look deeply into the world inside you, at the little cells which have thousands of motors rotating around making all your energy."

From the very start and at the very heart

The human body is an incredibly efficient machine. It only requires around 2,000 calories a day to function, which is about the same as an old fashioned 100-watt light bulb. The heart uses the majority of this energy to pump blood throughout our bodies, enabling us to get out of bed every day.

When there is a genetic mutation or a problem with the production line of energy inside our cells, this can lead to debilitating diseases such as infant heart failure.

Every week, 42 babies are born with a congenital heart defect. As a new father himself, Dr Stewart believes that seeing really is believing, and by understanding the fundamental mechanisms of how molecules work, his research will have quite a huge impact on the world.

k. Dr Alastair Stewart in his laboratory
l. Dr Stewart presenting at the 2018 Sohn Hearts & Minds Conference
m. Molecular animation created by Dr Drew Barry
n. Alastair at the beach with his daughter, Isabella

"Without the knowledge of how something works, it's almost impossible for us to fix it. By understanding molecules, we have a real ability to make important discoveries and provide answers to some of biology's most unanswered questions. I want to be able to find better ways to detect and treat heart disease so when young children ask their parents why they have a broken heart, they'll be able to provide them with an answer."

And how is he going to find that answer? Well, the clues may lay behind a microscope. No ordinary microscope, like the ones in school science labs. We're talking imaging molecules at an atomic scale. At six foot four inches tall, Dr Stewart is dwarfed by the microscope, which is more than double his size and costs over $6 million.

"In order to make discoveries, we need to use one of the world's most powerful microscopes, known as a cryo-EM. We're lucky enough to have Sydney's first multi-million-dollar machine as part of the Victor Chang Cardiac Research Institute Innovation Centre. This really is enabling us to build the future of structural biology and be at the forefront of our field."

A little bit of chemistry

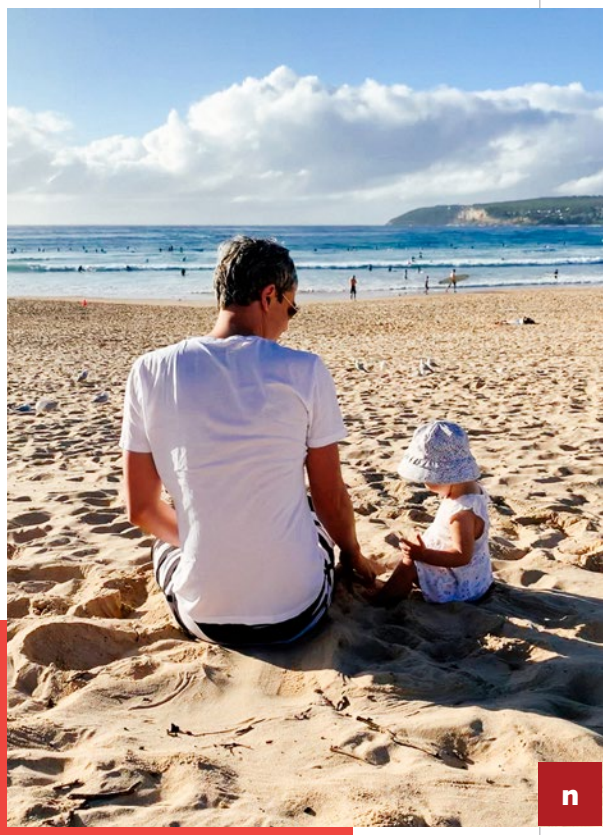
In science, finding answers can be painfully time consuming and meticulous; finding an answer may lead to another question, but research is about perseverance, collaboration and intrigue. It's these qualities that have seen Dr Stewart recognised with several prestigious industry awards.

But perhaps his most momentous achievement at the Victor Chang Cardiac Research Institute would be meeting his now wife, Laura, and welcoming a beautiful baby girl into the world. As he liked to put it, the Institute has provided him with a family in more ways than one.

And so they say having a child changes your perspective on life, but for Alastair it's only made him more determined to achieve his goal and change the course of biology as we know it.

"We aim to understand how molecules work and how we could potentially fix them, so hopefully one day we'll be able to cure genetic mutations in children.

DR ALASTAIR STEWART



Driving our discoveries

Dr Alastair Stewart's research has been supported by the National Health and Medical Research Council. It also has received a generous contribution from the Baxter Charitable Foundation. This funding is integral in sustaining the ongoing success of the research program at the Victor Chang Cardiac Research Institute. Equipping our scientists with the very best technology is critical in driving discoveries.

The Solution

Our ace of hearts

Meet the pioneer credited with the most important advance in heart transplantation in three decades

o. Professor Peter Macdonald

o

Professor Peter Macdonald is used to long journeys.

He walks long distances for fun – 500 kilometres of hiking trails whilst on holidays – and doesn't mind travelling 450 kilometres just to go to work some days (more on that later). But it's his stamina and extraordinary discoveries in the voyage of cardiovascular research for which he is most revered in medical circles around the globe.

Professor Macdonald and his team at the Victor Chang Cardiac Research Institute developed a unique preservation solution that, combined with a portable "heart in a box" machine, extends the amount of time a donor heart can spend in transit from four to 14 hours. This means donor hearts can be transported further and so be better matched with a recipient, improving the outcomes for patients.

The revolutionary technique also allows donor hearts that have stopped beating to be reactivated, so that at least 20% more transplants can be performed each year in Australia, and around the world.

It is described as the most important global advance in heart transplantation since organ transplants began in the early 1980s, but you wouldn't know it, talking to the humble man with a dry sense of humour, whose "other job" is as a highly respected cardiothoracic specialist at St Vincent's Hospital, where the Cardiopulmonary Transplant Program is regarded as one of the most successful in the world.

