

# Organisational structure

Garvan Institute of Medical Research

Board of Directors

**Garvan Research Foundation** 

Board of Directors

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Executive Executive Director: Prof Chris Goodnow Deputy Director: Prof Peter Croucher Chief Operations Officer: Nat McGregor		Executive Director: Mara-Jean Tilley Deputy Director: Brad Timms	
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<b>Data Science</b> A/Prof Sarah Kummerfeld	A/Prof Robert Weatheritt		Data Science Platform: A/Prof Sarah Kummerfeld
<b>Genomic Science</b> Prof Daniel Macarthur	Dr Ira Deveson A/Prof Jodie Ingles	A/Prof Owen Siggs	Sequencing Platform: David Murray
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#### Precinct

Precinct Director: Dr Shona Blair



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We acknowledge the Gadigal and Gundungurra peoples, the traditional owners and custodians of the lands on which the **Garvan Institute** and **Australian BioResources** are located. We pay respects to Elders, past, present and future, and recognise the continuing connection and contribution to this land.





#### **Our Vision**

At Garvan, we see a future where everyone lives a longer, healthier life.

By being a global leader in discovery research and driving the translation of breakthroughs from the lab to the clinic, we can revolutionise human health using the power of genomic information.

#### **Our Mission**

To harness all the information encoded in our genome to better diagnose, treat, predict and prevent disease. From the individual patient with rare disease, to the many thousands affected by complex, widespread illness, we are pioneering discoveries across diseases that have the deepest impact on our community.

#### **Our Values**

Be Collaborative Be Innovative Act with Integrity Inspire Excellence Be Brave

### 2022: Discoveries to impact

Our discoveries are the result of the best scientific minds working collaboratively to capitalise on each other's expert knowledge. We seek to expand and scale our impacts, taking research discoveries into patient impact on a global scale.

The Garvan Institute of Medical Research brings together world-leading researchers and clinicians, collaborating locally and globally, to improve human health.

Through our key scientific strengths in data, genomics, cellular, translational and clinical science, and enabled by cutting-edge technology and world-class facilities, we aim to catalyse research from fundamental discovery to transformational impact.

Since it was founded in 1963, Garvan has made significant breakthroughs in diseases including rare cancers and cancers of the breast, prostate and pancreas, immune deficiency and autoimmunity, COVID-19, diabetes and skeletal disease. Our researchers have made major advances in genome, epigenome, protein and cell analysis technology, revealing causes and developing treatments for diseases that impact millions of people worldwide.

Today, Garvan's mission builds on those advances, harnessing all the information encoded in our genome, from DNA to complex organ systems, to better diagnose, treat, predict and prevent disease. Patients, clinical trials and diverse populations are at the centre of this work. Our researchers, together with collaborators across the globe, are focused on addressing the unmet needs of those living with disease – where better understanding, new treatments and more effective diagnosis can have the biggest impact for individuals and their families.

Garvan is a founding member of the St Vincent's Sydney Health Innovation Precinct, Australia's oldest and most established partnership focusing on medical research and healthcare delivery. We collaborate closely with cornerstone partners, St Vincent's Sydney Public and Private Hospitals, and the Victor Chang Cardiac Research Institute. We also have strong ties with UNSW Sydney, our key academic affiliate.

Our research is funded through a crucial combination of peer-reviewed government grants and generous philanthropic investment from the community. With the support of our passionate Garvan family, our researchers strive, every day, to create a future where everyone lives longer, healthier lives.



### Garvan Institute of Medical Research Report 2022

While 2022 saw a lifting of enforced lockdowns and restrictions, the pandemic continued to impact our lives, loved ones and our ability to connect. At Garvan, the unexpected retirement of Professor Chris Goodnow FAA FRS as Executive Director in July 2022 due to COVID-19-induced heart health issues, had a profound impact on our organisation.



Dr John Schubert AO Chairman

Professor Chris Goodnow was a much-admired Executive Director of Garvan for more than four years, prior to which he was Deputy Director for two. Fortunately, having largely recovered from his acute illness, Professor Goodnow has now returned to lead his laboratory and Hope Research initiative at Garvan. We extend our sincerest thanks for his six years of leadership (to read more, see Page 34). We also sincerely thank Professor Peter Croucher, Garvan's Deputy Director, for acting as interim Executive Director from July 2022 to April 2023.

Challenges aside, Garvan's brilliant and dedicated researchers and clinician-scientists continued to make world-first discoveries into our understanding of the diseases having the biggest impact on our community to better diagnose, treat, predict and prevent disease.

Throughout 2022, we were thrilled to be able to officially launch two initiatives, Professor Daniel MacArthur's Centre for Population Genomics (a joint initiative with the Murdoch Children's Research Institute in Melbourne, see Page 22) and the ACRF InCite Centre, proudly funded by the Australian Cancer Research Foundation (see Page 31).

The support of the Garvan family in enabling these successes cannot be underestimated. As an organisation we are deeply cognisant of, and grateful for, the multifaceted support of our donors, philanthropic investors, advocates, *Partners for the Future*, corporate partners and volunteers. Thank you all.

We are also immensely grateful to the Directors of the Boards of the Garvan Institute of Medical Research and the Garvan Research Foundation who each provide extensive expertise and support. We warmly welcome Professor Erwin Loh who joined the Institute Board in 2022 and extend our thanks to retiring Director, Professor Patricia O'Rourke.

We also acknowledge the scientific and strategic guidance of the Garvan Leadership Team: Professor Chris Goodnow (Executive Director – 7 July 2022), Professor Peter Croucher (Deputy Director 1 January – 7 July 2022, interim Executive Director 7 July – 31 December 2022), Professor Rob Brink, Nancy Campisi, Dr Roz Hendriks (4 July 2022 – 16 May 2023), Professor Anthony Joshua, Associate Professor Sarah Kummerfeld, Professor Daniel MacArthur, Nat McGregor, Samantha Malone, Professor Joseph Powell, and Mara-Jean Tilley.

At the time of writing, we are thrilled to confirm the appointment of Professor Benjamin Kile as Garvan's new Executive Director. Professor Kile brings with him an extensive background in academic and research leadership, most recently serving as the Executive Dean of the Faculty of Health and Medical Sciences at the University of Adelaide, and formerly as Head of the Department of Anatomy and Developmental Biology at Monash University. He has also held leadership roles at the Walter and Eliza Hall Institute (WEHI), including Joint Head of the Chemical Biology Division, where he spearheaded a restructure of WEHI's early-stage drug discovery program, now the National Drug Discovery Centre.

Sincerely

Dr John Schubert AO

### Garvan Research Foundation Report 2022

With the easing of COVID-19 restrictions in 2022, we were delighted to be able to return to in-person activities such as our Public Seminars series. It has been gratifying to bring the Garvan family back together again.



Dr Russell Scrimshaw AM Chairman



Mara-Jean Tilley Director

The impact of giving at Garvan runs deep, from our very founding with a gift of 100,000 pounds in memory of James Patrick Garvan to our dedicated donors, philanthropists, *Partners for the Future*, corporate partners and advocates. In total in 2022, our Garvan family donated \$41.6m to enable, catalyse and accelerate our critical research. How privileged we are to have this remarkable philanthropic investment: thank you!

Our passionate and dedicated Foundation team worked tirelessly throughout 2022 with joy and pride to promote Garvan's researchers, clinician-scientists and the importance of medical research for the future of human health. Our gratitude also goes to our small but mighty team of volunteers who ensure the smooth running of our Supporter Services function.

Sadly, in April 2022 we lost one of our most passionate *Partners for the Future,* and resident centenarian, Mr Bill Walker. Bill was deeply passionate about Garvan, medical research and horses. You can read more about Bill's extraordinary life on Page 54.

We sincerely thank our Board of Directors for their ongoing generosity, expert guidance and passionate advocacy throughout 2022. We are humbled by their support and enthusiasm. We warmly welcome Mr Bruce Liu, who joined the Board in August 2022.

We truly could not do what we do without the support of you – our Garvan family. To each of you, we extend our deepest gratitude and thanks. We hope to see you in person soon!

Sincerely

Dr Russell Scrimshaw AM

Mara-Jean Tilley

### The year at a glance

As at 31 December 2022 All figures are A\$'000





### Garvan at a glance







# Collaborations and publications

#### Local research, global reach

This graphic demonstrates the reach of Garvan's research collaborations, with each number referring to joint publications with international institutions.



#### Peer-reviewed scientific journal covers

Peer-reviewed scientific journals serve as a key mechanism for scientists to share their research and expertise. This shared knowledge allows scientists to advance their understanding and develop better ways to predict, diagnose and treat disease.

See Page 66 for a full list of Garvan's 2022 publications.



**Metabolism** Assessment and treatment of osteoporosis in T2D.



Science Advances Cell-derived matrices assays to assess extracellular matrix architecture and track cell movement.



JBMR Muscle strength and physical performance improve fracture risk by commonly used algorithms.

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**Neurology** Use of whole-genome sequencing for mitochondrial disease diagnosis.

### Pillar updates

The Pillars are the multidisciplinary areas of science where Garvan aims to lead medical research globally. Together, the Pillars provide the rich and dynamic scientific environment in which all Garvan's research can flourish.



#### The Cellular Science Pillar Pillar Director Professor Joseph Powell

The Cellular Science Pillar aims to uncover how human disease arises at the level of individual cells. Researchers make discoveries across cellular genomics, epigenetics, and immunology by exploring the relationship between genomes, cells, and their impact on human health.

Driving this work are the laboratories, revealing critical insights into cancer therapeutics, genetic signatures in age-related degeneration, and the genetic causes of autoimmune disease. In 2022, the Cellular Science Pillar saw close to a 100% success rate in the highly competitive National Health and Medical Research Council Fellowship Scheme and translational research success with clinical trials initiated to test new treatments for patients with cancer and autoimmune disease.



The Clinical Science Pillar Pillar Director Professor Anthony Joshua

The Clinical Pillar started with a flurry of activity in 2022 aiming to increase clinical research activity and increase collaboration across the campus.

