THE BAIRD INSTITUTE
Applied heart & lung surgical research

heart TO HEART

NOVEMBER 2026





HEART BY DESIGN

Bringing Great Minds Together

It was wonderful to see the vision of The Baird Institute come to life at our inaugural Aortic Surgery and Heart Failure Symposium: ***Heart by Design – Translating the Science***, held over two inspiring days on the 18 and 19 September.

The Symposium brought together leading clinicians, surgeons, researchers and scientists from across Australia and around the world, creating a unique opportunity to share discoveries, challenge ideas and explore how research can translate into better outcomes for patients with heart and aortic disease.

We were particularly delighted to welcome our international speakers, **Professor William Pu** from Boston Children's Hospital and Harvard Medical School, and **Professor Michael Fischbein** from Stanford University. Their expertise in heart failure, cardiac regeneration and aortic surgery added an important international perspective to the program. We were also joined by leading interstate experts, including P**rofessor David Kaye** from The Alfred Hospital and Baker Heart and Diabetes Institute in Melbourne and **Professor Alistair Royse** from The Royal Melbourne Hospital and the University of Melbourne.

The first day focused on innovation, evidence and the growing role of artificial intelligence in surgical research. Discussions explored how clinical trials and registries can improve surgical practice, how new technologies can support research, and the opportunities and challenges presented by AI. The second day turned to some of the most exciting areas of cardiovascular research, including precision aortic surgery, early detection of aortic disease, the biology of aneurysms, heart failure and cardiac regeneration. Researchers and clinicians shared their latest findings and considered how advances in science could ultimately lead to more personalised treatment and better outcomes for patients.

The Friday evening cocktail event provided a wonderful opportunity to continue these conversations in a more relaxed setting, while a tour of the Hybrid Theatre and introduction to the MRI facility gave our guests a glimpse into the innovative environment in which much of this work takes place.

Importantly, the Symposium was not just about sharing research. It was about bringing people together. Researchers from different disciplines, clinicians and surgeons, established leaders and emerging researchers had the opportunity to meet, exchange ideas and explore new collaborations. Our emerging research leaders also had the chance to present their work alongside some of the leading experts in their fields.



The Symposium was a great success, and we are incredibly grateful to everyone who helped make it possible.

Our sincere thanks go to our **Gold Sponsor, Edwards Lifesciences**, and our **Silver Sponsors**, Baxter, Device Technologies and AstraZeneca, for their generous support. We are also very grateful to Fernando Calamante, and Simon Ringer and their team at Sydney Imaging at the University of Sydney, for supporting our Friday evening cocktail event and the Advancement Office at the University of Sydney for supporting our Saturday program.

Events like this are an important part of building a stronger future for cardiovascular research. Your support helps The Baird Institute bring talented researchers together, encourage collaboration and turn promising discoveries into new possibilities for patients.

We look forward to seeing where the conversations and collaborations sparked by ***Heart by Design*** will lead next.



AUSTRALIAN AORTIC SUPPORT GROUP – INAUGURAL MEETING

The Baird Institute was delighted to welcome **17 patients, family members and organisers** to the inaugural meeting of the **Australian Aortic Support Group,** held at Camperdown Commons on **Saturday, 23 May 2026.**

The morning provided a wonderful opportunity for people living with aortic disease, and their families, to come together in a relaxed and welcoming environment. Guided by **Dr Michelle Lim,** the group explored a series of questions about their experiences with aortic disease. These questions sparked open and meaningful conversations, with attendees sharing their individual journeys, from diagnosis and treatment through to recovery and living with the ongoing challenges of aortic disease.

A shared morning tea provided an important opportunity for everyone to get to know one another and discover the common experiences that brought them together. For many attendees, simply meeting other people who understood the realities of living with aortic disease was particularly meaningful.

One of the key messages to emerge from the morning was the value of **connection and shared lived experience.** Everyone who attended expressed how much they enjoyed meeting others who had been through similar experiences and having the opportunity to talk openly in a supportive environment.

The meeting also provided an opportunity to shape the future of the group. Attendees contributed their ideas about how future meetings should be conducted and what topics would be most valuable. These discussions will help ensure that the Australian Aortic Support Group continues to be a **patient-led community, created with patients, for patients**, and responsive to the needs of those living with aortic disease and their families.

