NFMRI

2021

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.

Message from our Chairman

We navigated 2021 with optimism, based on belief that things would continue to improve as the months went on. Although times remained turbulent, we maximised opportunities that presented themselves and saw this as a chance of improving existing systems the Foundation had in place. Fortunately, overall there was little impact or change to the Foundation's operations. In fact, our portfolio continued to grow.

The year saw us reinforce our commitment to our existing projects, providing ongoing flexibility and reassurance where needed, while also supporting an increasing number of innovative projects across diseases and conditions throughout Australia. Together with our partners, we continue to focus on achieving the vision and goals of our benefactors – both past and present.

Our partnership approach continues to deliver impressive results, with NFMRI's contributions and work continuing to scale. We thank The Mason Foundation, The NSW Community Foundation, the Nicholas & Phyllis Pinter Trust and the Vernon Sinclair Fund (all managed by Equity Trustees) for supporting a number of promising research projects in the areas of Alzheimer's disease and cancer and importantly for renewing our partnership for a further three years. Equity Trustees have been a pleasure to work with and are true collaborators in all aspects of our partnership.

We also welcomed the State Trustees Australia Foundation and together we supported a cancer research project which commenced in 2021. We also thank the Cure4CF Foundation for supporting Cystic Fibrosis research projects with NFMRI over the past few years.

After focusing since late 2013 on a specific strategy of assisting biomedical research to cross the 'valley of death' by way of attracting next-step partners, the Foundation was in a position to attain statistically-relevant results and conduct a review of its impact to see if the strategy is delivering positive and reproducible results.

We were pleasantly surprised with the high level of success, which is testament to the effectiveness of our strategy as well as the support and advice received from our RAC, Board and management.

Since the Foundation's establishment in 1977, over $20.4 million in grants have been committed to support innovative research projects, covering various diseases and conditions throughout the country. Thanks to our partnerships, we have increased our grant commitments in 2021 and hope to continue growing this further over time. This funding and our work have been made possible thanks to our generous benefactors, supporters and partners, including individuals and organisations, who generously contribute their time and expertise.

Despite ongoing turbulent times in financial markets, our corpus continued to fare well throughout 2021 thanks to guidance from BT Financial Group and in particular, Mr. Scott Glover, in consultation with our Board. We also wish to thank Mr. Mark Boyle and Mr. Kunal Shanghari from Nexia Australia for their continued professional work with this year's annual audit of our Foundation.

I would especially like to acknowledge our team's efforts and achievements over the past year. Dr. Noel Chambers, Mrs. Nancy Ranner and Ms. Di Moore work exceptionally well together as a team and continue to raise the bar for the Foundation year after year.

Likewise, 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 continue to be instrumental to the work and successes of our Foundation. Our Board greatly appreciates the ongoing support and advice from our expert Research Advisory Committee (RAC). This year we farewelled Prof. Liz Harry and

welcomed Prof Elizabeth Gardiner to our RAC, who brings an enormous amount of scientific expertise in the field of biochemistry.

Furthermore, we are grateful to have received 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 needed to conduct most of our meetings virtually during 2021 but are looking forward to resuming in-person meetings during 2022.

Due to ongoing state border closures and the looming threat of COVID-19, we postponed our 5th medical research innovation conference until November 2022. We look forward to sharing with you our impressive line-up of speakers in due course and welcoming you in person at 'Research with Purpose 2022', which will be held at the Anchorage Hotel & Spa in Port Stephens, NSW on the 22nd-24th November 2022.

We greatly appreciate and value our stakeholders' support and are confident both our donors and partners will be pleased with the high-quality research projects their gifts and assistance have enabled. I hope you enjoy reading about our collaborative progress throughout the 2021 calendar year and I look forward to continuing to share with you some of our achievements throughout the course of 2022 and beyond.

Dr. Rob Sauer
Chairman

Message from our CEO

With research translation continuing to be a hot topic during the ongoing global pandemic, NFMRI continued to jump from milestone to milestone. No matter how good the research, it seldom leads to community benefits without expert collaborators helping translate the discovery and attract next-step partners. The need for the whole ecosystem (scientific, business, academia and politics) to work together, collaborating towards solutions that can help address the health challenges for many diseases with new innovations, will hopefully continue with an increased awareness of both scientific and non-scientific components required for success.

NFMRI has built for-purpose systems and specialist capability to identify and support potential innovations that may deliver community benefits including new medicines, vaccines, diagnostics, devices, tools and biologicals. Our strategic support fills an important gap in the funding and support ecosystem, removing barriers and enabling access to external research capabilities and capacity to answer important questions and attract next-step partners.

With an ever-increasing number of case studies, NFMRI was in a position to undertake a review of the Foundation's impact since implementing this strategy in 2013. Over the years, with the help of our partners, we have been able to consistently de-risk innovations and therefore meet the requirements of potential next-step partners, helping translate research from the academic labs and into the hands of patients in need. NFMRI analysed the progress of 26 research projects from the introduction of the strategy in 2013 to projects commencing in 2019. We knew we were making a difference, we were meeting our strategic success targets, but had underestimated the extent of this success.

Some of the key highlights from this analysis include:

- **62% of projects (16/26) supported by NFMRI attained next-step partners**
- **Five projects were in active clinical trials and one project was already delivering community benefits**
- **Financial leverage from research supported was more than 10:1 for next-step partner funding (>$45m:$4.4M)**

An important finding from this analysis is that the successes NFMRI's support has helped generate span across various technologies (vaccines, devices, therapeutics, tools, drugs etc.) as well as diseases and conditions. This demonstrates that our systems and targeted, strategic support are scalable and reproducible, assisting the translation of research. The breadth and depth of our strategy puts us in a unique position where we are partnering with like-minded foundations, donors and other organisations across a broad range of diseases, conditions and innovations to help create impact.

We are already aware of a number of projects that have further positive outcomes. However, at the time these were too early to be included as part of the initial analysis. We will continue to update this data over time to maintain up-to-date statistics. We encourage you to read our Impact Report Card to read more about our analysis and visit our website to discover our growing list of case studies.

With the academic community being particularly affected by COVID-19, we worked with each researcher on a case-by-case basis to provide targeted support and the required level of flexibility for each individual. Although a large number of projects were delayed or impacted in some way, we are pleased to report that all projects are now well underway and progressing to plan. We remain optimistic that things will keep improving over the course of 2022 and beyond.