Researchers embarked upon several strategic initiatives, the first with St Vincent's pathology (Sydpath) to facilitate both pathology services and trials for Garvan researchers, activating in early 2023. This included recruiting a joint Garvan-St Vincent's governance officer to facilitate translational initiatives into the clinic. The team commenced a thorough review of biobanking at Garvan to ensure future success into the next decade. Finally, there were several collaborations initiated with both internal and external researchers to develop both resources and ideas into the next 12 months.



The Data Science Pillar Pillar Director Associate Professor Sarah Kummerfeld

The Data Science Pillar aims to develop and apply computational, statistical and machine learning methods to analyse large datasets from genomics, cell populations, tumour biopsies and images, to make new predictions and clinical insights.

Two cutting-edge projects to highlight were: dissecting cell cycle regulation using programmable gene editing technology and deploying in vivo CRISPR-RNA engineering to prevent diet-induced obesity.

The Data Science Pillar established a strong community that brings together researchers from across the institute.





### The Genomics Science Pillar

**Pillar Director** Professor Daniel Macarthur

The Genomics Science Pillar uses cutting-edge technologies to understand the basis of human disease – with a particular focus on severe, rare genetic disorders – as well as developing genomic resources that are representative of Australia's diverse communities.

The Genomics Science Pillar was highly successful in obtaining significant Australian Government MRFF funding to support Professor Daniel MacArthur to build OurDNA, a more equitable resource of Australian genetic variation; Associate Professor Jodie Ingles to improve diagnosis and management of cardiovascular disease; and Dr Ira Deveson to apply new genomic technologies to Australian Indigenous cohorts. The team generated key new data sets (including the first large cohort of whole genomes from an Australian Indigenous community); assembled the largest research-accessible genomic dataset from rare disease families in Australia; and launched the new Garvan Rare Disease Program.



#### The Translation Science Pillar

**Pillar Director** Professor Robert Brink

The Translation Science Pillar aims to take the fundamental observations from experimental and clinical studies through testable theories of the basis for health and disease and ultimately towards cogent strategies for clinical therapies.

The Translation Science Pillar specialises in understanding the biological processes which contribute to disease such as autoimmunity, osteoporosis and cancer, and contributes across all six of Garvan's Strategic Research Programs. In 2022, the Pillar was highly successful in obtaining competitive funding to continue the varied research in developing new approaches for the diagnosis and treatment of these diseases.



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### Scientific Platforms

Garvan's Scientific Platforms fulfil a crucial enabling function for researchers within the Institute and a one-stop-shop for internal and external parties to access the latest technologies and research capabilities. They provide advanced and rapidly evolving biomedical technologies, data infrastructure and world-class clinical research expertise to support a diverse range of projects.



### Platform updates

The Platforms work closely with the Programs to accelerate basic research and translation of research findings into clinical care, and are a key component of Garvan's research ecosystem.

#### Clinical Translation and Engagement Platform

In 2022, the Garvan Clinical Translation and Engagement Platform has initiated developing a framework to measure Garvan's research impact. This included developing a pathway for the whole-of-Garvan adoption of Garvan's Research Impact Framework. This framework will standardise the way Garvan measures impact from our research and demonstrates translation of research findings into real-world outcomes and benefits. In addition, during 2022 the CT & E Platform commenced developing a consumer engagement strategy for Garvan researchers. Meaningful involvement of consumers and communities in medical research is increasingly encouraged. Benefits include making the research more relevant to communities (raising impact); greater transparency and accountability for Garvan (increasing trust and reputation); and practical considerations such as assistance with recruitment and dissemination.

In 2022 My Research Results has provided a pathway for more than 200 research participants to access potentially lifesaving genomic information for themselves and their family. Medically actionable genomic information identified through research is returned to research participants by our genetic counsellors. The genetic counsellors provide information (including research results), support and referral for ongoing clinical care to research participants. These individuals and their family members will engage in evidence-based risk management strategies to reduce morbidity and mortality of disease.

#### Data Science Platform

The Data Science Platform enables data intensive medical research. The team build storage and compute platforms, implement and contribute to open-source software, process large volumes of data and use statistics and machine learning/AI to analyse complex datasets. Our expertise spans the continuum of data science: computational biology, production bioinformatics, software engineering and research computing.

During 2022, the newly established Data Science Platform focused on four main areas: supporting computational requirements of Garvan's strategic programs, scoping future research data storage and compute requirements, building capacity through recruitment of team leads for software engineering and research computing and, playing a key role in defining Australia's national Genomics infrastructure plan. During 2023 we are looking forward to finalising the institute's research data compute and storage strategy and deployment, launching a computational training program and leveraging the team's expertise in machine learning and AI.

My Research Results has provided a pathway for more than 200 research participants to access potentially lifesaving genomic information for themselves and their family.



Bioinformatics

#### Sequencing Platform

The Garvan Sequencing Platform has continued to lead the way in cutting-edge genomics and transcriptomics throughout 2022, achieving remarkable milestones and advancements. Our dedication to large-scale genomics projects is evident with the successful sequencing of 3,308 genomes, underscoring our commitment to pushing the boundaries of genomic research. Additionally, we implemented a ctDNA panel enabling liquid-biopsy testing for breast, prostate and ovarian cancers, expanding our capabilities in non-invasive diagnostic development. To further support researchers in unlocking the potential of archived samples, we have established whole-genome sequencing from formalin-fixed paraffin embedded tissue. This innovative approach allows for the extraction of valuable insights from previously untapped sources, enriching studies with extensive longitudinal data.

In pursuit of enhanced efficiency and precision, the team has successfully automated the whole-genome sequencing library preparation workflow. Leveraging the Illumina workflow developed for the Singapore 100K cohort, this automation streamlines processes, leading to increased accuracy and reliable results. As we embark on another exciting year, the team remains dedicated to driving innovation, pushing the boundaries of genomics, and collaborating with researchers to make groundbreaking discoveries.

#### Cellular Genomics Platform

The Cellular Genomics Platform had a strong year of growth in 2022 with more than 5 million single cells captured across 49 projects, providing valuable insights for Garvan's Strategic Programs and researchers across four states. Our team has seen an increase in the diversity, complexity and scale of projects enabled by the ever-expanding single cell workflows available within the Platform and assisted by our flow cytometry and FACS capabilities.

We also saw a significant increase in projects using spatially resolved transcriptomics to simultaneously visualise and quantify gene expression patterns in cells or tissues within their spatial context. Aided by our acquisition of instrumentation that allows transcriptomic analysis of archived formalin-fixed, paraffin-embedded tissue sections, we expect continued strong interest in this application.

Evaluation and incorporation of new technologies, applications and workflows remained a focus for our research and development team in ensuring the Cellular Genomics Platform continued to offer researchers access to expertise and cutting-edge technologies in the fast-moving cellular genomics field.



Dr Ira Deveson





### Strategic Programs

In 2022, Garvan introduced a new approach to our research. We established six Strategic Programs – each built around an area of medical research where Garvan has truly distinctive scientific ideas, insight, expertise and track record.

Each Program brings together researchers from across Garvan – with almost all Faculty contributing to one or more Programs – along with partners in other organisations. They work closely with one another and with Garvan's Pillars and Platforms. Designed to be collaborative and multidisciplinary, the Programs are actively focused on answering some of the most challenging scientific and clinical questions of our time. Our portfolio of Programs has an overarching goal of making transformative research discoveries and taking these all the way through to clinical impact, to improve health and change lives.





Cancer Ecosystems Program



Precision Immunology Program



Rare Disease Program





Skeletal Diseases Program

### Strategic Programs



#### Dynamics of Cancer Resistance

**Program Co-Leads** Associate Professor Christine Chaffer Associate Professor Marina Pajic

Each year, there are an estimated 10 million deaths globally from cancer. The Dynamics of Cancer Resistance Program has a vision to limit these deaths and to reach a point where a cancer diagnosis is not a death sentence. Our Program brings new thinking to the challenge of cancers that become resistant to therapy, and those that re-emerge after an apparent 'cure' – together causing most of all cancer deaths.

The Program team is working to understand, at the level of individual cells, how cancers evolve dynamically over time to evade and resist treatment. Our work goes beyond cancer cells themselves to understand how current treatments impact on non-cancerous cells to change the course of cancer progression. The Program's goal is to develop new 'state-gating' therapeutic strategies that target cancer dynamics and halt the emergence of treatment-resistant cancers.



#### Cancer Ecosystems

**Program Co-Leads** Professor Alex Swarbrick Professor Paul Timpson

As tumours grow, they build a 'safe haven' around themselves, which protects them from chemotherapy and can also help them hide from the body's immune system. The Cancer Ecosystems Program has a vision to transform cancer outcomes by targeting this 'safe haven' – the tumour microenvironment. Building on Garvan's globally significant track record in understanding and targeting the complex environment surrounding tumours, the Program's first focus is on breast, pancreatic and prostate cancers.

The team leverages world-leading clinical tissue biobanks, data populations, experimental model systems and technologies, to understand the dynamic organisation of the tumour microenvironment. The team has expertise to cover the translational landscape. from state-of-the-art discovery science to clinical trials. Synergising the international leadership of the Program team in a supported framework will enable significant clinical impact. The intent is to tap a new reservoir of tumour microenvironment-based therapies and biomarkers that are effective across a wide range of cancer types.



#### Skeletal Diseases

**Program Co-Leads** Professor Jacqueline Center Professor Mike Rogers

Bone fractures are major contributors to the global burden of disease and have devastating consequences for those who suffer them. These include premature mortality, disability, chronic pain, loss of independence, and financial vulnerability. The vision of the Skeletal Disease Program is to lessen this disease burden, by leveraging Garvan's unique and world-leading approaches and expertise in bone science. The Program is taking a multi-pronged approach that seeks to (1) address the poor uptake of existing bone-targeted therapies; (2) better understand what happens to patient health following fractures, so as to identify those at risk of poor outcomes; (3) identify more effective therapeutic approaches for preventing fractures and for repairing lesions in bone; and (4) eradicate dormant (sleeping) cancer cells from bone to avoid relapse in cancers that spread to bone.



#### Rare Disease

#### Program Co-Leads

Associate Professor Jodie Ingles Associate Professor Owen Siggs

There are currently more than 7,000 known rare diseases. Although individually rare, these diseases are collectively common and affect an estimated 2 million Australians. Less than half of these individuals have a genetic diagnosis, a crucial first step towards understanding prognosis and familial risk and accessing therapies.

