

National Foundation for Medical Research and Innovation





About Us

Founded in 1977, the National Foundation for Medical Research and Innovation (NFMRI) is a notfor-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 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 that more than 'mere' funding 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 and a national ambassador for medical research innovation.

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, 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 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, 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. We are always grateful for the donations and bequests that we receive.

nfmri.org.au

Message from our Chairman

This has been a year of achievements for the Foundation. We focused on implementing our new strategy, awarding nearly \$800,000 in social investments across our three key portfolios nationally. This year also marked our inaugural medical research and innovation conference, which was a great success.



Throughout 2015 the Foundation has continued to evolve and support medical research projects with the potential to improve the lives of many in Australia and beyond. This funding is possible thanks to our generous benefactors, supporters and partners, including individuals and organisations who generously contribute their time and expertise to enable us to achieve greater community impact. We are very appreciative for their support and are confident both our donors and partners will be pleased with the high quality research

projects their gifts and assistance have helped facilitate.

It is pleasing to see that around \$14.5 million in grants has been distributed since 1977 to various researchers across the country. Meanwhile, our corpus continues to grow thanks to sound management from our team as well as guidance from BT Financial, and in particular Mr Scott Glover. Similarly, Deloitte has yet again done a terrific job with our annual audit and for this we thank Vanitha Kerisnan and Joshua Tanchel.

In addition to our normal activities, we held our inaugural conference in September 2015 at the Australian National Maritime Museum in Sydney. The aim was to provide a platform for leaders from a variety of related sectors to explore and discuss how private and social investments in medical research could lead to the advancement of innovation, and how these investments could be made in areas that would improve the current system and therefore increase Australia's capability and capacity to deliver medical innovations that reach the community. The conference was a great success and for this we thank our conference partner, the NSW Department of Primary Industries and our supporter, Celgene Ltd. We also thank all speakers who generously gave their time and shared their insights with us all.

The conference was also a platform from which to further build our relationship with the NSW Department of Primary Industries (NSW DPI). Minister Niall Blair announced at our conference that our partnership would be expanded with the provision of an additional \$400,000 to support innovative research into emerging infectious



John Harkness opening NFMRI Conference

diseases for the second year in a row. Not only is our relationship with the NSW DPI growing, we are also developing relationships with a number of other organisations and donors. The benefit of a true partnership is that we both work together towards an identified common objective, learning from one another along the way and adding value where we can.

I would especially like to acknowledge our team's efforts and achievements over the past year. Dr Noel Chambers and Mrs Nancy Ranner must be commended for their hard work and commitment and especially for putting together the conference and helping arrange the spectacular line up of speakers. Mrs Vanessa Chase has provided financial advice and administrative support to the Foundation since 2004 and we thank her for her continued assistance. Likewise, I wish to thank my colleagues and fellow Trustees for the dedication and passion they have brought to the organisation. Their leadership, vision and guidance have been, and will continue to be, instrumental to the work and successes of our Foundation.

Our Board has been grateful to receive the support and advice of our expert Research Advisory Committee (RAC). This year saw us welcome three new members to our RAC: Professor Douglas Joshua AO, Professor Maree Smith and Professor John McAvoy. Each of our new members brings a unique skill set that aligns with our strategy as well as complements and enhances the Foundation's strengths and capabilities. We also wish to congratulate Professor Douglas Joshua for his well-deserved award as an Officer (AO) in the general division of the Australia Day honours.

We are also grateful to have received the advice and assistance from Dr Dave Kennedy and Mr Chris Wootton, both of whom kindly joined our Fundraising and Engagement Support Committee and provided support throughout the year, and particularly with our conference and awards event.

The year ended on a high note as we welcomed Prime Minister Turnbull's innovation agenda announcements. This will undoubtedly set the framework for a more prosperous and effective sector. The Biomedical Translation Fund highlights the importance of our strategy by supporting future investment in research projects that may have benefited from the support of the Foundation. We look forward to seeing the exciting change and impact this new focus will bring.

John stone

John Harkness Chairman

Message from our CEO



This has been an exciting year focussed around the implementation of our new strategy and delivery of our inaugural conference.

Building upon a thirty-eight year history of supporting medical research, a dedicated Board, Research Advisory Committee and experienced team, the Foundation has been well placed to explore opportunities, take on new challenges and adopt strategies to increase impact.

As a supporter of high impact biomedical research projects, the Foundation continued implementing its strategy throughout the year. This led to an increasing number of worthy applications falling under portfolios 2 and 3 where external collaborations are leveraged to advance innovations. Despite the fact that the Foundation had only been supporting new projects under its new strategy for less than a year, they have already been reaching milestones and attracting industry collaborations faster than we could have anticipated. I hope you enjoy reading some of our case studies and project highlights contained in this report.