Our partnerships forged ahead this year. Equity Trustees renewed our partnership for another three years and as a result of this we were able to run an ongoing Alzheimer's disease grant round with set cut-off dates. Through our partnership with The Mason Foundation (also managed by Equity Trustees), we have been able to support a growing number of innovative Alzheimer's research projects. Researchers supported in 2021 include A/Prof Peter van Wijngaarden (CERA), Dr. Lesley Cheng (La Trobe University), Prof Ralph Martins AO (ECU), A/Prof Lyndsey Collins-Praino/Dr Andrew Care (University of Adelaide), Prof Stuart Dashper (The University of Melbourne) and Professor Michael Parker (St Vincent's Institute of Medical Research). More projects will be announced later in 2022.

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 are supporting Dr. James Blackburn's cancer diagnostic research at the Garvan Institute for Medical Research and have begun supporting A/Prof Vivien Chen (ANZAC Research Institute). Together with the Cure 4 Cystic Fibrosis Foundation, we supported two cystic fibrosis research projects during 2021, including A/Prof Sarah Vreugde (University of Adelaide) and A/Prof Leszek Lisowski (Children's Medical Research Institute). Lastly, we were pleased to be able to support Prof Stephen Fox (The University of Melbourne) cancer diagnostic project with the help of the State Trustees Australia Foundation. Together with a growing list of partners, we are supporting an increasing list of successful case studies. I hope you enjoy reading more about these projects in this report.

Working with both next-step partners and researchers is important as we continue to move research beyond traditional academic measures. Recognising this and maximising opportunities arising from the fact that organisations were largely working from home and developing videoconferencing capabilities, NFMRI developed a researcher network group to help connect and build relationships across institutions and disciplines. I wish to thank Dr. Phil Kearney, A/Prof Bernard Flynn, Prof. Mark Kendall, Dr. Paul Kelly and Dr. Katherine Jackman who generously gave their time and shared their expertise whilst delivering a targeted masterclass to the researchers we support.

All of this would not be possible without our Research Advisory Committee (RAC) Members, whom we thank for contributing an enormous amount of time reviewing expressions of interest, applications, reports and acquittals throughout the course of the year. The composition of our RAC is unique and includes clinicians, academics, 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.

I also wish to thank our mentors and supporters, whose pro-bono support in IP, research translation, marketing, commercialisation, media and access to networks helps to ensure researchers and their innovations have the maximum ability of achieving the desired outcomes.

Our fifth conference is now taking place later this year at The Anchorage Hotel & Spa in Port Stephens NSW on the 22nd-24th November 2022. At 'Research with Purpose 2022', we will collectively discuss challenges faced by the research community and explore possible solutions. We hope you will be able to join us, learn from our exciting line-up of speakers and participate in the conversation.

Being independent, disease agnostic and impact-driven makes NFMRI an ideal partner of choice. We are actively looking to assist and partner with reputable charities, organisations, PAFs and individuals with a desire to improve health outcomes of the community through biomedical innovations. Every single dollar provided to NFMRI will be directly allocated to a strategically-focused research project that aligns with our partner's needs. The nature of our Foundation means we are able to work within the boundaries established by our partners, be they jurisdiction, technology or disease-focused.

Whether you are an organisation or individual interested in a partnership, or if you simply want to learn more about our Foundation, what we do differently and explore how we may be able to help you, I look forward to hearing from you.

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 a number of 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.

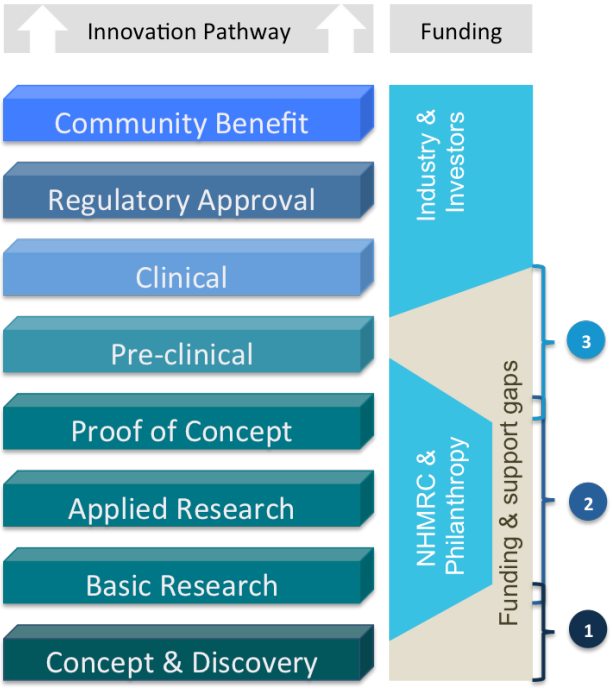
1979-1982	Sir Peter Abeles (Founding Chairman)
1979-1983	Mr ED Cameron
1979-1983	Mr JP Ducker AO
1979-1983	Mr MJ Inglis
1979-1982	Lady Sonia McMahon
1979-1990	Mr TE May (Former Chairman)
1977-1982	Dr FL Ritchie C.B.E.
1977-1995	Mr BF Rose
1979-1982	Dr HH Spiegel
1979-1982	Sir Ian Turbott C.M.G, C.V.O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

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

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.

