NFMRI

2024

ANNUAL REPORT

About Us

Founded in 1977, the National Foundation for Medical Research and Innovation (NFMRI) is a not-for-profit organisation that is entirely independent. It is not affiliated with any university, hospital, government or state body. The Foundation provides financial and in-kind, skill-based support to advance research projects whilst conserving and building its capital base.

The Foundation is classified as a health promotion charity and is endorsed as a Tax Concession Charity (TCC) with Deductible Gift Recipient Item 1 (DGR 1) status.

Our Mission

"To advance innovations in medical research related to the nature, prevention, diagnosis, treatment and incidence of disease and other health problems that have a significant impact on the health of humans."

Our Vision

NFMRI believes more than funding alone is needed to advance discoveries and innovations. Our culture is one where we look to make a social investment in medical research. By partnering with researchers to provide support and knowledge, and facilitating connections with industry, we aim to maximise the social returns from our grants. The Foundation is looking to become a partner of choice with both researchers and funders of research, and a national ambassador for medical research and innovation.

Our vision is to be recognised as the leading Foundation, efficiently and effectively supporting biomedical research, advancing innovations and creating impact.

Our Approach

NFMRI takes a uniquely proactive approach by partnering with grant recipients to provide support along the innovation pathway. It is a prerequisite that we only fund research of the highest quality. When reviewing applications and research projects, NFMRI looks for more than good science. We also assess the ability and willingness of the researcher and the institution to collaborate and to plan and manage research along the innovation pathway. Most importantly, we analyse the potential commercial and social success of the innovation.

NFMRI also considers the need for and size of any potential impact, the potential for the research and innovation to make a significant difference and whether the opportunity may become attractive to a potential next-step partner who can make a product or service accessible to the community. To do this, we harness skill sets from a variety of scientific, clinical, business development, commercial, industry and financial sources.

The Foundation is looking to increase its impact by partnering with other trusts and foundations, Private and Public Ancillary Funds (PAFs and PuAFs) and corporate donors. NFMRI does not proactively solicit donations, but we are always grateful for the donations and bequests that we do receive.

Cover: A/Prof. Branka Grubor-Bauk, University of Adelaide

Message from our Chairman

The year ended on a high with our key stakeholders convening at our conference, Research with Purpose 2024. The event took place at the Tangalooma Island Resort on Moreton Island, Queensland on the 26-28th of November 2024. Both delegates and speakers from across the country joined us to participate in our highly engaging educational event featuring a spectacular line-up of speakers. We were thrilled to acknowledge the significant achievements of Prof. Andrew Wilks with him opening the conference and delivering the inaugural Peter Bowen Oration. We thank everyone who took the time to join us over the course of this event and thank our sponsors. The conference would not have been possible without the generous support from Hall & Wilcox and CSL.

It is pleasing to consistently see the growing impact and community benefits realised from the targeting research support the Foundation provides. Many of our projects continue to accelerate and advance towards community at an impressive rate and scale.

Since the Foundation's establishment in 1977, nearly $24 million in grants has been committed to support innovative research projects, covering various diseases and conditions across the nation. Our collective achievements have been made possible thanks to our generous benefactors, supporters and partners, including individuals and organisations, who generously contribute their time and expertise.

Our partnerships continue to assist NFMRI to scale its activities and offer a consistent source of targeted funding that supports researchers to further advance their innovations and discoveries so that they can be of benefit to the community sooner. We are grateful for ongoing support from The Mason Foundation, The NSW Community Foundation, the Nicholas & Phyllis Pinter Trust and the Vernon Sinclair Fund (all managed by Equity Trustees). With their help, we are supporting several promising research projects in the areas of Alzheimer's disease and cancer.

We thank an anonymous donor whose support over two years has enabled the funding of innovative research into diseases affecting children and youth. Together with the State Trustees Australia Foundation, we are also supporting cancer research in Victoria.

We are grateful to have received a gift in early 2024 from the Estate of Late John Dixon Hughes, one of our Founding Directors and longstanding Research Advisory Committee (RAC) Member who sadly passed away in late 2022.

Both our Board and our team are thrilled by the large amount of success stories and impact shared by researchers with us. This is testament to the effectiveness of our strategy, as well as the personalised support and advice received by researchers from our RAC, Board and management. This further demonstrates the need for this type of targeted support. This information share by our current and past researchers will help our Board and RAC when awarding the 2025 Dr. John Raftos AM Awards, which is awarded every two years to a researcher currently or previously supported by NFMRI demonstrating significant advancement of their innovation.

On behalf of the Board, I would like to acknowledge and thank our management for their countless efforts to help deliver the ambitious strategy we have set for the Foundation. Dr. Noel Chambers, with the help of Mrs. Nancy Ranner and Mrs. Linda Hearne, continues to guide the Foundation towards achieving its purpose.

I wish to thank my colleagues and fellow Directors for the dedication and passion they have brought to the organisation. Their leadership, vision and guidance are instrumental to the work and successes

of our Foundation. Likewise, our Board greatly appreciates the ongoing support and advice received from our expert RAC. Each Member of our RAC has a unique set of skills and experience and represent an important lens when reviewing the vast array of projects we receive. Perhaps what is most important is the tremendous team culture we have built at NFMRI. Everyone is valued and plays an important role in helping achieve our overall mission.

This year, we welcomed Prof. Rachel Thomson from the University of Queensland and A/Prof. Susan Hua from the University of Newcastle as new members of our Research Advisory Committee – each with a very different skill set. Prof. Thomson is a leading clinician specialising in Nontuberculous mycobacterial (NTM) infections and A/Prof. Hua brings tremendous expertise in translational nanopharmaceutics and therapeutic targeting.

We thank Mercer, and particularly Mr. Scott Glover for carefully managing the Foundation's investments in consultation with our Board. We also thank Mr. Mark Boyle and his team from Nexia Australia for their continued professional work carrying out the year's annual audit of our Foundation.

Our entire team is grateful for the ongoing support from pro-bono legal advice from Ms. Alison Choy Flannigan of Hall & Wilcox throughout the course of the year, as well as complimentary venue access and administrative support from McGrathNicol.

We greatly appreciate and value our stakeholders' support and are confident that our donors and partners will be pleased with the high-quality research projects their gifts and assistance have enabled. Collectively, we continue to focus on achieving the vision and goals of our benefactors – both past and present. I hope you enjoy reading about our collaborative progress throughout the 2024 calendar year and I look forward to continuing to share with you some of our achievements throughout the course of 2025 and beyond.

Dr. Rob Sauer
Chairman

Message from our CEO

I was pleased to see both familiar and new stakeholders join us at Research with Purpose 2024 at the Tangalooma Island Resort in November 2024. The breadth and depth of conversations that took place helped delegates and speakers from various sectors better understand the importance of the role they play in the greater research ecosystem. These valuable discussions will help me immensely since joining the NHMRC's newly established NHMRC-MRFF's Industry, Philanthropy and Commercialisation Committee.

We continue to expand and improve our purpose-built systems, processes and specialist capability which enable us to identify and support potential innovations that may deliver community benefits including new medicines, vaccines, diagnostics, devices, tools and biologicals. This year, we developed and implemented a new purpose-built online expression of interest form, and we are currently in the process of migrating our full application submissions online as well. These systems support the delivery of our strategy and improve efficiencies with our small team.

Since the past ten or so years, NFMRI continues to implement and deliver its strategy which seeks to de-risk innovations, thereby making them more attractive and competitive to next-step partners. We also continue to work together with researchers, supporting them with more than just money. Where advice and assistance is required, we always do our very best to harness the expertise of our team and our network to assist researchers advance their innovation.

With a growing number of medical research success stories and impressive statistics to boot, NFMRI continues to demonstrate the need for and importance of this targeted support by gathering evidence of impact across various indications, institutions and innovation type. Our robust support helps break traditional barriers and accelerates discoveries.

This year, we revisited and updated our impact statistics. We were thrilled to see that they did not decrease, but in fact continued to improve, despite challenging times faced during and after the pandemic. One project in particular, Prof. Nicholas Opie's, has leveraged an impressive $212 million of funding! As this heavily skews the overall amount, we decided to exclude this project in our calculations. Over 69% of the projects we have supported under this new strategy have successfully secured a next-step partner and together they have leveraged over $59.9 million, representation a return on investment rate of 14.5. In addition, two innovations have received full approval and are now products of benefit to the community.

One of our key priorities is to achieve this impressive change collectively. To do this, we place a large focus on partnerships and working with other like-minded individuals, organisations, charities and philanthropic groups. We are always happy to work with others and share our findings and experiences, as well as assist other foundations to provide them with guidance and advice where it is requested.

Our partnerships further expand our ability to scale our support. Through funding from The Mason Foundation (managed by Equity Trustees), we have been able to support a growing number of innovative Alzheimer's research projects. We were pleased to support the following Alzheimer's disease research projects during 2024: Dr. Jenna Ziebell (The University of Tasmania), Dr. Dorothy Wai (Monash University), Dr. Prashant Bharadwaj (Edith Cowan University), Dr. Jonathan Danon (The University of Sydney), Prof. Kate Schroder (the University of Queensland) and Dr. Rebecca Nisbett

(The Florey). Prof. Isabelle Lucet, (WEHI), and Prof. Bryce Vissel (St. Vincent's Hospital Sydney) will be commencing their projects in early 2025 and additional projects will be announced later this year.

Thanks to generous support from the NSW Community Foundation, the Nicholas and Phyllis Pinter Trust and the Vernon Sinclair Fund (all managed by Equity Trustees), we have supported A/Prof Vivien Chen's cancer research project at the Sydney Local Health District with more projects to be announced in 2025.

