

Autumn 2024

# THE BEAT



**Victor Chang**  
Cardiac Research Institute



The Home of  
Heart Research  
for 30 Years

News and breakthroughs from Australia's Home of Heart Research

The home of  
heart research  
for 30 years –  
thanks to you!

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## A message from Professor Jason Kovacic, Institute Director & CEO

**With the help of you, our generous supporters, we're celebrating 30 years of lifesaving heart research at the Victor Chang Cardiac Research Institute.**

On 14 February 1994, the Institute opened with just two staff. Established to honour the dream of renowned cardiac surgeon Dr Victor Chang, the Institute has grown into a world-renowned centre with more than 230 staff across 24 laboratories nationwide.

In this issue, we're celebrating all the groundbreaking research you've helped make possible through your generous support.

You'll read about Professor Sally Dunwoodie AO and her team, who have just completed world-first clinical studies focused on preventing babies from being born with congenital heart disease. You'll also see how your support has helped to progress crucial atherosclerosis research that could lead to new targeted therapies and improved survival rates for heart attacks.

Again, thank you for your incredible support over the past 30 years. As we look to the future, we are excited to progress our research with your continued support, and work towards new treatments to protect hearts and save lives. I hope you enjoy reading this issue.

Warm regards,



*Jason*

**Professor Jason Kovacic**  
Institute Director & CEO

## Your impact: Christmas appeal update!

**Researchers have identified a crucial gene common to many cardiovascular diseases.**

Professor Jason Kovacic and his team in our Vascular Biology lab have identified the PHACTR1 gene, which is linked to conditions like atherosclerosis.

Atherosclerosis causes the hardening and narrowing of the heart's arteries and is the most common cause of heart disease. Their pioneering work could result in new targeted therapies and improved survival rates for those at risk.

You may remember Kade from our Christmas appeal. Although young and healthy, Kade died of a heart attack aged just 31 due to an undetected build-up of plaque in his arteries. By supporting important research like this, you are helping us move closer to improving treatments to prevent such sudden, heartbreaking loss.



Christine lost her son Kade, 31, to a heart attack. ©David Chen 2022 ABC

“Kade would be so proud to know that his story helped to raise funds for heart research and that people opened their hearts for such an important cause. Thank you.

– CHRISTINE, KADE'S MUM

## World-leading sports cardiologist Professor André La Gerche joins the Institute

**Professor André La Gerche has been appointed head of the Heart, Exercise and Research Trials (HEART) Lab at St Vincent's Institute of Medical Research in Melbourne.**

This exciting collaboration with St Vincent's Institute is expanding our expertise and understanding of sudden cardiac arrest through new fields of research and by working directly with patients affected by this deadly disorder.

As a world leader in sports cardiology and sudden cardiac arrest, Professor La Gerche's research will help us deliver new treatments and cures that will benefit not just local communities but patients across Australia and worldwide.

### Landmark genetic study on athletic heart function

A collaboration between the new HEART Lab and international researchers found one in six elite athletes displays measures suggestive of reduced heart function.

The study of 281 athletes from Belgium and Australia also involved genetic analysis, which showed the affected athletes had an enrichment of genes associated with heart muscle disease.

The research team recruited 400 more elite athletes for the study, who will be followed over the next 25 years.

It's hoped this study will not only prevent elite athletes from suffering sudden cardiac arrest, importantly it will also shed new light on how exercise affects the heart.

Thanks to your donations over the past 30 years, the Institute continues to grow to improve heart health for all Australians.

“Our overall hope from this research is that we can make all sport safe for all participants. Understanding the interplay between genetic traits and high-dose exercise is a step towards this goal.

– PROFESSOR ANDRÉ LA GERCHE



Professor Sally Dunwoodie is leading CHD research to save young lives



## You are helping to prevent babies from being born with congenital heart disease

**The cause of congenital heart disease (otherwise known as CHD) is unknown in about 80 per cent of cases. But the answers are now much closer, thanks to a world-first study by Professor Sally Dunwoodie AO.**

Since joining the Institute in 2000, Professor Dunwoodie and her team have been working towards preventing this devastating condition, which claims the lives of 260,000 children globally each year.