The vision of the Rare Disease Program is to use genomics to accelerate the diagnosis, treatment and care of patients with rare disease. The Program recognises the need for transformative collaboration in this space, and seeks to bring together the researcher, practitioner and patient communities. Building on Garvan's globally competitive position in rare disease genomics, the team will build new clinical populations at scale; develop and apply cutting-edge sequencing and analysis tools to discover rare new disease genes and variants; and improve outcomes for patients and families living with rare diseases.



#### Precision Immunology

**Program Co-Leads** Associate Professor Elissa Deenick Professor Tri Phan

Immune system health and disease affects every aspect of day-today life. The goal of the Precision Immunology Program is to transform the diagnosis and treatment of immune disease, shifting the dial to a personalised immunology approach that precisely targets an individual's disease. Precision medicine is now standard of care in many areas of oncology. The team's vision is to make precision medicine a reality in immunology.

With an initial focus on immune B cells in health and disease, an area in which Garvan has world-leading insight and expertise, the team starts with the big clinical questions, bringing together clinicians and scientists in close collaboration. Working to build a molecular taxonomy of immune disease, the Precision Immunology Program aims to understand the molecular basis of long-lived immunity against infectious diseases and to predict and prevent the development of autoimmune disease and allergy.



#### Genomics-led Drug Discovery

**Program Co-Leads** Professor Joseph Powell Associate Professor Robert Weatheritt

The Genomics-led Drug Discovery Program has an ambitious vision for a world in which complex diseases - such as Crohn's disease. Parkinson's disease and cardiovascular disease - are rare, not common. Our Program builds on world-class expertise in population genetics, cellular genomics, RNA biology, and gene editing. The team takes a 'disease-agnostic' approach to treating complex diseases, with a goal to unlock the vast potential of human genetic and cellular genomic data to reshape understanding of many complex diseases - and to develop new and more effective RNA-based therapies.

By building and leveraging worldleading resources to identify how genetic variation acts at the level of individual cells, the team will build on this work to identify the most relevant targets to develop RNAbased therapies.



### An incredible opportunity to lead the world in genomic medicine

The Centre for Population Genomics, launched in 2022, is an exciting partnership between Garvan and the Murdoch Children's Research Institute in Melbourne.

The Centre for Population Genomics, which received significant support from the Australian Government, generous donors and industry partners, is a national centre that houses a genomic database of culturally and linguistically diverse populations, making it easier to tailor health care to all Australians and eventually to all people around the world.

We are currently in the early stages of a profound transformation of the practice of medicine, in which genomic technologies – the study of all a person's genes and their interactions – allow health care to be increasingly personalised to individual patients.

The Centre is led by Professor Daniel MacArthur, who returned to Australia in 2020 from the US where he was Co-Director of the Medical and Population Genetics Program at the Broad Institute of MIT and Harvard, to apply his experience in building the world's largest genomic databases to improve outcomes for Australian communities.

To read more about The Centre for Population Genomics, please visit: garvan.org.au/research/centre/ centre-for-population-genomics

#### centre for population genomics









### Clinical trials

We run a range of clinical trials for many diseases which enable deep insights and understanding of disease, identify new treatments and therapies and help decide government funding for new drugs.

### Testing a drug treatment for dementia

A Garvan-led study is currently recruiting for a Phase 3 clinical trial to test whether a commonly used treatment for diabetes could slow the process of cognitive decline, a hallmark of the processes that may lead to dementia.

The three-year intervention study will examine the effects of metformin – a drug used to treat diabetes and other metabolic disorders safely and cheaply – on cognition, brain anatomy, vascular health and early signs of dementia.

"We are building on promising research on the positive effects of metformin that could have real impact on reducing or stopping the progress of cognitive decline, something for which there is no effective treatment," says lead researcher Professor Katherine Samaras, Head of the Clinical Obesity, Nutrition and Adipose Biology lab at Garvan and endocrinologist at St Vincent's Hospital Sydney.

Success of the randomised-controlled trial, known as MetMemory, would mean that treatment for slowing cognitive decline could be immediately available.

### Pancreatic cancer therapy clinical trial

A new clinical trial was launched to explore whether 'priming' pancreatic tumours can improve the effectiveness of chemotherapy. The trial, led by Amplia Therapeutics in collaboration with Garvan's Professor Paul Timpson, set out to test if the drug AMP945 helps break down pancreatic tumour defences. Pancreatic ductal adenocarcinoma has a five-year survival rate below 12% and frequently metastasises.

"Survival rates are sadly so low. Our approach is promising to improve current treatments. By increasing chemotherapy sensitivity, we hope to improve outcomes," says Professor Timpson.

AMP945 targets a protein that controls fibrosis. Preclinical studies showed it reduced tumour stiffness and spread, increasing chemotherapy effectiveness.

The trial recruited advanced pancreatic cancer patients at Sydney and Melbourne hospitals, then expanded to Brisbane.



Professor Katherine Samaras



Pancreatic cancer cells activate the molecule AKT (blue) to multiply and spread along connective stroma (pink) in the cancer environment. Credit: Max Nobis (VIB-KU Leuven Center for Cancer Biology)

# Clinical trial testing potential new combination therapy for aggressive breast cancer

Triple-negative breast cancer (TNBC) is an aggressive form of breast cancer that currently lacks any targeted treatments. A new combination therapy, which began its trial in 2022, could change that for thousands of Australian women each year. The trial is testing whether seviteronel, an experimental new medication, can be used in conjunction with traditional chemotherapies to better target TNBC, which makes up around 10–15% of breast cancer cases.

"Triple-negative breast cancer is an aggressive disease with a greater likelihood of spreading around the body and recurring within five years than other breast cancers," says Associate Professor Christine Chaffer, Rebecca Wilson Fellow and leader of the trial at Garvan. "In preclinical studies, we found that seviteronel, in combination with chemotherapy, could be twice as effective in reducing the size of tumours as chemotherapy alone."

Associate Professor Chaffer and her team have found that one of the reasons why TNBC has poorer outcomes than other forms of breast cancer is due to its ability to 'switch' to a more aggressive form that can evade treatment when exposed to chemotherapy.

# World-first gene therapy clinical trial for type 1 diabetes to proceed

A world-first clinical trial to test a gene therapy for type 1 diabetes will proceed, thanks to a boost from the Australian Government's Targeted Translation Research Accelerator program for diabetes and cardiovascular disease.

Professor Shane Grey and his team identified that a key protein known as A20, involved in inflammation and autoimmune disorders, could be used in the genetic engineering of insulin-producing islet cells to slow, or stop the immune system from damaging them.

There is currently no cure for type 1 diabetes, and management involves daily glucose monitoring and insulin administration. The trial will be the first time that genetically engineered pancreatic islet cells will be transplanted into humans to treat type 1 diabetes. If successful, the new therapy will reduce or eliminate dependency on external insulin administration and reduce serious health impacts, which would be a game changer for type 1 diabetes management.



Associate Professor Christine Chaffer



Pancreatic beta cells produce insulin, which regulates blood-sugar levels. Credit: Dr Kate Patterson/Garvan

### Awards

We congratulate all Garvan scientists who were recognised for their significant contributions to research and for pioneering new discoveries to create a future where everyone lives longer, healthier lives.

#### International honour for Professor Chris Goodnow

Outgoing Executive Director Professor Chris Goodnow received the prestigious AAI-BioLegend Herzenberg Award from The American Association of Immunologists, recognising his contributions to B-cell biology. Professor Goodnow pioneered the use of DNA technology and genome sequencing to understand how the immune system recognises 'self' versus 'non-self.' His work identified 14 essential immune genes and four genes key to neurodegeneration and infertility, and illuminated how B cells produce antibodies against foreign cells while avoiding self-reactivity.

"I'm thrilled that the contributions of my team have been recognised by the Herzenberg Award. Len Herzenberg's team invented the multiple parameter cell sorter, making our single-cell analysis of immune checkpoints possible," said Professor Goodnow. He is the first non-US recipient of the Herzenberg Award since it was established 2015.

### Professor Elgene Lim recognised for outstanding cancer outcomes

Professor Elgene Lim was awarded the Sally Crossing AM Award for Outstanding Outcomes in Cancer Research by Cancer Council NSW. The award honours Professor Lim's work developing new treatments for hormone receptorpositive breast cancer and establishing a biobank of patient-derived xenograft models that has enabled more than 15 research collaborations.

Professor Lim heads the Connie Johnson Breast Cancer Research Laboratory at Garvan. A major outcome of his research is repurposing two medications to treat ER+ breast cancer, which accounts for 70% of all breast cancers. Although hormonal therapies are initially effective for ER+ breast cancer, some patients develop resistance. Using models derived from patient tumours, Professor Lim showed how progesterone, androgen and oestrogen receptors interact, enabling new treatment strategies.

The awards represent recognition of Professor Lim's dedication to the advancement of cancer research.



Professor Chris Goodnow (centre)



Professor Elgene Lim

#### Celebrating Excellence: Professor Peter Croucher receives international medal

In November, Professor Peter Croucher, head of the Bone Biology Lab at Garvan, received the prestigious International Medal from the Society for Endocrinology.

Each year, the International Medal is granted to a non-UK based endocrinologist who has primarily worked outside the UK. The Society's Nominations Committee selects recipients based on scientific excellence, an extensive contribution to the discipline, and overall impact.

"It is a great honour and a wonderful surprise to be awarded the International Medal. Although an individual award, this really recognises the work of the many amazing colleagues and collaborators whom I've have had the pleasure and privilege of working with over many years," said Professor Croucher.

#### Australia Day Honour for Professor Leslie Burnett

Professor Leslie Burnett was awarded a Member (AM) in the General Division of the Order of Australia, for his significant service to pathology, to medical research and to professional societies.

Professor Burnett is the Principal Medical Geneticist and Medical Director at the Kinghorn Centre for Clinical Genomics and Genetic Pathologist at Garvan. He pioneered the development of several pathology and genetics initiatives, which are today mainstream clinical services. These include founding Australia's first Community Genetics program, being Medical Director of Australasia's first Whole Genome Sequencing laboratory and developing the world's first pre- and post-analytical quality assurance programs in pathology. He has served as Ministerial appointee, Chairman, or President of several National and International bodies in pathology and genetics.