Lastly, we are pleased to be supporting Prof. Russell Dale's project into neurodevelopment disorders affecting children and youth funded in partnership with the help of an anonymous philanthropic partner. We have also just announced two new projects commencing in 2025, which we will be supported through this partnership. These new projects include Prof. Vito Ferro's research at the University of Queensland as well as Prof. Michael Rogers's research at the Garvan Institute of Medical Research

The composition of our RAC is unique and includes what we refer to as 'four lenses' of review: clinicians, academics, research translation and commercial science experts. Each member has a different background and set of skills that helps provide a multi-lens approach in our reviews and support. Our Research Advisory Committee (RAC) Members remain instrumental in helping NFMRI and the researchers it supports achieve success. We thank them for contributing an enormous amount of time reviewing expressions of interest, applications, reports and acquittals throughout the course of the year.

Although our conference is normally held in a different state every two years, on this occasion we have decided to hold our next conference in 2027 to coincide with the Foundation's 50th anniversary. We will be holding Research with Purpose 2027, as well as our celebratory dinner at the Pacific Bay Resort in Coffs Harbour. I hope you will consider joining us then, as well as our awards night taking place in November 2025 in Sydney.

Dr Noel Chambers,
Chief Executive Officer

Our Legacy

The Foundation was established in 1977 on the initiative of the late Dr Frank Ritchie who had several patients wishing to donate to medical research and for the capital to be preserved. Fundraising activities were conducted under the auspices of the initial Chairman of the Board of the Foundation, Sir Peter Abeles, and Lady Sonia McMahon.

A patient of Dr. Frank Ritchie bequeathed a substantial sum, the Stern Estate, to be divided equally between Sydney Hospital and the Foundation. The Foundation was to maintain the capital and use income to fund and facilitate ongoing medical research in perpetuity. Over the years, by way of further bequests and donations, the Foundation has built up significant capital reserves to provide income to facilitate continuing important medical research. The funds of the Foundation and the management of those funds have always been totally independent of the hospital, as has been its management structure. Following an extensive review of the sector, the Foundation updated its mission and changed its name from the Sydney Foundation for Medical Research to the National Foundation for Medical Research and Innovation in 2014.

Past Directors and Major Benefactors

Our Foundation owes its legacy to the following Directors who have served as part of its Board and to those who contributed to the Foundation so generously. Without their vision, foresight and commitment to the Foundation, it would not be where it is today.

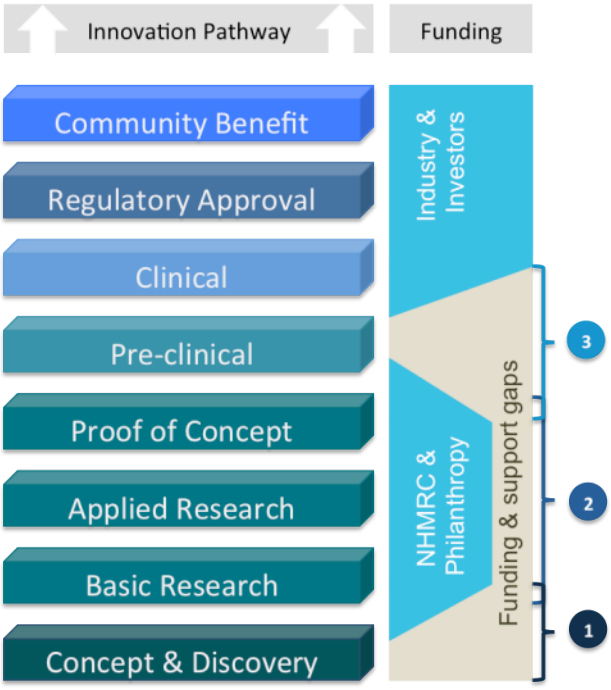
1979-1982	Sir Peter Abeles (Founding Chairman)	1984-1987	Mr. JW MacBean
1979-1983	Mr. ED Cameron	1984-1985	Sir William W Pettingell
1979-1983	Mr. JP Ducker AO	1987-2003	Mrs. SE Ball
1979-1983	Mr. MJ Inglis	1987-1999	Mr. RH Minter (Chairman)
1979-1982	Lady Sonia McMahon	1987-2017	Dr. V Cowlishaw Shortell
1979-1990	Mr. TE May (Former Chairman)	1995-2011	Mr. PM Bowen
1977-1982	Dr. FL Ritchie C.B.E.	2000-2003	Prof. AJ Young AO
1977-1995	Mr. BF Rose	2002-2017	Dr. J Graham OAM
1979-1982	Dr. HH Spiegel	2002-2018	A/Prof. R Garrick AM
1979-1982	Sir Ian Turbott C.M.G, C.V.O	2006-2017	Ms. J Schwager AO
1982-2007	Dr. J Raftos AM	2010-2019	Mr. K Drewery
1984-1990	Sir Gordon Jackson	2014-2019	Dr. A Bates
1984-1991	Mr. TL Lewis	1977-2022	Dr. J Dixon Hughes OAM

The Stern Estate
Josephine White and Hiltbrunner Fund
Estate Late Celia Margaret Paine
Estate Late Daqmar Wilhemine Halas
Estate Late Blanche Elizabeth Turner
Estate Late Mary Althouse
The Mason Foundation (managed by Equity Trustees)
NSW Community Foundation – Nicholas and Phyllis Pinter Trust (managed by Equity Trustees)
The Vernon Sinclair Fund (managed by Equity Trustees)
Cynthia & Patricia Gaden Fund
Tempe Mann Fund
Estate Late Bill & Shirley Westbrook
Estate Late Gloria Ida Prejeant
Estate Late Beatrice Gordon Joske
Estate Late James Hoadley
NSW Community Foundation
NSW Department of Primary Industries
Cure 4 Cystic Fibrosis Foundation
State Trustees Australia Foundation
Estate Late John Dixon Hughes

Our Strategy

Historically, funding of medical research in Australia has been determined by outputs – research papers and citations validated by scientific peer review. Whilst these factors are important, the advancement of innovation, the formation of collaborations and the ability to deliver impact are the outcomes NFMRI's funding delivers.

To maximise impact, NFMRI focuses on advancing innovation. By looking outwards and supporting the gaps along the innovation pathway and applying resources, networks and knowledge, NFMRI helps philanthropy make a difference. NFMRI supports medical research in three key gap areas we call social investment portfolios.



3 Bridging the 'valley of death'. Supporting research required to facilitate collaborator uptake and investment

Often referred to as the 'valley of death', this is the area where strategic research studies are required to attract potential investors and industry collaborators.

Traditional funding mechanisms do not support or motivate researchers to contract research activities necessary to answer some research questions necessary to form these collaborations.
These research questions are often not attractive to publications as they are 'less newsworthy' and not research undertaken by the chief investigator and their team.

By supporting small incremental studies, NFMRI can manage risk and make innovations more attractive to potential commercial partners and investors.

2 Support for strategic collaborative research activities focussed on advancing research and validating directions

Providing access to the additional research skills not obtainable through currently available funding mechanisms.

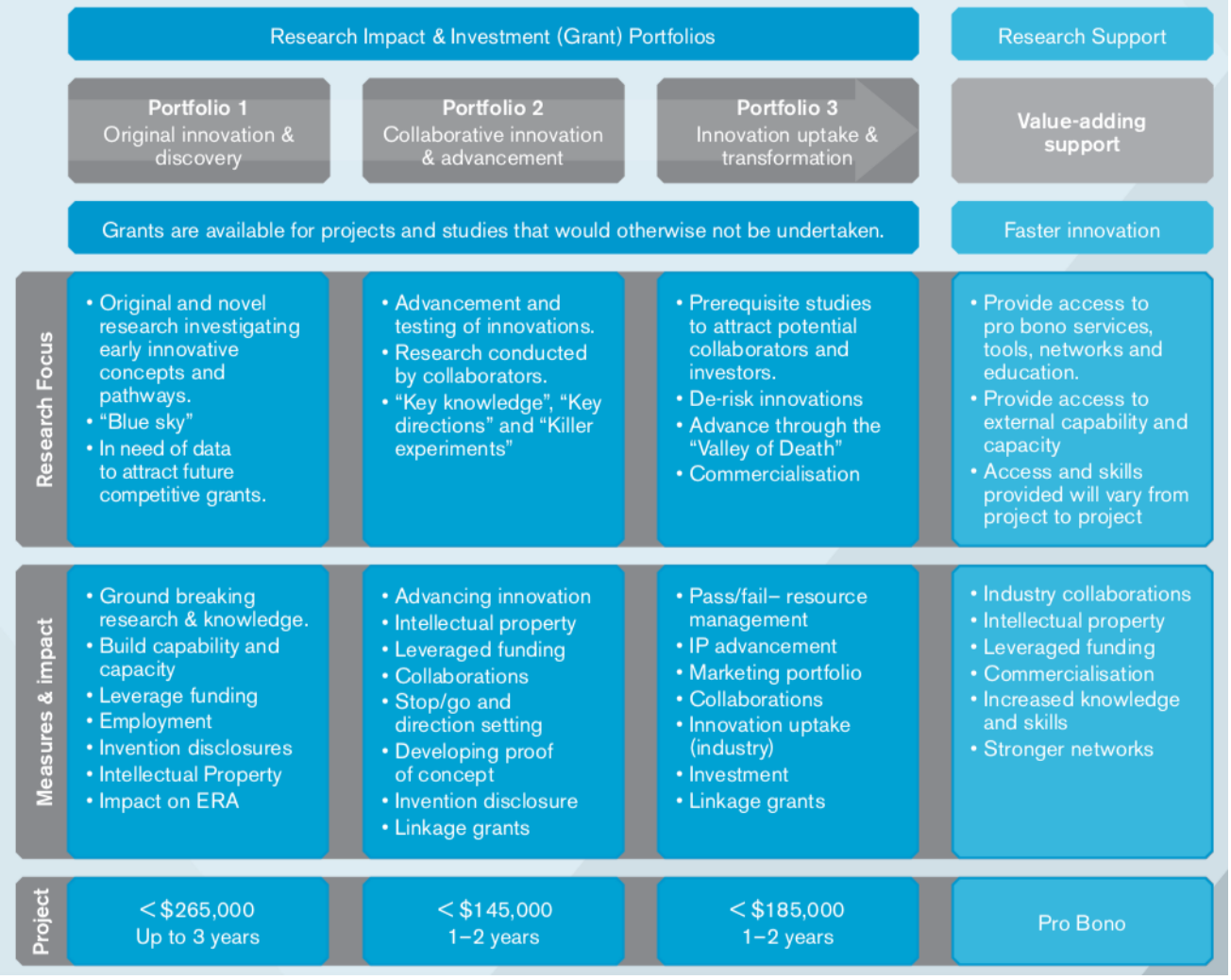
Support for strategic collaborative research activities focussed on advancing innovations and validating directions is needed. NFMRI is uniquely positioned to add value to the advancement of research and innovations in preparation for potential collaborations.