"In all of our years, our biggest hindrance has been the limited availability of organ donors. In many respects this breakthrough represents a major inroad to reducing the shortage of donor organs," Professor Macdonald said, understatedly. A similar character trait, according to those who knew him, to that of Dr Victor Chang, who was one of Professor Macdonald's early mentors.

It was 30 years ago when Professor Macdonald was in his first year as a Cardiology Fellow at St Vincent's Hospital Sydney that Dr Chang asked him to stay. He packed up his wife and small children from Melbourne and moved to Sydney's southern beaches, having decided to devote his career to heart failure and transplantation.

"Beta blockers were just starting to be investigated … there were surgical solutions. It seemed to me there was more you could do for the heart than any other organ or system in the body."

The Solution

Race against the clock

The first time he was sent to retrieve a heart for transplantation was "exhilarating and confronting at the same time," he recalled.

"I flew there and back with the heart and watched it all being sewn in – there's nothing that prepares you for that experience."

"There were green lights all along South Dowling Street for the police escort from St Vincent's Hospital to the airport, which we did in just seven minutes.

"Later I remember Victor casually telling me their record was four minutes … he was witty and funny, and he had charisma."

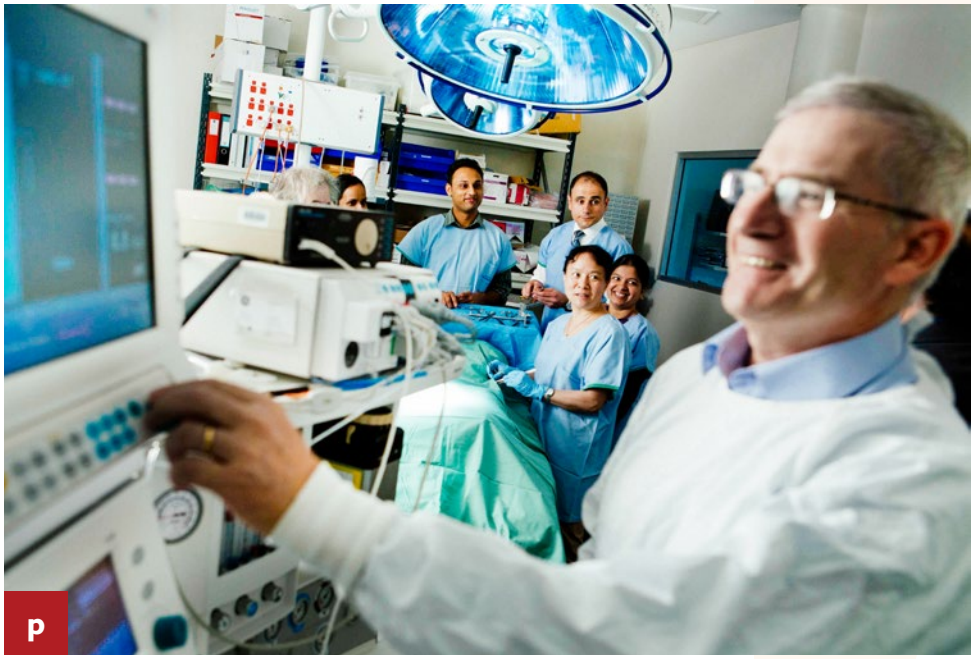
Professor Macdonald remembered once assisting Dr Chang in the early days of lung transplantation. The two lungs from one donor were being transplanted into different recipients, so two operating theatres ran simultaneously.

"There weren't as many surgical assistants in those days, so they roped me in to helping – mainly holding a retractor – but I remember that the atmosphere in the theatre was very relaxed, with Victor making it all look very straight forward, although it was only his first or second lung transplantation."

He said being a cardiothoracic specialist, and a scientific researcher, was the perfect partnership of jobs.

"You see challenges in the hospital, and you come in here to the Institute to try to find solutions to those problems."

Professor Macdonald said his team in the Cardiac Transplantation Laboratory want to improve donor heart preservation techniques even further, and develop better methods to manage organ donations.



p. Professor Macdonald and his team in an operating theatre
q. Professor Macdonald seeing patients in Condobolin
r. Peter Macdonald and colleagues in Condobolin

100

At any one time at least 100 people are on the waiting list for a heart transplant

For more Australians

For patients with heart failure who are not eligible for transplantation, Professor Macdonald and his colleague, Professor Chris Hayward, have played a critical role in the team that has developed a highly successful program implanting mechanical devices, such as defibrillators and pacemakers.

Professor Macdonald's expertise managing critically ill patients helps to translate laboratory findings into clinical practice, driven purely by wanting to extend life-saving treatments to more Australians.

To all Australians, that is, including our indigenous community.

Which is why Professor Macdonald travels 450 kilometres each way, one day every six weeks or so, in a 1960s Chifton 8-seater propeller plane to work at the Condobolin Aboriginal Medical Centre in outback New South Wales.

He cited the gap in life expectancy between Aborigines and non-indigenous Australians, plus the imbalance of cardiovascular disease among the indigenous population, as reasons for wanting to "give something back". So he's been going back to Condobolin for 12 years.

Professor Macdonald has been heard before to say: "I won't solve the problem, but at least it's something," which would be why he is described by his peers as "very much a noble, humble guy".

"There are not too many people who can say their research has had such as major impact on the world," said Professor Graham, Executive Director of the Victor Chang Cardiac Research Institute.

Professor Macdonald, who has been awarded a Queen's Birthday Honour for services to cardiovascular research and heart transplantation, has published more than 300 research papers.

His three adult sons have left home, but he gets to see them once or twice a week; he body surfs at Maroubra Beach, and he really enjoys hiking with his wife. The best training for that, he said, is playing golf once a week.

