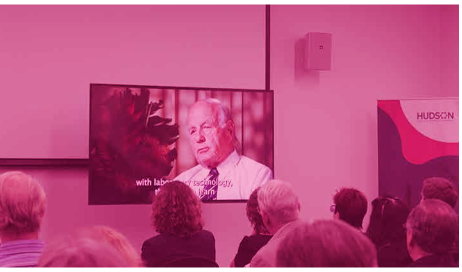
HUDSON
INSTITUTE OF MEDICAL RESEARCH

ANNUAL REPORT 2025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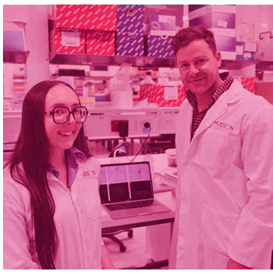
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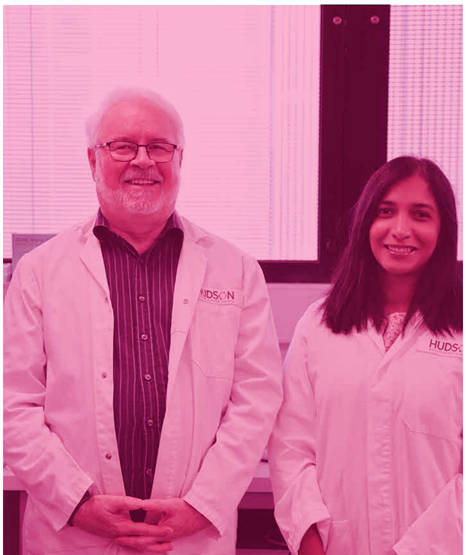

HUDSON


THE NORTH FACE

Cover Image: Professor Michael Gantier. See page 11 for more details

Our values, our goals

People values

People: We care deeply about the wellbeing of our staff and students, and the communities we are part of.

Passion: We take immense pride in what we do, celebrate progress and prioritise the growth and development of our people.

Respect: We treat each other with dignity, kindness, honesty and respect.

Culture: We have a workplace culture that embraces creativity, collaboration, diversity and inclusion.

Organisational values

Excellence: Our pursuit of high-quality scientific knowledge is underpinned by integrity and purpose, and we are committed to developing the next generation of world-class scientists.

Innovation: We inspire and enable world-class researchers at the frontiers of science and medicine to find new solutions to our greatest health challenges.

Collaboration: Our collaborative research environment brings together researchers, clinicians, technical experts and consumers to accelerate knowledge gain and real-world impact.

Community: We partner with consumers, patients and families, and the wider community to learn from their lived experience and focus on impacts that will transform health and people's lives.

Goals

- **A world-leading research precinct:** Harness our combined research and clinical strengths for greater health impact.
- **Exceptional people and culture:** Attract, retain and develop exceptional people who collaborate, innovate and together pursue excellence.
- **Research excellence:** Strive for outstanding medical research that improves human health locally and globally.
- **Health innovation and impact:** Translate our research discoveries to benefit the health of our community.
- **Enabling success:** Provide a sustainable world-class research environment that supports our long-term future.

About us

As an independent medical research institute and global bioscience leader, Hudson Institute advances healthcare through groundbreaking, collaborative medical research discoveries and their translation into real-world impact.

Hudson Institute's 447 scientists, clinicians and graduate students come from around the world to pursue one mission – to make medical research discoveries that save and change lives. Located in the Monash Medical Precinct, our scientists work alongside clinical and industry colleagues and use advanced technology platforms to inform their discoveries.

Our expertise spans the complete translation pipeline from patient need and scientific discovery to clinical testing and the commercialisation of new preventative approaches, therapies and devices for patients. Our Institute is named after Professor Bryan Hudson AO, the founding director of Prince Henry's Institute and inaugural chair of the Department of Medicine at Monash University.

Our precinct

Hudson Institute is located within a major scientific and medical innovation hub in Melbourne's south-east growth corridor, in Clayton, Victoria. The Monash Medical Precinct is a medical innovation powerhouse and a focal point for biomedical research translation and healthcare.

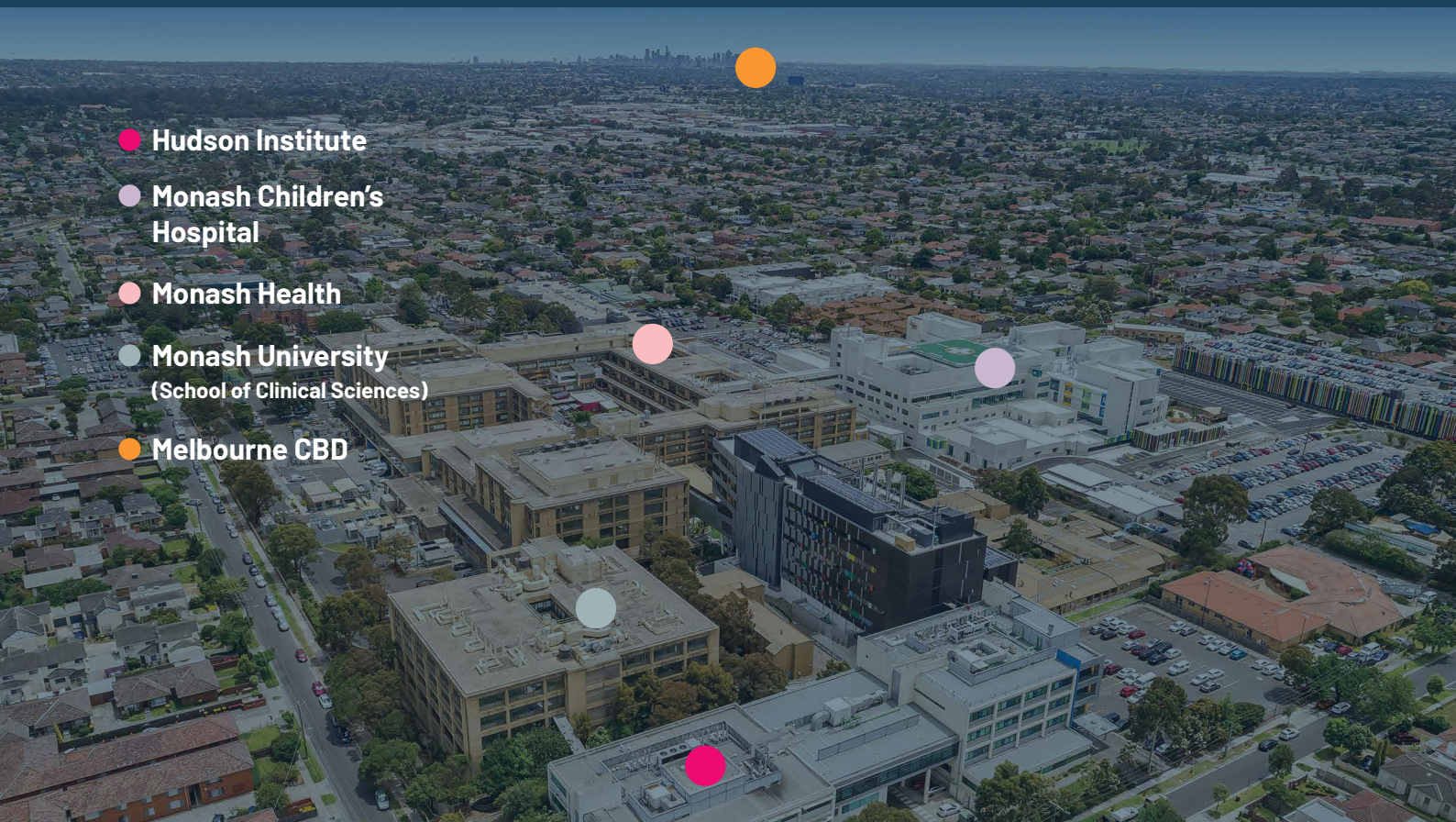
Hudson Institute, together with our partners, Monash Health, including the Monash Children's Hospital and Monash University, continue to be global leaders in medical research, healthcare, new technologies and education.

HUDSON INSTITUTE OF MEDICAL RESEARCH

MONASH University

Monash Health

Monash Children's Hospital



Director and CEO's report

Professor Elizabeth Hartland AM

The past year has reminded us once again of the extraordinary strength, resilience and ambition of Hudson Institute's research community. Even as the broader medical research sector continues to navigate a difficult and uncertain funding environment, our scientists have delivered work of global significance, driven by curiosity, collaboration and a determination to improve human health. We are operating in a system under strain. We know that more than 80% of independent medical research institutes in Australia reported an operational deficit in 2024 and the structural challenges around indirect research costs remain unresolved. While our researchers have fared far better than the national average, grant success rates still hover at historically low levels, placing immense pressure on researchers and institutions alike. Yet despite these headwinds, Hudson Institute continues to outperform expectations — a testament to the calibre of our people and the clarity of our mission.

Excellence and Impact

Our researchers have once again demonstrated that excellence is not defined by size, but by focus, talent and collaboration. Across inflammation, cancer, reproductive health, paediatric disease and emerging areas of discovery, our teams have produced high-impact science that is recognised nationally and internationally. The achievements of recent years — from world-leading inflammation programs to breakthroughs in paediatric cancer modelling — have cemented our reputation as an institute that consistently delivers beyond its scale.

This year, that tradition continued. Our cohort of early- and mid-career researchers in particular has distinguished itself through competitive grant success, high-quality publications and leadership in national and international collaborations. Their achievements reinforce the importance of sustained investment in the next generation of scientific leaders, even in a constrained funding landscape.

A Sector in Transition — and an Institute with momentum

While the national funding environment remains challenging, we are encouraged by the support of prominent politicians to improve federal research allocations, and the growing recognition that Australia must modernise its support for medical research. Hudson Institute continues to play a leading role in these discussions, advocating for a system that supports excellence, stability and long-term impact.

Despite the pressures, our momentum is strong. Our Research Centres continue to attract exceptional leaders, our partnerships are expanding, and our scientific output remains among the most competitive in the country.

The Power of Proximity

One of Hudson Institute's greatest strengths is our physical and academic integration with Monash University and Monash Health. This proximity continues to accelerate translation, enabling our scientists to work side-by-side with clinicians, be informed by real-world patient challenges, and ensure that our research remains tightly aligned with unmet medical need.

Our collaborations with Monash Health clinicians have deepened further this year, leading to new joint initiatives in inflammation, reproductive health and paediatric disease. Likewise, our partnership with Monash University continues to strengthen our training pipeline, attract outstanding students, and support shared infrastructure and academic programs.

Further enhancing these links and advantages are our platforms – Hudson Cell Therapies, RNAte, Genomics – which enhance our reputation while enabling more clinical and research tasks to be carried out, start to finish, here in the Monash Medical Precinct.

Looking Ahead

Moving into 2026, our focus remains clear: support our researchers to continue in their pursuit of bold, high-impact science; strengthen our clinical and academic partnerships; advocate for a sustainable research funding system; and keep delivering discoveries that improve human health.

Hudson Institute has always been defined by its people — their creativity, their tenacity and their commitment to making a difference. In a year marked by uncertainty, they have once again shown what is possible when brilliant minds are supported by a collaborative culture and a shared purpose.

Professor Elizabeth Hartland AM
Director and CEO

Chair's report

Dr Robert (Bob) Edgar AM

Hudson Institute enters 2026 with strong governance foundations, a clear strategic direction, and a leadership team that continues to guide the organisation through a challenging national funding environment. The Institute has continued to demonstrate resilience and a disciplined approach to long-term planning, with governance remaining a central strength.