By partnering with researchers, NFMRI supports collaborative research activities undertaken by other research groups that expedite the advancement of the innovation and are important for attracting potential industry partners and investors.

1 **Original Australian innovation and discovery. Frontier research not competitive for NHMRC grants**

Supporting the validation of new concepts, discoveries and intellectual property creates the foundation for innovations and community benefits of tomorrow. Young researchers, early discoveries and new paradigms need support to become competitive and stand on their own two feet.

Portfolio Summary



Grant amounts and durations are a guide only.

Our Supporters

We wish to acknowledge and thank the following organisations and individuals who have supported the Foundation during 2024. Their assistance has greatly contributed to the Foundation's growth and success.

McGrathNicol

Over many years, McGrathNicol has generously provided support to the Foundation. NFMRI is very grateful to McGrathNicol for kindly providing administrative support and use of office facilities.

Mercer Investments Australia (previously BT Financial Group)

Mercer Investments Australia (previously BT Financial Group) has been supporting the Foundation for several years, providing strategic guidance to the organisation and management of our investment portfolio.

Equity Trustees

A partnership with Equity Trustees was formed thanks to generous funding from The Mason Foundation to help support mutually aligned research into Alzheimer's Disease. Additional funding from The NSW Community Foundation, the NSW Community Foundation – Nicholas and Phyllis Pinter Trust and the Vernon Sinclair Fund has been provided to support cancer research. This funding has helped support the following grants in 2024: A/Prof. Vivien Chen, Dr. Jonathan Danon, Dr. Jenna Ziebell, Dr. Dorothy Wai, Dr. Prashant Bharadwaj, Prof. Kate Schroder and Dr. Rebecca Nisbet.

Hall & Wilcox

Hall & Wilcox kindly continues to provide pro bono legal and secretarial advice to the Foundation and has supported many of our past events, including our Research with Purpose 2024 Conference.

IP Australia

IP Australia has kindly provided pro bono patent analytics research to several of our research projects.

Nexia Sydney Audit Pty. Ltd.

We wish to thank Nexia Sydney Audit Pty. Ltd. for being our auditors since 2016.

Estate Late John Dixon Hughes

We thank the family of Dr. John Dixon Hughes for the generous gift-in-will received in 2024. This gift will help support and advance new medical innovations.

Anonymous partner

We thank of anonymous partner for working with NFMRI to support innovative research into diseases affecting children and youth. Together we are supporting Prof. Russell Dale.

CSL

CSL generously supported our Research with Purpose 2024 Conference as a session sponsor.

Our Governance

The National Foundation for Medical Research and Innovation (ABN: 85 001 422 895) is endorsed as a Tax Concession Charity and Deductible Gift Recipient (Item 1). The Foundation is also recognised as a Health Promotion Charity and has fundraising licences in relevant Australian states.

The Directors of the Foundation and management are committed to achieving and demonstrating the highest standards of corporate governance. The Directors of the Foundation continually seek to adopt best practice policies and procedures.

In accordance with the Foundation's strong focus on sound governance, the Board has adopted a Governance Charter that supplements its Constitution and details the policies, processes and expectations for the Directors, Research Advisory Committee (RAC), staff and contractors of the Foundation. It outlines a code of conduct, which all members are required to agree to, as well as conflicts of interest disclosures and management procedures.

The annual review of the Foundation's governance frameworks considers best practice guides, including those published by the Australian Securities Exchange and Standards Australia.

The Foundation has continuous improvement processes and adopts a governance review schedule, which includes the review of its skills-based Board, RAC and Staff.

Our Board's Responsibilities

One of the primary responsibilities of the Board is to be the custodian of the purpose of the Foundation as set out in the mission statement within the Foundation's Constitution.

Our Mission

"To advance innovations in medical research related to the nature, prevention, diagnosis, treatment and incidence of disease and other health problems that have a significant impact on the health of humans."

Specific responsibilities include:

- Continually develop and drive the vision of the Foundation;
- Identify any critical gaps in medical research funding in the community;
- Achieve a greater profile within the research community;
- Grant funding to applicants whose research supports the mission of the Foundation;
- Provide guidance to the Research Advisory Committee in respect of the type of research project that the Foundation may fund;
- Increase the Foundation's ability to give via partnerships, bequests and any other suitable avenues; and
- Grow and monitor the financial capital base of the Foundation.

Our Management's Responsibilities

The Board has formally delegated day-to-day management of the company's operations and the implementation of the Foundation's strategy and policy initiatives to the Chief Executive Officer and senior executives.

Our Partnerships

NFMRI seeks to engage with like-minded stakeholders that enable the Foundation to fulfil its mission. The Foundation values its stakeholders and believes that for its partnerships to be successful, both parties must be involved and have mutual expectations.

Our processes facilitate discussions to align expectations, establish a governance framework and develop a partnership that benefits both parties to achieve the desired results. To maximise success, our focus is on identifying and working with groups that have aligned interests, where each party stands to mutually benefit from the partnership. Over recent years, we have had the pleasure of partnering with the following organisations:

Equity Trustees (The Mason Foundation, NSW Community Foundation, NSW Community Foundation – Nicholas and Phyllis Pinter Trust and the Vernon Sinclair Fund): In mid 2021, Equity Trustees extended our partnership to assist with distribution of medical research funding for a further three years. This includes an annual contribution of approximately $520,000 towards Alzheimer's disease research and approximately $80,000 from other partners to support cancer research. NFMRI was seen as a partner of choice due to its strategy and focus on outcomes, independence, ability to value-add to research projects and its ability to support innovation successes that will lead to tangible community outcomes. Together we have supported many projects featured in this report.

Anonymous partner

NFMRI is partnering with an anonymous donor to identify and support research into diseases affecting children and youth. This includes an annual contribution of approximately $250,000. Together, we are currently supporting Prof. Russell Dale from the University of Sydney, Prof. Vito Ferro from the University of Queensland and Prof. Michael Rogers from the Garvan Institute of Medical Research.

State Trustees Australia Foundation: NFMRI is assisting the State Trustees Australia Foundation in supporting innovative cancer research in Victoria. Together we are supporting Dr. Remy Robert's research at Monash University.

NFMRI's Impact: Project Updates

Below are a few examples of grant updates arising from the support provided by NFMRI and our partners over recent years. Our researchers share their outcomes and outputs directly with us utilising our online progressive reporting system. With an increasing amount of success stories, we are updating our statistics and plan to release the update at our 2024 Conference.

Prof. Nicholas Opie, The University of Melbourne and Synchron

***Safety validation of the Stentrode: a biomedical device for paralysis that converts thoughts into computer commands* (2018, $390,000)**

- NHMRC project grant, $1,651,685
- NHMRC development grant, $810,382
- DARPA & ONR Global, $1,331,325
- Defense Health, $154,823
- Funding from other external sources, $193,000
- Spin-off company Synchron
- Synchron (Series C) brings total raised since inception to $212,000,000. Company is backed by Bill Gates' venture fund and Amazon founder Jeff Bezos' 'Bezos Expeditions'
- Company valued at approximately $1 billion USD
- Platform product has been implanted successfully into patients to treat paralysis

Prof. Wendy Cooper, Royal Prince Alfred Hospital

***Personalised medicine for lung cancer and mesothelioma* (2012, $125,000) *Personalised medicine in lung cancer – massively parallel sequencing of lung tumors enriched for actionable mutations* (2014, $190,000)**
***Dr. John Raftos Medal* (2018, $50,000)**

- Cancer mutation testing being used to characterise tumour pathology and identify suitable and personalised drugs for patients
- Approval of new therapies and concurrent diagnostics by PBAC and MSAC
- Implementing NGS sequencing testing to assess for specific fusions in sarcomas and head and neck cancers to improve diagnostic accuracy and identify potential targetable variants
- Promoted to Professor

Prof. Mark Kendall, Australian National University and WearOptimo

***Dr John Dixon Hughes OAM Medal* (2017, $50,000)**

- Led to the establishment of microwearables company, WearOptimo
- WearOptimo has received >$30 million support from the Australian National University, Aspen Medical, Federal Government, Queensland Government and high-net-worths/ family office
- WearOptimo is in clinical stage with its unique Microwearable sensor
- Established manufacturing at its new premises in Brisbane

Dr. Prashant Bharadwaj, Edith Cowan University

***Analysis of neurofilament biomarkers for Alzheimer's disease, Parkinson's disease, Multiple sclerosis and childhood dementia* (2023-2025, $250,000)**

- WA Child Research Foundation, $249,967
- Department of Health WA/ FHRIF, $160,000
- Alzheimer's Research Australia, $300,000
- Channel 7 Telethon grant - childhood dementia, $100,000