Professor Peter Croucher



Professor Leslie Burnett AM

### Precision cancer medicine for rural and regional Australia

The Molecular Screening and Therapeutics (MoST) study is a clinical research program aimed at finding the best treatment for patients with advanced, hard-to-treat cancers based on their unique cancer genetic profile. Half of all patients who have received a matched therapy on the program have doubled their life expectancy.

The program is active at more than 20 centres around the country, but predominantly in large population centres – making it difficult to access for the 28% of Australians who live in regional and rural areas.

Thanks to an investment made by Love Your Sister in 2022, the MoST program will expand to eight rural and regional centres across Australia over the next three years, with the aim of enabling an additional 650 patients to undergo molecular screening as part of the program.

"You are much more likely to die from cancer if you are a regional or rural Australian. This gap is unacceptable and it's not good enough. We want precision medicine for all Australian cancer patients whatever the cancer, regardless of location, age, income, or status. Love Your Sister is proud to be part of this expansion because your postcode shouldn't matter." – Samuel Johnson "Love Your Sister's support will help expand the MoST program to create a network of rural and regional cancer centres, so that cancer patients who happen to live in these areas can access the same state-of-the-art treatments that are available to those living in our major cities." – Professor David Thomas, Head of the Genomic Cancer Medicine lab at Garvan and CEO of Omico, the Australian Genomic Cancer Medicine Centre.



Fluorescent imaging immunofluorescence of cancer cells



Professor David Thomas

### 2022 Eureka Prize for Garvan researchers

Garvan's Professor Sandra O'Toole and Kate Harvey are part of the team awarded the prestigious 2022 ANSTO Eureka Prize for Innovative Use of Technology, for their development of a new microscope slide that detects abnormal cells, such as cancer cells.

Pathologists often stain biological samples with chemicals to highlight different features under a microscope. A special coating on the new 'NanoMslide' instead causes light to interact differently with cancer tissue compared to healthy tissue, resulting in a striking colour contrast that makes it easier to detect abnormal cells.

Professor O'Toole and Ms Harvey collaborated with researchers from La Trobe University, the University of Melbourne and the Peter MacCallum Cancer Centre to develop the slide and confirmed it could show changes in cells as they progressed from pre-cancerous cells into tumours. While more research is needed, the slide has the potential to help clinicians and researchers better identify disease.

#### Microscopy prize for Garvan PhD student

PhD student Arnolda Jakovija achieved first place in the 2022 Light Microscopy Australia Image Competition's In Vivo category. Her winning image 'Ice and Fire' shows myeloid immune cells (red) within the connective tissue (blue) inside a mouse ear.

By visualising immune cells inside living tissue, Ms Jakovija and her team in Dr Tatyana Chtanova's Innate and Tumour Immunology Lab study how immune cells move to sites of tissue damage, as a model for how the body responds to cancerous tumours. These foundational insights could help improve current cancer treatment options.

The image was taken in Garvan's ACRF INCITe Centre, which houses two Australian-designed, world-leading microscopes that give unprecedented views of the interactions between cancer cells and the immune system.



Example of the NanoMSide



lce and Fire: Using 2-photon imaging, this image shows the accumulation of myeloid immune cells (green) within the connective tissue (blue) and other components (red) of mouse ear skin. By Arnolda Jakovija.



### Research impacts

Garvan researchers dare to ask difficult questions. From pioneering intravital imaging and single-cell sequencing techniques to deciphering the intricate dance between cancer and the immune system, we harness the latest technologies to find answers.

#### ACRF INCITe Centre for world-class cancer imaging launches at the Garvan Institute

On 30 June 2022 we launched a world-class cancer imaging centre at Garvan. The ACRF Intravital Imaging of Niches for Cancer Immune Therapy (INCITe) Centre houses two Australian-designed, world-leading microscopes, giving unprecedented views of the interactions between cancer cells and the immune system.

The microscopes can record real-time images of cancerimmune cell interactions in vivo and at the molecular level, giving researchers a comprehensive view of how the immune system can work to fight cancer.

This cutting-edge technology will allow Garvan researchers to investigate why some cancers respond to immunotherapy and others do not, pushing the boundaries of innovation and propelling Garvan's research capabilities in cancer research.

# DNA barcoding reveals cancer cells' ability to evade the immune system

Garvan researchers, Louise Baldwin and Professor Alex Swarbrick and team revealed that some cancer cells can deploy parallel mechanisms to evade the immune system's defences as well as resist immunotherapy treatment. Using a technique called DNA barcoding, which tags cells with a known sequence and tracks the progression of tumour cells through time, researchers were able to see that cells within a cancer have diverse abilities to escape immune system defences.

The mechanisms could be used as potential targets for therapies, to stop tumorous cells from adapting and spreading. Another future application could be in prognosis, where a high number of cells could indicate, which patients might not respond to immunotherapy.



ACRF INCITe Centre is home to two cutting-edge microscopes



Professor Alex Swarbrick

Our advances in cancer, immunity, genomics and beyond pave the way for more targeted treatments, improved patient outcomes, and a deeper understanding of human health.

### Collagen a key player in breast cancer metastasis

A study by Associate Professor Thomas Cox has revealed that collagen type XII plays a crucial role in breast cancer metastasis.

High levels of collagen XII can trigger the spread of breast cancer cells from the tumour to other parts of the body. The study, published in the journal *Nature Communications*, emphasises the importance of the tumour microenvironment, particularly the extracellular matrix, in cancer progression. Collagen XII not only alters the properties of the tumour, making it more aggressive and aiding in the escape of cancer cells to other sites, but can also have profound effects on the 3D structure of the extracellular matrix.

The research suggests that measuring collagen XII levels in tumour biopsies could serve as a screening tool for identifying aggressive breast cancers with higher metastasis rates. This discovery opens potential avenues for future treatments targeting collagen XII.

### Rogue immune cells linked to leukaemia are a key driver of autoimmune diseases

Dr Etienne Masle-Farquhar and Professor Chris Goodnow identified rogue immune cells associated with leukaemia as a significant factor in the development of autoimmune diseases such as rheumatoid arthritis and aplastic anaemia.

The research focused on killer T cells, responsible for eliminating harmful cells and pathogens, which were found to play a central role in both leukaemia and autoimmune diseases. Gene variations affecting a protein controlling the growth of these killer T cells were found to turn them rogue, driving autoimmunity. The study suggests potential pathways for targeted treatments and highlights the importance of stress-sensing pathways and specific receptor systems in the expansion of these rogue cells.



Collagen fibres running through a cancer tumour, created using a multiphoton microscope.



Dr Etienne Masle-Farquhar

# A Garvan-led study reveals poorer health outcomes for at-risk patients

This Garvan study revealed that people at high risk of fracture who also have complex or multiple chronic medical conditions are less likely to receive treatment for their underlying osteoporosis and will have poorer health outcomes.

These patients have an increased risk of further fractures, but they are less likely to have the underlying cause of the fracture investigated, compared with those who are at high risk but have no additional chronic conditions.

"No matter the fracture site, we believe fracture is underprioritised in the clinical setting in a complex patient," says lead author Dr Dana Bliuc, Senior Research Officer in the Clinical Studies and Epidemiology Lab at Garvan.

"People with complex diseases not only fare worse, but they are less likely to receive treatment, which is a double whammy. We think this is because fractures are viewed as less serious than other medical conditions present in patients, and thus not the focus of intervention," says Dr Bliuc. "But fracture itself will affect quality of life and contributes to mortality."

### Children's immune response to coronavirus: fast but doesn't last

While children have a strong initial immune response to the coronavirus, their immune systems do not develop long-lasting memory T cells like adults do, research from Garvan revealed. Children's immune systems treat the virus as a new threat upon reinfection because they do not remember it or adapt.

This lack of adaptive memory puts them at risk of getting sick upon subsequent exposures. The researchers found that as children grow older and are exposed to more viruses, their immune systems transition from relying on the innate immune system to needing the adaptive immune system as a backup.

The study, published in the journal *Clinical Immunology*, also suggests that older adults may have an immune over-reaction to the coronavirus due to the recognition of familiar parts shared with common cold coronaviruses.



Osteoporosis affects more than 1.2 million Australians



Lead author of the study Professor Tri Phan





Rogue clones in autoimmune diseases

Professor Goodnow has published 78 scientific papers during his tenure at Garvan.

# Celebrating Chris Goodnow's time as Garvan's Executive Director

Our deepest gratitude and heartfelt acknowledgement go to Professor Chris Goodnow who served as Garvan's Executive Director from February 2015 to July 2022. Professor Goodnow displayed exceptional leadership, guiding the organisation through significant change and challenges.

Under Professor Goodnow's leadership, Garvan navigated through unparalleled and protracted challenges posed by the COVID-19 pandemic, continuing medical research with minimal disruption. Professor Goodnow successfully galvanised Garvan's scientists to pivot their research efforts towards combating COVID-19, resulting in breakthroughs.

In November 2021, Professor Goodnow published a groundbreaking strategy for the development of a universal COVID-19 vaccine aimed at creating vaccines that can effectively combat emerging strains. As a national thought leader during the COVID-19 pandemic, Professor Goodnow tirelessly advocated for the safety and efficacy of vaccines. His efforts played a vital role in ensuring the wellbeing of the wider community during that critical time.

In addition to his role as Executive Director, Professor Goodnow has made significant scientific contributions in the areas of antibodies, autoimmune diseases, and immune system regulation. He has published 78 scientific papers during his tenure addressing various medical challenges. Notable achievements include providing direct evidence for the role of "rogue clones" in autoimmune diseases, identifying the genetic cause of life-threatening autoimmune diseases in children, uncovering an ancient DNA change related to immune responses in Oceania's population, and discovering a new immune checkpoint mechanism. His recent recognition with the esteemed American Association of Immunologists (AAI) AAI-BioLegend Herzenberg Award further exemplifies his outstanding contributions to immunology. Professor Goodnow's leadership and scientific contributions have strengthened the Institute's position as a leading institution in medical research and immunology and will continue to have a profound impact on Garvan and medical research.