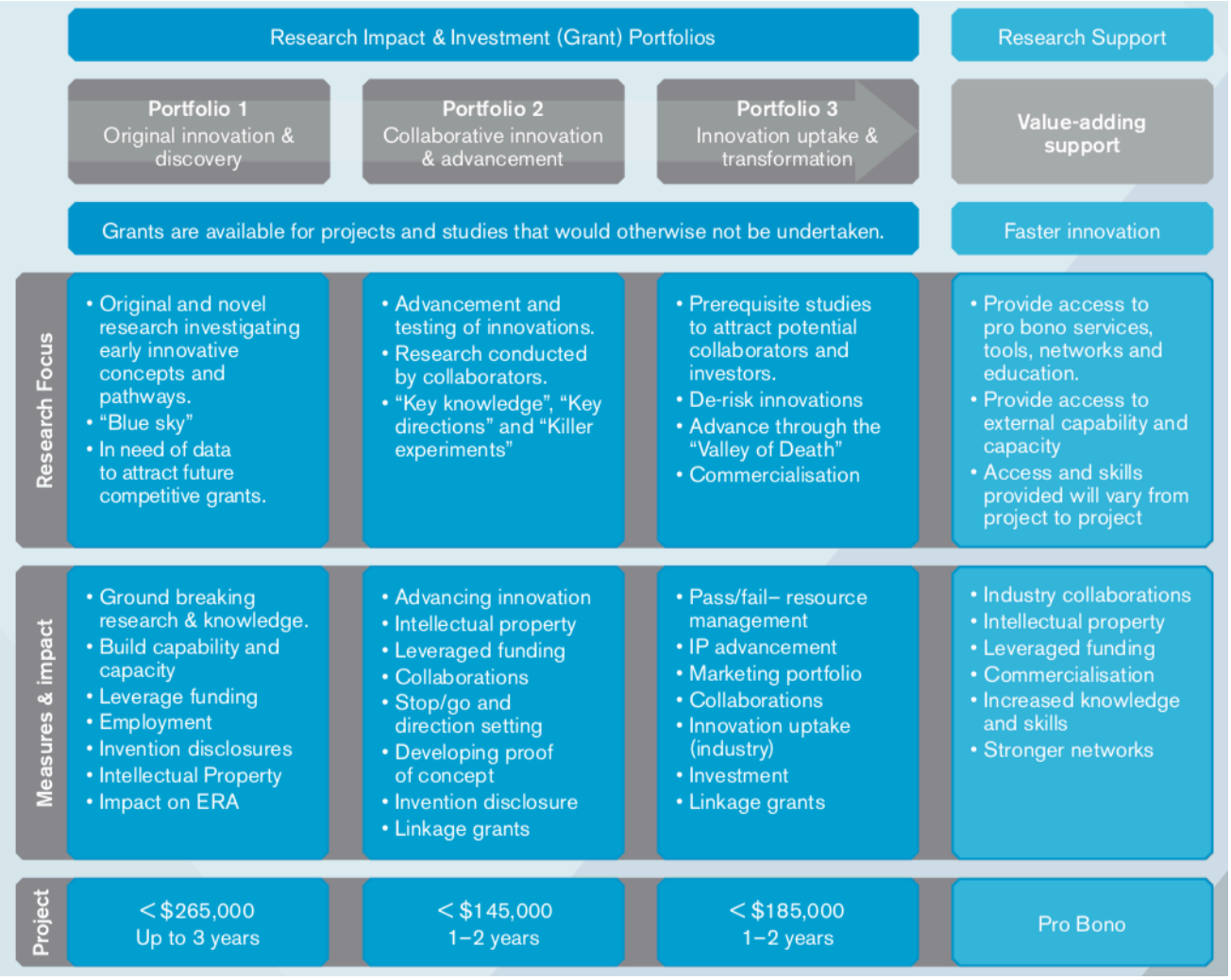
By partnering with researchers, NFMRI supports collaborative research activities undertaken by other

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 2021. 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.

BT Financial Group

BT Financial Group has been supporting the Foundation for a number of 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 2021: Dr James Blackburn, Prof Ralph Martins AO, A/Prof Peter van Wijngaarden, Dr Lesley Cheng, Dr Sanjaya Kuruppu, Dr Lyndsey Collins-Praino (Dr Andrew Care), Prof Stuart Dashper and Prof Michael Parker. A new grant for A/Prof Vivien Chen commencing in 2022 was also approved.

State Trustees Australia Foundation

Through funding kindly provided by the State Trustees Australia Foundation in 2021, partnership funding was provided to support Prof Stephen Fox's research project.

Cure 4 Cystic Fibrosis Foundation (Cure4CF)

A partnership was formed with Cure4CF to support research into potential therapies or a cure for cystic fibrosis. This partnership supported A/Prof Sarah Vreugde and A/Prof Leszek Lisowski in 2021.

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.

IP Australia

IP Australia kindly provided pro bono patent analytics research to a number of our research projects.

KPMG

KPMG has kindly hosted NFMRI events over the years.

Nexia Sydney Pty. Ltd.

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

Special acknowledgements

We also wish to thank the following organisations who promoted and assisted our Foundation and grantees during 2021: AAMRI, Helen Wellings (Channel 7), Research Australia, AusBiotech, Life Sciences Queensland, Bio Melbourne Network and Biotech Daily. We also wish to thank Gray Design for IT support.

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 in order for its partnerships to be successful, both parties have to 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): NFMRI was selected as a partner by Equity Trustees' board to assist with distribution of medical research funding. This two-year pilot program was extended for a further three years and 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 a large number of projects featured in this report.

Cure4CF Foundation: NFMRI was selected by the Cure4CF Foundation board and team to assist the Foundation with its giving. We ran specific cystic fibrosis grant rounds to source the most innovative projects across the country. Together we have supported Prof. Marc Pellegrini, A/Prof Sarah Vreugde and A/Prof Leszek Lisowski.

State Trustees Australia Foundation: NFMRI is assisting the State Trustees Australia Foundation in supporting innovative cancer research in Victoria. Together we are supporting Prof. Stephen Fox's diagnostic research project at the Peter MacCallum Cancer Centre.

NATIONAL FOUNDATION FOR MEDICAL RESEARCH AND INNOVATION

Partnering for success

NFMRI partners with funders of medical research to create impact

A focus on creating impact

NFMRI partners with other funders, applying its strategy, systems, networks and expertise to achieve common goals.

Founded in 1977 and with DGR1 status, the National Foundation for Medical Research and Innovation (NFMRI) has an established partnering program assisting other funders of medical research achieve better outcomes.

Supporting medical research that is important in the translation of discoveries leading to new innovations including medicines, vaccines, diagnostics, devices, biologics and tools, NFMRI has built specific expertise, capability and capacity that has enabled success.

Through our partnering program, NFMRI is collaborating with other funders to achieve our missions.

Contact us to learn more and enquire about how we can work together.


Professor Janet Davies
"NFMRI can foster a culture that enhances commercial uptake of our biomedical innovations, mentor academic inventors and facilitate connections between academia, philanthropy and commercial sectors"

A.Prof Bernard Flynn
"NFMRI provides critical assistance to researchers in bridging the 'valley of death' that separates basic science from viable therapies"

1 GOVERNANCE
Strong governance forms the foundation of what we do, our culture and our partnerships.

2 STRATEGY
Our strategy focuses on targeted support that addresses gaps to enable translation.

3 SYSTEMS
NFMRI has built bespoke scaleable systems and capability specific to our strategy.

4 TRACK RECORD
Proven track record of success with breadth & depth across diseases and innovations

Advancing medical discoveries and innovations

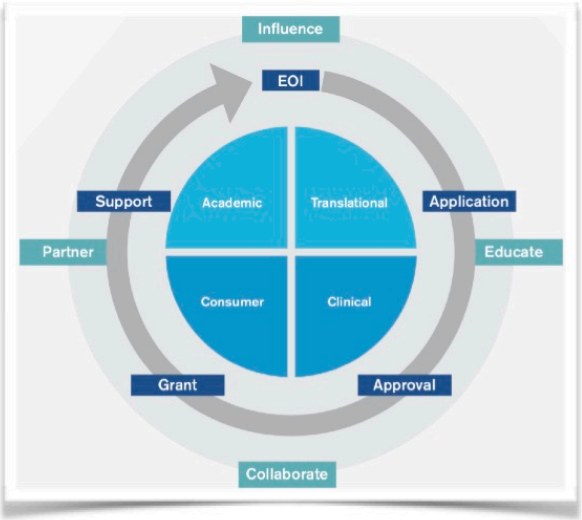
It is more than funding that is needed to advance discoveries and innovations.