Prof. Lenka Munoz, The University of Sydney

***Improving chemotherapy response rates in brain cancer* (2013, $396,104)**
***Dr. John Raftos AM Medal* (2020, $50,000)**

- NHMRC Ideas Grant, $1,100,000
- NHMRC Development Grant, $550,000
- Lin BioScience funding grant, $1,200,000
- Promoted to Professor
- Substantial IP and out-licensing portfolio of neuro-oncology therapeutics she developed
- Licensing agreement

Prof. Roger Chung, Macquarie University & Celosia Therapeutics

***Preclinical evaluation of novel therapies for clearance of TDP-43 in amyotrophic lateral sclerosis* (2019, $183,488)**

- Fight MND Foundation Drug Development Grant, $1,000,000
- Fight MND Foundation Impact Grant, $250,000
- Spin-off company, Celosia Therapeutics ($2m seed funding followed by securing series A of $16.5 million)

Prof. Steven Wise, The University of Sydney and NanomedX

***Durable Treatment of Peripheral Artery Disease* (2019, $95,022)**

- Sydney Local Health District - Accelerating Translation of New Cardiovascular Devices and Materials - $361,752
- Heart Foundation Future Leader Fellow Level 3, $593,126
- NSW Cardiovascular Initiative, $727,423
- MTPConnect TTRA Research Project, $739,128
- NSW Cardiovascular Senior Scientist Grant, $746,488
- University of Sydney FMH Biomanufacturing Incubator, $250,000
- Spin-off company NanomedX with private seed funding of over $790,000
- Promoted to Professor of Cardiovascular Bioengineering

Prof. Peter van Wijngaarden, Centre for Eye Research Australia and Enlighten Imaging

***Translating an eye imaging biomarker for Alzheimer's disease to the clinic* (2019, $250,000)**

- BioMedTech Horizons 2.0 grant, ($1m)
- NHMRC-EU Joint Programme-Neurodegenerative Disease Research Grant, ($1.4m)
- NHMRC Ideas Grant, ($887,500)
- Funding from multiple external sources, ($2.6m)
- Well advanced camera prototypes
- Strong IP position
- Spin-off company Enlighten Imaging

***A retinal imaging biomarker of Alzheimer's disease* (2022, $40,000)**

- Project currently underway
- Promoted to Professor of Ophthalmology

A/Prof. Branka Grubor-Bauk, The University of Adelaide

***Novel T cell-based DNA vaccine against Zika virus infection* (2021, $220,000)**

- Industry collaboration with Vaxxas (Australia)
- Industry support from aVaxziPen (UK)
- Industry collaboration with PharmaJet (CO, USA)
- Collaboration with University of Wisconsin - Madison (WI, USA)

Prof. Michael Good AO, Griffith University Institute for Glycomics

***Producing a GMP grade peptide conjugate vaccine for a Phase 1 trial to prevent infection with group A streptococcus* (2015, $251,000)**

- Leveraged $3,500,000 from the Heart Foundation
- Leveraged over $750,000 of funding from external sources, including Lowitja, Snow Foundation etc.
- $550,000 in funding and over $500,000 in kind to fund a Phase 1 clinical trial from the Li Ka Shing Institute (Canada)
- Investment from industry
- Currently in Phase 1 clinical trial overseas
- Anticipated commercialisation through Australian NewCo establishment in 2023/24
- Leducq Foundation funding, $5,000,000

***Manufacture and evaluation of a chemically attenuated Plasmodium falciparum whole parasite blood-stage malaria vaccine* (2018, $200,000)**

- Rotary Health Grant, $1,035,648
- Medical Research Future Fund, $500,000
- Private trust funding, $570,000
- Private philanthropic donor, $372,027
- Griffith University funding, $334,968
- Collaborating with industry & currently in clinical trial
- NHMRC e-Asia Joint Research Program grant, $749,918
- NHMRC Ideas Grant awarded through Monash University, $873,271

Prof. Bernard Flynn, Monash University and Cincera Therapeutics

***Novel sphingolipid targeted agents for the treatment of cardiac fibrosis* (2016, $100,000)**
- Monash Research Innovation Fund (MRIF), $50,000
- NHMRC Development Grant, $684,000
- Spin-off company Cincera Therapeutics, $7,000,000

***Sphingosine Kinase-1 inhibitors for the treatment of pulmonary hypertension* (2020, $110,400)**
- Spin-off company AnkeRX, $10,791,639

***Dr. John Raftos AM Medal* (2020, $50,000)**

PAR2 receptor modulators in pulmonary fibrosis
- Monash MIPS Incubator Investment, $50,000
- Monash MRIF investment, $50,000

Gastrointestinal-directed S1P1-receptor modulators in the treatment of inflammatory bowel disease (2021, $135,700)
- Commercial discussions currently underway

A/Prof. Vivien Chen, Sydney Local Health District

***Novel biomarker to predict thrombotic risk in myeloproliferative neoplasms* (2022 - 2024, $193,000)**
- Diagnostic assay for heparin induced thrombocytopenia (HIT) has been selected for an International Society of Thrombosis and Haemostats Scientific Standardisation sub-committee project aimed at progressing procoagulant platelet based assays, including this patented assay, available for diagnostic use in HIT.
- NSW Office of Health and Medical Research, NSW Cardiovascular Collaborative Grant, $1,000,000
- Sydney Local Health District award, $15,000
- NSW Office of Health and Medical Research translational research grant, $500,000
- US patent granted
- Collaboration with Emosis Diagnostics
- Licensing negotiations

Prof. Nicholas Huntington, Monash University

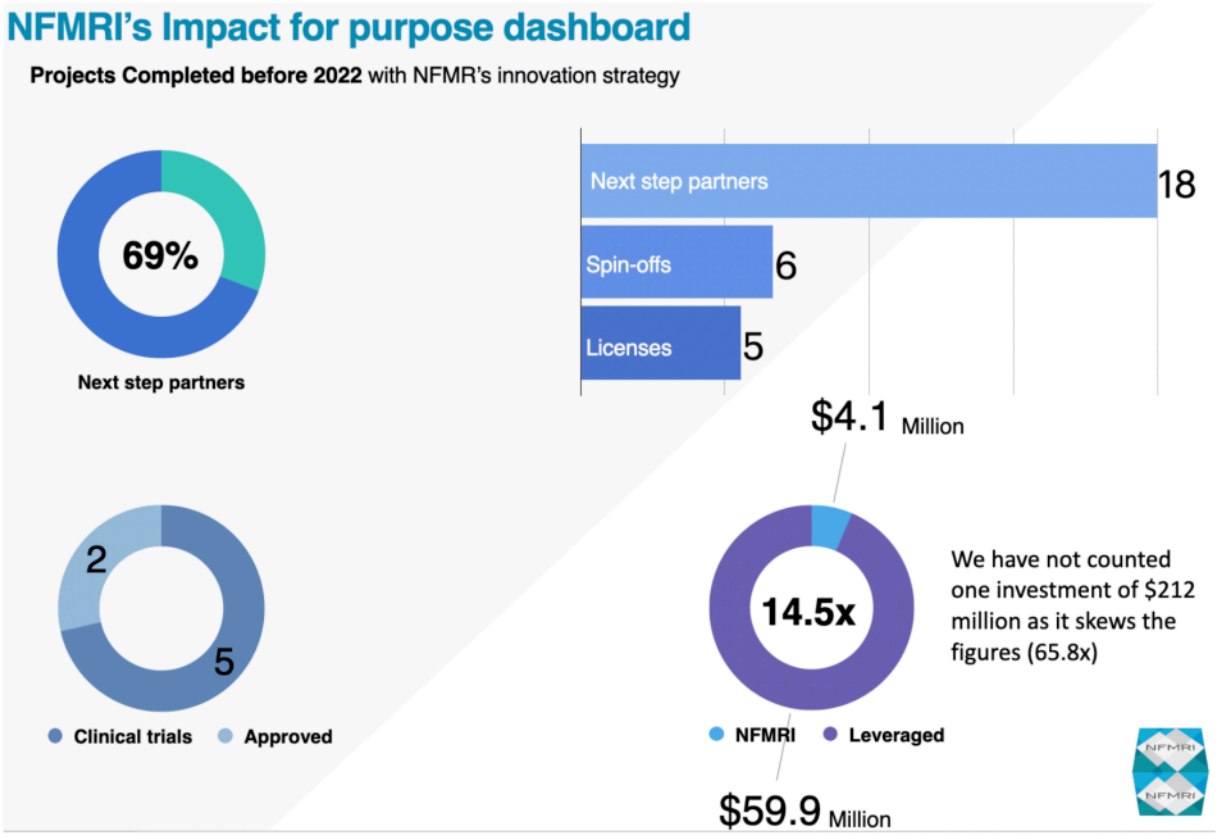
***Dr. John Dixon Hugues OAM Medal* (2019, $50,000)**

Genetically modified NK cells for cancer immunotherapy
- NHMRC Next General Cell Therapies grant, $2,200,000
- NHMRC NK cell immunotherapies grant, $2,800,000
- Cancer Council Victoria grant, $333,000
- 2019 Australian Academy of Science Jacques Miller Medal
- 2 PCTs licensed and industry collaborations with Paranta Bioscience, Anaxis, Servier, CRC CTX, oNKo-Innate, Gilead Sciences and Kite Pharma
- Has attracted ~$100m of industry/academic funding generating >100 scientific jobs across multiple organisations
- Co-founded oNKo-Innate Pty Ltd & won Australian Emerging Company of the Year (2021)
- Ranked 1st (IL-15 biology) and 6th (NK cells) globally of active researchers in terms of outputs
- 140 research articles with >17,000 citations on NK cells and cancer immunotherapy

NFMRI's Impact

Following the introduction of our strategy focused on supporting the advancement of early biomedical research innovations to enable them to attract next-step partners, NFMRI carried out an updated analysis of its strategic outcomes to date in 2024.