The Board provides a depth of experience and sound judgement, supporting effective oversight and informed decision-making. I acknowledge Institute Director Professor Elizabeth Hartland for her ongoing national leadership, which continues to strengthen the Institute's profile at a critical time for Australian medical research.

The research sector remains under sustained financial pressure, both domestically and internationally. The current structures governing research funding in Australia continue to make achieving great scientific progress a severe financial challenge for successful independent medical research institutions. While research grants are a core strength of the Institute, they do not meet the full cost of research.

This structural gap continues to place pressure on the sector, requiring institutes to secure additional sources of funding to bridge this critical need. Modelling recently commissioned by the Association of Australian Medical Research Institutes (AAMRI) highlights the strong economic benefit from investing in medical research - and the anticipated outcomes for the sector if funding structures remain unchanged.

In this context, the Institute has benefited from diversified revenue streams, including commercial income and the continued generosity of our philanthropic community. Strategic partnerships remain an important driver of progress. Collaborations with Exosome Biosciences and Noxopharm, for example, are supporting the translation of our research into clinical trials and delivering meaningful outcomes for patients.

The Institute's location within the Monash Medical Precinct remains a significant advantage, connecting our laboratory and translational research with Monash University and Monash Health. This integrated environment supports the effective translation of research into clinical impact and reinforces the precinct's position as a national leader in translational research.

The Institute's standing among Australia's top medical research organisations continues to strengthen. Maintaining and leveraging this position to access future funding opportunities remains a key priority.

With strong governance, strategic partnerships and capable leadership, Hudson Institute is well positioned to continue advancing research that improves the health and wellbeing of all Australians.

Dr Robert (Bob) Edgar AM
Chair

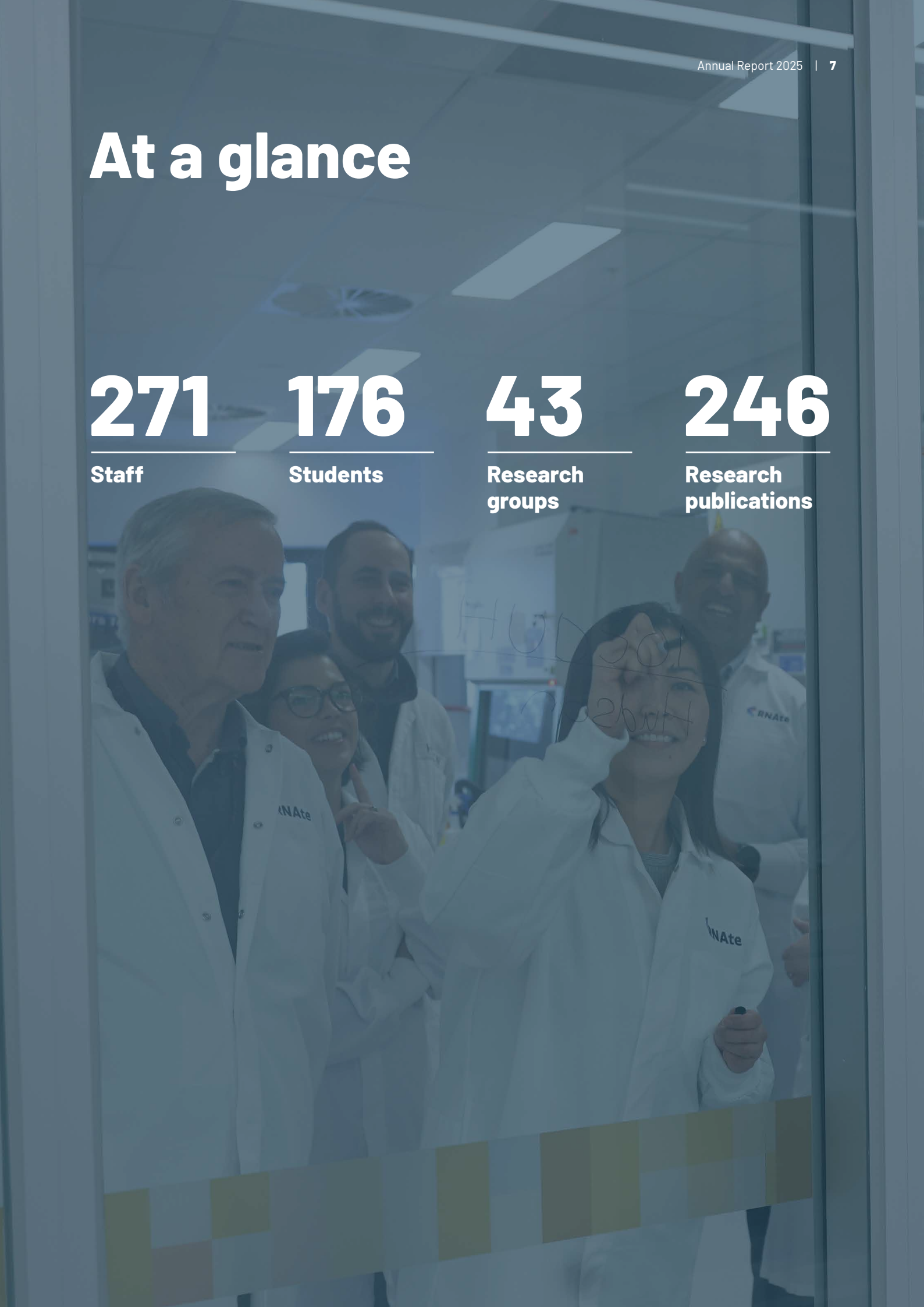
At a glance

271
Staff

176
Students

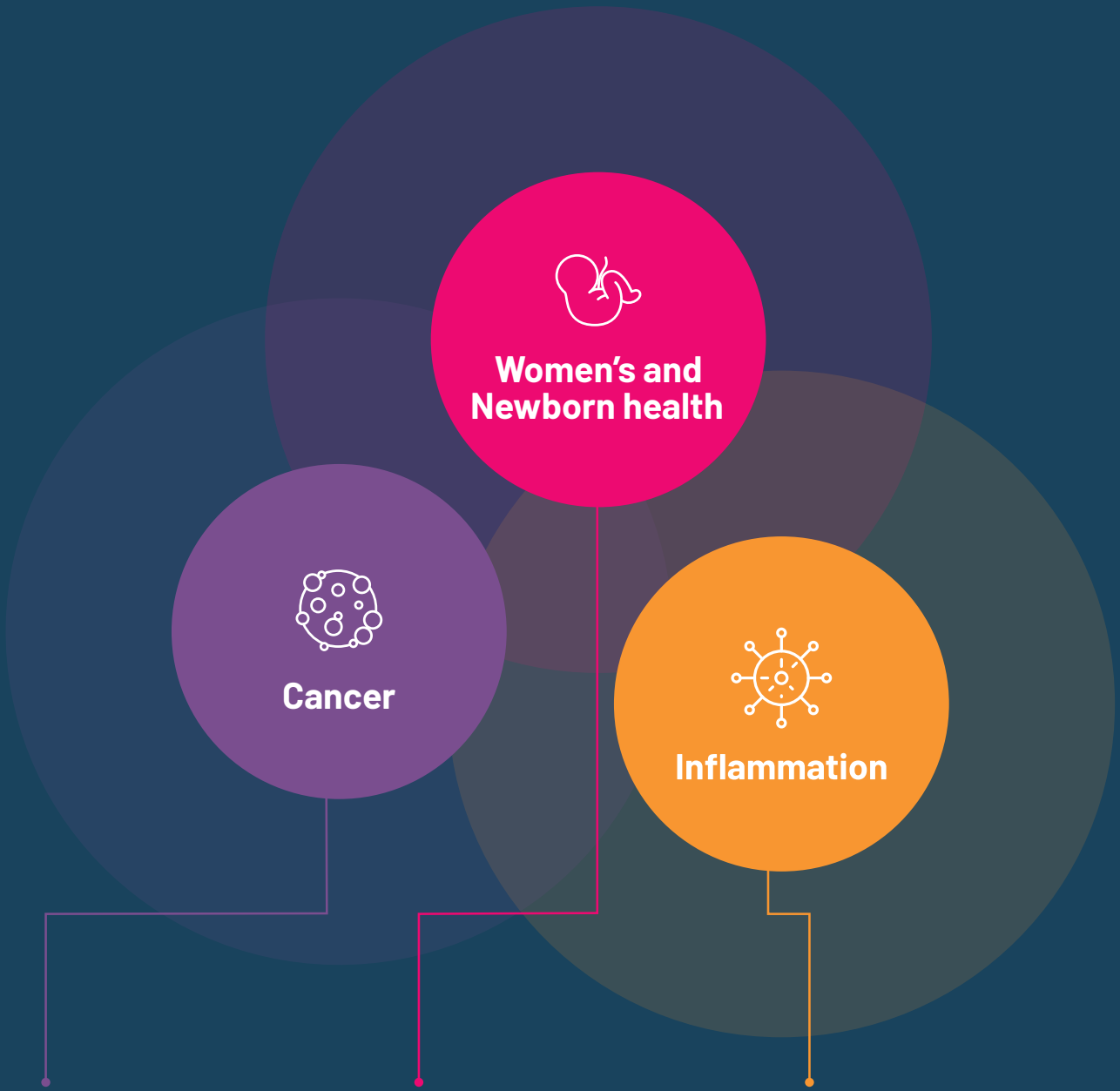
43
Research groups

246
Research publications



Our research themes

Our research programs deliver in three broad areas of medical need.



Cancer

We employ cutting-edge technologies, including artificial intelligence, to pioneer new methods for diagnosing and treating adult cancers and childhood malignancies.

Women's and Newborn health

We are undertaking innovative research to inform better healthcare and outcomes for high-risk babies and to address the unmet medical needs of health conditions affecting women.

Inflammation

We are changing the understanding and treatment of major inflammatory and infectious diseases by uncovering the complex networks that control dangerous and chronic inflammation.

Inflammation

Dr Sophia Davidson

L-R: Dr Esther Ling, Professor Michael Gantier, Dr Sunil Sapkota, Professor Elizabeth Hartland AM, Dr Gisela Mautner, The Hon. Danny Pearson, Dr Olivier Laczka, Camille McBride (lupus patient advocate), Dr Amanda Caples and Phoebe Dunn at Hudson Institute of Medical Research

Skin in the game

Another example of Hudson Institute research reaching the clinical trial stage attracted interest from far and wide in 2025.

Based on Professor Michael Gantier's RNA expertise, Australian biotechnology company Noxopharm Pty Ltd successfully completed world-first safety trials of a topical cream to treat skin lupus, with very positive results.

With no adverse reactions reported in the safety trials, the science behind this cream also suggests great promise for treating other autoimmune conditions, such as psoriasis, rheumatoid arthritis and more.

State government support accelerates research

Recognising the significance of the trial and the Victorian Government's role in fostering the research behind it, the Minister for Economic Growth and Jobs, Danny Pearson, visited Hudson Institute to tour our labs and meet our people.

Professor Gantier's team was first awarded $100,000 in 2022 towards the development of the RNA-based treatment through the State Government's mRNA Victoria Research Acceleration Fund.

Professor Gantier's team made a fundamental discovery relating to how extremely short RNA fragments act as a natural anti-inflammatory system that is blocked in patients with lupus – it was this discovery that underpinned development of the topical cream used in these trials.