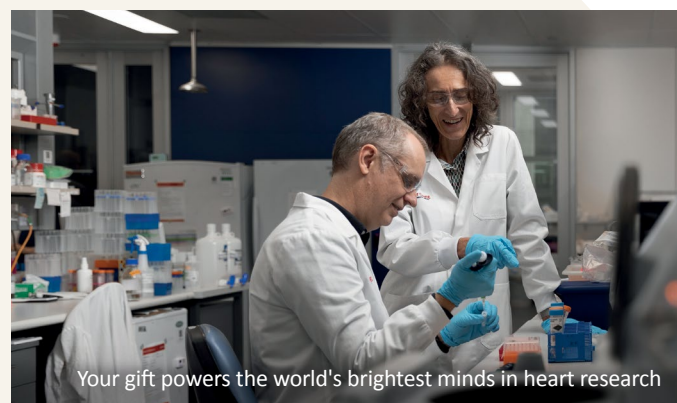
Each discovery, study, and trial builds on the last – and much of that work has only been possible thanks to the committed support of people like you.

With important clinical studies recently completed, Professor Dunwoodie’s research has finally enabled us to pinpoint the cause of some cases of CHD – a deficiency in a molecule known as nicotinamide adenine dinucleotide (NAD).

Most exciting of all, her work has also revealed that a simple B3 vitamin supplement could prevent CHD and multiple miscarriages caused by NAD deficiency in mouse models.

“For women with low levels of NAD, we believe this can play out disastrously during pregnancy because the growing baby also needs NAD to develop. We believe this explains not only why some babies have birth defects, but also why some women are prone to miscarriage,” explains Professor Dunwoodie.

The next exciting step for Professor Dunwoodie and her collaborators will be a nationwide clinical trial that will measure the impact of vitamin B3 supplements on NAD levels during pregnancy – bringing us closer to developing a treatment that could save the lives of many thousands of babies.



Your gift powers the world's brightest minds in heart research

### WHAT IS NAD?

**B3**

Every one of our cells needs the essential molecule NAD, which is produced by the body from two dietary sources: tryptophan and vitamin B3. If NAD levels are low during pregnancy, the embryo does not develop correctly, and research so far has shown this can cause CHD, other birth defects and even repeated miscarriages.



Further research by the team aims to prevent NAD deficiencies to reduce the risk of children being born with damaged hearts.

### Inayah’s story

By the time she was five years old, Inayah had already undergone five heart surgeries and a heart transplant. Born with congenital heart disease, Inayah wasn’t able to run and play like other children her age. The heart transplant has transformed Inayah's life but comes with a gruelling life-long regimen of restrictions, medication and monitoring.

### How will this discovery help families?

Professor Dunwoodie’s team hopes their discovery will lead to the development of lifesaving preventative treatments using simple vitamin B3 supplements.

“There are so many unknowns when a family experiences multiple birth defects and miscarriages. If this new approach can identify the cause as NAD deficiency, and therefore a possible preventative treatment, this could really help families in the future,” says Professor Dunwoodie.

**This research has the potential to save many thousands of young lives. If you have already donated to support this research, thank you from the bottom of our hearts. If not, you still have time to make a lifesaving gift. This research is only possible thanks to you.**



Our little girl and our whole family have been through so much. We are so hopeful research will deliver a better future for other families and that one day there might be a way to prevent congenital heart disease.

– INAYAH’S MOTHER, JAY



Inayah has been in and out of hospitals since she was a baby.



This little Heart Warrior dreams of becoming a doctor to help other children like her.





Ingrid Stacey is working to turn the tide against RHD

## Meet Ingrid Stacey, who is working to better understand rheumatic heart disease

**Ingrid Stacey's research is focused on reducing the devastating burden of rheumatic heart disease, which disproportionately impacts First Nations people.**

Your support is powering the work of exceptional public health researchers like Ingrid Stacey, who is studying rheumatic heart disease (RHD), a deadly yet entirely preventable condition.

While all but eliminated in much of Australia – RHD disproportionately affects young First Nations people.



The death rate from rheumatic heart disease (RHD) is a staggering 18 times greater for Indigenous Australians.