Although a number of research projects are ongoing and expected to succeed in attracting next-step partners, an analysis of projects commencing between 2013-2022 yielded better than expected results. Sixty-nine percent of projects supported achieved our primary measure of success in attaining next-step partners leveraging over $14.50 of external funding for every dollar of grant funding – a total of $59.9 million (this excludes one project that leveraged a total of $212 million). Five innovations have commenced clinical trials and two innovations are delivering benefits to the community. Analysis of our strategic outcomes provides evidence that what NFMRI does is reproducible and effective, irrespective of indication, disease or innovation (medicine, vaccine, biological, device or diagnostic).



"The gap between basic research and commercial support for the discovery and development of new therapies, the so called "valley-of-death", is not just a funding gap but it is also a skills gap. Notwithstanding its notable 62% success rate in helping researchers bring their programs to next-step partners, NFMRI funding is 100% successful in helping train the next generation of Australian innovators and industry-ready researchers and leaders. The impact of this output is immeasurable." - **A/Prof Bernard Flynn, Monash University & Cincera Therapeutics**

Research with Purpose 2024

The National Foundation for Medical Research and Innovation (NFMRI) held its biennial conference, *Research with Purpose 2024*, on 26-28 November 2024 at the Tangalooma Island Resort on Moreton Island in Queensland. The event brought together experts from the research, industry, government, academia, venture capital and philanthropy sectors that each form an important part of the research funding ecosystem.

Over the course of three days, both speakers and delegates explored strategies and solutions to help build, strengthen and grow the biomedical innovation sector in Australia by attracting investments and creating collaborations that help advance innovation – ultimately leading to better health outcomes for the community.

This unique networking, education and thought leadership event is intentionally modest in size. Year after year, both delegates and speakers continue to sustain and build strong connections, as well as friendships over the course of the three days. Many speakers and delegates are return participants, having attended multiple NFMRI conferences and events.

On the 27th of November 2024, together with its partners, NFMRI announced over $2 million of medical innovation funding commencing in late 2024 and early 2025. Successful researchers from across Australia received funding to support the advancement of their innovations ranging from devices to vaccines – across several diseases and conditions affecting the health of humans.

NFMRI thanks Hall & Wilcox and CSL for sponsoring a session and making this event possible. We also thank our speakers who generously donated their time to share their insights, knowledge and expertise over the course of the event, as well as delegates who contributed to this meaningful discussion.

Inaugural Peter Bowen Oration

The Peter Bowen Oration is delivered every two years to coincide with NFMRI's conference. The Oration has been named in acknowledgement of our long-standing Member and past Director, Mr. Peter Bowen. As a highly respected lawyer, he helped secure and establish nearly all the bequests received by NFMRI over many years that now form part of its capital base held in perpetuity. The Oration seeks to highlight the important work and contribution of the sector's unsung heroes.

Having just received the 2024 Prime Minister's Prize for Innovation, Professor Andrew Wilks delivered the inaugural Peter Bowen Oration on Tuesday, 26 November 2024, opening the Research with Purpose 2024 conference.

Professor Andrew Wilks was recognised for his tremendous accomplishments as a serial entrepreneur with over 25 years of industry experience. This follows his highly successful academic career as a cancer researcher at the Ludwig Institute for Cancer Research, where he discovered JAK1 and JAK2.

He founded Cytopia in1997, one of Australia's earliest ASX-listed drug discovery companies, and whose JAK1/2 inhibitor Momelotinib (now known as Ojjaara) was approved by the FDA in September 2023. Since then, he has founded twelve companies in the drug discovery arena.

He was co-founder and Executive Chairman of SYNthesis med chem, a global CRO with laboratories in China, and SYNthesis Research, a "venture-discovery" company that funds and manages drug discovery collaborations generated from academia. He is MD at SYNthesis Bioventures, an ESVCLP focused on the life science and biotech space.

We hope you will consider joining us at our next conference, which will be held on the 23-25th November 2027 to coincide with NFMRI's 50th Anniversary. Please save the date and stay tuned for more information.

Thank you to our session sponsors:

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New Grants Approved in 2024

From grant rounds held during 2024, a total of ten new grants amounting to $2,075,517 were approved and announced in 2024 commencing in both 2024 and 2025:

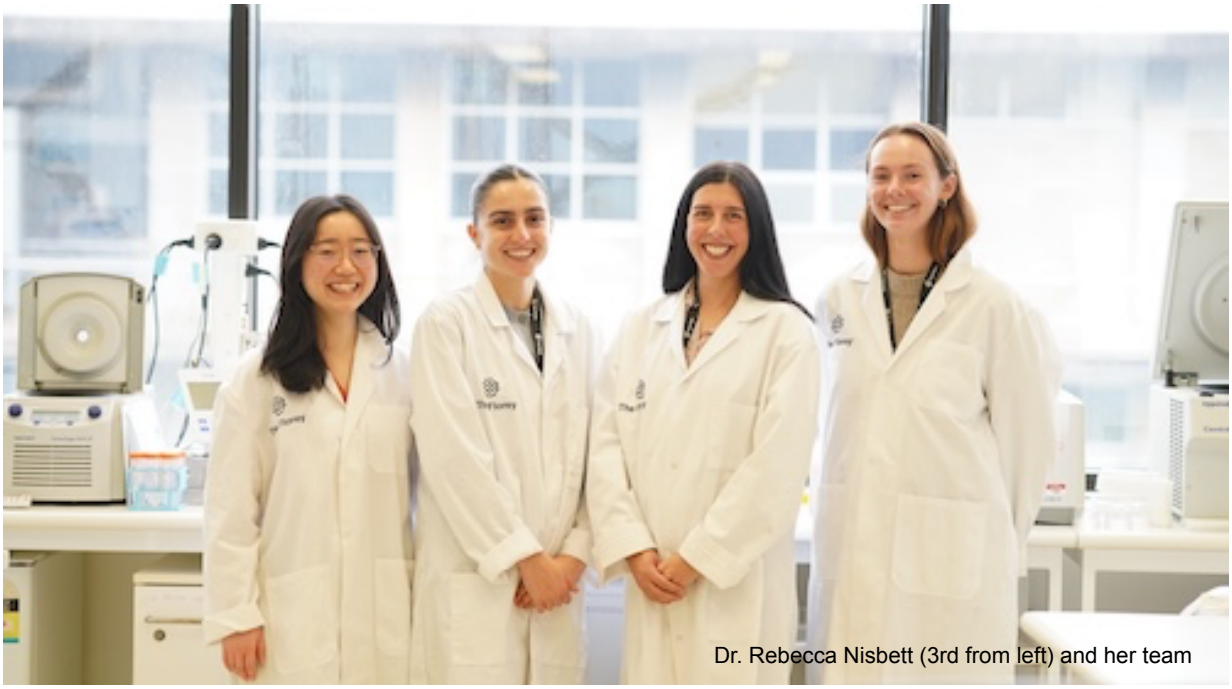
Prof. Kate Schroder **The University of Queensland** **$250,000 (2024-2026)**
"Inflammasome proteins as novel drug targets for treating dementia"

This project will aim to define the precise molecular mechanisms by which aggregated tau triggers inflammasome-dependent inflammation and neurodegeneration to validate exciting new drug targets for dementia. This project's significance lies in its capacity to provide preclinical data to expedite human trials of Prof. Schroder's emerging inflammasome inhibitors in AD and FTD. Given that the NLRP3 inhibitor Selnoflast is already in human trials for other diseases, there is potential for rapid research translation to meet urgent unmet need for people living with dementia.

Funding from The Mason Foundation (managed by Equity Trustees) and NFMRI will help support validation studies for inflammasome proteins as novel drug targets for treating dementia.

Dr. Rebecca Nisbett **The Florey** **$152,450 (2024-2026)**
"Vectorised antibody therapeutic targeting intracellular tau for the treatment of Alzheimer's disease"

Over the last 10 years, Dr. Nisbet has led a research program aimed at developing novel tau antibodies as a therapy for Alzheimer's disease. Together with her team, they have generated an antibody, RNJ1, that binds tightly to tau and prevents tau from clumping together. To enhance targeting of tau within brain cells, where tau is mostly localised, they engineered a small fragment of RNJ1 to create an intracellular antibody, also known as an intrabody. They have demonstrated that when the DNA of the RNJ1 intrabody, iRNJ1, is delivered to cells, the cells can effectively make iRNJ1, which is in turn able to bind to tau. To facilitate brain delivery, iRNJ1 DNA has been packaged into adeno-associated virus (AAV), a human virus that does not cause disease, but can effectively enter the brain and brain cells. Intravenous injection of mice with AAV-packaged iRNJ1 results in wide-spread brain delivery, as well as the successful generation of iRNJ1 in brain cells.



Dr. Rebecca Nisbett (3rd from left) and her team

Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI will help support Dr. Nisbet and her team to conduct a large pre-clinical assessment of iRNJ1, including validation and safety studies.

Dr. Remy Robert **Monash University** **$260,861 (2024-2026)**
"Targeted killing of immunosuppressive regulatory T cells for the treatment of solid tumours"

Dr. Robert and his team have discovered a highly differentiated antibody with superior ability to eliminate tumour infiltrating regulatory T cells, with the potential to be further developed as a solid tumour treatment. The overall aim of the research program is to further differentiate and reposition the antibody program into a first-in-class antibody drug conjugate (ADC) program. The unique internalisation property of the antibody makes it amenable to an ADC approach. Furthermore, unlike the competitor program in development, an ADC approach doesn't rely exclusively on the presence of patients' immune cells for the elimination of the tumour infiltrating regulatory T cells.