Although lupus can affect anybody, 90 per cent of patients are women, and the condition often develops during their reproductive years, impacting fertility and increasing risks during pregnancy and childbirth.

Potential of RNA therapeutics

Noxopharm's treatment mimics naturally occurring anti-inflammatory molecules produced by the human body, and is applied directly to affected skin as a topical cream.

"Treatments for autoimmune disease such as lupus are often associated with multiple side-effects and poor patient response," Professor Gantier said.

> **"My research is harnessing the potential of RNA therapeutics, like those used in mRNA vaccines, to revolutionise autoimmune disease treatments, blocking disease at its source."**
>
> Professor Michael Gantier

The Minister, Danny Pearson, said: "It's exciting to see this research making the leap from the lab to real-world clinical trials, offering hope for thousands of people suffering from lupus. Victoria is at the forefront of clinical trials nationwide, and with our established reputation as a leader in mRNA research across the Asia Pacific, it's no wonder we're celebrating these ground-breaking, world-first milestones."

With safety trials now completed, Noxopharm is hopeful of progressing to phase 2 trials, testing the efficacy of its SOF-SKN™ platform on people with autoinflammatory conditions.

Dr Caitlin Welsh

Intestinal hydrogen – it's a gas!

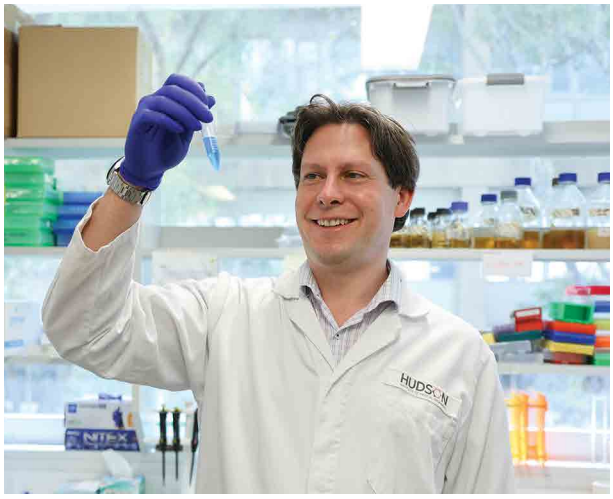
Research into intestinal gas has turned out to be much more than just hot air.

> **"Most people release about a litre of gas per day and half of that is hydrogen. Our study shows hydrogen shapes the gut microbiome in surprising and varied ways. It helps some beneficial bacteria thrive in the gut and keeps digestion going."**
>
> Dr Caitlin Welsh

Working with Professor Sam Forster, Professor Chris Greening from Monash University's Biomedicine Discovery Institute and an international team, Dr Welsh established that some bacteria which can switch between different energy sources might be more important in utilising hydrogen than previously thought.

Their findings, published in *Nature Microbiology*, demonstrate that hydrogen is a key player in determining gut microbiome structure and health, but the precise mechanisms and links to health and disease remain unclear.

This highlights the need for further research to understand their role in disease, as these newly discovered links could guide development of new microbiome-based treatments.



Professor Samuel Forster

A quantum leap in microbiome medicine

The microbiome is medicine's new frontier and in 2025 a team from Hudson Institute and Monash University took the first steps into a vast new field of possibilities.

Microbiome medicine has the potential to revolutionise healthcare, so it's no surprise that the work of Professor Sam Forster, with Monash University's Professor Jeremy Barr and the team, published in *Nature*, has been described as a major step forward in decoding the viral dark matter of the human gut.

This ground-breaking study identified hundreds of previously unknown viruses, known as bacteriophages, which infect the bacteria that live in the human gut. They offer the potential to reshape the gut microbiome, influencing gut health and the progression of various disease states.

PhD student Sophia Dahlman explains the significance: "We've known that the gut is full of viruses, but until now, we didn't have the tools and experimental approaches to study them in the lab."

"But our findings suggest that the human host isn't just a passive environment, it's actively influencing viral behaviour."

That means that compounds produced in human gut cells can wake up dormant viruses inside gut bacteria - a finding which could have major implications for conditions such as inflammatory bowel disease (IBD), where inflammation and cell death are common.

Prof Forster believes that the ability to grow these viruses allows researchers to understand their function and provides the opportunity to develop and target microbiome therapeutics for a range of diseases, even potentially cancers.

"This technology will provide the opportunity for targeted removal of detrimental species from the microbiome using phages."
- Prof Samuel Forster.

It's just one highlight in a huge year for the Forster lab, which is at the cutting edge of an exciting and fast-moving field of medical science.

L-R: Dr Abdul Razak and Associate Professor Courtney McDonald

The problem of persistent inflammation in preterm birth

Every baby deserves the best possible start to life. But for those born very prematurely, that start can be shaped by events that occur long before birth – particularly exposure to inflammation, which is strongly linked to lifelong neurological conditions, including cerebral palsy.

A team at Hudson Institute has uncovered just how powerful and persistent this inflammation can be. PhD student Dr Abdul Razak from the Cell Therapies and Neuroinflammation Research group in The Ritchie Centre was supervised by Associate Professor Courtney McDonald, and together they developed a preclinical model that confirms the lingering presence of inflammation – and the damage it causes to the brain – long after the original exposure.

New understanding leading us closer to a solution

Their findings were published in the journal *Experimental Neurology*, and what they found challenges long-held assumptions about brain injury in preterm babies. The team tracked the effects of inflammatory exposure well beyond the newborn period, to a stage equivalent to a 3–4 month-old infant.

A/Prof McDonald said while previous human studies suggested that ongoing inflammation could be detected in the blood, "This is the first time we have shown in a preclinical model that closely mimics human brain development that the brain itself also has ongoing inflammation," she said.

Importantly, this research shows that inflammation is not just a by-product of injury, but an active contributor to longer-term damage.

> **"We discovered that brief inflammation during the preterm period can cause lasting brain injury, including ongoing immune activation, loss of support cells, and reduced myelination – changes which mirror human neurodevelopmental disorders."**
>
> Dr Abdul Razak

Now equipped with a model to study long-term outcomes and test therapies at clinically relevant timepoints, this work opens the door for researchers to find new solutions and interventions aimed at reducing brain injury and improving lifelong outcomes for babies born too soon.

Cancer

Dr Catherine Carmichael

L-R: Associate Professor Jason Cain and Maxwell Moraleda, Manager of the Hudson Institute Living Biobank

Keeping the dream alive in rare childhood cancer research

Rare cancers pose significant challenges for researchers, particularly when it comes to sourcing the tissue samples needed to test potential treatments.

Hudson Institute is a leader in the search for new treatments and cures for rare children's cancers and, thanks to generous funding, our scientists have access to a vital source of research material.

Hudson Institute's Living Biobank addresses a critical bottleneck in paediatric cancer research: the scarcity of accurate preclinical models that scientists can study in the laboratory.

Thanks to the support and recent funding from the Children's Cancer CoLab of $410,162, Hudson Institute's Living Biobank can continue creating a diverse and renewable collection of patient-derived preclinical models for rare childhood tumours.

"Many childhood cancers are so rare that researchers simply don't have precise models to study them. Renewable patient-derived tumour models change that. They allow research teams around the world to test new therapies on a variety of childhood cancers, paving the way for more effective, targeted and less toxic treatments." said A/Prof Jason Cain, Hudson Institute Living Biobank's Lead Investigator

Unlike traditional biobanks, which store non-renewable, fixed or frozen samples that offer only a single point-in-time analysis and can be quickly depleted, Hudson Institute's Living Biobank uses 'living' models which can be expanded indefinitely, enabling advanced ongoing studies and global sharing to drive novel discoveries and better outcomes for children with cancer.

Combining these renewable models with clinical data, our researchers can accelerate the discovery of safer therapies that improve survival rates and enhance the quality and years of life for children diagnosed with cancer.

CEO of Children's Cancer CoLab, Dr Udani Reets, said the biobank received funding through CoLab's Innovation Accelerators Impact Program, as it supports streamlined technology platforms that foster multidisciplinary approaches for childhood cancer research.

> **"Funding these biobanks transforms precious samples donated by children and families into accessible resources for discovery. They will accelerate the pace of research, fulfilling the hopes of those families to help future generations of children not only survive cancer but thrive."**
>
> Dr Udani Reets, CEO Children's Cancer Colab

L-R: Dr Paul Daniel, Dr Shazia Adjumain, Professor Ron Firestein

A legacy of love

A donation made in memory of a beloved son lost to cancer has provided the spark for a major breakthrough in paediatric cancer treatment.

Gideon Gratzer was just 9 years old when his life was ended by an aggressive brain tumour known as glioblastoma.

Knowing there were few effective treatments for this condition, his parents worked with the Robert Connor Dawes Foundation to raise funds for glioblastoma research here at Hudson Institute.

Six years later, a team from Hudson Institute's Centre for Cancer Research, led by Professor Ron Firestein, identified a genetic target for this disease plus a way to determine which patients are most likely to benefit from it.

Brain cancer is the leading cause of cancer-related deaths among Australian children and paediatric high-grade gliomas (pHGGs) are the most aggressive form of brain tumour in children.

Lead researcher Dr Shazia Adjumain said that childhood gliomas have distinct biological features, so there is an urgent need for specific treatment strategies that are both more effective and less toxic.

Her research zeroed in on the anti-cell death gene *MCL1*, which plays a critical role in the survival of brain cancer cells, showing that blocking *MCL1* function with targeted drugs induces significant anti-tumour effects. Her work was published in the *Journal of Clinical Investigation Insight*.

"We also identified a unique DNA modification in the *BCL2L1*-gene that can predict a tumour's response to *MCL1*-targeting treatments, offering a strategy to identify patients who would benefit most from these therapies." Dr Adjumain said.

These discoveries give researchers vital insights into a new potential drug target for childhood brain cancer, and a way to determine its chance of success in any given patient.