During 2015 the Foundation continued to expand its reach by seeking applications nationally. We delivered a number of workshops and presentations at universities, medical research institutes, sector events and conferences held during the year to help grow awareness, inform researchers and assist them to submit high quality, strategically-aligned proposals. This, combined with our annual grant round, led to the identification of a significant number of high quality biomedical research projects and the provision of \$738,768 in research grants.

Growing awareness of the Foundation and the benefits of our strategy with other donors and investors has been a major focus over the past year. Organisations such as the Private Wealth Network, Griffith Hack, Deloitte, Knowledge Commercialisation Australia, Life Sciences Queensland, AusBiotech, Generosity Magazine, Channel 7 and many others have been instrumental in helping share our Foundation's work, goals and objectives far and wide.

With a culture of seeking a social return from strategic social investments, the Foundation is looking forward to working with others, forming funding partnerships and growing its ability to deliver impact. There are some exciting developments that will be announced in 2016 and we look forward to sharing these with you.

Following this year's successful conference, I am delighted that our 2016 conference is set to take place on the 18-19th October 2016 at the Brisbane Convention and Exhibition Centre in Queensland before returning to Sydney in 2017. We are pleased that the QLD and NSW governments have agreed to sponsor our next two conferences respectively. We hope you will be able to join us, learn from our exciting line up of speakers and participate in the conversation. Together we will better enable the sector to deliver benefits from biomedical research.

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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 intact. 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.

In January 2014, 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.

Emeritus Trustees

We would like to thank Mr Peter Bowen for his continued support and assistance to the Foundation as an Emeritus Trustee.

Past Trustees and Major Benefactors

Our Foundation owes its legacy to the following Trustees who have served as part of its Board over since 1977 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 |

Dr J Raftos AM 1982-2007 1984-1990 Sir Gordon Jackson Mr TL Lewis 1984-1991 1984-1987 Mr JW MacBean 1984-1985 Sir William W Pettingell 1987-2003 Mrs SE Ball 1987-1999 Mr RH Minter (Chairman) 1995-2011 Mr PM Bowen Prof AJ Young AO 2000-2003

The Stern Estate Josephine White and Hiltbrunner Fund Estate Late Celia Margaret Paine Estate Late Daqmar Wilhemine Halas Estate Late Blanche Elizabeth Turnet Estate Late Mary Althouse 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

Our Strategy

1

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 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.



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.

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

Providing access to the additional research skills not available 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.

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.

Portfolio Summary

3



Partnership Expanded for Infectious Diseases Research

The Foundation wishes to acknowledge and thank the NSW Department of Primary Industries (NSW DPI) for expanding upon the previously established joint funding initiative with the Foundation. At our inaugural conference held on the 9-10th of September 2015 in Sydney, NSW Minister for Primary Industries, the Hon Niall Blair MLC, announced that a further \$400,000 would be made available as part of its 'One-Health' initiative for distribution commencing in 2016. This funding will help support one or more research projects investigative and validating innovations in emerging infectious diseases.

A proposal to design, manufacture and commercialise a cost effective "lab-on-a-chip" device that can rapidly identify infections and the causative virus had been announced as the inaugural winner of joint support in late 2014 from the NFMRI and the NSW DPI.

Professor Stephen Haswell from Deakin University, along with his team, have been hard at work during 2015. They are already making significant progress with developments of the chip and test,



Minister Niall Blair MLC at the NFMRI Medical Research Innovation Conference In Sydney

which will cost around \$20, will take less than an hour to generate results and will be able to be linked wirelessly to a database to produce a range of control and treatment options, including vaccine-specific selections where appropriate. The team at Biosecurity and Food Safety NSW have been heavily engaged in assisting Professor Haswell and his team throughout the year to help ensure the successful development of the lab-on-a-chip device.

"With around 75 per cent of emerging human infectious diseases coming from animals, this technology is particularly relevant to both human health and our \$11 billion primary industries sector," said Mr Christie.

Due to the success of this initial pilot program, the NSW Government has committed a further \$400,000 to help advance similar projects. Expressions of interest opened in December 2015 and decisions will be announced in 2016.

"It is rare for philanthropy and Government to partner and support research from development through to commercialisation," Professor Haswell said.

This grant represents more than financial support as it comes with a lot of extras such as contacts, commercial mentoring and the potential use of the DPI's facilities – which are all valuable components for securing commercial success.