The hardest part of any of his jobs, Professor Macdonald said, "is referring a patient for a transplant and finding out they are not suitable, then having to say 'sorry, we can't help you'. They place a lot of trust in you," he said, solemn for just a moment. "And so have very high expectations." A fairly well-placed presumption, wouldn't you agree?

"I remember that the atmosphere in the theatre was very relaxed, with Victor making it all look very straight forward, although it was only his first or second lung transplantation.

PROFESSOR PETER MACDONALD

q

r

Driving our discoveries

The groundbreaking work by Professor Peter Macdonald and his team is funded by the National Health and Medical Research Council and the St Vincent's Clinic grants program.

Making a philanthropic investment into this new era in heart transplantation means our scientists can continue their search for ways to even further extend the time that donor hearts can spend in transit before transplantation.

The scarcity of suitable donor organs makes this a life-changing difference. The greater the timeframe, the better donor hearts can be matched to recipients, meaning more heart transplants being performed and better patient recovery outcomes.

The Solution

Sequence of success

How one team of scientists uses mathematics and computing to accelerate research

Doctor Eleni Giannoulatou's work underpins some of the greatest discoveries in cardiovascular research in the past decade in Australia.

That's because her Computational Genomics Laboratory at the Victor Chang Cardiac Research Institute continues to develop next-generation techniques to speed up the analysis of massive datasets – information taken from patient DNA – to identify mutations that cause different types of heart disease.

Despite the complexity of whole genome sequencing, Dr Giannoulatou explains it simply: "We develop computational methods and mathematical models to analyse large volumes of data from the DNA of patients more efficiently and quickly than we've ever been able to before."

Indeed, without Dr Giannoulatou's team, her colleague Professor Sally Dunwoodie might not yet have discovered the potential of vitamin B3 to treat a molecular deficiency causing miscarriages and complex birth defects.

The breakthrough is akin to the revolutionary finding last century that confirmed folic acid supplements could prevent the neural tube defect spina bifida in babies. As a result, consumption of folic acid has been adopted by expectant mothers worldwide, and the addition of folate to our food supply has led to a 70% decrease in the number of babies born with neural tube defects.

"To be part of such a discovery makes me feel really proud," Dr Giannoulatou said.

5. Dr Eleni Giannoulatou

The Solution

"We live in an era of unprecedented amounts of biological and genetic data. Using computational methods, we can now derive insight from these datasets to improve medical decision making.

"The best part is analysing genetic data that hasn't been seen before; looking to see if the data can explain our genetic questions, especially when you get a brand-new dataset.

"That's what I was doing this morning, I still wanted to look myself – it still excites me," she added, with a level of enthusiasm more commonly seen in a young university student.

4/wk

Congenital heart disease kills four babies every week in Australia

Power of genetics

Dr Giannoulatou was 22 years old, with a Masters of Computer Engineering and Informatics, when she left Greece bound for the UK, where she earned her Master of Philosophy in Computational Biology at Cambridge University in 2005, and her Doctor of Philosophy in Bioinformatics at Oxford University in 2011.

She then came to Sydney to join the Victor Chang Cardiac Research Institute in 2013 as a member of the Bioinformatics and Systems Medicine Laboratory, and only two years later started an independent research group. Just a year after that, she became a faculty member. She's still only 38 years old.

"There is a lot of support in this Institute as it recognises the importance of bioinformatics and bioinformatics research and the power of genetics in solving important clinical problems," Dr Giannoulatou said.

"We all carry numerous genetic variations, but finding the rare ones that cause disease is hard, unless you have enough data or statistical evidence.

Driving our discoveries

Dr Eleni Giannoulatou is fortunate to receive support from the NSW Office for Health and Medical Research, the Heart Foundation and the National Health and Medical Research Council.

By making a philanthropic investment towards improving the diagnosis of genetic diseases using computational methods, you will assist her team to:

- **Develop new analytical approaches to improve our ability to detect mutations that cause heart defects in babies**
- **Analyse large DNA datasets to identify genetic mutations that contribute to spontaneous coronary artery dissection (SCAD)**
- **Use genetic information to predict the risk of developing dilated cardiomyopathy**

t. Dr Giannoulatou in her laboratory
u. Dr Giannoulatou and her bioinformatics team of researchers

> The Institute recognises the importance of bioinformatics research and the power of genetics in solving important clinical problems.
>
> **DR ELENI GIANNOULATOU**

"We simply have to develop more sophisticated methods to find mutations, and to look in the not-so-obvious places."

A demure scientist, Dr Giannoulatou and her team work collaboratively with many laboratories, including that of founding Executive Director Professor Bob Graham, which is trying to elucidate the genetic basis of spontaneous coronary artery dissection (SCAD): a disorder that affects and, unfortunately, not infrequently kills otherwise healthy young women in their 40s and 50s.

She also works with Deputy Director Professor Richard Harvey on hypoplastic left heart syndrome, a very severe type of congenital heart disease, and with Professor Dianne Fatkin on dilated cardiomyopathy – one of the most common forms of heart disease causing severe heart failure necessitating a heart transplant.

Precision medicine

Considerable excitement, she explained, surrounds the genomic revolution in healthcare, which promises treatments on the basis of a person's unique DNA sequence: their genome – so called personalised or precision medicine – in contrast to the empirical treatments available today.

So it's no surprise that her team has this year more than doubled in size.

You wouldn't need to spend longer than a coffee break with Dr Giannoulatou to know she'd be more than just a little embarrassed hearing herself described as an "extremely intelligent young superstar" by her peers.

"I can't speak highly enough of Eleni," said Professor Graham. "She has a level of thinking and analysis that is rare, and is always open to new ideas and to looking at things in a new way."