Funding provided by the State Trustees Australia Foundation and NFMRI will help support a preclinical proof-of-concept of an ADC approach.

Prof. Isabelle Lucet **WEHI** **$171,106 (2025-2026)**
"Targeting NEK7 mediated activation of the NLRP3 inflammasome as a new therapeutic avenue for Alzheimer's disease"

Prof. Lucet's innovative strategy is based on robust evidence linking inflammation in the brain to Alzheimer's disease progression. Her team is particularly focused on the protein NLRP3, a key driver for the body's first-line immune response and a highly sought after target in academia and the pharmaceutical industry worldwide due to its relevance to a wide range of diseases. They will aim to target the accessory key protein kinase, NEK7, through the development of small molecule drugs that render NEK7 unable to activate NLRP3, thereby reducing harmful brain inflammation in Alzheimer's disease patients.

Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI will be used to create bespoke assays and develop tools and small molecule lead candidates that can be developed towards clinical trials.

A/Prof. James Wells **The University of Queensland** **$344,610 (2025-2026)**
"The development of Q2361 for skin cancer prevention and treatment in transplant patients"

Organ transplant patients require lifelong medication to prevent their bodies from rejecting their transplanted organs. Most patients receive a medication called tacrolimus. A side effect of this medication is a very high risk of a type of skin cancer called squamous cell carcinoma (SCC). These cancers develop on sun-exposed areas such as the face, grow aggressively, and lead to significant loss of life. There are currently no FDA-approved drugs for the treatment of SCC in these patients.

A/Prof. Wells in collaboration with the Queensland Emory Drug Discovery Initiative (QEDDI), UniQuest's commercial drug discovery arm, have identified and patented the compound Q-2361, which antagonises the effects of the tacrolimus medication in the skin. If given topically, Q-2361 allows the immune system to 'switch on' in the skin only and has enormous potential to combat skin cancer in transplant patients without needing to alter their medication and without leading to transplant rejection.

Funding provided by NFMRI will help support scale-up chemistry and formulation development to advance this compound towards Phase I clinical trials.

Prof. Vito Ferro **The University of Queensland** **$145,000 (2025-2026)**

"Pharmacological chaperone therapy in a mouse model of MPS IIIA (Sanfilippo syndrome), a childhood dementia"

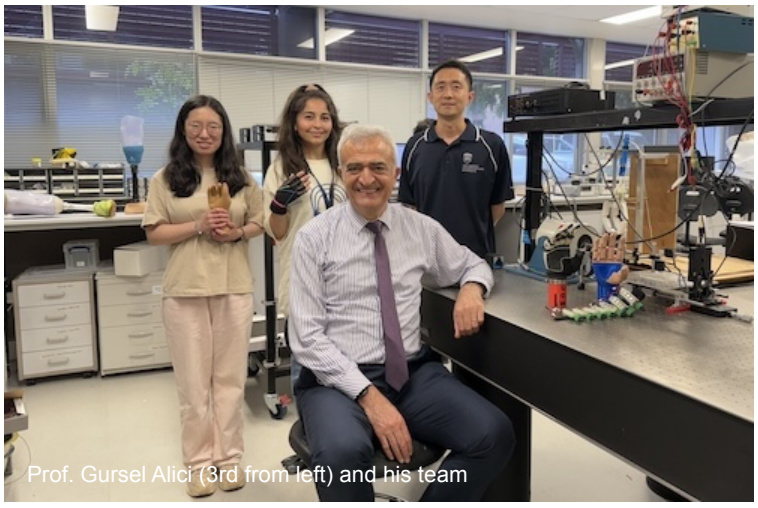
Prof. Vito Ferro (2nd from left) and his team

Sanfilippo syndrome is a rare genetic condition that causes childhood dementia – progressive, fatal brain damage in children with many features common with adult dementias. The median age of death reported is just 18 years and there is currently no effective treatment or cure. Prof. Ferro and his team have developed novel compounds called "chaperones" that can help support the stability and correct placement of the faulty enzyme present in Sanfilippo type A (MPS IIIA) patients. They have shown that their chaperones restore function of mutated enzyme and reduce the accumulation of waste products in cells from Sanfilippo type A patients.

Funding provided by our anonymous partner and NFMRI will help support in vivo proof of concept studies.

Prof. Gursel Alici **University of Wollongong** **$120,000 (2025)**

"Preclinical preparation for a novel multimodal human-machine-interface to enhance myoelectric control of transradial prosthetic hands"


Prof. Gursel Alici (3rd from left) and his team

This project aims to make preclinical preparations and optimize the developed prototype of a multimodal human-machine-interface for its application in the myoelectric control of transradial prosthetic hands. Current myoelectric control systems for prosthetic hand patients rely on unimodal bio-signals from surface electromyography (sEMG) sensors attached to a user's residual stump. Prof. Alici and his team have developed a co-colated multimodal sensor that can acquire both sEMG and force myography signals from the same location of an arm, which significantly enriches the detected muscular information. Preliminary results demonstrate that their system outperforms conventional unimodal systems in

multiple aspects, including robustness of user intention recognition, resilience of external noise, etc.

Funding provided by NFMRI will help support prototype optimization studies to further advance the innovation towards clinical trial.

Dr. Hayley Bullen **The Burnet Institute** **$150,000 (2025)**
"Developing novel antimalarials that prevent malaria parasites invading red blood cells"

As a novel approach to inhibiting parasite invasion, Dr. Bullen and her team have sought to target parasite enzymes responsible for folding invasion proteins. So far, they have identified 8 compounds which prevent parasite growth by inhibiting invasion of red blood cells. Importantly, they have found that these compounds are likely to have pan-species activity (ie. kill more than one species of malaria parasite). This is extremely important as prevalent malaria species vary across the world.

Funding provided by NFMRI will help support pharmacokinetics optimisation studies conducted in collaboration with the Walter and Eliza Hall Institute of Medical Research.

Prof. Michael Rogers **Garvan Institute of Medical Research** **$188,162 (2025-2026)**
"Developing a lipid replacement to overcome a childhood autoinflammatory disease"

Mevalonate kinase deficiency (MKD) is a genetic autoinflammatory disorder with a spectrum of symptoms, including repeated flares of fever, joint pain, gut inflammation, severe abdominal pain, ulcers and skin rashes. The disease typically appears in early childhood and can be fatal in very severely affected individuals. This project brings together two collaborators with unique expertise in biochemistry and drug delivery, to develop a new treatment for MKD. Their approach is based on replenishing a crucial lipid metabolite that is lacking in MKD patients. The goal is to create an absorbable form of the missing metabolite that can be administered orally, in capsules or as a liquid suitable for children, thus bypassing the need for drug injection.

Funding provided by our anonymous partner and NFMRI will help support preclinical development pathway studies for the lipid supplement as a simple, but innovative new treatment for MKD.

Prof. Bryce Vissel **St. Vincent's Hospital Sydney** **$293,328 (2025-2026)**
"A novel therapeutic target to correct synapse loss and prevent cognitive decline in Alzheimer's disease"

In Alzheimer's disease (AD), the loss of connections made between brain cells (synapses) correlates more strongly with the emblematic cognitive decline associated with the condition, than does the accumulation of amyloid which consumes most research attention on AD. Treatments that directly target and attempt to rescue synapse loss represent an avenue by which we might most effectively treat cognitive decline. Prof. Prof. Bryce Vissel's team seeks to target a mechanism involving abnormal synapse function by changing compositions of AMPA receptors (AMPARs), a key neurotransmitter receptor in the brain.

Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI will help support pre-clinical efficacy studies.

Grants with Funding Continued in 2024

Following recommendations of our Research Advisory Committee, the Board approved $1,253,314 in grant payments supporting 16 projects during the 2024 calendar year:

Researcher	Institute	Focus Area	Total 2024	Total funding commitment
Dr. Livia Carvalho	Lion's Eye Institute	Eye diseases	$73,750	$145,000
Prof. Denise Doolan	James Cook University	Malaria	$145,000	$290,000
A/Prof. Linda Wakim	Peter Doherty Institute	Influenza	$85,000	$145,000
Prof. Michael Good AO	Griffith University	Infectious diseases	$50,000	$50,000
Prof. Peter van Wijngaarden	Centre for Eye Research Australia	Alzheimer's disease	$50,000	$50,000
Dr. Jenna Ziebell*	University of Tasmania	Alzheimer's disease	$98,706	$264,485
Dr. Dorothy Wai*	Monash University	Alzheimer's disease	$105,377	$186,677
Prof. Bernard Flynn	Monash University	Intestinal fibrosis	$78,300	$189,400
Dr. Pierre Qian	The University of Melbourne	Cardiovascular	$90,000	$180,000
A/Prof. Vivien Chen**	ANZAC Research Institute	Cancer	$22,500	$193,000
Prof. Russell Dale***	The University of Sydney	Neurological disorders	$137,324	$137,324
Prof. Kate Schroder*	The University of Queensland	Alzheimer's disease	$45,000	$250,000
Dr. Rebecca Nisbet*	The Florey Institute of Medical Research	Alzheimer's disease	$24,125	$152.450
Dr. Remy Robert****	Monash University	Cancer	$43,477	$260,861
Dr. Jonathan Danon*	The University of Sydney	Alzheimer's disease	$64,050	$143,904
Dr. Prashant Bharadwaj*	Edith Cowan University	Alzheimer's disease	$140,705	$250,000
			$1,253,314	**$2,888,101**

**Supported by NFMRI and The Mason Foundation (managed by Equity Trustees)*
***Supported by NFMRI, the NSW Community Foundation and the NSW Community Foundation Nicholas and Phyllis Pinter Trust & Vernon Sinclair Fund (managed by Equity Trustees)*
****Supported by NFMRI and an anonymous partner*
*****Supported by NFMRI and the State Trustees Australia Foundation*

Projects Supported in 2024

The existing projects below continued to receive funding from NFMRI and its partners during 2024:

Dr. Livia Carvalho **Lions Eye Institute** **$145,000 (2023-2024)**

"Investigating novel bile acid nanocapsules carrying neuroprotective agents for the treatment of retinitis pigmentosa"

Retinitis pigmentosa is a rare, inherited degenerative eye disease that causes severe vision impairment. Dr. Livia Carvalho and her team are developing a safe and effective nanocapsule system that can support sustained drug delivery into the eye for prolonged beneficial effects to help treat retinitis pigmentosa.