NFMRI takes a uniquely proactive approach by partnering with our 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, plan and manage research along the innovation pathway.

NFMRI also considers the need 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 partner who can make a product accessible to the community.

To do this we harness skill sets from a variety of scientific, business development, commercial, industry and financial sources.



Identification, selection and support

Working with our researchers and their institutions, the NFMRI utilises the skills of our staff, Research Advisory Committee, Board and our networks to assist with communication strategies, understanding industry's expectations and the establishment of networks and collaborations.

nfmri.org.au

JODI KENNEDY, EQUITY TRUSTEES

NFMRI is a standout partner due to its strong governance and transparency, but also because of the Foundation's focus on translation of research outcomes across medical innovations including medicines, diagnostics, vaccines and devices. The focus on delivering community benefits from medical research and helping de-risk innovations so they are more attractive to the next-stage partner is an important factor in our decision making. This unique support is critical in helping researchers bridge the 'valley of death' that prevents many research outcomes from ever reaching the community.

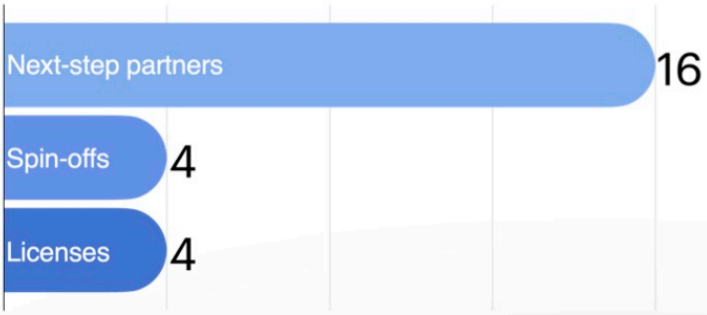
Also factored into this decision was NFMRI's unique capability and capacity for holding grant rounds nationally, utilising its developed online programs and software. In addition, the individuals that make up their review committee are unique in that they are from diverse areas including academia, translation, commercial and clinical backgrounds.

Supporting medical research for impact

Together with our partners, we are scaling our impact by supporting high quality, targeted research collectively that are achieving excellent results

Following the 2013 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 analysis of its strategic outcomes to date in 2021.

Although a number of research projects are ongoing and expected to succeed in attracting next-step partners, an analysis of projects commencing between 2013-2019 has yielded better than expected results. Sixty- two percent of projects supported achieved our primary measure of success in attaining next-step partners leveraging over $10 of external funding for every dollar of grant funding – a total of $45.3 million. Five innovations have commenced clinical trials and one innovation is delivering benefits to cancer patients. 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).



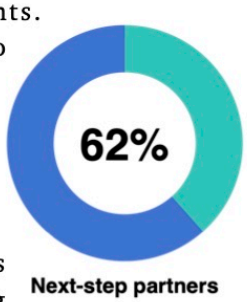
62% of projects supported by NFMRI attained next-step partners

"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**

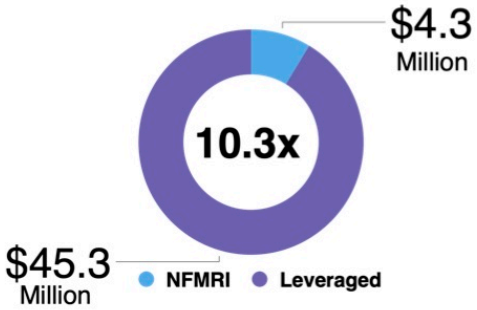
Partnering for collective impact

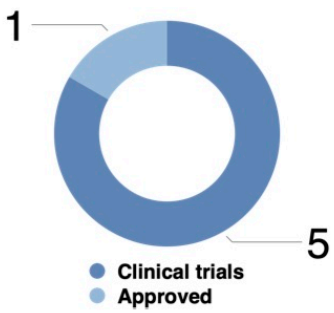
Through partnerships, we are able to support more projects - this in turn accelerates the speed and velocity at which we are collectively able to deliver

NFMRI is actively seeking opportunities to collaborate with and assist funders of biomedical research (including other foundations, PAFs and individuals) to make effective giving choices that mutually align with our mission and funding strategy. Like many foundations, we receive more expressions of interest and applications for funding than we alone can support. In all cases we look to recognise and collaborate with funding partners in communication and managing the grants. NFMRI seeks to engage with funders of research to jointly fund projects of mutual interest in two ways: 1. matched funding opportunities and 2. Providing assistance to support and manage giving.



Strategic success measures	Strategic success outcomes
Attract next-step partners including industry and venture capital	Sixty-two percent of projects (16/26) achieved our primary measure of success in attaining next-step partners
Become clinical trial ready	Five innovations have commenced clinical trials and one innovation is delivering benefits to cancer patients.
Leverage the funding, expertise and experience of next-step partners	Leveraging over $10 of external funding for every dollar of grant funding – a total of $45.3 million.





If our achievements and impact aligns with your organisation and you would like to discuss how NFMRI may be able to assist with your giving, please don't hesitate to contact us by emailing enquiries@nfmri.org.au

New grants approved in 2021

From grant rounds held in 2021, a total of four new grants were approved (a total of $608,000) and announced in 2021:

Prof Merlin Thomas **Monash University** **$175,000 (2022)**

Development of an inhaled RNA therapy for the prevention and treatment of coronavirus infections

L-R: Alexandra Dimitropoulos, Raelene Pickering, Christos Tiklellis, Carlos Rosado, Prof Merlin Thomas, Alejandra Zuniga Gutierrez

While global research has focused on directly targeting the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), Prof. Thomas' team's work has focused on the cell-surface protein, Angiotensin-Converting Enzyme 2 (ACE2), which all strains of SARS-CoV-2 use like a 'door' to access and infect cells of the respiratory tract.