But while her quest at work is to find the genetic causes of cardiovascular diseases, at home she and physicist husband Matt are sometimes hard-pressed to just find their two-year-old son Georgios, whose favourite game is hide-and-seek.

They take Georgios to Greece once a year, and her family visits annually so that Yiayia and Pappou can enjoy their grandson's play time too.

Dr Giannoulatou said the Institute had provided her with, among many other things, outstanding role models.

"I feel so fortunate to have all of these collaborations. I think they have all been very successful scientists – I wish I could become like them one day.

"I'd like to be internationally recognised for my work too, but it is the genetic questions and the love of finding the answers that motivates me.

"I would encourage everyone to consider studying STEM subjects, not only because of the difference you can make in people's lives, but also all the different places it can take you."

And there is no doubt that this young scientist is most definitely going places.

Research Divisions

At the Victor Chang Cardiac Research Institute, we integrate innovative transplantation techniques, advanced stem cell research, bioengineering, and complex molecular and genetic analysis – to discover better ways to diagnose, treat and ultimately prevent the onset of heart disease.

1

Cardiac Physiology and Transplantation

Macdonald Laboratory
- Heart transplantation
- Donor heart preservation
- New heart failure treatments

Hayward Laboratory
- Heart failure
- Left ventricular mechanical support devices

Feneley Laboratory
- Cardiomyopathy
- Heart attack
- Ischemic heart disease

Keogh Laboratory
- Pulmonary hypertension
- Heart failure
- Immunosuppression

Muller Laboratory
- Structural heart disease
- Valvular heart problems

Jabbour Laboratory
- Heart transplant rejection
- Magnetic Resonance Imaging

Dhital Laboratory
- Heart transplantation

2

Developmental and Stem Cell Biology

Harvey Laboratory
- Heart development
- Congenital heart disease
- Heart stem cells & regeneration

Dunwoodie Laboratory
- Congenital heart disease
- Embryonic development
- Birth defects

Kikuchi Laboratory
- Heart muscle regeneration
- Heart failure

Winlaw Laboratory
- Congenital heart disease
- Genetic analysis

3

Molecular Cardiology and Biophysics

Graham Laboratory
- Cardiac regeneration
- Heart failure
- Hypertension

Vandenberg Laboratory
- Arrhythmias
- Electrical activity in the heart

Hill Laboratory
- Drug-induced arrhythmias
- Computational cardiology

Fatkin Laboratory
- Dilated cardiomyopathy
- Atrial fibrillation
- Inherited heart disease

Martinac Laboratory
- Ion channels in the heart
- Mechanical forces

Hool Laboratory
- Cardiomyopathy
- Heart failure associated with muscular dystrophy

Smith Laboratory
- Hypertension
- Pharmacology

Clinical Faculty

A/Prof Cameron Holloway
A/Prof Jane McCrohon
Dr James Otton
A/Prof Jacob Sevastos
Dr Phillip Spratt
A/Prof Rajesh Subbiah

Honorary Faculty

Prof Oliver Freidrich
Prof Matthias Hentze
Prof Ahsan Husain
Dr Lawrence Lee
Dr Ming Li
Prof David Martin
Prof Andras Nagy
Prof Soren-Peter Olsen
Dr W. Andrew Owens
Prof Thomas Preiss