Professor Goodnow's impact extends beyond his scientific achievements. He has driven the vision, values, and implementation of Garvan's new strategic plan, Garvan 2030: Discoveries to Impact, and established a dedicated Garvan Leadership Team. He has fostered a strong sense of community among Garvan's donors, partners, and advocates, making him a beloved figure within the Garvan community. We are very lucky and pleased that Professor Goodnow is still part of Garvan – we look forward to seeing more impactful research from him and his lab.

Most significantly, Professor Goodnow together his wife Dr Suzanne Hartley made an extraordinary philanthropic donation of \$1.4M to establish the Jacqueline Goodnow & Barbara Hartley Prize. Named in honour of their late mothers, this annual prize will celebrate and enable adventurous women in science at Garvan.

The Garvan Institute of Medical Research expresses its utmost gratitude to Professor Goodnow for his exceptional service.

Groundbreaking strategy for the development of a universal COVID-19 vaccine aimed at creating vaccines that can effectively combat emerging strains.



Antibodies attacking SARS-CoV-2 virus



### Vale Professor Leslie 'Les' Lazarus

We remember and celebrate Professor Les Lazarus for his exceptional contributions to science and medical research and for his outstanding leadership at Garvan.

Professor Les Lazarus MBBS MRACP FAACB FRACP FRCPA AO, joined Garvan as co-Director in 1963, and went on to become Garvan's first sole Director, holding the position for 20+ years, from 1969 until 1990. He was also one of the first trained endocrinologists in Australia.

Born in Sydney in 1929 to British immigrants, he hoped for a career that would offer "a background in science, and involvement with people at the same time".

After graduating in 1953 and taking up a two-year scholarship to Middlesex Hospital in London in 1960, he returned to Sydney to establish Australia's first endocrine laboratory, at St Vincent's Hospital, in 1962. When Garvan was founded in 1963, Professor Lazarus' lab (which he ran with close collaborator Margaret Stuart) was the first to take up residence, when the team relocated across the road to the then-new Garvan building. In his time as Director, he oversaw momentous change, including the establishment and growth of three major research themes (diabetes and endocrinology, osteoporosis and bone, and cancer), the establishment of Garvan as an autonomous research institute and major changes in the funding landscape.

"Les Lazarus was a true pioneer in medical research who strongly believed that close collaboration between basic research and clinical practice was fundamental to improvements in health care. He recognised that new breakthrough technologies would be critical to help unravel the cause and treatment of complex diseases – a legacy which formed the core of Garvan's research philosophy and which has continued to the present day," says Professor John Shine AC FRS FAA, who succeeded Professor Lazarus as Executive Director of Garvan in 1990.

In December 2022, Les sadly passed away at the age of 93. We remember and celebrate Professor Les Lazarus for his exceptional contributions to science and medical research and for his outstanding leadership at Garvan.



Professor Les Lazarus



Professors Les Lazarus (left) and John Shine
# PhD completions 2022

At Garvan, we have postgraduate students researching almost every disease area. In partnership with UNSW Sydney, through which most of our students are enrolled, Garvan is committed to supporting the important contributions our students make in the development of scientific knowledge and skills for the future.

#### Lisa Worley

#### Professor Stuart Tangye and Associate Professor Cindy Ma

"Molecular and cellular regulation of human TH9 cell differentiation"

#### Tina Nguyen

## Professor Stuart Tangye and Associate Professor Elissa Deenick

"Dissecting the requirements for human lymphocyte development and function by analysing inborn errors in the PI3-kinase and NF-kappaB pathways"

#### Oguzhan Begik

## Professor John Mattick, Eva Maria Novoa Pardo and Associate Professor Antony Cooper

"Characterising the RNA modification and polyadenylation landscape at single molecule resolution using thirdgeneration sequencing technologies"

#### Bella Shadur

#### Professor Stuart Tangye, Professor Tri Phan and Professor Christopher Goodnow

"Clinical and cellular response to abatacept therapy and haematopoietic stem cell transplantation in LRBA deficiency"

> Congratulations to all Garvan students awarded PhDs and Masters in 2022.

#### Shane Kelly

#### Professor Christopher Goodnow, Professor Anthony Kelleher and Dr Daniel Suan

"Investigating the genomic landscape of antigen-specific lymphocytes in the pathogenesis of human autoimmune disease"

#### **Ohannes Mazigi**

#### Professor Daniel Christ, Romain Rouet and Professor Robert Brink

"Molecular engineering of antibody and superantigen interactions"

#### Jose Alquicira Hernandez

## Dr Quan Nguyen, Professor Joseph Powell and Professor Lachlan Coin

*"Understanding genetic control of gene expression and its role in disease at a single cell resolution"* 

#### **Clara Young**

## Professor Robert Brink, Professor Christopher Goodnow and Dr Daniel Suan

"Rogue" B cells: An investigation into B cells that break tolerance in autoimmune disease"

#### Marija Simic

#### Dr Michelle McDonald and Professor Peter Croucher

"Wnt-targeted therapy to treat myeloma-induced bone loss and prevent disease relapse"



Jose Alquicira Hernandez

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# Board of Directors

Garvan is governed by two boards and is fortunate to have a breadth and depth of expertise advising our leadership.

### Garvan Institute of Medical Research

The Board of Directors for the Garvan Institute of Medical Research donate their time and expertise. They are responsible for policy development and effective governance of the Institute's affairs.

**Dr John Schubert AO** Chair Nominated by the Trustees of St Vincent's Hospital

Hon Dr Annabelle Bennett AC SRC Nominated by the Trustees of St Vincent's Hospital

**Professor Philip Cunningham OAM** Nominated by the Sisters of Charity

Professor Peter Croucher – Acting Executive Director Nominated by the Garvan Institute Board of Directors Dr Paul Kelly Nominated by the Trustees of St Vincent's Hospital

**Dr Helen Nugent AC** Nominated by the NSW Minister for Health

Professor Vlado Perkovic Nominated by UNSW Sydney

Professor Roger Reddel AO Nominated by the Federal Minister for Health Associate Professor Anthony Schembri AM Nominated by the Sisters of Charity

**Dr Russell Scrimshaw AM** Nominated by the Federal Minister for Health

Jillian Segal AO Nominated by UNSW Sydney

**Professor Ronald Trent** Nominated by the NSW Minister for Health

#### **Garvan Research Foundation**

The Garvan Research Foundation Board was established in 1981. They oversee the effective marketing and fundraising activities of the Garvan Research Foundation, ensuring Garvan's innovative research is supported.

Dr Russell Scrimshaw AM Chair Professor Chris Goodnow Executive Director

Professor Peter Croucher Deputy Director

Nick Abrahams

- Jane Allen Michael Cannon-Brookes Susan Cato AM Wallis Graham Rajeev Gupta John Meacock
- Hamish McLennan Professor Cav Simon Mordant AO Greg Paramor AO Geoffrey Raby AO Isabella Rich Dr John Schubert AO



For the Board of Directors full biography, please visit garvan.org.au/about-us/ governance/board-of-directors

# Grants and collaborations

Many of Garvan's groundbreaking discoveries are supported by competitive, peer-reviewed funding, which underpins our researchers' salaries and research activity.

### Garvan-led grants

Funding Body	Type of Grant	Principal Investigator	Project Title	Amount funded	Years
Allergy and Immunology Foundation of Australasia (AIFA)	2021 AIFA Primary Immunodeficiency Clinical Research Grant	Cindy Ma	Harnessing primary immunodeficiencies to understand and treat human allergic disease	\$30,000	3
	2021 AIFA Primary Immunodeficiency Clinical Research Grant	Stuart Tangye	SARS CoV2 infection and vaccination in inborn errors of immunity	\$30,000	1
Australian & New Zealand Urogenital and Prostate (ANZUP) Cancer Trials Group Ltd	Below the Belt Research Fund	Louise Emmett	The RE-SPECT project: Development of interim response biomarkers in Lu PSMA therapy	\$50,000	1
Australian Research Council (ARC)	2022 Discovery Projects	Christine Chaffer	Mapping networks governing cell state plasticity: how, where and when?	\$611,000	3
	2023 Discovery Projects	Hasindu Gamaarachchi	Custom Computing for DNA Analysis of Third Generation Sequencers	\$439,110	3
	2022 Discovery Projects	Tatyana Chtanova	Why do neutrophils swarm?	\$560,107	2
Cancer Australia	2023 Priority-driven Collaborative Cancer Research Scheme (PdCCRS)	Amelia Parker	Targeting the CTHRC1-Wnt axis as a precision medicine approach in squamous lung cancer	\$197,692	2
Cancer Council NSW (CCNSW)	2023 Project Grants	Beatriz Perez San Juan	Targeting cellular plasticity to prevent and treat chemotherapy-resistant disease	\$368,912	3
	2023 Project Grants	Marina Pajic	Selective manipulation of tumour-stroma signalling as a novel precision medicine approach: targeting treatment resistance in pancreatic cancer	\$450,000	3
	2023 Project Grants	Thomas Cox	Collagen IV basement membrane disruption triggers lung cancer metastasis	\$432,697	3
	2023 Career Development Fellowships	Amelia Parker	Stromal co-targeting as a precision medicine approach towards improving lung cancer outcomes	\$551,446	3
Diabetes Australia Research Program (DARP)	2022 General Grants	Yanchuan Shi	A Novel Role of Neuropeptide Y in Salt-triggered Thermogenesis and Energy Expenditure	\$60,000	1
Glaucoma Australia	Quinlivan Research Grants Program	Owen Siggs	Genomic risk stratification to improve glaucoma suspect triage in rural primary care	\$70,489	2
Job Research Foundation	2023 Research Grants	Stuart Tangye	Immune dysregulation in Job Syndrome - elucidating mechanisms of STAT3-mediated host defense, humoral immunity and immune- mediated lung pathology	\$298,185	2
Medical Research Future Fund (MRFF)	2021 Genomics Health Futures Mission	Daniel MacArthur	The Australian Genetic Diversity Database: towards a more equitable future for genomic medicine in Australia (Stream 5)	\$9,996,894	5
	2021 Early to Mid-Career Researchers	Ira Deveson	The missing heritability of human disease: discovery to implementation	\$236,665	5
	2021 Early to Mid-Career Researchers	Ira Deveson	Harnessing nanopore sequencing technology to improve diagnosis of human disease [Stream 1]	\$954,948	2
	2022 MRFF Cardiovascular Health Mission	Jodie Ingles	The Elusive Hearts Study: Using genomics to diagnose and manage inherited cardiovascular diseases	\$1,499,286	3
	2021 Genomics Health Futures Mission	Owen Siggs	Ensuring genetics based prediction of glaucoma can benefit all Australians	\$997,797	2
MTP Connect- MedTech and Pharma Growth centre	Targeted Translation Research Accelerator (TTRA) for Diabetes and Cardiovascular Disease	Shane Grey	Restoring glucose control in T1D patients with genetically engineered GARV-AAV2-A20-islet cells - a first in Human safety and efficacy trial	\$749,979	2
National Breast Cancer Foundation (NBCF)	2023 Investigator Initiated Research Scheme (IIRS)	Alex Swarbrick	Genomic and proteomic mapping of breast cancer ecosystems	\$901,040	3
National Health and Medical Research Council (NHMRC)	2023 Ideas Grants	Brooke Pereira	Repurposing the in-clinic PCSK9 inhibitor evolocumab to enhance Gemcitabine/Abraxane chemotherapy in pancreatic cancer guided by single-cell intravital imaging	\$532,570	3
	2023 Ideas Grants	Carsten Schmitz-Peiffer	Targeting Impaired Glucose Sensing in the Brain to Improve Glucose Homeostasis in T2D	\$961,576	3
	2023 Ideas Grants	Carsten Schmitz-Peiffer	Developing PKCepsilon-Degrading PROTACs as Dual-Action Agents to Treat Type 2 Diabetes	\$825,491	3