Over the last 16-months, they have discovered and developed an RNA therapy that triggers vulnerable cells of the lungs to preferentially generate soluble ACE2, a short form of ACE2 that can't be used by the virus to enter the body. Instead it acts as a natural decoy-receptor to prevent SARS-CoV-2 infections. At the same time, the expression of the cell-surface door (ACE2), capable of facilitating virus entry, is reduced by their therapy. They have now proven this novel treatment works to prevent coronavirus infection in lung cells and have also shown that it is highly effective in inducing protective changes in ACE2 in the lungs of healthy mice. They also believe this strategy may also reduce the viral load in infected patients and therein protect people's health.

NFMRI funding will support proof-of-concept studies, including pharmacokinetic studies, to ensure the best dose can be efficiently and safely delivered using a nebulizer.

Prof. Jake Shortt **Monash University** **$190,000 (2022-2023)**

Dual-targeted inhibitors of BET bromodomains and PI3-kinase for cancer therapy

In partnership with Prof Philip Thompson's team at the Monash Institute of Pharmaceutical Sciences, Prof Shortt's group has developed a designer drug that targets PI3K and BET proteins at the same time in the same cancer cell – a dual-targeted PI3K and BET inhibitor. Both PI3K and BET inhibitors have been developed and show significant clinical activity, particularly in the context of blood cancers. However, the 'addiction' of a cancer cell to a particular pathway or process (ie. PI3K, BET) is not absolute. Therefore, the innovation of dual-targeting cancer drugs represents a potential step-change technology, taking the established models of cancer treatment, such as combination therapies, to a new level and attempting to defeat cancers on multiple fronts in a single compound. A dual acting drug puts the two activities in the 'same place at the same time', potentially enhancing drug synergy, reducing toxicity and drug resistance. The general concept is

gathering traction in the research community and our studies to date of this dual targeting paradigm (PI3K and BET inhibition) shows great promise.

Prof Shortt and Prof Thompson's teams have demonstrated that targeting both PI3K and BET proteins together has synergistic anticancer activity, in part due to the ability to prevent cancer cell adaptation and resistance to the inhibition of each target in isolation. NFMRI funding will help support further therapeutic efficacy studies.

A/Prof Vivien Chen **The University of Sydney** **$193,000 (2022-2023)**
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 Nicholas Opie **The University of Melbourne** **$50,000 (2022)**
Dr John Raftos AM Medal – Endovascular Neuromodulation

Following the completion of a successful first-in-human trial evaluating the safety and efficacy of the Stentrode to restore communication and independence to those severely paralysed by enabling direct brain control of a computer, Nicholas is now working to expand the potential clinical applications of his technology through development of a Stentrode suitable for efficacious cortical stimulation.

"By combining our ability to record information from the brain with technology that can deliver information to the brain, we can offer hope to treating a wide range of previously untreatable neurological conditions"

Grants with funding continued in 2021

Following recommendations of our Research Advisory Committee, the Board approved $1,159,110 in grant payments supporting 18 projects during the 2021 calendar year:

Researcher	Institute	Focus Area	Total 2021	Total funding commitment
A/Prof Sarah Vreugde*	University of Adelaide	Cystic fibrosis	$51,176	$145,000
A/Prof James Chong	University of Sydney	Cardiovascular	$66,667	$200,000
Dr Wei Deng	University of New South Wales	Cancer	$25,457	$101,825
Dr James** Blackburn	Garvan Institute of Medical Research	Cancer	$72,432	$144,865
A/Prof Nuri Güven	University of Tasmania	DNA disease	$72,148	$144,300
A/Prof Peter van Wijngaarden**	Centre for Eye Research Australia	Alzheimer's disease	$51,250	$250,000
Prof Stuart Dashper**	University of Melbourne	Alzheimer's disease	$60,000	$160,000
A/Prof Lyndsey Collins-Praino/A/Prof Andrew Care**	University of Adelaide	Alzheimer's disease	$31,249	$249,990
Prof Ralph Martins AO**	Edith Cowan University	Alzheimer's disease	$57,500	$170,000
A/Prof Leszek Lisowski*	The University of Sydney	Cystic fibrosis	$68,558	$140,000
Dr Branka Grubor-Bauk	University of Adelaide	Zika virus	$45,000	$220,000
Prof Stephen Fox***	University of Melbourne	Cancer	$108,000	$144,000
Prof Roger Pocock	Monash University	Parkinson's disease	$199,916	$199,916
Prof Michael Parker**	St Vincent's Institute of Medical Research	Alzheimer's disease	$146,982	$192,374
A/Prof Bernard Flynn	Monash University	Bowel Disease	$101,775	$135,700
			$1,158,110	**$2,597,970**

**Supported by NFMRI and the Cure4 Cystic Fibrosis Foundation*
***Supported by NFMRI and The Mason Foundation (managed by Equity Trustees)*
****Supported by NFMRI and the State Trustees Australia Foundation*
*****Supported by NFMRI, the NSW Community Foundation and the NSW Community Foundation Nicholas and Phyllis Pinter Trust & Vernon Sinclair Fund (managed by Equity Trustees)*

Projects supported in 2021

A/Prof Sarah Vreugde **The University of Adelaide** **$145,000 (2020 – 2021)**

A novel treatment for Non-Tuberculous Mycobacteria lung infections in cystic fibrosis patients

Associate Professor Sarah Vreugde is targeting Non-Tuberculous Mycobacteria (NTM) lung infections in cystic fibrosis patients, which cause severe infection and lung function decline. NTM lung disease is caused by bacteria that are common in the environment and are rapidly rising in prevalence, particularly in those with cystic fibrosis. NTM are naturally resistant to antibiotics and even disinfectants and so, are challenging to treat. Sarah's technology is unique because it is the only treatment in (pre)clinical development that targets the bacterial iron metabolism, which enables the bacteria to thrive and survive.

Funding provided by the Cure4Cystic Fibrosis Foundation and NFMRI is being used to further develop the proof-of-concept of the technology in a preclinical animal model of CF.