4

Molecular, Structural and Computational Biology

Ho Laboratory
- Bioinformatics
- Mass analysis of human genomic data

Giannoulatou Laboratory
- Bioinformatics
- Cardio genomics
- DNA analysis

Stewart Laboratory
- Protein structure
- Cryo-electron microscopy

Christie Laboratory
- Protein biochemistry
- Protein function

5

Vascular Biology

Stocker Laboratory
- Atherosclerosis
- Heart attack
- Stroke

6

Victor Chang Cardiac Research Institute Innovation Centre

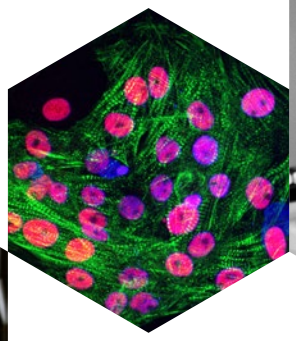
Professor Sally Dunwoodie
Director

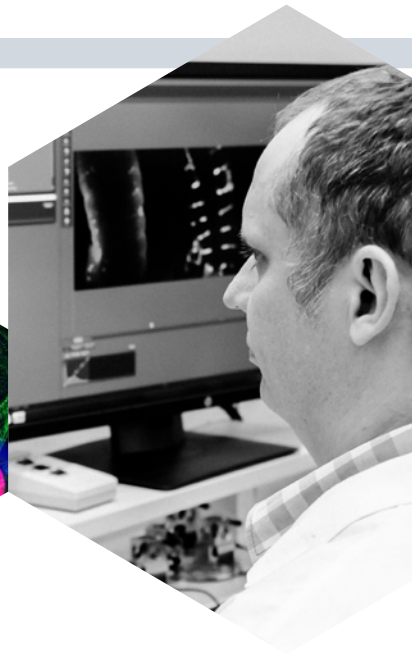
Milad Melhem
Manager

A/Professor Mark Hodson
Metabolomics Laboratory

Dr Ashish Mehta
iPSC and Phenotyping Research Laboratory

VICTOR CHANG
CARDIAC
RESEARCH
INSTITUTE
INNOVATION CENTRE





Investing in the future of heart research

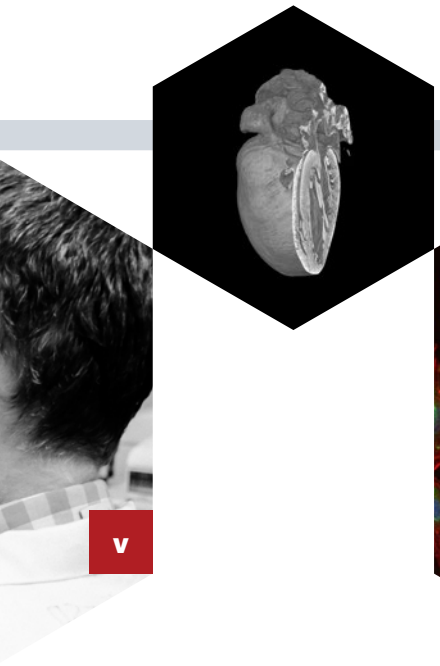
The Victor Chang Cardiac Research Institute Innovation Centre will herald a medical research revolution, helping the 4.2 million babies and adults around Australia affected by heart disease.

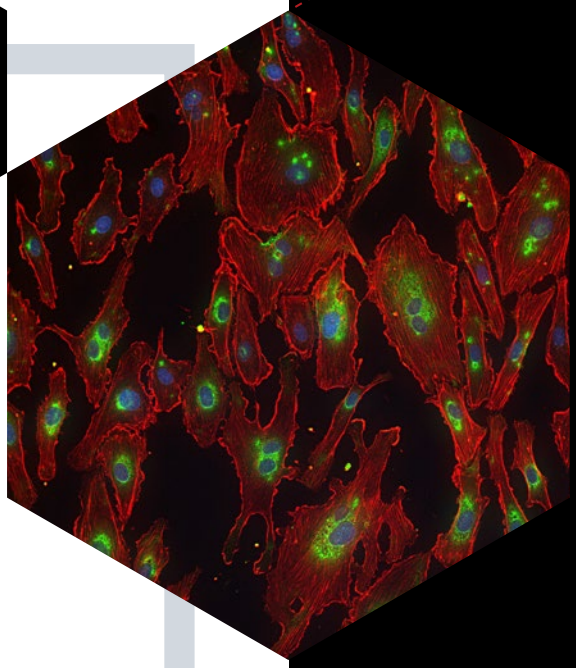
Proudly supported by the NSW Government, the Victor Chang Cardiac Research Institute Innovation Centre will place NSW at the forefront of cardiovascular research in Australia, facilitating a new era of collaboration between researchers across the state and the Asia Pacific.

The Innovation Centre will allow researchers to tackle Australia's deadliest killer through access to state-of-the-art equipment and cutting-edge technologies.

This year, the Innovation Centre's Cyro-electron Microscopy Facility at UNSW Sydney was officially opened by Nobel Laureate Professor Joachim Frank. This facility is now home to one of the world's most powerful microscopes for imaging frozen, atomic-sized molecules in 3D, giving scientists unprecedented insights into cardiovascular disease.

v. Dr Gavin Chapman working in the Victor Chang Cardiac Research Institute Innovation Centre





Building works and equipment procurement across the four facilities within the Victor Chang Cardiac Research Institute have now been completed and received certification. The Advanced Cardiac Imaging Centre at St Vincent's Hospital Sydney will be launched in 2019.

Altogether, the Victor Chang Cardiac Research Institute Innovation Centre will push the boundaries of knowledge by transforming the landscape of cardiovascular research in NSW.

Proudly funded by

NSW GOVERNMENT

Preventing Heartbreak

Fred's Story

"I had a midlife crisis at 34. That was the year my beautiful dad died after a long struggle with heart disease. He was 68.

My dad was a quietly intelligent man who had a smile that could light up a room, no matter how much he was hurting on the inside.

Dad had a long list of heart problems that first emerged around the year 2000. He had an enlarged heart. Later there was surgery to insert stents. I still recall the surgeon reading him the riot act because there was so much calcification in his heart, he couldn't perform one part of the operation.

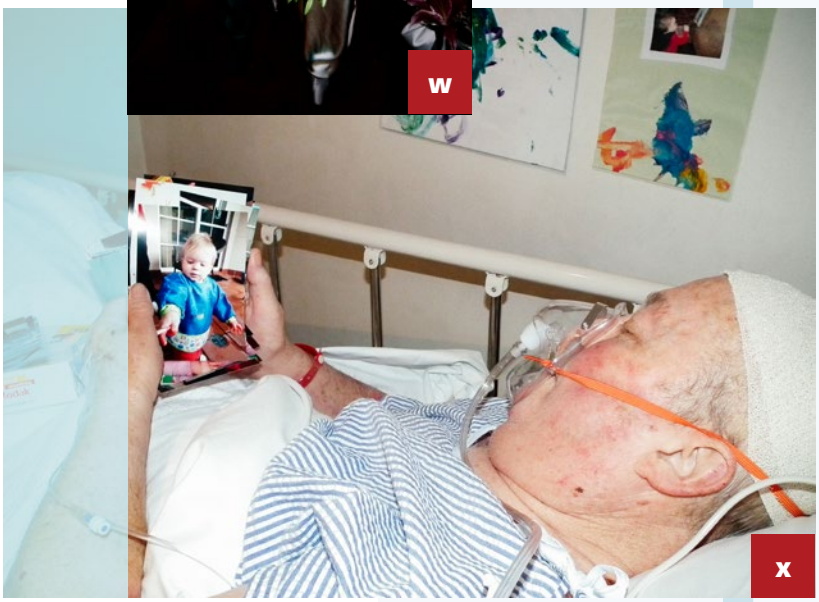
Dad casually revealed that he wasn't surprised, because his parents and grandparents also had cardiovascular issues. I was stunned. That meant that there were three generations of heart disease in front of me.