The Baird Institute is proud to support this important initiative and looks forward to seeing the Australian Aortic Support Group grow into a strong and supportive community for people affected by aortic disease across Australia.

If you or someone in your family is living with aortic disease, we would love you to join us at a future meeting. To find out more and register your interest, visit our Australian Aortic Support Group webpage - bairdinstitute.org.au/improve-patient-outcomes/australian-aortic-support-group/ - or join our dedicated Facebook Support Group.



TOGETHER, MAKING A DIFFERENCE

As I reflect on the year so far, I am reminded that everything The Baird Institute achieves is made possible through the generosity and commitment of our supporters.

Research takes time, dedication and, importantly, funding. Behind every research project is a team of clinicians and scientists working to understand heart and aortic disease and find better ways to diagnose, treat and ultimately prevent these conditions. Our donors give these researchers the opportunity to pursue important questions and turn new ideas into potential advances for patients.

This year we have seen exciting progress across a number of areas. From research into cardiac regeneration and the possibility of repairing damaged heart muscle, to our SAFE-Discharge clinical trial exploring how technology can help patients recover safely after major heart and lung surgery, your support is helping drive research that has the potential to make a real difference.

It was also wonderful to bring researchers, clinicians and supporters together for our inaugural Heart By Design – Translating the Science symposium in September. The event provided an opportunity to share the latest research, exchange ideas and explore how discoveries in the laboratory can be translated into better outcomes for patients.

But perhaps most importantly, your support helps us invest in the people behind the research; our researchers, clinicians, students and emerging leaders. By supporting their work today, you are helping build the knowledge and expertise needed to improve heart and aortic care in the future.

On behalf of everyone at The Baird Institute, thank you. Whether you have supported us for many years or have only recently joined our community, your generosity is an important part of every discovery, every research project and every step forward.

We are incredibly grateful to have you with us on this journey.



Catherine Rush
CEO, The Baird Institute



A NOTE FROM OUR PATRON

The Hon. Michael Kirby AC CMG

The Baird Institute celebrates and continues the pioneering surgical and scientific work of my late friend, Dr Douglas Baird AO. In the 1960s and 70s Doug was, like me, active in student affairs at the University of Sydney. Most especially we worked together in the Sydney University Union. He was repeatedly elected to its Board of Directors. He was a top student in his medical studies and, later, boldly innovative in his work on cardiac surgery. He was one of the earliest Australian surgeons who participated in bypass surgery. I attended at the Page Clinic, then based at the RPA Hospital Sydney, when my mother was to undergo bypass surgery then in its early years. Not only was Doug Baird a brilliant surgeon. He was also aware of the stress and anxiety of his patients and their families. He interrupted his surgery to visit my father and me in the waiting room. He reassured both of us that all was going well. His surgical work was exemplary, as is that of his successor at RPA, and the Institute, Professor Paul Bannon and his colleagues.

The success of the Baird Institute ultimately comes back to people: surgeons, clinicians, researchers, supporters, patients and their families. But the patients come first.

The work of the Baird Institute extends beyond advances in surgery. Progress has been made possible by investment in the study, training, innovations and research that puts the patients and their families up front. Support from donors is always precious and appreciated. The Sydney Heart Bank continues to collect donated tissue. This collects contributions from patients and families and allows researchers to investigate disease at a molecular and cellular level. It is an exciting place of much innovation.

As someone who has benefited from the skilful and innovative research of the Baird Institute, I am a voice from the wider community. I praise the achievements to date which would have thrilled Doug Baird. I celebrate the ongoing research that will serve clinicians in other countries and in all aspects of cardiac surgery and research in Australia. Doug Baird has left us his legacy. It is in our self-interests for us to support its continuing ambitions in every way that we can.



Patron, The Baird Institute





PATIENT STORY

Leanne's Heartfelt Journey

It was ten years ago that I first discovered I had an aortic aneurysm. My GP sent me for a scan to investigate if my back pain was possibly a clot on my lung. It ended up being a muscular injury from my work in childcare, but because of her diligence, I discovered my aneurysm. So started my journey that felt like travelling down a stream towards a waterfall. It began with worry, then, over time, it became something I learned to live with, the fact that there was an inevitable conclusion, my waterfall was to be open heart surgery.