> **"I'm honoured to have made this significant discovery, which was funded in memory of Gideon Gratzer, thanks to the generous and unwavering support of the Gratzer family and the Robert Connor Dawes Foundation over the past three years."**
>
> Dr Shazia Adjumain

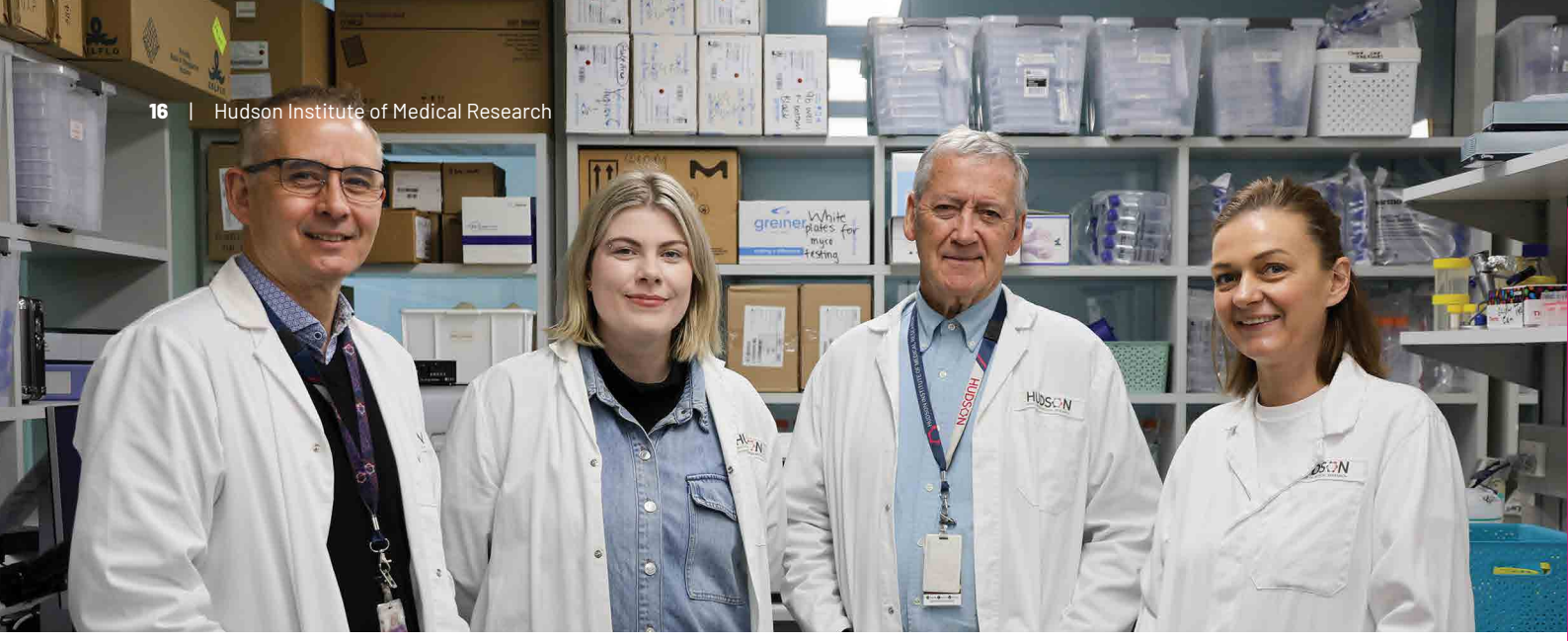
A key to the success of this project was the ability to use samples from patients' tumours, stored in the Childhood Cancer Model Atlas (CCMA) - the world's largest collection of paediatric cancer cell lines.

Hudson Institute's Next Generation Precision Medicine team uses the CCMA to test a vast range of potential treatments, and combinations of treatments, to determine which are most likely to benefit patients.

Another breakthrough made possible by this technology in 2025 was the creation of a detailed resource of high-potential immune targets in childhood cancers.

Dr Claire Sun and her team examined more than 200 high-risk paediatric cancer cell lines in the CCMA 's collection to identify a crucial characteristic of each one, known as the HLA type and potential neoantigens it presents to the immune system.

Their analysis was published in the journal *iScience*, recognising its potential to help researchers determine which tumours are most likely to be good candidates for immunotherapy.



L-R: Associate Professor Simon Chu, Dr Nicole Campbell, Professor Paul Hertzog and Dr Maree Bilandzic

Attacking ovarian cancer from multiple angles

When it comes to tackling a challenging problem, approaching it from a number of different angles can be the key to success - a strategy Hudson Institute researchers are taking in the fight against ovarian cancer.

Affecting about 1,500 Australian women annually, most are diagnosed when ovarian cancer is already advanced, and often after it has spread to other parts of the body. Another crucial fact is that there are many types of ovarian cancer, all of which behave differently and respond in varying ways to treatments.

Targeting cells to stop the spread

While first-line treatments can have good results, the cancer usually returns in a state that makes it resistant to chemotherapy. These two factors – metastasis (spread) and chemoresistance – are at the heart of Dr Maree Bilandzic's work.

"We found that so-called leader cells promote tumour progression by suppressing anti-tumour immunity," Dr Bilandzic said. "By targeting these cells, we aim to develop new therapies to reduce metastasis, enhance immune responses, and improve outcomes for ovarian cancer patients."

Her team has developed a novel antibody targeting leader cells and are now advancing this work towards first in-human clinical trials to bring new hope to women with ovarian cancer.

Using the immune system to fight cancer

Dr Nicole Campbell is taking a different approach to helping the immune system recognise and guard against ovarian cancer, building on the pioneering work of Professor Paul Hertzog at Hudson Institute.

Her research looks at a new immunotherapy that targets high-grade serous ovarian cancer (HGSOC). She is focusing on a naturally-produced protein known as interferon epsilon, which can help activate the immune system to protect against the cancer and prevent its spread.

Immune-based therapies have been very successful in treating other cancers, but not so much against ovarian cancer – however, Dr Campbell sees positive signs.

"Our data shows that interferon epsilon primarily works through activation of the immune system, and it's most effective against metastatic tumour cells, so it could play a major role in tackling the spread of cancer cells from the ovaries to other parts of the body."

Genetic key to rare ovarian cancer

Meanwhile, another form of cancer has gone largely unrecognised by medical research, except at Hudson Institute, where Associate Professor Simon Chu and his team are global leaders in the field.

Granulosa Cell Tumours (GCT) make up just 5-7 per cent of malignant ovarian cancers, and the juvenile form, JGCT – which, despite the name, can develop at any age - is a tiny fraction of that figure.

A/Prof Chu has found that nearly all women with adult GCT carry a particular mutation in the FOXL2 protein, that changes how it interacts with a key family of signalling proteins to drive tumour growth. His work focusses on blocking this interaction.

By screening more than 300,000 drug compounds, A/Prof Chu's team aims to find one that could stop tumour progression, and potentially lead to a targeted treatment for all patients with this FOXL2 mutation.

"Using cutting-edge techniques like cryo-electron microscopy to map out the molecular structure of how GCT develops, we aim to better understand it, so we can then develop drugs that specifically target this type of cancer," A/Prof Chu said.

Hudson Institute's multi-pronged approach to finding the next generation of treatments and cures for ovarian cancer is multiplying the chances of success for women with the odds stacked against them.

Women's and Newborn health

L-R: Professor Suzanne Miller and Dr Beth Allison

Dr Shanti Gurung

Endometriosis success paves the way for earlier diagnosis

For up to one-in-seven women, pain is a regular feature of everyday life. Whether they know it or not – and sadly, many don't – endometriosis is the cause.

While this condition is just as common as asthma or diabetes, unlike those conditions, it can take up to ten years for endometriosis to be diagnosed, often by invasive surgery – leaving millions of women in the dark about the reason for their pain.

It's that reality which drives Hudson Institute's endometriosis researchers, led by Professor Caroline Gargett, 2025 saw them announce a major step forward in the push to create a better, faster method to diagnose the disease.

Building on the team's discovery that menstrual fluid has potential for non-invasive diagnosis of endometriosis, Dr Shanti Gurung published their key recent findings in the *Journal of Extracellular Vesicles*, involving measuring and profiling small extracellular vesicles.

"Extracellular vesicles (EVs) are nano-sized parcels that cells secrete for efficient communication with other cells," Dr Gurung explains. "In this project, we investigated proteins in EVs from people with and without endometriosis, and identified dysfunctional cellular communication in people with endometriosis, which could help us in early detection of the condition."

The aim is to develop a simple diagnostic test, no more complicated than a blood test, with the potential to eliminate the current need for surgery to conclusively diagnose endometriosis.

> **"This finding brings us a big step closer to creating a non-invasive way to detect endometriosis, so it can be treated sooner."**
>
> Dr Shanti Gurung

"While our findings need further validation in a larger cohort to confirm their utility in endometriosis diagnosis, this is the first study so far to identify a comprehensive list of protein cargo and their differences in the menstrual fluid-derived extracellular vesicles from people with endometriosis."

For the roughly 200,000 Victorians and one million Australians suffering with endometriosis, this work has the potential to save time, money and huge amounts of pain and discomfort.

L-R: Dr Nhi Tran and Dr Stacey Ellery

Creatine a stir in newborn health

Of all 2025's health and medical buzzwords, creatine was among the most talked-about. But unlike many alleged wellness miracles, its benefits are increasingly supported by research.

As a supplement, it may be used to help support a healthy pregnancy, with evidence that it may be essential for energy production in a range of reproductive tissues, including the uterus and placenta, as well as supporting the growing baby.

Now Hudson Institute has taken creatine research a big step forward, showing it also has a neuroprotective effect on the growing fetus, and that in compromised pregnancies it may help protect the brain from damage caused by oxygen starvation.

Creatine is a naturally occurring compound primarily found in meat and fish; it is recognised for its role in sports and fitness, but research has increasingly also highlighted its potential benefits in pregnancy, specifically fetal growth.

Dr Nhi Tran, from the Bioenergetics in Reproduction Research group, used a pre-clinical model to record the electrical activity in the brain of fetuses that had suffered oxygen starvation, some of which had received continuous creatine supplementation during late pregnancy.

Beneficial before birth

"We know that creatine plays a role in healthy pregnancy progression and *in utero* development, and our latest research shows that it is also beneficial to the baby before birth, especially in compromised pregnancies," Dr Tran said.

"This study is based upon foundational evidence that creatine supplementation has a positive effect on the biochemical changes that lead to brain injury".

"It provides a foundation of evidence to show that creatine supplementation can suppress the cellular and physiological changes within the brain that cause brain injury," she said.

Working with head of the Perinatal Inflammation and Neurophysiology Research group, Dr Rob Galinsky, Dr Tran found that creatine is not just beneficial in restoring brain function, but also in minimising damage in the first place.

Their work was published in the leading journal *Annals of Neurology*, showing improvements in neuronal function and reductions in seizures, neuroinflammation and brain cell death among the cohort that received creatine.

"We know that creatine provides an "energy buffer" and it appears this is beneficial in protecting the brain from serious damage," said Dr Galinsky.

"Hypoxic–ischemic encephalopathy (HIE) occurs when the baby's brain is starved of oxygen; it can cause cerebral palsy, impaired hearing and vision, learning and behavioural difficulties later in life, so our results suggest that in pregnancies where the fetus is deprived of oxygen, creatine could be beneficial," Dr Galinsky said.

If creatine can be further proven to not just protect against HIE but help to repair it, it may truly earn the wellness miracle tag.

> **"Much like the introduction of folate to reduce neural tube deficits, creatine could become a standard pregnancy supplement to safeguard against poor neurological outcomes in babies. Importantly, this is a treatment that could be accessible for all babies, regardless of their geography or economic circumstances."**
>
> Dr Stacey Ellery

L-R: Dr Saeedeh Darzi, Dr Kallyanashis Paul and Associate Professor Shayanti Mukherjee

Engineering a solution for POP

Scientists spend a lot of time in cross-disciplinary collaborations, and sometimes the more unusual combinations come up with the most interesting results.

That is certainly the case in Hudson Institute's women's health research, where combining deep knowledge of women's health and biology with a detailed engineering focus is leading us closer to a hugely promising treatment for one of our most common gynaecological problems.

Pelvic Organ Prolapse (POP) is a neglected condition affecting 25 per cent of women, and at least half of all post-menopausal women.

POP has no cure, and surgical treatments often fail. Vaginal non-degradable polypropylene mesh treatments have also been banned due to unacceptable side effects and complications.

Now, the combination of precision engineering and physiology has created degradable meshes that better mimic the vaginal tissue environment, to promote integration and healing, using a polymer material that is approved by the US Food and Drug Administration (FDA).

Next generation repair solutions

Taking this tissue engineering therapy approach to treating POP is Dr Kallyanashis Paul and Associate Professor Shayanti Mukherjee, who say 3D printing technology is key to the success of the project. Their goal is to avoid the problems of foreign body response (FBR), which have made previous meshes unsuitable and sometimes harmful.