– INGRID STACEY



Working within the Institute's Cardiology Population Health Laboratory, based in Western Australia, Ingrid's expertise is in gathering data on RHD rates and outcomes across the country.

"We use doctor's records, hospital admissions and death records to better understand what's happening to individual people over time," she explains.

This helps to identify barriers to good healthcare and inform advocacy and decision making to reduce the burden of this chronic, yet preventable, heart disease.

### What is RHD?

RHD starts with acute rheumatic fever, caused by infection with Strep A bacterium. When these infections are not treated promptly, a person's own immune system can potentially attack the heart valve tissues, causing serious consequences.

Lack of access to appropriate and timely health care, along with socioeconomic differences that can lead to inadequate hygiene and housing infrastructure, can increase the risk of RHD.

### A First Nations-led approach

"RHD is 100 percent preventable," says Ingrid. "But only if the environmental health factors causing it are improved, and infections are treated promptly. The best solutions will emerge when we listen to the voices and needs of individual First Nations communities and bring together the wisdom of communities with what medical science has to offer."

Thank you for standing beside incredible researchers like Ingrid, your support makes her work possible.



Ingrid Stacey at the Cardiology Population Health Lab based in WA



New partnership will deliver better heart health to all Australians

## Vital new partnership to boost heart health in south western Sydney

**Recently, we entered an exciting research partnership with the Ingham Institute for Applied Medical Research, expanding our capacity to deliver better heart health nationwide.**

Your support, along with that of UNSW Sydney and South Western Sydney Local Health District (SWSLHD), made this partnership possible. The Ingham Institute conducts clinical trials and world-leading research across various fields, including cancer, mental health, and population and health services.

Research teams from the two institutes will share resources and facilities to address the needs of culturally diverse communities and improve the heart health of those living in south western Sydney, where the Ingham Institute is based, and beyond. The ultimate goal is better heart health outcomes for all Australians.

"Establishing a Victor Chang Cardiac Research Institute presence in the southwest will enhance our local heart research, which will ultimately translate into more lives saved," says Sonia Marshall, Acting Chief Executive, SWSLHD.

### South western Sydney hearts in focus

This partnership could not be more important. In south western Sydney, the location of the Ingham Institute, heart-related hospital admissions and the prevalence of key risk factors for heart disease are higher than both national and state averages.



Nearly 1500 people die every year from cardiovascular disease in south western Sydney.



Every year, around 1700 people suffer a heart attack in south western Sydney.



221,197 people are projected to be living with cardiovascular disease in south western Sydney, by 2031.

# Open your heart

Making a Will might seem daunting, but being prepared can help to set out your final wishes, ensure your loved ones are protected, and allow you to leave a legacy supporting the causes that matter most to you. Follow this checklist to get your Will in order.

- **Make a list of your assets**, including property, superannuation, bank accounts, shares or other investments, items of value, and life insurance policies
- **Choose an executor, and an alternative executor, to administer your estate**, such as your spouse, a trusted friend or family member
- **Choose your beneficiaries** – the people, organisations or charities to whom you wish to leave your estate

- **Select guardians for any dependants** and/or powers of attorney to look after your affairs if you become unwell
- **Keep your legal documents together** – such as birth and marriage certificates, immigration or citizenship documents, and any asset paperwork – and store them with your Will

## Leave a bequest in your Will

A gift in your Will – no matter how big or small – will have a lasting impact on people affected by heart disease. To learn more, reach out to our Gift in Wills team:

**Laura Svatos, Gifts in Wills Officer**  
**P: (02) 9295 8749**  
**E: [bequests@victorchang.edu.au](mailto:bequests@victorchang.edu.au)**

## You're the driving force behind world-class research

So much of our pioneering work relies heavily on generous donations from people like you. You've been our driving force for 30 years and we couldn't be more thankful for all the lives you help to save.

Every donation, no matter the size, helps to advance our mission to take our research out of the labs and into the hospital. We couldn't do it without you – thank you!

To increase your impact, please consider a gift to heart research today



*Scan the QR code to donate*



 Go online [victorchang.edu.au/thebeat](https://victorchang.edu.au/thebeat)

 Call us on 1300 842 867