Funding Body	Type of Grant	Principal Investigator	Project Title	Amount funded	Years
National Health and Medical Research Council (NHMRC)	2023 Ideas Grants	Christine Chaffer	Targeting phenotypic plasticity to treat chemotherapy-resistant cancer (CA/CCNSW)	\$929,997	4
	2023 Development Grants	Daniel Christ	Development of a therapeutic monoclonal antibody (Garvan)	\$867,242	3
	2022 Synergy Grants	Mary-Anne Young	RG222132: National Precision Health Research Translation for Breast and Prostate Cancer Prevention and Early Detection (ADMINISTERED BY MONASH UNIVERSITY)	\$848,726	5
	2023 Ideas Grants	Susan Clark	Functional impact of CTCF binding site mutations in 3D cancer genome regulation (CCNSW)	\$961,787	3
	2023 Ideas Grants	Yanchuan Shi	The Role of Salt in Obesity Development	\$860,943	2
National Institutes of Health NIH (USA)	Subaward - Brigham and Women's Hospital, Boston	Jodie Ingles	Hypertrophic Cardiomyopathy: Understanding the Heterogeneity of Disease Expression and Outcomes	\$190,000	2
NSW Office for Health and Medical Research (OHMR)	COVID-19 Vaccine Acceleration Research Grants	Christopher Goodnow	Development of a 'Universal' mRNA COVID19 Vaccine resistant to variants	\$898,970	2
	RNA Future Leaders Program (EMCR Grants)	Deborah Burnett	Development of a universal COVID19 mRNA vaccine resistant to variants	\$500,000	3
	NSW Cardiovascular Early-Mid Career (EMC) Researcher Grants	Jodie Ingles	Using Genomics to Improve Diagnosis and Management of Inherited Cardiovascular Diseases	\$450,000	3
	NSW Health Biospecimen Collection Grants	Jodie Ingles	NSW HEARTS: The NSW Inherited Cardiomyopathy Cohort Study	\$100,000	2
	RNA Future Leaders Program (EMCR Grants)	Robert Weatheritt	Deploying in vivo CRISPR RNA engineering to prevent diet-induced obesity	\$497,705	3
PanKind, The Australian Pancreatic Cancer Foundation	2021 Accelerator Grant - New Treatments	Paul Timpson	Repurposing FDA/TGA-approved PCSK9 inhibitor evolocumab to enhance immunotherapy outcomes in pancreatic cancer	\$300,000	2
	2022 Accelerator Grant - New Treatments	Sean Porazinski	Using precision medicine approaches in pancreatic cancer to improve chemosensitivity via porcupine inhibition	\$300,000	3
Pfizer Australia	Investigator Sponsored Research: Pre-clinical/Clinical (Includes focus on a Pfizer Drug or Compound)	Elgene Lim	Understanding Estrogen Receptor Signalling in CDK4/6i Resistant, Luminal Breast Cancers	\$54,900	2
Ramaciotti Foundation	Ramaciotti Health Investment Grants	Deborah Burnett	Towards a universal COVID19 vaccine that protects against current and future variants	\$97,855	3
	Ramaciotti Health Investment Grants	James Thompson	PIAS Trial: Prospective study of 68Ga-PSMA PET/CT additional to mpMRI in men undergoing biopsy during Active Surveillance for prostate cancer	\$100,000	1
Solve ME/CFS Initiative	2021 Ramsay Grant Program	Sara Ballouz	Symptoms, mechanisms and sex: Exploring the sex differences in ME/CFS through integrated computational analyses	\$39,887	1
St Vincent's Clinic Foundation	2023 Research Grants	Christine Chaffer	Tancred Research Grant: Androgen Receptor Antagonists with Standard Therapy in Glioblastoma - A Novel Biomarker-Directed Combination	\$50,000	1
	2022 St Vincent's Clinic Foundation Research Grants	Jerry Greenfield	Sister Bernice, Packer Family Foundation Research Grant: A Phase 2, Randomised, Placebo Controlled Trial of SGLT2 Inhibition with Empagliflozin on Metabolic, Renal and Cardiac Outcomes in Recent Cardiac Transplant Recipients.	\$120,000	1
	2023 Research Grants	Sean Porazinski	The De Angeli Cancer Research Grant: From functional genomics to precision medicine: targeting the dynamic cellular ecosystem of pancreatic cancer using clinically-safe agents	\$254,340	3
Sydney Partnership for Health, Education, Research & Enterprise (SPHERE)	Triple I Clinical Academic Group 2022 Seed Grant Scheme	Mandeep Singh	Elucidating cellular and molecular drivers of rheumatoid arthritis disease flares	\$75,000	1
University of New South Wales (UNSW)	Early and Mid Career Researcher Cancer Research Seed Grant Scheme 2022	Brooke Pereira	Repurposing PCSK9 inhibitor PF-846 to enhance immunotherapy in pancreatic cancer	\$50,000	1
	Early and Mid Career Researcher Cancer Research Seed Grant Scheme 2023	Joanna Achinger- Kawecka	Targeting enhancers to overcome breast cancer resistance to CDK4/6 inhibition	\$50,000	1
	Early and Mid Career Researcher Cancer Research Seed Grant Scheme 2023	Kendelle Murphy	Uncoupling the tumour-stroma feedback loop in pancreatic cancer using the ROCK2 inhibitor KD025, in combination with contemporary Folfirinox chemotherapy.	\$50,000	1
	Early and Mid Career Researcher Cancer Research Seed Grant Scheme 2023	Leila Eshraghi	Elucidating the oncogenic role of telomere dysfunction in drug resistant ER+ breast cancer.	\$50,000	1
US Dept of Defense Congressionally Directed Medical Research Programs (CDMRP)	2021 Breast Cancer Research Program - Breakthrough Award	Paul Timpson	Dual epithelial and stromal targeting in breast cancer using the phase II ROCK2 inhibitor KD025 guided by intravital imaging technology	\$555,506	3

## Collaborative grants

Funding Body	Type of Grant	Admin Institution	Garvan Investigator/s	Co-Investigators	Project Title
National Health and Medical Research Council (NHMRC)	2022 Synergy Grants	Monash University	Mary-Anne Young	Melissa Southey (Monash University) Roger Milne (Cancer Council Victoria) Robert MacInnis (Cancer Council Victoria) Joseph Rosenbluh (Monash University) Tu Nguyen-Dumont (Monash University) Ilias Goranitis (University of Melbourne) Ingrid Winship (University of Melbourne)	National Precision Health Research Translation for Breast and Prostate Cancer Prevention and Early Detection
	2023 Ideas Grants	University of Tasmania	Joseph Powell	Kirsten Fairfax (UTas), Brandon Signal (UTas), Lukas Dow (WCM) Associate Investigators: Joseph Powell, Seyhan Yazar, Alex Hewitt (UTas), Phillippa Taberlay (UTas)"	Examining the how and why of blood cell gene regulation in autoimmune disease
	2022 Centres of Research Excellence	University of Sydney	Joseph Powell	Tamera Corte (USYD), Anne Holland (Monash), Daniel Chambers (UQ) Philip Hansbro (UTS), Joanne Dickinson (UTas), Andrew Palmer (UTas) Yuben Moodley (UWA), Luke Knibbs (USYD), Natasha Smallwood (Monash)	CRE for Interstitial Lung Disease - towards Individualised Care
US Department of Defense	Congressionally Directed Medical Research Programs	Monash University	Marina Pajic	Brendan Jenkins	Targeting Innate Immune Inflammasomes as Key Drivers of Microbial-Associated Pancreatic Cancer and Therapy Resistance