I naively thought the worst aspect of heart disease was the prospect of having a fatal heart attack. I had no idea how debilitating it could be. I watched my dad, who used to do the crossword in the newspaper every day, struggle to pick up a pen. And after a quadruple bypass my Mum called me. My Dad, her best friend, was beyond exhausted. 'He won't get better. He has chronic heart failure. That's what I'm trying to tell you Nicky.'

A few months later Dad had a fall. And his sick heart couldn't sustain him.

I held his hand and resolved that my daughter wouldn't ever be in the same position thinking 'It didn't have to be this way.'

I think the greatest tribute I can offer is to live the life Dad can't and look after my heart. My doctor says you can't change your genetics, but you can minimise the risk factors."



w. Nicole and her dad, Fred, on her wedding day
x. Fred in hospital looking at photos of his grandchildren

"

NICOLE, FRED'S DAUGHTER

I'm grateful for the work the Victor Chang Cardiac Research Institute is doing to save lives. And I'm hopeful that one day, it won't be necessary.

1/3

One in three Australians die prematurely of cardiovascular disease

Statement of Income and Expenditure

For the year ended 31 December	2018 $	2017 $
Income		
Research grants	13,797,156	12,774,886
Donations and fundraising	8,722,725[1]	2,849,366
Investment and other income	2,141,432	2,090,217
Total income	24,661,313	17,714,469
Expenses		
Research expenses	15,119,422	14,680,685
Administration expenses	6,264,770	5,886,458
Fundraising expenses	1,637,115	1,411,149
Total expenses	23,021,307	21,978,292
Operating surplus/(deficit)	**1,640,006**	**(4,263,823)**
Non operating income/(expenses)		
Innovation Centre grant	3,589,482	–
Depreciation on Innovation Centre equipment	(1,051,798)	–
Unrealised (loss)/gain on investment revaluation to market	(1,097,340)	987,705
Net surplus/(deficit) for the year	**3,080,350**	**(3,276,118)**

1. Donations and fundraising activities include an incremental investment of approximately $3 million made in 2017 in developing and implementing strategically focused fundraising activities of Regular Giving and Direct Marketing Appeals.

Comparative figures have been adjusted to conform with changes in presentation for the current year.

The above is an extract from the 2018 audited Financial Statements. The extract does not include the information normally included in the financial statement. Accordingly, this extract is to be read in conjunction with the audited Financial Statements for the year ended 31 December 2018.

Health Check Booth

Keeping the hearts of Australia healthy

The Victor Chang Cardiac Research Institute Health Check Booth travels right across the country, testing Australians for the key modifiable risk factor of heart disease.

In 2018, our Health Check Booth provided heart health checks to more than 10,000 people – from community groups to corporate employees – helping Australians to better understand their blood pressure, total cholesterol and blood sugar.

Our mobile heart health checks are carried out by qualified nurses in less than ten minutes using fast, reliable and non-invasive testing equipment. Participants walk away with their results and advice on how to lead healthier lives to minimise their chances of developing heart disease.

The Victor Chang Cardiac Research Institute Health Check Booth is generously supported by HCF and IMB Community Foundation.

For all enquiries or to book the Health Check Booth, please contact Jayne Baric on **(02) 9295 8760** or **j.baric@victorchang.edu.au**

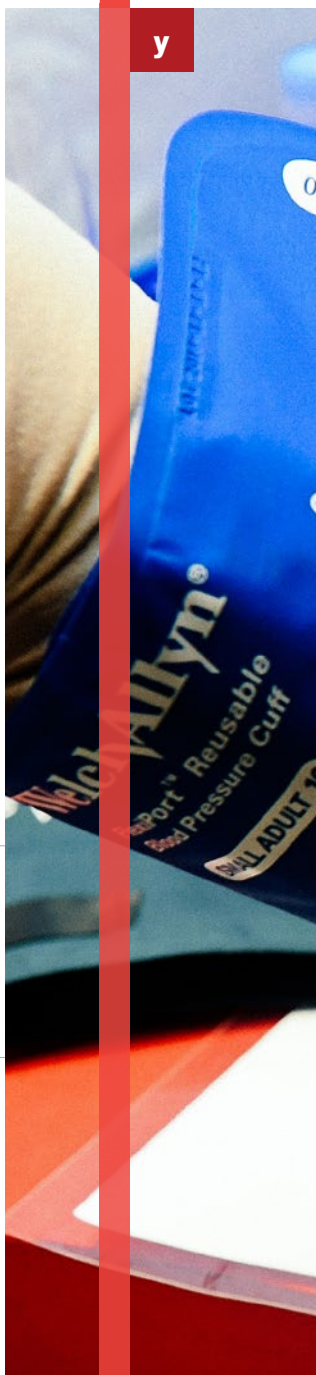
1/3

One in three participants have one or more modifiable risk factors of heart disease

“

DIANE, PARTICIPANT

The Health Check Booth is an excellent service and I come every year. The staff are fantastic, and it is so convenient. It's a great reminder to keep looking after myself. Thanks for the great service.



y. A participant having their blood pressure taken
z. Nurses Sanya, Jayne, Chris and John with Panthers great, Royce Simmons

2018 Results

10,035
Australians tested

77
regions around Australia

6
states

32%
had high cholesterol

90%
did not know their blood sugar level

38%
were advised to visit their GP

Sohn Hearts & Minds Investment Leaders Conference

The Sohn Hearts & Minds Investment Leaders Conference 2018 was held in Melbourne for the first time at Hamer Hall. The world-class event brought together the most illustrious members of Australia's fund management community to hear from the brightest investment minds from around the globe.