A/Prof James Chong **The University of Sydney** **$200,000 (2020 – 2021)**

Development of novel recombinant human platelet derived growth factor therapy for prevention of ischemic heart failure

This project will develop a novel recombinant human Platelet Derived Growth Factor (PGDF) protein therapy for acute ischemic cardiovascular disease. Cardiovascular disease remains our greatest source of death and disability, accounting for billions of dollars in health care costs. The major single cause for this is "heart attack". Despite significant progress in medical and interventional therapies for heart attack, patients can still lose up to a billion heart muscle cells. This is due to the heart's inability to regenerate (unlike other organs such as the skin and liver) and down-stream health issues including heart failure, heart rhythm abnormalities and recurrent chest pain occur. A/Prof Chong's results show that in both rodents and the more clinically relevant porcine model, human PDGF-AB treatment administered after heart attack decreases scar, increases heart function, decreases heart rhythm abnormalities and increases new blood vessel formation. The overarching aim is to progress this experimental therapy into human patients suffering from heart attack and heart failure.

Funding provided by NFMRI is helping develop the therapy towards first-in-human clinical trials for patients with severe heart dysfunction after heart attack.

A/Prof Bernard Flynn **Monash University** **$135,700 (2021-2022)**

Gastrointestinal-directed S1P1-Receptor Modulators in the Treatment of Inflammatory Bowel Disease

Inflammatory bowel disease (Crohn's and ulcerative colitis) affects 85,000 Australians and millions of people world-wide and there is currently no cure for this disease. Most current therapeutics are only partially effective, providing temporary relief to a subset of patients. There is significant interest in the development of orally bioavailable agents, with more significant and sustained efficacy and which treat a broader IBD patient group. While a number of small molecule

immunomodulators are in use or development, the therapeutic utility of these is compromised by their systemic immunosuppressive effects (opportunistic infection and increased cancer risk through reduced immunosurveillance) and off-target effects. Consequently, there is considerable interest in the development of GI-directed agents that can exert a GI-specific immunomodulatory effect. Recently, small molecule sphingosine-1-phoshate-1 (S1P1)-receptor modulators (eg ozanimod and etrasimod) have emerged as a new class of orally bioavailable immunosuppressive agents showing great promise in IBD clinical trials (Phase II/III). However, these agents suffer from dose-limiting adverse effects on non-GI organs.

Funding from NFMRI is supporting a proof-of-concept to a new class of orally administered, GI-directed S1P1-receptor modulators as more effective treatments of IBD with negligible systemic exposure and improved efficacy and safety profiles.

A/Prof Wei Deng **University of New South Wales** **$101,825 (2020-2021)**

Nanostrategy for X-ray triggered chemotherapy towards rectal cancer treatment

This innovative technology stems from Dr Deng's research that photodynamic therapy (PDT) agents can be triggered by low dose X-ray radiation. The stimulated PDT agents produce active species which destabilise liposome structure and trigger the drug release from the liposomes. Inspired by this discovery, her team creatively combined two existing clinical techniques used in cancer treatment – radiation and chemotherapy through a nanoparticle drug delivery system. The innovative aspect of this technology is the radiation-triggered instant drug release from the liposomes at the tumour site. Using very low radiation doses, the drug is released and becomes significantly more toxic to cancer cells than current administration. What's more, as cytotoxic drugs can only be released within the radiotherapy field (confined to the tumour site), any toxicity to other healthy tissues is largely reduced.

In this manner, this technology has demonstrated impressive anti-cancer efficacy in a mouse model by one-dose injection and single irradiation. This innovation will be applicable to treat deep tumours due to high penetration depth of radiation. Funding provided by NFMRI is supporting safety and efficacy studies.

Dr James Blackburn **Garvan Institute of Medical Research** **$144,865 (2020-2021)**

Improving sarcoma cancer diagnostics through implementation of a novel fusion gene test

This innovation consists of the development of a clinical test for fusion genes in sarcomas and other solid cancers – the Solid FuSeq test – that surpasses the performance of molecular diagnostic assays currently employed in standard pathology labs. Using multi-gene sequence enrichment, this broad-spectrum assay screens for all fusion gene events in a single test, while detecting individual fusion genes with high sensitivity. The Solid FuSeq test also facilitates the discovery of new fusion events and therefore potentially novel therapeutic targets. Whilst sarcoma patients would be the first to benefit from this innovative molecular diagnostic, the Solid FuSeq assay is designed as such that all solid tumour cancer patients would benefit from the assay.

Funding provided by NFMRI is supporting clinical validation of the assay in an accredited diagnostic facility.

A/Prof Nuri Güven **University of Tasmania** **$144,300 (2020-2021)**

Pre-clinical assessment of toxicity to select drug development candidates against mitochondrial dysfunction

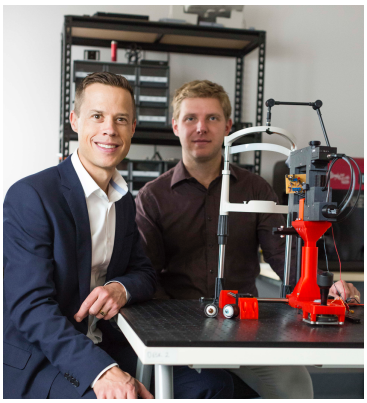
While more than 90% of cellular energy is produced by mitochondria, dysfunctional mitochondria leads to organ failure, disease and even death. Dysfunctional mitochondria are associated with a vast number of diseases and conditions, ranging from neurodegenerative and metabolic disorders, to inflammatory conditions, cancer and ageing in general. Despite this prevalence in a multitude of diseases, there is still a striking lack of approved drugs that aim to directly restore mitochondrial function. This project will select drug development candidates from a novel class of short-chain quinone compounds developed at the University of Tasmania. These new compounds effectively protect cells against mitochondrial dysfunction. More importantly, two of those compounds effectively protect against disease pathologies in several unrelated rodent models associated with mitochondrial dysfunction.

Preliminary results of their experiments already point towards 2 compounds with very high metabolic stability and very low toxicity, compared to the clinically used reference compound. Funding provided by NFMRI is supporting in vitro toxicity studies.

A/Prof Peter van Wijngaarden **Centre for Eye Research Australia** **$250,000 (2019-2021)**

Translating an eye imaging biomarker for Alzheimer's Disease to the clinic

A/Prof van Wijngaarden's research group has recently developed a novel imaging method that allows them to non-invasively detect the accumulation of amyloid beta in the retina.



A/Prof P van Wijngaarden, Dr Xavier Hadoux – photo by Anna Carlile

Their research has utilised a state-of-the-art, costly camera that images the retina sequentially with 90 different wavelengths (colours) of light. They have identified an innovative method of detecting the same signal that could be achieved with a low-cost retinal camera. The team are developing a prototype camera that may eventually be used as a screening test for Alzheimer's disease.