My GP referred me to what she described as a 'highly recommended' cardiologist, Prof Richmond Jeremy at the Sydney Heart Centre in RPA, and she was certainly correct with that appraisal. From that moment, life changed. After the initial shock and having to confront this reality, I then had to give up my work in childcare (due to the limits on my lifting capacity). More worrying still, I had to ask my three children to have scans, to ensure that they did not have my bicuspid aortic valve and aneurysm.

The diagnosis sat quietly in the background of my life and everyday routines. However, as the years went by it simply became an annual checkup that was the reminder that one day the waterfall would come. Living with that knowledge meant learning to manage uncertainty while placing your trust in the team watching, measuring and guiding each next step.

Through that journey, you bond with your clinical and surgical teams. It is hard to describe to anyone who has not lived it. Possibly like Stockholm syndrome, in the gentlest sense: you become connected to the very system you fear, because it is also the system keeping you safe. Each scan, appointment and conversation becomes part of a relationship built on trust.

Then I heard the words I had been fearing, the sound of the waterfall up close: "I recommend that you now see a surgeon."

Suddenly, the journey my family and I had been on began to quicken. What had once felt distant became immediate.

We met Prof Paul Bannon, our surgeon, and his very professional office team to begin the preparation for surgery. Decisions had to be made on dates and valve options, conversations became more serious, and the reality of surgery moved to the centre of daily life. You cannot truly prepare for open heart surgery. You can only try to be as fit and healthy as possible to aid your recovery and hold on to the power you do have: choosing the best surgical team and asking every question you can to ease your fears and worries.

I went searching online for information on the surgery and joined an aortic support group. On reflection, I should have limited this and spoken more to my surgical team. The stories that you find online raise your fears without knowing the full details and circumstances behind these cases.

All discussions I had with Paul Bannnon put me at ease and made me feel reassured. Advances in surgery offer your best chance of coming through safely. Those advances are made possible by research, training and innovation - the work that Paul Bannon and The Baird Institute commit to every year.

There is no simple way to face open heart surgery. There is fear, love, gratitude and the strange courage that comes from having no choice but to move forward. Families carry the journey too, waiting through appointments, absorbing information and finding strength for one another.

As I write this, I have just reached my four month 'aorta-versary' and I feel that I am back to about 80% of my pre-operation level. I could only have reached here through the wonderful support of my family and friends and the efforts of our world leading clinical and surgical teams.