With record attendance of 1,000 people, a stellar line-up of local and global fund managers shared their top investment tip with the aim of generating exceptional returns for medical research in Australia. The line-up of international experts included Babak Poushanchi, Cota Capital (USA) and Beeneet Kothari, Tekne Capital Management (USA); local gurus included Emma Goodsell, Airlie Funds Management and Jun Bei Liu, Tribeca Investments.

We welcomed the support of the Federal Treasurer The Hon. Josh Frydenberg, MP, and were delighted by guest appearances from presenter and comedian Andrew Denton and CEO of the AFL, Gillon McLachlan.

The conference raised over $3 million for its beneficiaries, which included the Victor Chang Cardiac Research Institute, the Black Dog Institute, MS Research Australia, the Juvenile Diabetes Research Foundation and Murdoch Children's Research Institute.

Integral to the success of the conference is the ongoing and generous support of our major partners, the Commonwealth Bank and the Paul Ramsay Foundation for which we are deeply grateful.

FRIDAY 16 NOVEMBER 2018 | HAMER HALL, ARTS CENTRE MELBOURNE | MELBOURNE, AUSTRALIA

A. Jun Bei Liu, Tribeca Investments
B. TV personality, Andrew Denton and CEO of the AFL, Gillion McLachlan
C. Australian businessman, Solomon Lew
D. Dr Alastair Stewart, Victor Chang Cardiac Research Institute

Hearts & Minds Investment Limited

A new investment company Hearts & Minds Investment Limited (HM1) was established following the Sohn Hearts & Minds Investment Leaders Conferences. This innovative fundraising model aims to further boost funding for medical research institutes in Australia and is aimed at investors seeking exposure to a high conviction portfolio of global equities.

HM1 will forego any investment fees and instead make donations to designated medical research institutes. The HM1 Board and Investment Committee have waived the right to be a paid director. The brokers for the offer waived management fees.

HM1 recognises that investment in medical research is critical and that medical research provides strong returns that benefit the health of the community. For every dollar invested in medical research, it is estimated that an average of $2.17 in health benefits is returned.

HM1 will support the development of new medicine and drive a new generation of medical research in Australia.

Sohn Hearts & Minds

$10m+
raised for medical research

75
speakers

55
partnerships

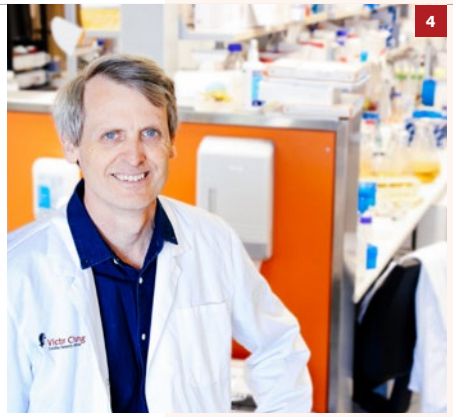
2,200
conference attendees

Achievements and Awards


1


2


3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Scientific Accolades

Professor Richard Harvey 1
Winner
NSW Premier's Prize for Excellence in Medical Biological Sciences

Professor Sally Dunwoodie 2
Winner
Eureka Prize for Scientific Research

Winner
President's Medal, Australia and New Zealand Society for Cell and Developmental Biology

Mr Matthew Grounds 3
Winner
Research Champion Award, Research Australia Health & Medial Research Awards

Professor Jamie Vandenberg 4
Fellow
Fellowship of the International Society of Heart Research

Professor Livia Hool 5
Fellow
Fellowship of the International Society of Heart Research

Dr Stewart Heitmann 6
Winner
Dynamical Systems Software Prize, Society of Industrial and Applied Mathematics

PhD's Awarded

Dr Yury Nikolaev
Mechanobiology

Dr Matthias Duebbert
Epigenetics

Dr Hananeh Fonoudi
Developmental and Stem Cell Biology

Dr James Coleman
Molecular Pharmacology

Dr Dhanushi Abeygunawardena
Developmental and Stem Cell Biology


8


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14


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16

Victor Chang Cardiac Research Institute Awards

Dr Xin Wang
Bioinformatics and Systems Medicine

Dr Louis Wang 7
Inherited Heart Disease

Dr Chung-Yao Yu
Cardiac Transplantation

Dr Tomasz Szczesnik
Bioinformatics and Systems Medicine

Dr Navind Jayasooriah
Epigenetics

Dr Gonzalo del Monte 8
Postdoctoral Fellow
Paul Korner Seminar Series Award

Mr Sean So
PhD Student
Paul Korner Student Award

Dr Anita Ayer 9
Postdoctoral Fellow
Paul Korner People's Choice Award

Ms Kate Thomas
Cloud 9 Cafe
Executive Director's Award

Mr Guy Fowler 10
Supporter
Life Governor Award

Mr David Craig 11
Deputy Chairman
Life Member Award

Sr Anthea Groves 12
RSC, OAM
Former Board Member
Life Member Award

Ms Louise Di Francesco 13
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Honorary Award

Victor Chang Community Awards

Victor Chang Award for Excellence in Cardiovascular Journalism 14
Dr Norman Swan and James Bullen, ABC Radio National

Victor Chang Heart of Gold Awards 15
37 Australians honoured for helping save the life of someone having a heart attack or cardiac arrest

Victor Chang School Science Awards 16
Over 200 Year 11 students across NSW commended for excellence in science

Fundraising Events

Cuban inspired night by the bay

MARCH 2018

More than 150 guests gathered on the waterfront of Watsons Bay Beach for the annual Bay Soiree. Hosted in partnership with Watsons Bay Boutique Hotel, guests were transported to the Caribbean to enjoy a bespoke Cuban-inspired menu. After a night of fedoras, mojitos and la musica Cubana, guests raised over $30,000 to support a young researcher's quest to find cures for heart disease. A big thanks must go to our MC Todd McKenney, the Young Appeals Committee, Marcus Chang, Fraser Short, the team at Watsons Bay Boutique Hotel and all of our sponsors.