"This study, published in the *Advanced Science* journal, identified the simple geometrical attributes, namely, angle and porosity, to regenerate damaged tissue following childbirth injuries," Dr Paul said.

"Using layer-by-layer addition 3D printing technology, nine architecturally different meshes were fabricated to optimise the architecture that will allow the mesh's degradation while boosting tissue integration."

> **"This study provides hope by developing customisable meshes that can boost native tissue repair, so the body will eventually reabsorb the mesh, leaving healthy new tissue and reversing the damage that POP can cause."**
>
> A/Prof Shayanti Mukherjee

The Hudson Institute team aims to progress this type of therapy in clinical trials within the next five years, promising a long-awaited and much-needed solution to an all-too-common health issue.

L-R: Dr Shiraz Badurdeen, Dr Emily Camm and Professor Graeme Polglase

Fine-tuning baby's first breath

When a baby struggles to breathe in the first vital minutes after birth, resuscitation is on hand to kick-start the process. But it's a fine balance – too much oxygen delivered too fast after resuscitation can leave a child with life-limiting brain injury.

"Each year, over 1,000 babies in Australia suffer from a critical shortage of oxygen at birth, resulting in a type of brain injury called hypoxic-ischaemic encephalopathy (HIE). Worldwide, HIE kills nearly a million babies each year," said lead author, Dr Shiraz Badurdeen.

Following resuscitation, these babies are given extra oxygen to help them breathe. However, current international guidelines give no guidance on what oxygen level is appropriate after a successful resuscitation

Dr Emily Camm and Professor Graeme Polglase decided to find out how oxygen levels can be controlled to maximise benefit and reduce harm to these vulnerable patients. Their preclinical findings were published in the *Journal of Cerebral Blood Flow & Metabolism*.

Simple change provides protection

"A simple change in how oxygen therapy is given can help protect the newborn's brain. By studying blood circulation and oxygen levels, we found that as little as five minutes of excessive oxygen exposure can damage the brain's mitochondria," said lead author, Dr Shiraz Badurdeen.

Co-researcher Dr Emily Camm explained, "Mitochondria are the cell's main energy producers, generating the fuel required to support a range of cellular functions, and when they are damaged, they can cause brain cells to die."

"Our team found that by quickly reducing oxygen therapy once the newborn's heartbeat has returned, mitochondrial function in the brain can be preserved."

Professor Graeme Polglase, an international expert in this area, believes the study calls current practice into question: "I expect it to open up a new avenue of research to determine how best to safely administer oxygen to protect the vulnerable brain of newborns with HIE," he said.

In another piece of newborn research, Dr Sharmony Kelly identified processes by which inflammation causes structural changes in the newborn brain.

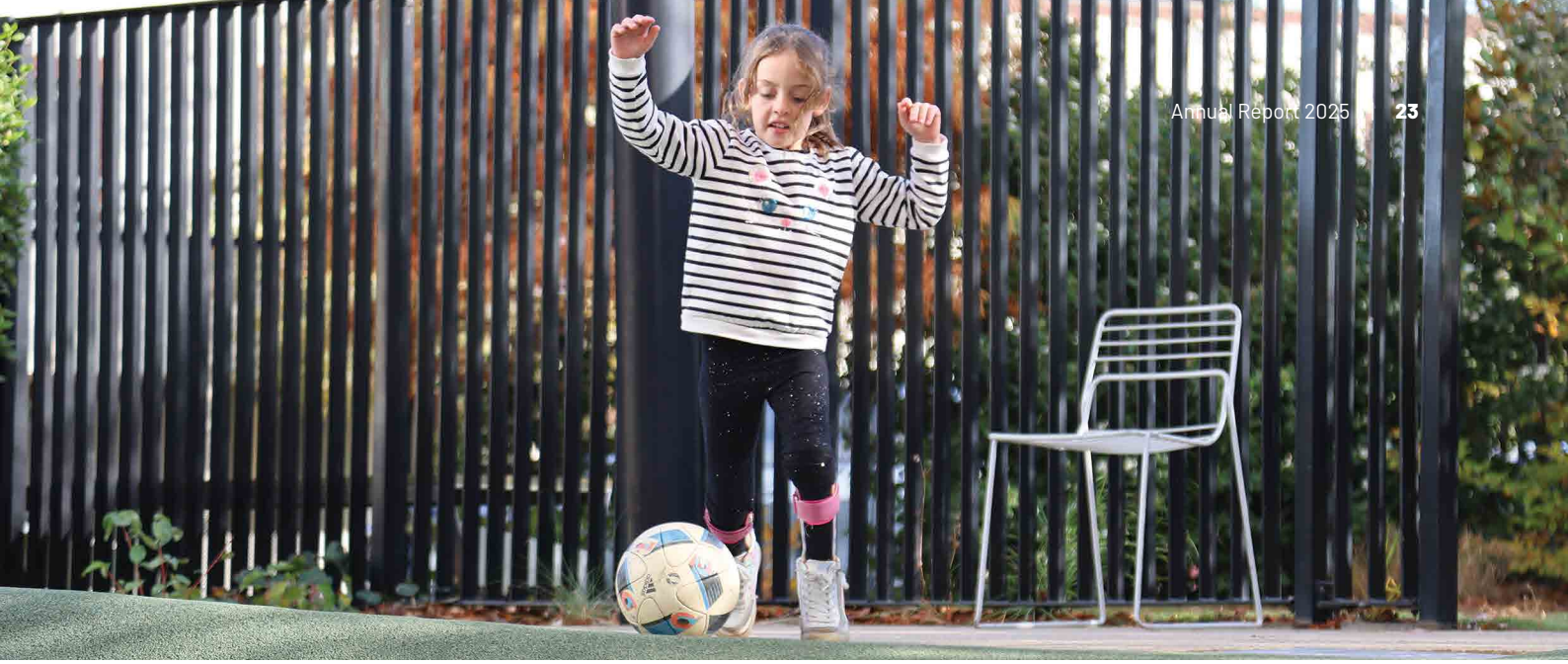
It may sound like a simple thing, but without establishing exactly how inflammation does this, it's impossible to prevent the range of conditions that it can cause, including cerebral palsy, neurodevelopmental delays and learning difficulties.

Dr Sharmony Kelly built on her previous research in this area to review the available literature and identify how injury alters development of grey matter, leading to changes that are often not apparent until years later.

Her research showed that these brain injuries can occur in a number of ways, but inflammation is the common factor, and sometimes the damage isn't identified until it's too late to repair it.

Industry and clinical

L-R: Siow Teng Chan and Dr Mirja Krause-Onwukwe



Australia's first recipient of their own cord blood stem cell infusion, six year old cerebral palsy patient Zara

Transfusion of hope

Six-year-old Zara played happily in the courtyard of Monash Children's Hospital in May 2025, blissfully unaware that she represented the hopes and plans of several teams at the Monash Medical Precinct, including Hudson Institute, as well as her proud parents.

Just weeks earlier she had become the first child in Australia to receive an infusion of their own umbilical cord blood stem cells to treat cerebral palsy (CP), and Hudson Cell Therapies played a crucial role in making it happen.

The therapy is not approved as a standard treatment for CP anywhere in the world, however, the Therapeutic Goods Administration (TGA) gave Zara and her doctors the all-clear under its Special Access Scheme, with support from Cerebral Palsy Alliance and Cell Care.

Research here at Hudson Institute and elsewhere has found that cord blood treatment can help repair a brain injury and support improvements in gross motor skills for some children with CP.

The hope, shared by her parents and everyone involved in the project, is that cord blood treatment, in combination with rehabilitation to train motor skills, will lead to an improvement in Zara's communication, movement and interaction skills.

Unique on-site service

Her umbilical cord blood, collected at birth and stored by Cell Care, was transferred to Hudson Cell Therapies in the Monash Medical Precinct, where the team in the lab processed the cells and prepared her infusion.

So far 13 children have been treated with cord blood for CP in Australia, with 12 of them part of a Phase 1 clinical trial where they received umbilical cord blood from a sibling.

Zara is the thirteenth child, and the first child to be treated for CP in Australia with their own cord blood and outside a clinical trial.

Her mum, Michelle Forrest, said: "We know how lucky we were to be able to make this treatment happen for Zara. We hope that this is the start of stem cell treatment becoming something that is routinely available for other children with CP in Australia."

"While it's still early days, we already think we are seeing improvements in Zara's movement and balance. As her parents, we know that we can't cure her CP, but like most parents, we want to do anything we can to make her life even just a tiny bit easier."

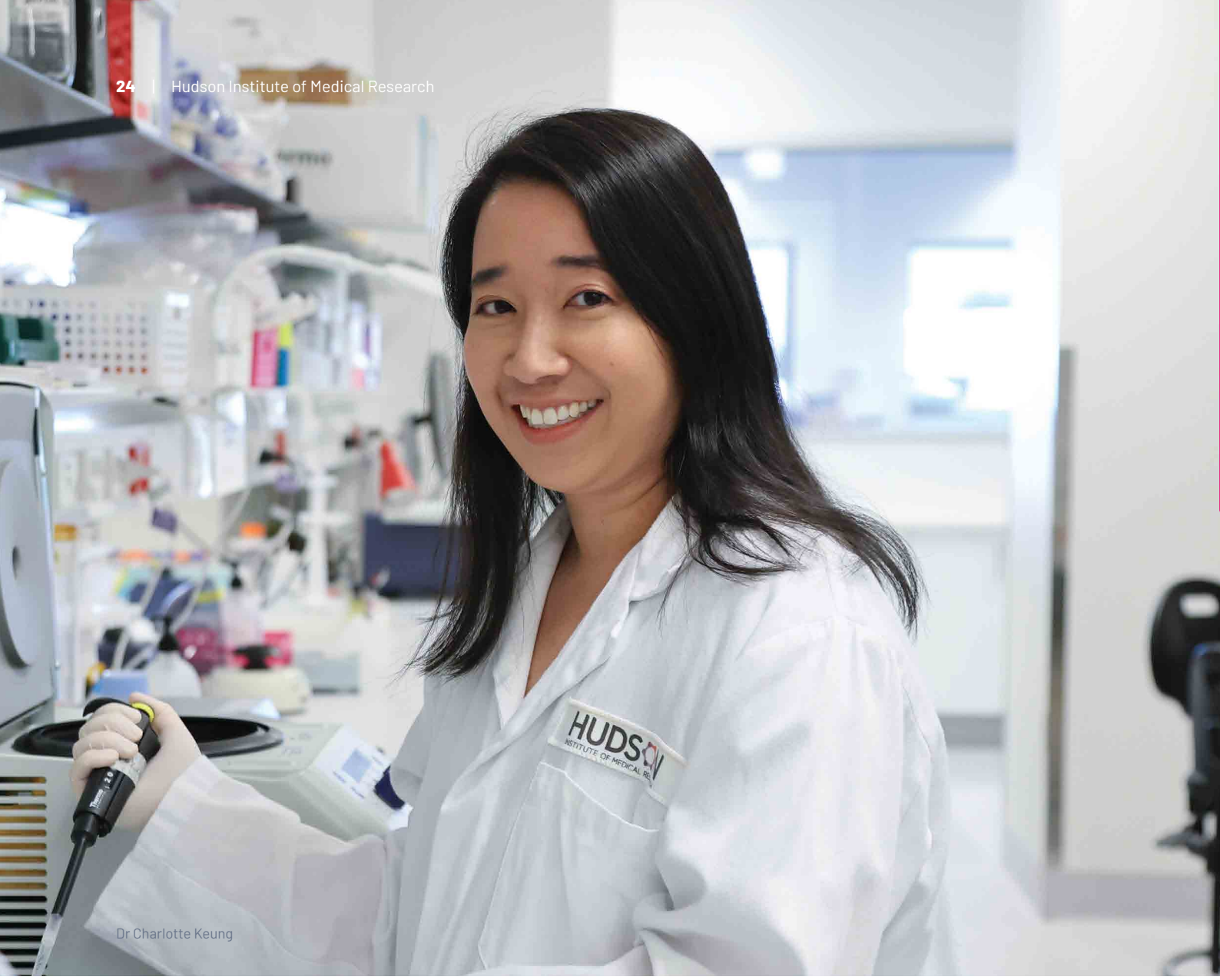
Treating Australian kids at home

Cerebral Palsy Alliance estimates hundreds of Australian families have travelled overseas to access cord blood therapy treatment for CP privately as access is not available locally.