I faced the waterfall. And I came through it

ORG CHART

THE RESEARCH TEAM AT THE BAIRD INSTITUTE'S CENTRE FOR HEART FAILURE & DISEASES OF THE AORTA

GROUP LEADERS

Prof Paul Bannon



Prof Sean Lal



Prof John O'Sullivan



Dr Robert Hume



POSTDOCTORAL/ RA STAFF

Dr Cassandra Malecki



Senior Postdoctoral Research Fellow

Dr Yulia Mitina



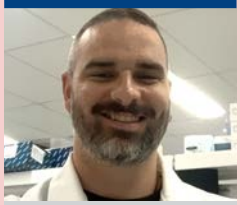
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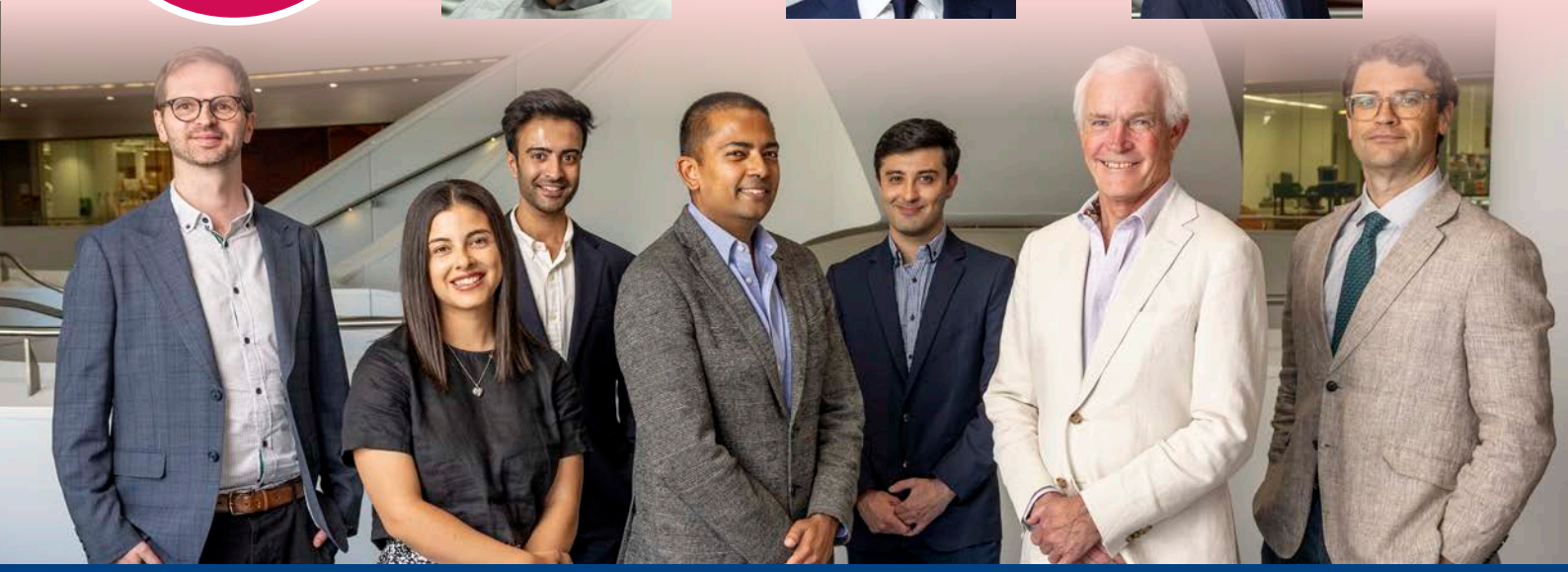
Dr Tim Shiraev, MD



Mr Matthew Taper



WORKING TOGETHER. CHANGING LIVES.



NEW TEAM MEMBERS



DR YULIA MITINA

Post-Doctoral Fellow

My name is Yulia Mitina, and in 2026 I was privileged to join The Baird Institute, as a Post-Doctoral Research Associate, within the *Centre for Heart Failure and Diseases of the Aorta*, led by Professor Paul Bannon (Chair of the Baird Institute), Professor Sean Lal, Professor John O'Sullivan and Dr Robert Hume. I trained as a cardiologist in Russia, and it was caring for patients with heart disease that drew me into research. I always wanted to understand these conditions at the level where they begin, so that we might treat them better. I now work with human stem cells, that are made from adult cells 'reprogrammed' back into their original state. Using these cells, I am building models that allow me to grow miniature heart tissue in the laboratory and study how heart disease develops at the cellular level.

When heart muscle is damaged, for example during a heart attack, the body forms scar tissue rather than new muscle, and this steady loss of working muscle is a leading cause of heart failure. During my PhD I identified a drug compound that can prompt human heart muscle cells to divide again, to make more muscle, and mapped the signalling pathways that control this process. I now use human stem cell-derived heart muscle cells and three-dimensional miniature heart models, which reproduce features of real heart tissue in the dish, to search for new compounds and pathways that drive regeneration, particularly under the ischaemic conditions of a heart attack.

Alongside this, I study diseases of the aorta, the largest artery in the body. Through the Sydney Heart Bank and working closely with the colleagues who maintain this remarkable tissue collection, I examine human aorta samples to understand what distinguishes the most dangerous forms of disease. Aortic aneurysms, a condition where the artery wall weakens and 'balloons out', often progress silently, giving no warning until the life-threatening event of an aortic dissection, whereby the wall ruptures. By measuring thousands of proteins and genes across healthy aortas and several different aortic conditions, I am working to identify the molecular changes that mark severe disease, which may support earlier diagnosis and better-timed surgery. I am also developing miniature aortic tissue from stem cells, much as I do for the heart, to create a living laboratory model in which these diseases can be studied directly.