Our Supporters

We wish to acknowledge and thank the following organisations and individuals who have supported the Foundation during 2015. 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. Their knowledge and direction have been imperative to the ongoing work and successes of the Foundation.

NSW Department of Primary Industries

The NSW Department of Primary Industries has been a strong supporter of the Foundation since 2014. Since then, we have held joint grant rounds together, they have sponsored our conference and kindly hosted a number of our events, including our annual awards night.

Holman Webb

Holman Webb kindly provided pro bono legal and secretarial advice to the Foundation.

Griffith Hack

Griffith Hack kindly provided pro bono analytics research to some of our grantees, as well as hosted joint seminars on innovation.

Gray Design

Gray Design has provided significantly discounted design services, and in particular towards the redevelopment of our website and blog later in the year.

Special acknowledgements

We also wish to thanks the following organisations that promoted and assisted our Foundation and grantees during 2015:

- AAMRI
- AusBiotech
- Bio Melbourne Network
- Channel 7 and in particular Helen Wellings
- Deloitte
- Generosity Magazine
- IP Australia
- Knowledge Commercialisation Australasia
- Life Sciences Queensland
- Phillips Ormonde Fitzpatrick
- Private Wealth Network

2015 Medical Research Innovation Conference

The National Foundation for Medical Research and Innovation's inaugural conference 'Putting Rubber on the Road' was launched by Mr Paul Clitheroe AM, who referenced this adage and the opportunity for philanthropy to help innovations gain traction. The conference was held on the 9th and 10th of September 2015 at the Australian National Maritime Museum in Sydney and was attended by a national audience over both days. '*Putting Rubber on the Road*' explored four themes to build a system wide understanding of opportunities and challenges of delivering impact from biomedical research.

We wish to thank all attendees, speakers and each and every individual who has contributed to the event's success. In particular, we are grateful for the support received from the NSW Department of Primary Industries (Conference Partner) and Celgene Ltd. (Conference Supporter).



L-R 1. Paul Clitheroe AM 2. Dr Alastair Hick and Lynne Teo 3. Gina Anderson and Caitriona Fay 4. Australian National Maritime Museum 5. Prof Anne Kelso AO and Doron Ben-Meir

Our second annual conference, "*Supporting Biomedical Innovations: Getting Innovations on the Right Track*", will take place on the 18th and 19th of October 2016 at the Brisbane Convention and Exhibition Centre in Queensland.

While our first conference sought to discuss and explore key issues affecting the medical research and innovation sector, our second conference will focus on exploring strategies and solutions to help build, support and grow the biomedical innovation sector in Australia. It will bring together local and international experts to explore four key themes focused around how private and social investments in medical research, together with different strategies and bold actions, can lead to the advancement of innovations. The program will also examine how we can increase Australia's capability and capacity to deliver results all whilst growing the local economy. This includes building a culture and funding ecosystem where industry, government, academia, venture capital and philanthropy converge to support innovations from beginning to end. Delegates will leave the conference with a better understanding of how to improve collaborations and how to build relationships between research and industry. We look forward to continuing the conversation in 2016.

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 has also been recognised as a Health Promotion Charity since 2014.

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 adopted a Governance Charter in 2014. The Charter 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 review of the Foundation's governance frameworks has considered 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;
- Attract funding through donations, 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 Funding

The following grants with funding commencing in 2016 were approved in November 2015:

New 2016 GrantsProf Mark SmytheUniversity of Queensland\$80,078 during 2016

The development of human hematopoietic prostaglandin D2 synthase inhibitors (HPGD2S) for Allergic Asthma

Professor Smythe's research team is pursuing new and innovative asthma therapies by targeting a different and specific enzyme, HPGD2S, involved in the inflammatory mechanisms of asthma. His team has developed and optimised a series of potent and specific inhibitors of HPGD2S that are orally bioavailable and efficacious in in vivo animal models. NFMRI's support will provide access to additional research studies and facilities to profile the compounds on human bronchial epithelial cells in order to study respiratory function. These studies will aid in the selection of drug candidates, which will provide efficacious treatment for the cause, not symptoms, of asthma. The funding in particular will provide access to external collaborator Asterand Bioscience in order to accelerate the identification and validation of their drug candidates.

A/Prof Bernard Flynn Monash University

\$100,000 during 2016

Novel sphingolipid targeting agents for the treatment of cardiac fibrosis

The particular focus of this application, cardiac fibrosis, is the lead cause of heart failure and a major cause of death in the western world. This collaborative research group has drawn together experts in cardiac fibrosis, cell signalling pathways, enzyme assays, medicinal chemistry and metabolomics to help identify a suitable biomolecular target for fibrosis and to design drug molecules to inhibit this target. The focus has been on a class of lipid signalling molecules called sphingolipids, which control cell functions particularly during infection, inflammation and wound healing. Support from NFMRI will enable A/Prof Flynn to access both internal collaborators such as the Monash Centre for Drug Candidate Optimisation and external collaborators such vivoPharm to assist with targeted studies.