Their preliminary research has shown that intravitreal administration into the eye of a neuroprotective drug can provide a transient protective effect in mouse models of inherited retinal diseases. In these animals, treatment was capable of reversing cell death temporarily in the first few days after treatment, but the effect was lost after a week. This project will establish a multidisciplinary collaboration between Dr. Carvalho's vision research lab and Dr. Al-Salami's bio-nanotechnology development lab to address this unmet need. Funding for this proof-of-principle project will be used to test the long-term treatment efficacy of this neuroprotective drug using a novel bile acid-based nanocapsule system compatible with direct eye delivery.

Prof. Denise Doolan **James Cook University** **$290,000 (2023-2024)**

"Development of a multi-antigen T-cell malaria vaccine"

Despite the dramatic decline in mortality and morbidity during the past decade, there is now a resurgence of malaria. Vaccination with the current lead malaria vaccine candidate can induce partial protection, but efficacy is low (<35%) and short-lived. To address this need, Prof. Doolan and her team have been pursuing an innovative approach to malaria vaccine development and together have identified four novel high-potential targets for a malaria vaccine to protect against all species of malaria. Each of these antigens can reduce liver-stage and blood-stage parasite burden against same-species and cross-species sporozoite challenge in mice, when administered in either of two vaccine regimens. Funding for this project will be used to enhance the pre-clinical package to support the translation of these lead antigens through the pre-clinical pipeline to phase 1/2a clinical testing, strengthen the IP portfolio, and attract a commercialisation partner.

A/Prof. Linda Wakim **The Peter Doherty Institute** **$145,000 (2023-2024)**

"A novel universal influenza virus vaccine that provides long term protection against the flu"

Vaccination remains the best way to prevent human influenza disease, a highly contagious and rapidly spreading acute respiratory disease. However, current influenza vaccines are sub-optimal relying on annual reformulation and delivery to the population to maintain protective immunity. Current vaccines also offer no protection during a pandemic outbreak, where the emergence of novel viruses from animal reservoirs spread rapidly worldwide, having a devastating impact on global health. This project unites A/Prof. Linda Wakim, Prof. Greg Qiao, Prof. Bernd Rehm together with the WHO Collaborating Centre for Reference and Research and Influenza (CCRRI) to develop a novel "one-shot' intranasal influenza vaccine that provides long term, cross-strain protection against seasonal and newly emerging pandemic strains.

Funding will be used to develop an improved vaccine formulation and perform key in-vitro and in-vivo pre-clinical testing. While the initial focus of this project is to develop an intranasal influenza virus vaccine, it is envisaged that the formulation will be developed with flexibility so that it can be easily and rapidly adapted to target other clinically relevant respiratory viruses (ie SARS-CoV-2).

Prof. Michael Good AO **Griffith University** **$50,000 (2024)**

"Dr. John Raftos AM Awards for Advancing Innovation"

Prof. Michael Good AO was granted the 2024 Dr. John Raftos AM Award in recognition of his achievements. The Award includes a $50,000 prize in the form of a grant to support research activities.

The award was used to part fund an 'ELIspot' reader, which is a machine that can enumerate immune cells that respond to certain antigens or immune stimulants. This is critical to Professor Good's vaccine studies. It will be enormously labour-saving and be applicable to both the malaria and Streptococcal vaccine programs. Furthermore, the machine will be available to all Institute members. The Institute for Glycomics has agreed to contribute $69,300 towards the cost of the machine.

Prof. Peter van Wijngaarden **Centre for Eye Research Australia** **$50,000 (2024)**

"Dr. John Raftos AM Awards for Advancing Innovation"

Prof. Peter van Wijngaarden was granted the 2024 Dr. John Raftos AM Award in recognition of his achievements. The Award includes a $50,000 prize in the form of a grant to support research activities.

Following feedback received from the use of their five working hyperspectral camera prototypes, three areas for system improvement were identified. The award is being used to support the following: 1. improved design of the objective lens, 2. eye alignment system, and 3. illumination system improvements.

The funding is enabling Prof. van Wijngaarden's team to gain deeper experience in optical system design, which will be integral to the performance of the commercial camera.

Dr. Jenna Ziebell **The University of Tasmania** **$264,485 (2023-2025)**

"Alternate drivers of Alzheimer's disease: is microglia the problem?"

Recent studies suggest microglia are highly associated with Alzheimer's disease and could potentially be the initiators of disease. This research aims to understand if microglia are genetically programmed to drive Alzheimer's disease (AD) progression.

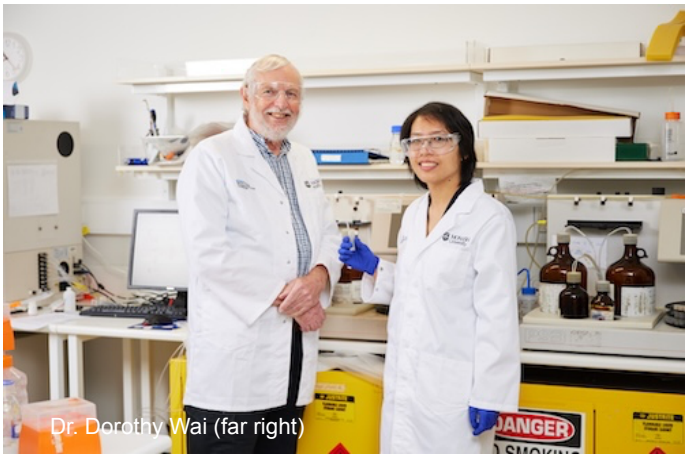
Dr Ziebell and her team's innovative research plan will investigate whether transplanting microglia from "healthy" mice diminishes disease burden. Furthermore, they will examine whether transplanting microglia from "Alzheimer's disease" mice changes neuropathology with ageing. This study design will investigate these factors in both biological sexes. This project is funded in partnership between The Mason Foundation (managed by Equity Trustees) and NFMRI.

Dr. Dorothy Wai **Monash University** **$186,677 (2023-2025)**

"Development of HsTX1[R14A], a novel therapeutic to reverse neuroinflammation in Alzheimer's disease"

This project will advance the development of a novel drug candidate with the potential to reverse the memory deficits associated with Alzheimer's disease (AD). AD is a debilitating disorder predicted to affect up to 1 million Australians by 2050, yet a cure for this disease remains elusive.

Derived from a natural peptide from scorpion venom, HsTX1[R14A] targets a surface protein on brain immune cells that become overactive in AD. Blocking this protein reduces the activity of these cells and improves memory in a mouse model of AD. However, assessing the biodistribution and demonstrating that this peptide accesses the brain and is effective in a second mouse model of AD are key steps in progressing this novel drug candidate towards the clinic.



Dr. Dorothy Wai (far right)

Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI will help support proof-of-concept studies for HsTX1[R14A] as a potential AD drug candidate and additional validation of the therapeutic value of targeting this specific pathway in AD.

Prof. Bernard Flynn **Monash University** **$189,400 (2024-2025)**

"Gastrointestinal-restricted ALK5 inhibitors for the treatment of intestinal fibrosis"

Fibrosis refers to the accumulation of scar tissue in any tissue usually because of a sustained inflammatory insult. Approximately 30-50% of people with a diagnosis of inflammatory bowel disease (IBD), Crohn's disease or ulcerative colitis, suffer from intestinal fibrosis. This intestinal fibrosis leads to strictures that obstruct the GI tract, requiring surgical intervention. Currently, there are no therapies available for the treatment of intestinal fibrosis and it remains a key unmet need in IBD treatment.

Activin receptor-like kinase 5 (ALK5) is a key mediator of profibrotic signaling in the cell-types that drive fibrosis. Compounds that inhibit ALK5 have shown great promise in preclinical rodent models of intestinal fibrosis, but their clinical development has been curtailed by the adverse cardiovascular events that arise from inhibiting ALK5 in cardiac tissue. Prof Flynn (an expert in drug discovery and GI-directed therapeutics) and Prof Pitson (an expert in fibrosis cell biology) have developed a new class of GI-restricted ALK5 inhibitors (AKL5i) for the treatment of intestinal fibrosis. In this project, they will collaborate with the "third party" group of A/Prof Rimma Goldberg (IBD clinician researcher, Monash Health) and A/Prof Joshua Ooi (Centre for Inflammatory Disease, Monash Health), to achieve a proof-of-concept in rodent models of safety and efficacy.

Funding provided by NFMRI will help support a preclinical proof-of-concept for a gastrointestinal restricted antifibrotic drug that inhibits known a biomolecular mediator of fibrosis, ALK5.

Dr. Pierre Qian **The TheUniversity of Sydney** **$180,000 (2024-2025)**
"Mu microwave catheter for treatment of hypertension"

Dr. Qian and his team at Westmead Hospital have invented the Mu Catheter, a microwave ablation system for renal denervation. Microwaves penetrate deeply into the fat around renal arteries circumferentially leading to effective denervation without causing significant arterial injury.