## Fellowship and Scholarship

Sponsor	Project Category	Principal Investigator	Project Title	Amount funded	Years
Australian Research Council	Future Fellowships	Robert Weatheritt	Dissecting cell cycle regulation using programmable gene editing technology	\$925,739	4
Australian Research Council (ARC)	2023 Discovery Early Career Reseacher Award (DECRA)	Hasindu Gamaarachchi	Fast, lightweight and live nanopore sequencing analysis	\$453,913	3
Cancer Council NSW (CCNSW)	Sally Crossing AM Award	Elgene Lim	Celebrating advances in breast cancer research	\$50,000	1
Cancer Institute NSW (CINSW)	2023 Career Development Fellowships	Sean Porazinski	From functional genomics to precision medicine: targeting the dynamic cellular ecosystem of pancreatic cancer using clinically-safe agents	\$560,620	3
Diabetes Australia Research Program (DARP)	2023 Charles Campbell OAM Emerging Researcher Award	Jennifer Snaith	Reducing Cardiometabolic Risk with SEmaglutide in Type 1 diabetes	\$150,000	2
European Molecular Biology Organisation (EMBO)	EMBO Postdoctoral Fellowships	Anna Cuomo	Cell2Pop: Extending single-cell approaches to population scale	\$78,000	1
Juvenile Diabetes Research Foundation (JDRF)	Rebecca Davies Clinician Researcher Fellowship 2022	Jennifer Snaith	Reducing Cardiometabolic Risk with Semaglutide in Type 1 Diabetes (the RESET1 study)	\$142,500	3
National Health and Medical Research Council (NHMRC)	2023 Investigator Grants	Alex Swarbrick	Dissecting the cellular ecosystems and therapeutic vulnerabilities of breast cancer (L2)	\$2,205,736	5
National Health and Medical Research Council (NHMRC)	2023 Investigator Grants	Cindy Ma	Novel approaches to understand and treat human allergic diseases (L1)	\$2,756,790	5
National Health and Medical Research Council (NHMRC)	2023 Investigator Grants	Jose Alquicira Hernandez	Characterisation of the genetic architecture of autoimmune disease at single-cell resolution (EL1)	\$655,150	5
National Health and Medical Research Council (NHMRC)	2023 Investigator Grants	Ksenia Skvortsova	Investigating the epigenetic control of female-biased autoimmune disorders (EL1)	\$574,120	5
National Health and Medical Research Council (NHMRC)	2023 Investigator Grants	Paul Timpson	Anti-fibrotic targeting and biosensor imaging in pancreatic cancer (PC): taking cancer targeting to new dimensions (L2)	\$2,882,170	5
National Heart Foundation	2022 Future Leader Fellowship	Jodie Ingles	Using genomics to diagnose and manage patients with inherited cardiovascular diseases (L3)	\$713,200	4
National Heart Foundation	2022 Postgraduate Scholarships	Lisa Raven	A phase 2, Randomised, Placebo Controlled Trial of SGL2 Inhibition with Empagliflozin on Metabolic, Cardiac and Renal Outcomes in Recent Cardiac Transplant Recipients	\$122,100	3
Prostate Cancer Foundation of Australia (PCFA)	2023 Priority Impact Research Award	Joanna Achinger-Kawecka	Targeting epigenetic hallmarks in neuroendocrine-like prostate cancer	\$100,000	1
Sylvia and Charles Viertel Foundation	2022 Senior Medical Research Fellowship	Robert Weatheritt	Exploiting the role of P-bodies in cancer plasticity to develop new therapies	\$1,375,000	5
The American Association of Immunologists	2022 AAI Careers in Immunology Fellowship	Antoine Guerin, Cindy Ma	Careers in Immunology Fellowship	\$80,000	1

## Equipment grants

Funding Body	Type of Grant	Project Title	Principal Investigator	Co-Investigators	Amount Funded
University of New South Wales (UNSW)	2022 Research Infrastructure Scheme	Bod Pod and Q-NRG for extensive metabolic phenotyping	Dorit Samocha-Bonet	Jennifer Snaith, Jerry Greenfield, Roger Chen Mark Danta, Andrew Jabbour, Elgene Lim, Shivani Patel	\$200,651

# Financial highlights

Statement of financial position as at 31st December 2022.

### Profit and loss statement

Revenue	<b>2022</b> A\$'000	<b>2021</b> A\$'000
Fundraising and grant income		
NHMRC fellowships, scholarships and other grants	10,477	11,835
Peer-reviewed research grants	8,377	6,587
MRFF Grants	6,506	2,891
NSW government grants	5,983	6,818
Other grants	12,198	10,322
Donations received	41,669	47,728
University of NSW contribution	9,410	8,871
	94,620	95,052
Other income		
Revenue from contracts with customers	14,981	13,127
Investment (loss) / income	(10,354)	3,565
Share of losses of associates accounted for using the equity method	(6)	27
Net loss on foreign exchange	(89)	(51)
	4,532	16,668
Total revenue	99,152	111,720

Expenditure on research activities	<b>2022</b> A\$'000	<b>2021</b> A\$'000
Sequencing consumable expense	2,783	3,519
Employee benefits expense	65,113	60,192
Other research expenses	17,615	14,783
Depreciation and amortisation expense	6,866	5,991
Administration expense	6,404	4,029
Fundraising expenses	3,103	2,709
Building and scientific expenses	8,301	7,607
Finance expenses	314	554
Total expenses	110,499	99,384
Total comprehensive income for the year	(11,347)	12,336

### **Balance sheet**

Assets	<b>2022</b> A\$'000	<b>2021</b> A\$'000
Current assets		
Cash and cash equivalents	38,069	29,211
Trade and other receivables	5,405	4,641
Sequencing Consumables	1,805	1,886
Financial assets at fair value through profit and loss	91,506	101,439
Other current assets	1,939	1,575
Biological assets	285	209
Term deposits	34,262	43,089
Total current assets	173,271	182,050
Non-current assets		
Property, plant and equipment	66,271	69,662
Intangible assets	239	138
Right-of-use assets	9,410	10,042
Investments accounted for using the equity method	115	120
Total non-current assets	76,035	79,962
Total assets	249,306	262,012

Liabilities	<b>2022</b> A\$'000	<b>2021</b> A\$'000
Current liabilities		
Lease liabilities	536	1,050
Trade and other payables	6,579	9,671
Employee benefit obligations	7,347	6,054
Deferred Revenue	43,628	42,416
Total current liabilities	58,090	59,191
Non-current liabilities		
Lease liabilities	5,490	5,680
Employee benefit obligations	1,186	1,254
Total non-current liabilities	6,676	6,934
Total liabilities	64,766	66,125
Net assets	184,540	195,887
Equity		
Reserves	124,143	118,067
Retained surplus	60,397	77,820
Total equity	184,540	195,887

The Statement of Financial Position provided above, together with the attached Income Statement, have been extracted from the audited general purpose financial statements of Garvan Institute of Medical Research and its controlled entities. The summary financial information does not include all the information and notes normally included in a statutory financial report. The audited general purpose financial report can be obtained upon request to the Chief Operating Officer.

The statutory financial report (from which the summary financial information has been extracted) has been prepared in accordance with the requirements of the Australian Charities and Non-for-profits Commission Act 2012 and Regulations 2013, Australian Accounting Standards and other authoritative pronouncements of the Australian Accounting Standards Board.



## **Annie Selman**

### One of Garvan's wonderful volunteers.

I was born in 1951 and was raised in Balgowlah which was developed by the determined efforts of the local community. My father established the Manly-Warringah Baseball Club and numerous were the lobbies to have an infrastructure established, along with continual fundraising fetes and concerts. This was the initial model for volunteering in my life.

From 1971, I was a Public Servant initially, fortunate enough to have an impressive HSC and 1st Prize at Williams Business College, which swung me to the dizzy heights of Private Secretary to the rich and not famous in the Local Government sphere. I travelled to England via the infamous Overland Route in 1976 and lived there as Private Secretary to the Chief Scout, Sir William Gladstone. Upon my return I went to a semi-autonomous federal institution (OTC-A). Following a lucrative redundancy I made a conducive transition to private enterprise and was appointed publications sub-editor at the War Widows' Guild (NFP). From there I was blessed to undertake my degree at the University of Sydney.

My father's advice on my first day of employment was: "Baby, work until you can work for nothing." Staying true to this, I have pursued a volunteering career for many decades. I've had the chance to use my professional skills with Brownies, community service, Neighbourhood Watch, a bookstore, church ministry and pastoral visitation, child literacy tutoring at the Exodus Foundation, Bible Society and Crusader Union administration projects, Samaritans Purse sewing circle, Red Cross and church op shops, home care for the AIDS Council and SES.

Joining Garvan was entirely unexpected. I received an invitation to attend a public tour, which I happily did. In conversation on the day of the tour, it was suggested I consider volunteering, which I did, and I was accepted.

Each organisation for which I volunteer has a different character and the sense of endeavour and research at Garvan is unique. I am impressed every time I enter the building and I am astonished to be necessary amidst such accomplished personnel. I began in 2018 and have enjoyed a wide variety of tasks in the Supporter Services team.

The saying goes 'everyone is affected by cancer' and I am no exception. My neighbour Jan died when she was five with leukaemia in 1954, I had osteomyelitis when I was seven in 1958, my superb husband had leukaemia and passed away too soon and too suddenly in 2004, and my dear friend Beth died of stomach cancer in 2014.

I am not convinced that the government and private sector sufficiently fund medical research. I cannot fathom how such fine minds must compete for funding, almost reduced to pleading for the scant grant programs with laborious application procedures.



Annie and Rex in 1986

"Thank you, Annie, for your incredible support – without volunteers like you, our Supporter Services team wouldn't be able to run as smoothly and efficiently as it does." – Maria Garcia-Cepillo, Supporter Services Manager.

Annie photographed by Elizabeth Baumgart, CRU (above centre)

# Join the Garvan family

Our research relies on the generous support of our community, which enables our scientists to push the boundaries of medical research – and find better diagnostics and personalised treatments for some of the most devastating diseases.

There are many ways to contribute towards Garvan's life-changing medical research.



### Donate regularly

By becoming a **Partner for Discovery**, your monthly donation will give our researchers the momentum needed to make amazing discoveries.



### Fundraise for Garvan

Fundraising can be a fun and rewarding teambuilding exercise at your school or work, or even a fitness goal. It doesn't take much to be a hero and help raise funds for medical research.

# **Donate today**

A donation, no matter how big or small, can help our scientists continue to do their crucial work. You can easily donate online or by phone.

Visit: garvan.org.au/support-us call: 02 9295 8110 email: foundation@garvan.org.au or scan: the QR code:





#### Leave a gift in your Will

Become a Garvan **Partner for the Future** by including a gift in your Will and leave a lasting legacy of longer, healthier lives for future generations.



#### **Corporate Partnerships**

Joining the Garvan community as a corporate partner is a sound business decision and one that could make a significant difference to the long-term health of our community.



# **Warburton Foundation**

Giving generously to medical research for over a decade.

The Garvan Institute of Medical Research has a long and diverse history with Mr Richard Warburton AO and Mrs Susan Warburton and their Foundation, the Warburton Foundation. Richard and Susan have generously been giving to Garvan's cancer research for over a decade.