Zara's progress will be closely watched, not just for her own sake, but to gauge the success of this form of treatment for CP, which is the most common physical disability in children.

Hudson Cell Therapies is the only facility of its kind in Victoria outside the Melbourne CBD, supporting clinical trials that use cell therapy products within the Monash Medical Precinct and at other sites across Australia.

Dr Mirja Krause-Onwukwe



Dr Charlotte Keung

IBD trial offers new hope

Seeing good science make the transition from the lab to the clinic is the aim of every medical researcher – and when it helps treat previously intractable conditions, it's even more satisfying.

Hudson Institute's Amnion Cell Biology Research group enjoyed that satisfaction in 2025, when a cell-derived treatment they developed went into clinical trials for patients enduring one of the most difficult complications of inflammatory bowel disease (IBD). By November 2025, the trial had reached an important milestone, passing the half-way point in patients treated; and so far, the results have been positive.

The treatment is being assessed for safety in patients with complex fistulising perianal Crohn's disease, a debilitating and incurable condition in which abnormal connections form between the lumen of the bowel and other sections of bowel, vagina, uterus and skin, causing a range of serious complications. Patients suffer from pain, infection, incontinence and poor mental health while the health system incurs significant economic costs with maintenance treatment.

Exosome BioSciences is driving the trial, with the goal of providing an effective therapy that reduces the significant manufacturing, cold chain logistics, clinical administration and cost limitations associated with live stem cell treatments.

The treatment involves the use of extracellular vesicles derived from human amniotic epithelial cells (hAEC-EVs). These hAEC-EVs show the same anti-inflammatory, anti-fibrotic and pro-regenerative properties as stem cells while avoiding some of the disadvantages that come with production of live stem cell treatments.

A successful trial here could open the door to hAEC-EV-based trials for conditions including bronchopulmonary dysplasia, asthma and stroke, as well as pulmonary, liver and kidney fibrosis.

Exosome BioSciences Pty Ltd is a spin-off company established in 2023 to commercialise a portfolio of Intellectual Property (IP) developed by Hudson Institute of Medical Research, Monash University and Monash Health.

Philanthropy

Jessica, with little Elias, a preterm baby who was born no bigger than a soft-drink can, is a reminder of how far medical research has come

The Long Walk home supporters

The Long Walk Home

It took strength, tenacity and resilience to win a place in the Western Bulldogs' forward line in the mid-1990s, but nothing Jason Watts experienced on the football field came close to what he's been through as a father, so he's making it his mission to save other families from the same pain.

The father of three boys experienced every parent's worst fear when his son Cade was diagnosed with a rare and aggressive form of cancer, Ewing Sarcoma.

While Cade fought bravely, enduring numerous rounds of chemotherapy, radiation and blood transfusions, he could not overcome the cancer which took his life a week short of his 16th birthday.

Jason knows there are limited treatment options for the disease that took his son, so he's trying to do something about it.

"We're working with Hudson Institute, who are world leaders in sarcoma research. They're aiming to develop the next generation of sarcoma treatments, but that takes money, so we're hitting the road to raise funds for their research."

With more than 80 supporters, Jason and his family walked 40km from St. Kilda to Frankston in the 'Long Walk Home', raising over $30,000 in vital funds that will fuel Hudson Institute's Ewing Sarcoma research.

Cade's family is striving for a cure for Ewing Sarcoma - to help as many patients and families as possible well into the future. Cade fought the good fight, and with Team Cade we'll continue fighting on in his memory.

Isabella and Marcus Foundation

The Isabella and Marcus Foundation has played a key role in advancing Hudson Institute's pioneering research into diffuse midline glioma (DMG), one of the most devastating childhood brain cancers. Guided by its mission to "enable scientists to solve the puzzle that is brain cancer" the Foundation continues to invest in bold, high-impact science that offers real hope to families.

In 2025, they provided crucial support to Hudson Institute researchers working towards a new treatment for DMG. Their visionary philanthropic investment is allowing our researchers to identify effective cell receptors, to provide an early but important step toward a completely new TCR-T cell immunotherapy for children with DMG.

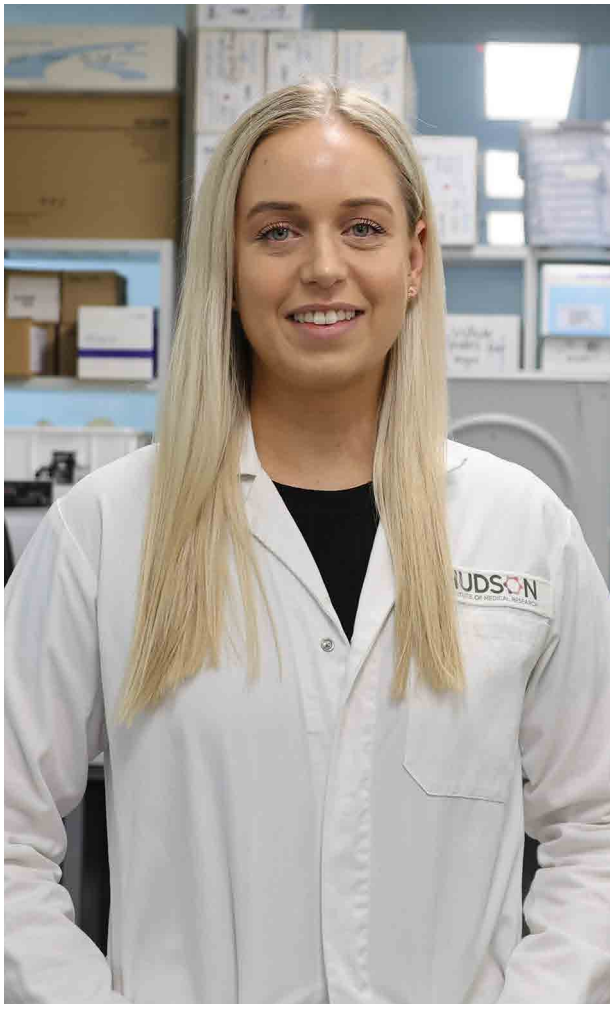
The Isabella and Marcus Foundation's commitment to funding innovative, early-stage research is accelerating the development of urgently needed therapies. Their partnership with Hudson Institute is helping transform our scientific discovery into future treatment options for children who currently have none.

Dr Catherine Carmichael

Erica Foundation

Support from the Erica Foundation is helping drive an innovative research program aimed at improving outcomes for children diagnosed with acute myeloid leukaemia (AML), an aggressive and deadly blood cancer. Current treatments rely on highly toxic chemotherapy and bone marrow transplantation, leaving many children with lifelong side effects, and offering limited options when the disease returns. Progress has been slow because researchers lack accurate laboratory models that reflect how AML develops in children.

With philanthropic investment from the Erica Foundation, Dr Catherine Carmichael at Hudson Institute is developing the first renewable, biologically faithful models of childhood AML using genetically engineered umbilical cord blood stem cells. These models replicate key mutations linked to disease, allowing scientists to uncover new weaknesses in leukaemia cells and identify safer, more effective treatments. The Foundation's support is enabling this important work accelerating research that offers real hope to children and families facing AML.



Dr Laura Moffitt

CanToo Foundation

In 2025, Hudson Institute was honoured to once again partner with the CanToo Foundation. An early career cancer research grant provided by CanToo is supporting Dr Laura Moffitt as she leads an ambitious two-year project focused on stopping the spread of ovarian cancer. Ovarian cancer remains the deadliest cancer of the female reproductive system, with little improvement in survival rates for decades. Most women die not from the original tumour, but from its spread or recurrent tumours that are resistant to chemotherapy .

Dr Moffitt's project targets a newly identified population of "leader cells" that drive this aggressive behaviour. With CanToo's support, Dr Moffitt and the research team will map molecular features of these leader cells, to identify their vulnerabilities, and test new treatment strategies designed to block their movement, invasion, and drug resistance.

Funding from the CanToo Foundation is empowering a promising early-career researcher and accelerating a project with strong potential to change how ovarian cancer is treated. And through this partnership, CanToo is also enabling research that aims to improve survival and deliver new hope to women diagnosed with this insidious disease.

Community engagement

During 2025, Hudson Institute scientists, staff and students joined the community to raise funds, share knowledge and experiences, and raise awareness of the diseases we research.

The Long Walk Home for Ewing Sarcoma

On the Grand Final Eve public holiday, Hudson scientific support staff and cancer researchers took part in The Long Walk Home, covering 40km along the Melbourne coast from St Kilda to Frankston. The walk was organised in honour of Cade Watts, who passed away just a week short of his 16th birthday from Ewing Sarcoma, a rare and aggressive childhood cancer. Organised by his family, the event brought together 88 people: family, friends and supporters, all walking together in remembrance of Cade, to push for change and support Ewing Sarcoma research at Hudson Institute.

Public Forum – The Ritchie Centre

The Ritchie Centre once again hosted its yearly Public Forum, a free and engaging event where the public is invited to learn about our women's and newborn health research. This year, scientists and clinicians from Hudson Institute, and onsite partners Monash Health and Monash University, unpacked how inflammation affects women's and newborn health, exploring what our research is uncovering, why it matters for parents and families, and how this knowledge may improve health outcomes for the next generation.

Plank-A-Thon

In recognition of Sarcoma Awareness Month in July, Hudson Institute's sarcoma research team participated in the first-ever Great Sarcoma Plank-A-Thon, holding a one-hour plank relay challenge. The team's commitment highlights the power of community and innovation in the fight against sarcoma and other rare cancers, with the event raising an impressive $127,116 in support of sarcoma clinical research to advance treatment options and improve patient outcomes.

Connor's Run

September saw staff and students from Hudson Institute's Centre for Cancer Research and their families take part in Connor's Run, the Robert Connor Dawes Foundation's major annual fundraiser. Our team completed the 9.6 km course, raising $2,500 towards the nearly $1.6 million total raised, supporting the brave, incredible kids fighting brain cancer and the research which will hopefully one day end paediatric brain cancer.

May Measurement Month

May Measurement Month is an annual global blood pressure screening event, aimed at improving awareness of hypertension in the community. This year, members of the public were offered free blood pressure checks at Monash Medical Centre. Led by Shanshan Lu-Shirzad and Professor Jun Yang from Hudson Institute's Endocrine Hypertension group, third year medical students also volunteered their time to screen members of the public for hypertension, showing great enthusiasm at a very well-attended event.