NFMRI funding is enabling retinal camera prototype development and clinical studies to validate the technology against their state-of-the-art research camera. This project is supported in partnership with the generous funding from The Mason Foundation and NFMRI.

Prof Stuart Dashper **The University of Melbourne** **$160,000 (2020-2021)**

A polymicrobial aetiology for Alzheimer's disease

L-R: Su Tolson, Deanne Catmull, Prof. Stuart Dashper, Rita Paolini, Prof. Neil O'Brien-Simpson

A growing number of studies are now linking bacterial infection and/or periodontitis with sporadic Alzheimer's disease (AD). Two recent studies have provided strong evidence for a potential causal link between the pathogenic oral bacterium Porphyromonas gingivalis and AD. There are also reports of oral bacterial proteolytic enzymes and genomic DNA, particularly those of P. gingivalis and Treponema denticola, in the brain tissue of AD sufferers. Professor Dashper's and Dr Catherine Butler's research will seek to demonstrate a causal link between specific oral bacteria and the onset and progression of Alzheimer's disease. If successful, it may open a whole new field of research into the bacterial aetiology of Alzheimer's disease.

Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI will enable further development of this project.

A/Prof Lyndsey Collins-Praino / Dr Andrew Care **The University of Adelaide** **$249,990 (2020-2022)**

"Cage vs. Age": Development of an innovative nanotechnology to halt the spread of abnormal Tau protein in Alzheimer's disease

Dementia is a significant global problem affecting 50 million people worldwide, with a staggering 10 million new cases diagnosed each year (WHO). Alzheimer's disease (AD) is the most common cause of dementia, accounting for 60-70% of all cases. A major contributor to the spread of AD throughout the brain is the transmission of an abnormally-folded protein called tau. Tau is released from diseased brain cells and taken up by healthy cells, triggering misfolding and aggregation of tau within those cells. Thus, AD spreads throughout the brain. The aim of the project is to engineer an innovative nanotechnology that can target and disrupt tau pathology. If successful, such a strategy would lead to modification of the brain mechanisms of AD and the potential development of a treatment strategy that would be of significant benefit to the millions of individuals currently suffering from AD.

Funding from The Mason Foundation (managed by Equity Trustees) and NFMRI will allow for further engineering of the nanotechnology platform, as well as evaluation of its safety for neurological indications.

Prof Ralph Martins AO **Edith Cowan University** **$170,000 (2020-2022)**

In-depth neurofilament analysis as potential biomarkers for Alzheimer's disease

Prof Martins and his team's research, is based on an in-depth analysis of neurofilament light chain (NFL) in plasma and cerebrospinal fluid (CSF) in Alzheimer's disease (AD) patients and healthy controls to determine whether AD affected individuals possess altered neurofilament light chain (NFL) and/or different binding partners. NFL levels in plasma and CSF have repeatedly

been reported to be increased in AD patients, strongly supporting a link with the disease state. However, higher levels were also reported for other neurological diseases, making NFL levels a generic marker for neurodegeneration, rather than a specific marker for AD. A specific NFL protein signature found in plasma or CSF that closely associated with AD will allow more accurate and quicker detection of the disease, leading to early medical treatments known to be more effective. This project is supported thanks to funding from The Mason Foundation (managed by Equity Trustees) and NFMRI.

Prof Roger Pocock **Monash University** **$199,916 (2021)**

In vivo removal of alpha-synuclein aggregates in a Parkinson's disease model

The accumulation of aggregate-prone neurotoxic proteins is associated with the death of brain cells in Parkinson's disease (PD) and Huntington's disease (HD). These toxic proteins can be removed by a process called autophagy (auto = self, phagy = eat) which is a crucial recycling system within cells. The research group lead by Prof Roger Pocock (Monash University) and co-investigators Dr Patrick Ejlerskov (University of Copenhagen) and Prof David Rubinsztein (University of Cambridge) identified an ancient genetic mechanism that promotes autophagy to reduce neurotoxic aggregate-prone proteins associated with PD and HD. This genetic mechanism was initially identified in a worm model by the Pocock laboratory and subsequently the same mechanism was shown to function in human cells by Dr Ejlerskov when working in the Rubinsztein laboratory. The presence of an identical mechanism controlling the removal of toxic aggregate-prone proteins in distant species (worms and human cells) indicates its importance through evolution. This study was published in the internationally-recognized journal eLife (2019) and the same research group was invited to write a review on this research area in the journal Autophagy (2020).

The innovation of this research was the identification of a novel pathway that can be manipulated to remove neurotoxic aggregate-prone proteins that cause neurodegenerative disease. Funding from NFMRI is supporting the validation of these findings in the brain of a mouse model of neurodegenerative disease.

A/Prof Branka Grubor-Bauk **University of Adelaide** **$220,000 (2021-2023)**

Novel T cell-based DNA vaccine against Zika virus infection

Dr Grubor-Bauk has developed an innovative, patented and thermally stable Zika virus DNA vaccine that encodes Zika virus non-structural protein 1, NS1. Extensive evaluation of this vaccine in mouse models of Zika infection has shown that it induces strong immunity and confers complete protection against systemic Zika infection. Funding from NFMRI is helping to progress the development a novel Zika virus vaccine by completing pre-clinical evaluation of this Zika virus DNA vaccine enabling Phase I Human Clinical Trials, and generating data for regulatory filing.

Prof Michael Parker **St Vincent's Institute of Medical Research** **$192,374 (2021-2023)**

A new approach to tackle neurodegenerative diseases

Currently, the leading strategy to remove toxic proteins (namely Abeta and tau) associated with two types of brain deposits found in Alzheimer's disease is to treat people with antibodies that recognise these toxic proteins; this is called 'immunotherapy'. To date, all Abeta immunotherapy trials have had serious efficacy and/or safety concerns, in part because the body's immune response to the therapy has resulted in inflammation in the brain. Professor Parker and his team have developed a new type of drug that has the advantage that it does not promote inflammation in the brain and can more effectively cross the 'blood-brain barrier', a barrier which protects the brain from infection but can also block the transport of drugs.

They have tested the drug in brain cells in the lab and found that their novel drug technology successfully increases the removal of toxic Abeta material without promoting increased inflammation. Funding provided by The Mason Foundation (managed by Equity Trustees) and NFMRI is enabling Professor Parker to complete important pre-clinical trials in animals to take this therapy a step closer to the clinic. This technology holds great promise for future development and has drawn preliminary interest from industry partners.