Prior to this, Richard was a Board Director with the Garvan Research Foundation Board, where Richard's professional background and business acumen were instrumental in his role which he held from 1999 to 2008. Richard's relationship with Garvan came full circle when he became a patient himself, seeking treatment at The Kinghorn Cancer Centre. Fortunately, he has since recovered. "Susan and I truly admire and respect the wonderful work done at Garvan; there is so much vital research being done, which is of great interest to us both. We thoroughly enjoy hearing about the medical advancements that are being made by their world-class scientists, which will no doubt change the future of medicine." – Richard Warburton

A donation, no matter how big or small, can help our scientists continue to do their crucial work. You can easily donate online or by phone.

Visit: garvan.org.au/support-us Call: 02 9295 8110



Garvan is grateful to Richard and Susan for their advocacy and support and for being part of the Garvan family.

# Partners for the Future

There are many ways in which our generous community contributes to Garvan's research, from monthly gifts to gifts in Wills. We are truly gratefull to every single member of our Garvan family for all that they do and continue to do to ensure a future where we all live, longer and healthier lives.

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# **Vale Bill Walker** 18 May 1916 – 21 April 2022

### "Service to others is the rent you pay for your room here on Earth."

Muhammad Ali

In April 2022 we both mourned and celebrated the life of our wonderful Partner for the Future, Mr Bill Walker. Bill was a dear friend and one of Garvan's most passionate and generous supporters. He was a regular visitor and attended many of our seminars, morning teas and tours, always curious and excited by the research being undertaken and in awe of the amazing scientists he met.

Born in 1916, at two weeks old Bill had acute gastritis and wasn't expected to live. However, with care from a doctor and his mother he survived and went on to live a full and interesting life, passing away just 26 days shy of his 106th birthday.

As an apprentice in the 1930s Bill helped to build the original Sydney Luna Park face and met his first wife on the slippery dip on the opening day. Bill lived and worked in New Zealand for many years as a carpenter, building public housing and repairing planes during WWII. He later trained as an industrial arts teacher, returning to teach in Australia until his retirement.

Later in life, Bill discovered he was born with a congenital heart condition and required a pacemaker. Bill told us, "It is because of medical research that I am still here today, and I'm very grateful for the science that has gone to make it happen." It is from Bill's gratitude and wish to give back to medical research and help others suffering with disease, that he generously included a bequest in his Will to Garvan. When we asked Bill why he included Garvan in his Will, he had lots to say:

"I have a dream that if I support Garvan they may be able to come up with treatments that could eliminate cancer. I made a Will and I have left most of my estate to Garvan for that reason; I want to support it as much as I can. I have visited the cancer researchers at Garvan and I have seen first-hand where my money goes, so I'm happy to give as much as I can."

"It's a big job but I feel if the research work can continue as it is, I know the answer will come. I might not see it, but I know it will come. And I urge everyone else who can help, to do so for the cause."

Thank you, Bill, for your friendship to Garvan and farsighted generosity to the community. It has been a pleasure knowing you and you will be greatly missed. As per your wishes, your bequest will go on in perpetuity to help improve the lives of future generations.



Professor Chris Goodnow with Bill Walker on his 105th Birthday

Thank you, Bill, for your friendship to Garvan and farsighted generosity to the community. It has been a pleasure knowing you and you will be greatly missed.

# Estates received

In 2022, Garvan was privileged to receive bequests from the estates of these farsighted, generous people in our community. We extend our heartfelt thanks to these supporters and condolences to their loved ones and friends. Their legacies will transform the health and lives of future generations.

#### In loving memory of:

Carol J Ashford John M Ball Heather J Becus Peter L Binnie John Brindley Yvonne Byrne Angelo Casella Clare Cohen Patrizia G Coulter Shirley Dawson Kelly A Edmonds Patricia Y Everett Lynette M Forbes June L Gernhoefer Doreen M Giles Joan C Graeme Audrey Graham Joan Higgins Jean D Hill Jessie E Hosie Mark S Huxtable Gwendoline J Jackson Florence Jones Neil J Kelleher Terry Kemp

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## **Eleanor Holderness**

Counting Blessings: A Life of Gratitude.

Reflecting on her 85+ years, Eleanor Holderness is filled with gratitude for the medical advancements that have contributed to her survival. From battling deadly illness as an infant to managing type 2 diabetes and osteoporosis today, Eleanor's life is a testament to the power of medical research and the importance of giving back.

Born in Zimbabwe (then known as Rhodesia), Eleanor was diagnosed with cerebral malaria at just three months old after her nurse mother noticed alarming symptoms. "Without medical care, I would not be here today," Eleanor says.

Years later, Eleanor's family faced another health crisis when her brother suffered a serious accident. "A speeding army vehicle hit my brother, fracturing his skull and numerous bones," she says. "Once again, medical professionals were there to help him through an arduous recovery." As Eleanor grew older, she was diagnosed with type 2 diabetes. Moving to Australia gave her access to leading research and treatment. Her specialist helps manage the condition, allowing her to live a long and full life. "I am so fortunate – looking back, I owe my survival and wellbeing to the work of the research institutions and universities," she says.

Grateful for the care that has sustained her, Eleanor supports Garvan to drive future medical progress. "I plan contribute what's left at the end of my days to Garvan," she explains, "to give back and to help others receive the same lifechanging medical care."

"Without medical care, I would not be here today." – Eleanor Holderness

Like Eleanor, would you consider this special way of giving to the future of medical research with a gift in your Will?

To request our Bequest Giving brochure or for a no obligation conversation, please contact **Claire Swinn on (02) 9295 8527** or **bequests@garvan.org.au** or visit **garvan.org.au/bequest** 

# Garvan community

Our wonderful supporters come from all walks of life and give in various ways. They have different reasons for supporting Garvan, but they're all committed to helping achieve our vision of a healthier future for all. Our heartfelt appreciation goes to all those who supported Garvan in 2022.

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# The Nightingale family

### Honouring loved ones and connecting community.

Charles Nightingale first became aware of the Garvan Institute through his connection to Jillian Segal, OAM, a Board Director of Garvan, when they were both involved in the Australia Israel Chamber of Commerce, she as Chair and he as CEO. On a trip to Israel in 2016, with a trade delegation led by then NSW Premier Mike Baird, a partnership between the Garvan Institute and the Weizmann Institute of Science was formed.

During that year, Charles' mother Rose Nightingale passed away and her husband Bernard wanted to make a donation to medical research in her memory. Their donation to the Garvan-Weizmann partnership was recognised with a plaque to honour Rose, and the family were invited for an unveiling. In 2020, Jillian Segal set up the Spinak Fellowship in honour of Jeremy Spinak, President of the Jewish Board of Deputies, who passed away in 2018 from a rare form of cancer. The fellowship was to advance research into inflammatory bowel diseases, which are particularly common among the Ashkenazi Jewish population. Having worked with Jeremy on the trade mission to Israel, Charles recommended to Bernard that he also support this research and the Spinak Fellow, Dr Kylie James.

"The reason why Dad decided to give to Garvan was because I suggested that as Australia has become our physical homeland (after immigrating from the UK) and Israel is our Jewish homeland, donating to the Garvan-Weizmann partnership made sense for us to honour my mother, and also, connect Australia and Israel in a truly meaningful way." – Charles Nightingale



The family's commitment to Garvan has seen three generations become involved with the Institute and we are incredibly grateful that they are part of the Garvan family.

# Corporate partners

The support and commitment of Garvan's corporate partners is critical to our ongoing success. Although they represent a diverse range of industries, our partners all share our vision of accelerating innovative medical research, for the benefit of all.

# Jewellery with purpose

Since 2016, Paspaley have supported Garvan through donations from the sales of their Kimberley bracelet collection. The exclusive Kimberley bracelet is inspired by the rugged beauty of Australia's northwest, featuring sandalwood and hand selected Australian South Sea pearls unique to the Kimberley.

Paspaley donate 20% from the sale of each Kimberley bracelet to Garvan's, Molecular Screening and Therapeutics (MoST) clinical trials program, which focuses on accelerating Garvan's pioneering research into rare and less common cancers.

"Paspaley's contribution has supported treatment costs for many people with rare cancers, and their funding contributes significantly to the impact and outcomes for these patients. We're thrilled with our ongoing partnership. With Paspaley's support, Garvan is leading the way globally in providing new therapies and hope for cancer patients who have no other treatment options available," says Professor David Thomas, Head of the Genomic Cancer Medicine Lab.

# Driving pancreatic cancer

The Sutton family, both personally and through Suttons Motors, have generously supported Garvan's pancreatic cancer research for over 30 years. Their contribution supports Professor Paul Timpson's innovative pancreatic cancer research. This longterm investment has allowed Professor Timpson's Invasion and Metastasis Lab to progress his research into an incredible new phase – from preclinical research to clinical trials. This brings to life our goal of taking our research from the lab to patients.

Pancreatic cancer is one of the most lethal cancers with the five-year survival rate sitting at about 12%. Very little progress has been made in the last 40 years – until now.

Sutton's continual support has allowed our researchers to drive pancreatic cancer research into the next lane of treatment strategies.

### TPG Telecom Foundation

TPG Telecom Foundation (formerly Vodafone Foundation) have supported Garvan for over 11 years. In 2022 they granted funds for a 12-month Genomics in the Cloud project aimed at building a new database of genetic information that is more representative of Australia's cultural diversity, so that Garvan researchers can better understand the genetic and cellular basis of disease.

The project also involved the delivery of a skilled volunteering program. "We would like to thank TPG Telecom Foundation for their support for this extremely productive volunteer project. In five days, the team learned about genomics and visualisation of genomic data and successfully deployed the open source gnomAD genome browser for the first time at Garvan, overcoming several technical hurdles. This is an impressive contribution in such a short time," said Associate Professor Sarah Kummerfeld, Data Science Pillar Director, Head of Kinghorn Centre for Clinical Genomics -Scientific.

## PASPALEY





# Publications

Through scientific publications, Garvan's researchers publish discoveries across a wide range of diseases. These discoveries advance outcomes across the scientific field has research findings are made available to the wider community.

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