Dr. Pierre Qian (left) and his team

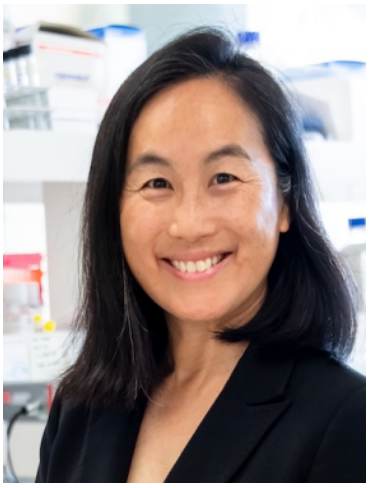
Funding from NFMRI will help support the development of a proof-of-concept renal blood flow measuring device (and correlating dataset) that can continuously monitor renal blood flow to take advantage of this physiological endpoint to guide denervation therapy, thereby "unblinding" RDN and clarifying the value proposition of the Mu RDN system to investors.

A/Prof. Vivien Chen **ANZAC Research Institute** **$193,000 (2022-2024)**

"Novel biomarker to predict thrombotic risk in myeloproliferative neoplasms"

A/Prof. Chen's team have invented a diagnostic assay that identifies hyperactive platelets known as "procoagulant platelets". These are increased in patients with pathological blood clots, such as those causing heart attack and stroke, but are also increased in a blood cancer called essential thrombocythaemia (ET), in which clotting complications are common (40% of patients) and responsible for 40% of deaths. Until now, no blood test has been able to predict which ET patients will develop blood clots or progress to fibrosis/leukaemia.

This intellectual property protected assay is performed on standard patient blood samples on a clinical flow cytometer – thus has potential to be adapted for use in diagnostic labs around the world. The additional innovation involves coupling with their novel mathematical algorithm to enumerate a particular sub-population of platelets that appears highly predictive of further blood clots (including stroke) in ET patients.



This project is supported in partnership with The NSW Community Foundation, The NSW Community Foundation – Nicholas and Phillis Pinter Trust, the Vernon Sinclair Fund (all managed by Equity Trustees) and NFMRI. This innovation has successfully gone through a development phase proof of concept and internal validation using blood from ET patients, and funding provided will help support further validation studies across different flow cytometry platforms.

Prof. Russell Dale **The University of Sydney** **$137,324 (2024)**

"Brain RIBO-STRESS signature: a biomarker of neurodevelopmental and neuropsychiatric disorders"

Neurodevelopmental disorders affect 10% of children and include autism, ADHD, Tourette syndrome and schizophrenia – some of the biggest disorders of the developing brain. At present, treatment is supportive only, and there are no treatments that target 'disease mechanisms'. There is increasing evidence that, in addition to genetic vulnerability, the expression of neurodevelopmental disorders is mediated by environmental factors that stress the body and brain (infections, trauma, stress, inflammation during pregnancy or early life). Using single cell RNA sequencing and proteomics, Professor Dale and his team have identified a biomarker signature in the blood of children with neurodevelopmental disorders that shows that their cells are stressed, and the immune system is not functioning normally.

Funding provided by an anonymous partner and NFMRI will help support Professor Dale and his team to validate these findings in larger cohorts, which will in turn consolidate their intellectual property and commercial opportunities.

Dr. Jonathan Danon **The University of Sydney** **$143,904 (2022-2024)**
"Innovative molecules for imaging neuroinflammation in Alzheimer's disease"

Dr. Danon and his team have recently developed a set of novel radiotracers designed to detect neuroinflammation with unprecedented sensitivity in humans of all genetic backgrounds. This grant is funding a crucial collaborative study that will be performed at the Centre for Advanced Imaging at the University of Queensland. They will validate the ability of these compounds to image neuroinflammation in preclinical animal models of Alzheimer's disease using positron emission tomography (PET), generating data that will strengthen their IP position and take the innovation another step closer to preclinical first-in-human trials, commercialisation, and global distribution. These studies will be fundamental for translating their preliminary results into clinically useful tools that could help millions of people globally who live with Alzheimer's disease.

This project is funded in partnership between The Mason Foundation (managed by Equity Trustees) and NFMRI.

Dr. Prashant Bharadwaj **Edith Cowan University** **$250,000 (2023-2025)**
"Analysis of neurofilament biomarkers for Alzheimer's disease, Parkinson's disease, Multiple sclerosis and childhood dementia"

Currently, the diagnosis of Alzheimer's disease (AD) is difficult, expensive, and there are no reliable biological indicators of the disease. Dr. Bharadwaj and his team aim to develop a blood test for cognitive loss in AD by identifying a signature of the disease based upon specific proteins. The NFL protein has been shown to be a good indicator of many forms of neurodegeneration and not specific to AD only. Recent findings suggest the occurrence of distinct NFL variants in the brain and blood. Furthermore, NFL variants in AD blood appear to be different compared to healthy individuals. This project is a novel concept and aims to characterise these variants in different types of dementias. This funding will also support the use of mass spectrometry to help determine if specific variants are differently expressed in AD and identify whether these modifications form a signature unique for AD. If successful, findings from this study could ultimately improve the accuracy of AD diagnosis.

This project is funded in partnership between The Mason Foundation (managed by Equity Trustees) and NFMRI.

Our People

A dedicated Board, Research Advisory Committee (RAC) and management team lead our Foundation.

Directors

Directors, qualifications and special responsibilities		Experience
Dr. Rob Sauer **Chairman**	2017-	• Chairman, Echoview Holdings Pty. Ltd. • Director, Biopharm Australia Pty Ltd. And Arthropharm Pty. Ltd. • Admitted as solicitor of the Supreme Court of New South Wales in 1974 • Admitted as Certified Practicing Accountant in 1980 Formerly: • A Founding Director and shareholder of ResMed • Partner, DibbsBarker (1978-2008) • Inaugural Chairman, 150% R&D Tax Concession Committee • Inaugural Chairman, Tassal Ltd (1984-1990)
Mr. John Harkness	1984 -	• NFMRI Chairman (2001-2018) • Partner of KPMG for 24 years and National Executive Chairman for five years • Former Chairman and/or Director of listed or unlisted companies from 2000-2018 including Goodman Group, Sinclair Knight Merz, Reliance Rail Group, Charter Hall Retail REIT and Crane Group • Fellow of the Institute of Chartered Accountants in Australia and the Australian Institute of Company Directors
Dr. Kevin Hellestrand	2001 -	• Cardiologist and Cardiac Electrophysiologist for 35 years • Co-author of more than 50 journal articles, reviews and book chapters • Fellow of the Royal Australasian College of Physicians, American College of Cardiology, Cardiac Society of Australia and New Zealand, Heart Rhythm Society, European Society of Cardiology • Member of the North Shore Heart Research Foundation
Ms. Alison Choy Flannigan *Company Secretary*	2014-	• Company Secretary since 2014 • Partner, Co-Leader, Health & Care, Hall & Wilcox • Member, NSW Law Society • Member, Australian Institute of Company Directors

		• Officer, Healthcare and Life Sciences Committee, International Bar Association • Member, AusBiotech
Emeritus Professor A. Ian Smith Chairman, Research Advisory Committee	2017-	• Emeritus Professor, Faculty of Medicine Nursing and Health Sciences Monash University (from 2020) • Director and Chair, Population Health Research Network (from 2017) • Chair, EuroBioimaging Scientific Advisory Board (from 2020) • Director and Chair, Queensland Cyber Infrastructure Foundation Limited (from 2020) • Member EMBL Council and Finance Committee (from 2020) • Managing Director AIS Life Science Consulting Pty Ltd (from 2021) • Chair, EMBL Australia Council (from 2021) Director, St Vincent's Institute for Medical Research (from 2022)
Mr. Anthony McGrath *Honorary Secretary and Director*	1997 -	• Founding Partner, McGrathNicol • Board Member, National Rugby League • Non-Executive Director, Servcorp Limited • Member, Institute of Chartered Accountants in Australia • Board Member, 360 Capital Ltd.
Emeritus Professor Douglas E. Joshua AO	2020-	• Professor Emeritus, The University of Sydney • Consultant Hematologist, Royal Prince Alfred Hospital • Scientific Advisor and Member, International Myeloma Foundation • Chairman Scientific Research Committee, Lifeblood Formerly: • Head of Clinical and Laboratory Hematology, Sydney Cancer Centre • Head of Haematology, Sydney Local Health District • Alan Ng Professor in Medicine at the University of Sydney • Director, Institute of Hematology, Royal Prince Alfred Hospital
Ms. Alison Gartner	2020-	• Co-founder, Evidentli Pty. Ltd. • Project Manager, Radiopharm Theranostics Ltd. Formerly: • Portfolio Manager, Asia Union Investments Pty. Ltd.

Research Advisory Committee

Chairman **Emeritus Professor A. Ian Smith**	Emeritus Professor, Monash University
Emeritus Professor Douglas E. Joshua AO	Emeritus Professor in Haematology at the University of Sydney and Consultant Haematologist at RPHA.
Prof. Mark von Itzstein	Distinguished Professor, Institute for Biomedicine and Glycomics, Griffith University
Alison Gartner	Lifesciences and healthcare investment professional
Dr. Noel Chambers	CEO with over 35 years' experience in biomedical research, innovation, commercialisation and biotechnology
Dr. Andrew Cottrill	Chief Medical Officer, HCF
A/Prof. Susan Hua	Therapeutic Targeting Research Group Leader, University of Newcastle
Prof. Rachel Thomson	Head of the Greenslopes Clinical Unit, Thoracic Physician and clinical researcher, Greenslopes Private Hospital

Management and Administration

Dr. Noel Chambers	Chief Executive Officer • *NHMRC-MRFF Industry, Philanthropy and Commercialisation Committee*
Mrs. Nancy Ranner	Grants, Communications and Engagement Coordinator
Mrs. Linda Hearne	Bookkeeper and Administrator

Back cover: Prof. Steven Wise, The University of Sydney

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