Endo warriors welcomed at Endo Lab Tour

Hudson Institute's science went public when subscribers to our Endo News attended the inaugural Endometriosis Laboratory Tour. Those living with endometriosis and their families visited the Institute to tour our women's health laboratories, hearing from leading researchers Professor Caroline Gargett, Dr Fiona Cousins, Dr Harriet Fitzgerald, Dr Shanti Gurung and Dr Thomas Tapmeier. It was a rare and invaluable opportunity for the endometriosis community to come and see first-hand the work being done, and ask questions of the experts.

Thank you to our supporters

We are grateful for the gifts received from individuals, trusts, foundations and organisations during the year. We also acknowledge the support of the Victorian State Government and the Australian Government.

Funding bodies

Australia and New Zealand Sarcoma Association
Australian Lions Childhood Cancer Research Foundation
Australian Research Council (ARC)
Bethlehem Griffiths Research Foundation
Cabrini
CanToo Foundation
Cancer Australia
Canteen
CASS Foundation
Cell Care Australia
Cerebral Palsy Alliance
Children's Cancer Foundation
Children's Cancer Institute
Children's Cancer CoLab
Chordoma Foundation
Cooper Rice-Brading Foundation
CSIRO
CSL Limited
Defence Science Institute
Dust Diseases Board
Eirene Lucas Foundation
Erica Foundation Pty Ltd (Trustee for Jena Thyne Reid Foundation)
Evans Family Foundation
Fundació La Marató de TV3
Gastroenterological Society of Australia
Gates Foundation
Harold Mitchell Foundation
Inner Wheel Australia
Isabella and Marcus Foundation
Jack Brockhoff Foundation
Lindonlight LLC
Love Your Sister Foundation
Lung Foundation Australia
Medical Research Future Fund (MRFF)
Monash Lung & Sleep
Monash Partners
My Room Children's Cancer Charity
National Breast Cancer Foundation
National Health and Medical Research Council (NHMRC)
National Heart Foundation of Australia
Norman Beischer Medical Research Foundation
Ovarian Cancer Research Foundation (OCRF)
PanKind Australian Pancreatic Cancer Foundation
PASO Medical
Perpetual Trustees
Piers K Fowler Fund
Pinewood Community Bank
Rare Ovarian Cancer Incorporated (ROC Inc)
Rebecca L Cooper Foundation
Red Nose Australia
Robert Connor Dawes (RCD) Foundation
Run DIPG
The Kids' Cancer Project
Tour de Cure
veski
Victorian Cancer Agency
Victorian Government, Department of Jobs, Skills, Industry and Regions
Weary Dunlop Foundation

Major donors

Barke Household
Canale Household
Darcy Household
Donovan Household
Dwyer Household
Edgar Household
Edwards Household
Gandel Foundation
Gluck Household
Grgic Household
Grigoriou Household
Heilbrunn Household
Johnston Household
Kirkham Household
Loomis Household
Maconochie Household
Marriott Household
McCallum Household
McIntyre Household
Faine & Shalit Household
Murphy Household
PayPal Giving Fund Australia
Phoebe Jones and Jacob Jones Trust
RedZed
Ross-Perrier Household
S&D Hain Foundation
Santen Household
Savage Household
Piers K Fowler Scholarship Fund
Schiavello Group Charitable Foundation
Yore Household

Trusts and Foundations

Hudson Institute is grateful for the ongoing support of our generous trusts and foundations who form part of our wider community, helping to connect our Institute and scientists with patients who inform our research.

We would particularly like to thank the following organisations for their contributions to our work in 2025.

My Room Children's Cancer Charity

My Room Children's Cancer Charity, a steadfast and powerful ally, in the fight against childhood and adolescent and young adult cancer, is making a transformative impact on cancer at Hudson Institute. Through major funding commitments, they have established the My Room Children's Cancer Charity Fellowship and Laboratory, an Australian first initiative supporting world leading researchers like Associate Professor Jason Cain, the inaugural recipient of this program. My Room Children's Cancer Charity are pioneers in their field, with their funding retaining talented Australian researchers and helping to build collaborative communities in childhood cancer research. Hudson Institute's enduring partnership with My Room strengthens national research capacity, accelerates discovery, and ensures children with cancer benefit from cutting edge science. With sights set on finding a cure for childhood cancer, My Room's support is empowering clinical research and discovery projects at Hudson Institute, nurturing future research leaders, and bringing hope to families and the smallest of patients across Australia.

Rebecca L Cooper Foundation

The Rebecca L. Cooper Foundation is a national charity supporting research innovation. At Hudson Institute, support for our talented early- and mid-career researchers through fellowships and grants from the Foundation fills critical funding gaps not met by other schemes. The Rebecca L. Cooper Foundation's support enables these scientists to pursue their bold ideas in areas such as endocrinology, women's and newborn health, and cell therapies, which in turn strengthens Australia's research capability and knowledge gain. At Hudson Institute, this funding empowers our emerging research leaders to develop a new understanding of biology and disease, generate key preliminary data, and accelerate progress toward improved human health outcomes. The Foundation's investment ensures promising researchers have the stability and resources needed to make breakthroughs that benefit the global community.

The Kids' Cancer Project

The Kids' Cancer Project is making a powerful contribution to Hudson Institute's research by funding programs that aim to improve both survival and quality of life for children with cancer. A national charity dedicated to curing childhood cancer through medical research, The Kids' Cancer Project invests in bold, discovery driven science, including our researchers' work in areas such as precision medicine, disease modelling, and the development of safer, more effective therapeutics for childhood cancers. Their support strengthens our research capacity and fuels innovation for the treatment of childhood cancers that have the poorest outcomes. By backing our leading scientists and high impact programs, The Kids' Cancer Project is helping bring new hope to children facing cancer and their families.

Robert Connor Dawes Foundation

The Robert Connor Dawes (RCD) Foundation's enduring support of Hudson Institute has made a lasting contribution to childhood cancer research. Through this partnership, our team and international collaborators have generated important findings, including the first evidence that paediatric brain tumours are fundamentally different from adult brain tumours. This work has also validated the role of a key molecule in a major tumour-growth pathway, creating promising opportunities for patenting and future drug development. In addition, our research has contributed more than 30% of the brain cancer data in the Childhood Cancer Model Atlas, helping to accelerate discovery worldwide.

Over the past five years, RCD has supported a Precision Medicine research program at Hudson, built around CRISPR-based projects that precisely edit brain tumour DNA to identify critical genes driving tumour growth. These studies have focused on the deadliest childhood brain cancers, including high grade gliomas, ependymomas and rare subtypes, while also highlighting drug targets already in trials and bringing new therapies closer to clinical use.

Graduates of 2025

Congratulations to our Graduate and Honours students who completed their degrees in 2025.

Doctor of Philosophy

Dr Brittany Doran

In vivo proof-of-principle for the therapeutic ablation of leader cells to achieve sustained tumour regression and chemosensitisation in ovarian cancer

Supervisors: Dr Maree Bilandzic, Dr Laura Moffitt, Prof Magdalena Plebanski, Dr Andrew Stephens, Dr Amy Wilson

Dr Fathima Shahla Vilcassim

Iron dysregulation in the myelodysplastic syndromes

Supervisors: Dr George Grigoriadis, Prof Ron Firestein, Dr Jim Vadolas

Dr Teresa Weng

Investigation of the role of ADAM17 and the ASC inflammasome in disease

Supervisors: Prof Brendan Jenkins, Dr Mohamed Saad

Dr Charmaine Rock

Perinatal cardiovascular structure and function in fetal growth restriction

Supervisors: Dr Beth Allison, Prof Suzanne Miller

Dr Ihara Adjumain

Multi-dimensional integrative profiling identifies novel therapeutic targets in paediatric high-grade gliomas

Supervisors: Prof Ron Firestein, Dr Paul Daniel

Dr Caitlin Welsh

Microbial Hydrogen Cycling in the Human Gastrointestinal Tract

Supervisors: Prof Christopher Greening, Prof Samuel Forster, Dr Rachael Lappan, Prof Dena Lyras

Dr Tegan White

Neurodevelopmental outcomes in a preclinical fetal growth restriction model treated with melatonin and umbilical cord blood stem cells

Supervisors: Prof Suzanne Miller, Dr Beth Allison, Dr Emily Camm

Dr Arya Jithoo

Novel approaches in pursuit of a stem cell therapy for perinatal stroke

Supervisors: A/Prof Courtney McDonald, Prof Suzanne Miller, Dr Tayla Penny

Dr Emma Salisbury (joint PhD with Monash University and University of Warwick)

Developing a 3D in Vitro Model of the Human Endometrium using GelMA Hydrogels

Supervisors: Prof Neil Cameron, Prof Jan Brosens, Prof Caroline Gargett, Prof David Haddleton

Dr Beth Piscopo

Cerebrovascular consequences of fetal growth restriction in the perinatal period

Supervisors: Prof Suzanne Miller, Dr Beth Allison, Dr Amy Sutherland

Dr Alexandra McAllan

3′ isomiR expression and stoichiometry in the human microRNA landscape

Supervisors: Prof Michael Gantier, Dr Linden Gearing

Dr Mihiri Goonetilleke

Developing a cell-free therapy for the treatment and prevention of metabolic dysfunction-associated steatohepatitis (MASH) and hepatocellular carcinoma (HCC)

Supervisors: A/Prof Rebecca Lim, Dr Ishmael Inocencio, Prof William Sievert

Dr Shananthan Balachandran

Novel treatments for radioactive iodine-refractory differentiated and anaplastic thyroid cancer

Supervisors: Clin Prof Christopher Gilfillan, A/Prof Simon Chu, Dr Michael Mond

Dr Naveen Kumar

Investigating the therapeutic potential of extracellular vesicles derived from gestational cells for perinatal cerebral and pulmonary injury

Supervisors: A/Prof Rebecca Lim, Dr Ishmael Inocencio, Dr Tamara Yawno, Dr Dan Dan Zhu

Dr Brittany Vining

Novel gene targets of the transcription factor SOX9

Supervisors: Prof Vincent Harley, Dr Stefan Bagheri-Fam, Dr Robin Hobbs

Dr Alice Figueiredo Camargos

Structure and biophysical studies of telomeric G-overhang

Supervisors: Dr Wilson Wong, Dr Ram Bhusal

Dr Sara Di Simone

Longitudinal and spatial characterisation of microbial community composition and host microbe interactions in early life

Supervisors: Prof Marcel Nold, Prof Samuel Forster, Dr Felix Oberender

Dr Tima Shamekhi

A comprehensive antigen discovery study to identify immunotherapeutic targets in paediatric diffuse midline glioma

Supervisors: A/Prof Pouya Faridi, Prof Riccardo Dolcetti, Prof Ron Firestein

Dr Kristian Barry

Exploring the role of NLRP3 in pulmonary disease

Supervisors: A/Prof Michelle Tate, Dr Maggie Lam, A/Prof Ashley Mansell

Dr Siti Azman

Understanding cardiovascular impairments in fetal growth restricted newborns

Supervisors: Prof Graeme Polglase, Dr Beth Allison, Dr Kirsten Bubb

2025 Hudson Institute Student Association (HISS) committee

Master of Biotechnology

Mr Qihao Sun

Master of Biomedical and Health Sciences

Ms Yue Cheong
Ms Da Hyun Kang
Ms Alice Larsen
Ms Sijie Li
Ms Darshana Sharma
Ms Xiyu Wang

Bachelor of Biomedical Science (Honours)

Ms Lily Anthony
Ms Izza Ayub
Ms Armita Foumani
Ms Jingen Ma
Ms Calida Pereira
Ms Alyssia Poklar
Ms Dunithi Samarasekera
Ms Rachel Satyendra
Ms Jemma Thurston
Ms Gemma Truong
Ms Natalie Tsiang
Ms Hanna Vine

Bachelor of Medical Science (Honours)

Ms Anoushka Baruah
Ms Caitlin Eccleston
Ms Sharni Howlett
Ms Elizabeth Hoye
Ms Eleanor McLean
Mr Nicholas Tellus
Ms Kavitha Wilson Rajaratnam

Bachelor of Science (Honours)

Ms Jasmine Bell
Ms Yu-Pei Chan
Ms Savannah Grima
Ms Daniela Lambrechts
Ms Emmylee McNabb
Ms Tazrian Mostafa
Ms Anna Nguyen
Ms Lolita Olle
Mr Dylan Sloothaak
Ms Ming Yew

Students at a glance

176
Students

127 PHD
18 MASTERS
31 HONOURS

56
Students

Honours and Graduate Students completed

Board of Directors

The Directors of Hudson Institute of Medical Research Board, 31 December 2025.