I use large-scale techniques such as proteomics and RNA sequencing to measure thousands of proteins and genes at once, and I build the computational tools that turn these datasets into clear biological findings. My broader aim is to develop laboratory models faithful enough to guide future treatments, including personalised therapies tailored to a patient's own cells and disease. As a clinician, I am especially committed to making sure our discoveries reach the people they are meant to help.

None of this research would be possible without the generosity of our tissue and philanthropic donors, as well as their kind families. It is a privilege to be trusted with such precious samples, and I am committed to using them with great care to advance our understanding of heart and aortic disease.

SCHOLARSHIP & GRANTS PROGRAM



DR KEI WOLDENDORP

Earlier this year I was very grateful to be awarded a Baird Research scholarship to support my clinical trial for Cardiothoracic surgical patients.

The trial, SAFE-Discharge (Smartphone App For Enhanced Discharge) is looking at a low-cost way to reduce complications and unexpected readmissions to hospital after major heart and/or lung surgery. Worldwide between 10 to 15% of patients are unexpectedly readmitted to hospital after major heart and lung surgery, and many of these readmissions may have been prevented, or the complications lessened, had there been a way to intervene on them earlier. Furthermore, each readmission occupies a hospital bed that may have otherwise been used to care for another sick patient awaiting a lifesaving operation. If this trial is successful in reducing readmissions even by only a small fraction, we would not only be improving the recovery of our patients after surgery but also allow many other patients the opportunity to have their procedures done in a timely manner.

The trial commenced in June this year and is expected to run until February next year after which we will have enough data to identify if this intervention is taken up by our patients effectively and if we have reduced complications and/or readmissions to hospital. In the coming weeks we will be reviewing the first 50 patients who have been enrolled along with their recovery in the first month after surgery, this is a major milestone in this trial, and we eagerly await the results.

The scholarship has already been put to practical use funding essential equipment for patients in the trial that have enabled improved monitoring of our patients' symptoms after they have been discharged.

I would like to thank The Baird Institute for their support and to all others who have contributed to this project, and heart and lung surgery research in general.

BAIRD INSTITUTE WEBINARS

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Cardiac Regeneration – 24 August 2026

Prof Paul Bannon, Prof Sean Lal, Dr Robert Hume and Dr Yulia Mitina



On 24 August 2026, Professor Bannon, Professor Lal, Dr Hume and Dr Mitina provided an update on exciting work underway at the Centre for Heart Failure and Diseases of the Aorta to explore whether damaged heart tissue can be repaired and regenerated.

Once considered impossible, cardiac regeneration is now attracting significant attention, with this work recently featured in the Sydney Morning Herald and on 2GB Radio. The research is challenging long-held beliefs about the heart's ability to heal itself and opening up new possibilities for the future treatment of heart failure.

At The Baird Institute, our researchers are investigating ways to amplify the heart's natural ability to regenerate after a heart attack. The ultimate goal is to help patients repair damaged heart muscle themselves and, in time, develop new approaches to reversing heart failure.

Thanks to the generosity of our supporters, we have been able to take an important next step by appointing Dr Yulia Mitina as a new Post-doctoral Researcher. Yulia will devote half of her time to this cardiac regeneration program, working alongside Dr Hume, Professor Lal and the wider research team to build on these promising discoveries.



CATCH UP ON OUR WEBINARS AT ANY TIME

At The Baird Institute, we're committed to keeping our supporters informed and engaged through our online webinars. These sessions are a fantastic opportunity to hear from experts, learn more about the latest developments in heart and lung research, and to get an insider's view of the important work we're doing.

If you've ever missed a webinar or simply want to revisit one of our past sessions, don't worry – you can watch them at your own convenience! All of our webinars are recorded and available for viewing at any time. Simply visit our webpage at - **bairdinstitute.org.au/webinars**

Many Thanks to Our Supporters

Every one of our donors has contributed in a significant way to our research and training programs and we are very grateful for their support. We would particularly like to thank our invaluable principal supporters.

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