A/Prof Leszek Lisowski **The University of Sydney** **$140,000 (2021-2022)**

An all-in-one gene therapy treatment for cystic fibrosis

Dr Lisowski's project aims to develop new gene therapy tools for the treatment of cystic fibrosis (CF). Together with his team, they aim to develop tools that carry the promise of achieving therapeutic efficacy following a single systemic administration of an adeno-associated viral (AAV) vector. Specifically, the project will enable development of two key tools:
(1) novel, human lung-tropic AAV vectors for safe and efficient targeting of the basal cells, which give rise to human airway epithelium (HAE). To increase safety and efficacy, the AAV vectors will be specifically de-targeted from the human liver, which is the primary target of most AAVs following systemic delivery. (2) AAV-based gene editing strategy to correct CF causing mutations in the fibrosis transmembrane conductance regulator (CFTR) gene in the basal cells.

Combination of those two novel technologies will form the basis of a powerful gene therapy approach to cure cystic fibrosis. The project will also lead to the development of a novel dual liver-lung preclinical model that will enable preclinical studies not only in the area of gene therapy, but also will be an invaluable tool to other researchers studying the disease and/or developing novel therapeutic options for CF. Funding provided by the Cure 4 Cystic Fibrosis Foundation and NFMRI is supporting the preclinical validation of the gene therapy approach to cure CF.

Prof Stephen Fox | **The University of Melbourne** | **$144,000 (2021-2022)**

DNA nano biosensor for cancer diagnostics

Precision oncology, which matches a cancer patients' gene test to a specific drug, has transformed the treatment of cancer patients and led to substantial improvements in survival with fewer hospital admissions from therapies with less toxicity, as drugs are only given to patients that respond. Current molecular testing to identify changes in cancer DNA for the above clinical uses is expensive as specialist pathologists and scientists who rely on complex equipment are needed, which often affects patient outcome. It is also slow due to a combination of time for tissue transport to the central test lab and then time taken to perform the assay. The aim of this research is to validate an inexpensive (<$100 compared with $1000s using current technologies), rapid and sensitive method to detect genetic mutations that can be used on blood from patients with any tumour type. The identification of such changes will enable screening, diagnosis, prognosis, selection of patients for particular therapies and monitoring of response to treatment. The basis of the assay is an innovative biosensor that detects the presence of abnormal cancer DNA on binding through a change in electrical current. The novel biosensor method Professor Fox and his team are developing will enable a reduction in the time-critical analyses by days to ensure timely reporting that will help realise the improved outcomes of precision oncology.

Funding provided by State Trustees Australia Foundation and NFMRI is supporting further development of the biosensor as well as experiments to delineate the performance characteristics and capabilities of the biosensor to identify different types of mutant DNA.

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. • 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, 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 Mertz, 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 John Dixon Hughes OAM	1977 -	• NFMRI Director (1977 – present) • NFMRI's RAC Chairman (2000-2018) • NFMRI RAC Member since 1977 • Consultant General Surgeon • Fellow, Royal College of Surgeons (Eng) • Fellow, Royal Australasian College of Surgeons • Fellow, Australian Medical Association • Foundation member of the Australian Association of Surgeons, formerly serving as Chairman of the NSW State Committee and President of the Association

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
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 • Member, Australian National University Finance Committee • Board Member, 360 Capital Ltd.
Ms Alison Choy Flannigan *Company Secretary*	2014-	• Company Secretary since 2014 • Partner, Leader, Health & Community, Hall & Wilcox • Member, NSW Law Society • Member, Australian Institute of Company Directors • Publications officer, Healthcare and Life Sciences Committee, International Bar Association • Member, AusBiotech
Prof 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)
Prof Elaine Saunders	2018-	• Adjunct Professor, Faculty of Health, Arts & Design, Swinburne University of Technology

		• Managing Director, Bingarra ScaleUp Solutions • Health subcommittee, ATSE • Non-Executive Director, Australian National Fabrication Facility • Deputy Chair, Victorian Committee, Pearcey Foundation • Non-Executive Director, Audeara • Advisory Board, Hearing Power Formerly: • Executive Chairman, Blamey Saunders hears • Co-founder & CEO, Dynamic Hearing Pty. Ltd. • Non-Executive Director, Alfred Health • Chair, Swinburne University's Innovation Precinct Advisory Board
Ms Alison Gartner	2020-	• Co-founder, Evidentli Pty. Ltd. • Project Manager, Chimeric Therapeutics Ltd. • Project Manager, Radiopharm Theranostics Ltd. Formerly: • Portfolio Manager, Asia Union Investments Pty. Ltd. • Investment Manager, Bioscience Managers • Alternate Director, Saluda Medical
Emeritus Professor Douglas E. Joshua AO	2020-	• Professor Emeritus, Hematology at The University of Sydney • Consultant Hematologist, Royal Prince Alfred Hospital • Chairman, Blood Clinical and Scientific Advisory Committee • Scientific Advisor and Member, International Myeloma Foundation • Serves on editorial board of numerous journals Formerly: • Head of Clinical and Laboratory Hematology, Sydney Cancer Centre • Head of Sydney Local Health District in Hematology • Alan Ng Professor in Medicine at the University of Sydney • Director, Institute of Hematology, Royal Prince Alfred Hospital

Research Advisory Committee

Chairman **Prof A. Ian Smith**	Vice-Provost (Research & Research Infrastructure), Monash University
Dr John Dixon Hughes OAM	Consultant general surgeon with over 55 years' experience
Prof Elizabeth Harry	Professor of Biology and Director of the ithree institute (infection, immunology and innovation) at the University of Technology, Sydney.
Em. Professor Douglas E. Joshua AO	Emeritus Professor in Haematology at the University of Sydney and Consultant Haematologist at RPHA.
Professor Mark von Itzstein	Director of the Institute for Glycomics at Griffith University
Alison Gartner	Lifesciences and healthcare investment professional
Dr Noel Chambers	CEO with over 25 years' experience in biomedical research, innovation, commercialisation and biotechnology.
Dr Andrew Cottrill	Medical Director, HCF
Prof Lisa Horvath (joined April 2021)	Director of Medical Oncology and Director of Research, Chris O'Brien Lifehouse

Management and Administration

Dr Noel Chambers	Chief Executive Officer
Mrs Nancy Ranner	Grants, Communications and Engagement Coordinator
Ms Di Moore	Bookkeeper and Administrator

National Foundation for Medical
Research and Innovation
ABN 85 001 422 895

PO Box 6247
Highton VIC 3216

W: www.nfmri.org.au
E: enquiries@nfmri.org.au
T: 1 300 233 147