MR ANDREW LEYDEN

BComm

Investment Committee Chair

DR ROBERT (BOB) EDGAR AM, BOARD CHAIR

BEcon (Hons), PhD (Ohio State)

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MBBS, PhD, FRACP, FAHMS

PROFESSOR WARWICK ANDERSON AO

PhD (Adel), LLB (Monash)

MR GEORGE OU

MBA, CPA

Finance and Audit Committee Member

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Investment Committee

Mr Andrew Leyden (Chair), Mr Robert Merriel (CFO/Company Secretary and voting member), Mr Alan Lahiff (Secretary) and Ms Sophianne Marinis (Accountant)

Intellectual Property and Commercialisation Committee

Dr Andrew Gearing, Dr Alastair Hick, Dr Chris Smith, Dr Tony Eglezos, Mr Robert Merriel (Acting Chair, Secretary), Professor Elizabeth Hartland AM (CEO), Professor Claudia Nold, Professor the Hon Jill Hennessy, Ms Carmela Monger and Mr Ryan Huang

MR CHRIS DODD
MBA, FCAANZ
Finance and Audit Committee Chair

MR ROBERT MERRIEL, COMPANY SECRETARY
BA, Grad Dip (Psych), Grad Dip (Accounting), CPA

PROFESSOR EUGINE YAFELE
BSc Econ (Hon), MBA
Board Observer

PROFESSOR THE HON JILL HENNESSY
GAICD, BA, LLB, LLM
IP Committee Member

PROFESSOR MIKE RYAN
BSc (Hons), PhD

Organisation structure

Institute Committees

Career Development Committee
Equity, Diversity & Belonging Committee
Early Career Researcher Committee
Education and Training Committee
Ethics Committee
Hudson Institute Student Society
OHSE Committee
Research Committee
Seminar Committee

Board of Directors

Board Subcommittees

Finance and Audit Committee
Investment Committee
Intellectual Property and Commercialisation Committee

Director and CEO
Professor Elizabeth Hartland AM

Centre Heads

Deputy Director
Centre for Cancer Research
Professor Ron Firestein

Centre for Endocrinology and Reproductive Health
Professor Peter Fuller
Professor Patrick Western

Centre for Innate Immunity and Infectious Diseases
Professor Seth Masters

The Ritchie Centre
Professor Suzanne Miller

Executive

Chief Financial Officer
Chief Commercialisation Officer
Company Secretary
Mr Rob Merriel

Chief Operating Officer
Dr Joseph Pereira

Head of Fundraising and Communications
Mr Garry Tanner

Scientific Support Group

Finance
Commercialisation and IP
Research Office
Research Integrity
People and Culture

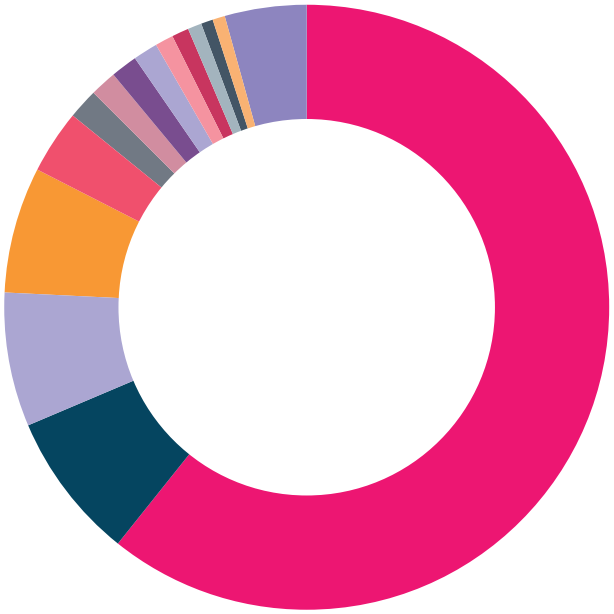
OHSE
Logistics and Technical Services (LATS)
Platforms
Purchasing
Bioresources

Fundraising
Communications

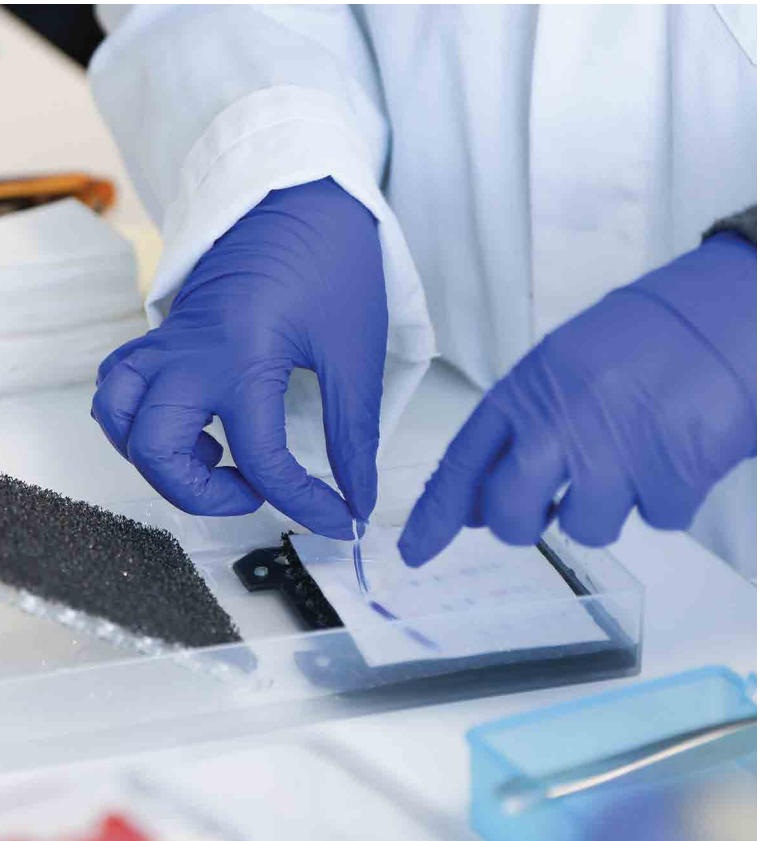
Fuelling Discovery

– This Year in Grants

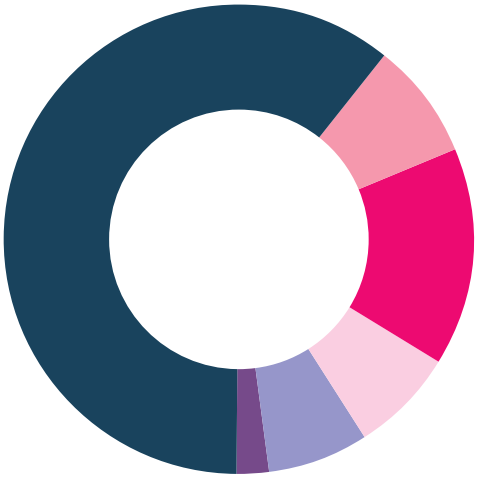
Grant funding awarded in 2025



National Health and Medical Research Council (NHMRC)	$19,382,800
Australian Research Council (ARC)	$2,535,683
Medical Research Future Fund (MRFF)	$2,271,654
Children's Cancer CoLab	$2,177,546
Lindonlight LLC (USA)	$1,095,045
Gates Foundation (USA)	$517,460
Ovarian Cancer Research Foundation (OCRF)	$460,000
Fundació La Marató de TV3 (Spain)	$450,000
Love Your Sister Foundation	$426,276
Chordoma Foundation (USA)	$313,174
National Heart Foundation of Australia	$285,178
Dust Diseases Board	$240,000
Rare Ovarian Cancer Incorporated (ROC Inc)	$205,000
CanToo Foundation	$200,000
Additional grant funding	
The Jack Brockhoff Foundation	$150,000
Victorian Government - Department of Jobs, Skills, Industry and Regions	$130,633
Robert Connor Dawes (RCD) Foundation	$125,000
Norman Beischer Medical Research Foundation (NBMRF)	$121,795
The Erica Foundation Pty Ltd (Trustee for Jena Thyne Reid Foundation)	$105,924
PanKind Australian Pancreatic Cancer Foundation	$100,000
Perpetual Trustees	$100,000
Isabella & Marcus Foundation	$75,000
Inner Wheel Australia Inc	$65,000
Other	$403,470
Total	**$31,936,639**



Financial snapshot



Revenue	%	2025 ($)	2024 ($)	2023 ($)
Australian Government	60%	$35,232,517	$34,719,046	$35,713,656
Victorian Government	8%	$4,539,068	$6,179,006	$5,005,385
Philanthropic Grants	15%	$8,723,488	$9,886,645	$9,068,854
Commercial Research	7%	$3,830,941	$5,028,194	$5,366,054
Infrastructure Monash University	7%	$4,241,637	$3,915,686	$3,768,021
Other Income	2%	$1,021,405	$1,546,030	$3,807,088
Investment Income	1%	$870,496	$1,311,914	$1,610,565
Total		**$58,459,552**	**$62,586,521**	**$64,339,623**

Expenditure	%	2025 ($)	2024 ($)	2023 ($)
Scientific and Laboratory	81%	$51,334,052	$50,494,586	$50,744,064
Administration Expenses*	19%	$12,091,418	$12,692,099	$13,001,178
Total		**$63,425,470**	**$63,186,685**	**$63,745,242**

*Administration expenses include: special projects; salaries of administrative and scientific support staff; fundraising; communications; rent, utilities and buildings; information systems; professional services; legal patents and commercialisation; finance; and insurances.

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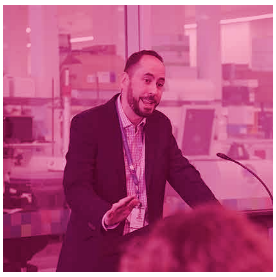

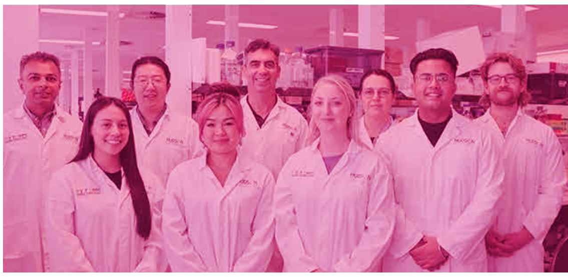



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