Tour-de-Adelaide

APRIL 2018

Four teams of dedicated corporate cyclists from across NSW completed an extremely tough 1,000 km tour across the beautiful Adelaide Hills, to raise money for babies born with heart defects. Overcoming tough terrain, extreme weather conditions, flat tyres and multiple leg cramps, The Chain Reaction Challenge Foundation raised $91,000 for congenital heart disease research.

Charity steer breaks an-udder record

APRIL 2018

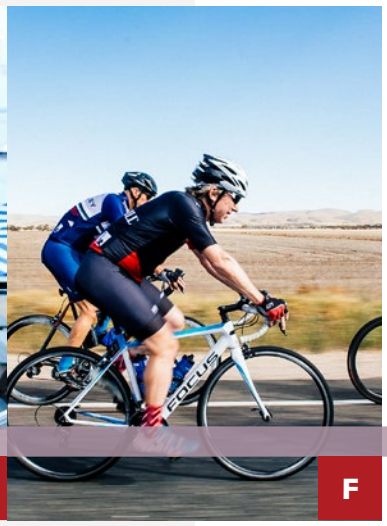
Livestock heavyweights Schute Bell Badgery Lumby celebrated a twenty-year milestone at the 2018 Sydney Royal Easter Show's Charity Steer Auction. 600 kg prime steer, Dub the limousin was auctioned off for a record-breaking $66,000, with all proceeds donated to cardiovascular research. Raised, fed and nurtured by the students at Murrumburrah High School, Dub was bid on and won by the generous Paul Ferry for the tenth year in a row.

Women get to the heart of the matter

AUGUST 2018

Putting a spotlight on the importance of women's heart health, the annual Women Against Heart Disease Lunch was a huge success. Guests were left inspired after hearing from double transplant recipient and Ironman contestant, Kate Phillips, and cardiologist, Dr Fiona Foo. Established to honour the memory of Monica O'Loughlin, the event raised $70,000 for our scientists. A big thanks must go to our MC Natalie Barr and all sponsors.


E



F

E. Guests enjoying the Bay Soiree
F. Riders participating in the Chain Reaction Challenge
G. Students from Murrumburrah High School at the Charity Steer Auction


G

Putting heart into the West

SEPTEMBER 2018

Over 350 people put on their finest frocks to attend the Heart of the West Ball at Club Marconi. With a line-up of extraordinary talent, delicious food and important messages, the night was a huge success. The Ball raised more than $80,000 for Victor Chang Cardiac Research Institute scientists. A big thank you must go to The Committee of Western Sydney including Louise Di Francesco, Vince Foti, Tony Zappia, Danny Rezek and Deloitte, Craig Wellman, Club Marconi and heart transplant survivor, Melissa Petro-Hargrave.

Forecast of fun at charity gala day

NOVEMBER 2018

For the eighteenth consecutive year, the Des Renford Charity Gala Day put on a fun filled event for the whole family. Thousands of people enjoyed splashing around the pool, sausage sizzles, petting zoos, face painting and much more. The day raised over $42,000 to support research into heart disease. This event wouldn't be possible without the generous support from Randwick City Council, Michael and Vanessa Renford, all of our event sponsors and the wonderful team of volunteers.

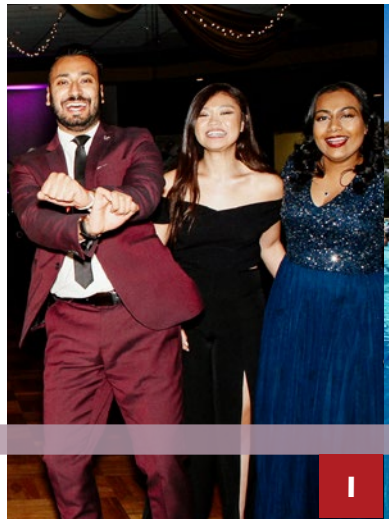
Hole-in-one honours dad's legacy

NOVEMBER 2018

The fifth Glen Carling Golf Day was an extremely successful day out on the green. Dedicated to the memory of Glen Carling and his passion for golf, the event has raised a cumulative total of more than $126,000 for the Victor Chang Cardiac Research Institute. Remembered as an incredible man by his family and friends, the annual event keeps Glen's legacy alive. The event was established by Norm Atkinson, Gemma Carling and the extended Carling Family.

H

H. Dr Fiona Foo, Natalie Barr and heart transplant survivor, Kate Philips at the Women Against Heart Disease Lunch
I. Guests enjoying the Heart of the West Ball


I


J

J. Children enjoying the Des Renford Charity Gala Day
K. Jerry, Robert and John at the Glen Carling Golf Day


K

Supporters and Acknowledgments

Our life-saving research would not be possible without the generous commitment of our valued supporters.

These categories represent cumulative philanthropic support received over the past 10 years.

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($1 million+)

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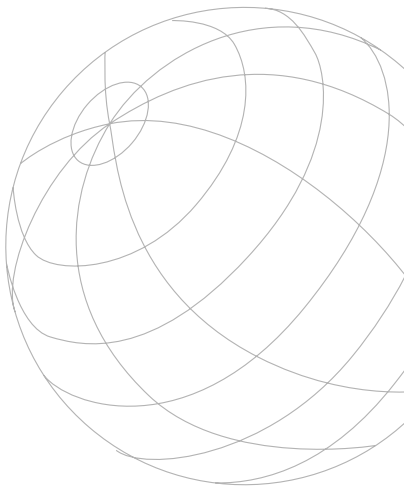

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