Dr Sanjaya Kuruppu Monash University

\$90,000 during 2016

A potential new treatment for Alzheimer's disease from a snake venom

Dr Sanjaya Kuruppu has discovered for the first time a molecule (referred to as K49-P1-20), from the venom of a snake, which stimulates activity of two enzymes that clear amyloid beta. Previous studies have shown that increasing the expression of amyloid beta clearing enzymes can prevent the build-up of this protein and associated behavioural changes. Dr Kuruppu's preliminary data indicated that K49-P1-20 induced increase in enzyme activity results in accelerated breakdown of synthetic amyloid beta. This research study will use a mouse model of Alzheimer's disease to determine if this molecule can prevent the build-up of amyloid beta in the brain. Support from NFMRI will facilitate access to additional skill sets from an external collaborator at the University of Tasmania, including access to a mouse model relevant for Alzheimer's disease.

2015 Grants

Following recommendations of our Research Advisory Committee, the Board approved \$738,768 in grant payments towards the following 2015 commitments:

| Researcher | Institute | Focus Area | Total 2015 | Total funding commitment |
|----------------------|---|----------------------------|------------|--------------------------|
| Prof Stephen Haswell | Deakin University | Infectious diseases | \$163,500 | \$372,000 |
| A/Prof Guillaume | Walter and Eliza Hall | Cancer | \$50,000 | \$50,000 |
| Lessene | Institute of Medical Research | | | |
| Prof Michael Good AO | Griffith University | Rheumatic heart disease | \$79,950 | \$251,000 |
| Dr Andrew Mitchell | University of Sydney | Bacterial meningitis | \$28,892 | \$28,892 |
| Dr Janet Davies | University of Queensland | Asthma and allergies | \$61,860 | \$100,000 |
| Pathology Museum | University of Sydney | General | \$14,317** | 102,988 |
| Dr Lenka Munoz | University of Sydney | Lung cancer | \$140,999 | \$396,956 |
| Dr Tim Molloy | St Vincent's Institute of Applied Medical Research | Breast Cancer | \$42,000 | \$126,000 |
| A/Prof Nick Shackel | The University of Sydney's Centenary Institute | Liver cancer | \$40,500 | \$215,500 |
| A/Prof Wendy Cooper | Royal Prince Alfred Hospital | Lung Cancer | 47,500 | \$95,000 |
| Prof John McAvoy | Save Sight Institute | Eye research | \$69,250 | \$3,669,902 |
| | | | \$738,768 | \$5,408,238 |

Prof Stephen Haswell Deakin University

\$372,000 from 2015 to 2017

Advanced zoonotic disease detection through lab on a chip technology

Prof Haswell's project to design, manufacture and commercialise a cost effective "lab-on-a-chip" device that can rapidly identify infections and the causative virus received joint support from the National Foundation for Medical Research and Innovation and the NSW Department of Primary Industries.

The test, which will cost around \$20, will take less than an hour to generate results and will be able to be linked wirelessly to a database to produce a range of control and treatment options, including vaccine-specific selections where appropriate.

A/Prof Guillaume Walter & Eliza Hall Institute of \$50,000 in 2015 Lessene Medical Research

Dr John Dixon Hughes Medal for Medical Research Innovation

A/Prof Lessene was awarded the inaugural Dr John Dixon Hughes Medal for Medical Research Innvation for the discovery of a new class of drugs, BH3 mimetics, which induce cells to commit suicide by preventing protein-protein interactions. The relevant suite of patents are being commercialised and show great potential for cancer therapy. A/Prof Lessene's prize of \$50,000 was applied to support the screening of more than 100,000 compounds that will feed into their existing drug development pipeline. Prof Michael Good AO Griffith University

\$251,000 from 2015 to 2018

Producing and testing a GMP grade peptide conjugate vaccine to prevent infections with Group A Streptococcus

A proposal to manufacture and test a vaccine to prevent infections with Group A Streptococcus (GAS), which may potentially decrease the global burden of rheumatic heart disease, many forms of chronic renal disease and other streptococcal pathology will commence in 2015. The prevalence of severe GAS disease is estimated to be greater than 18 million cases globally, with 1.7 million new cases each year.

Dr Andrew Mitchell The University of Sydney \$28,892 in 2015

Towards new treatments for bacterial meningitis: determining the role of perivascular macrophages in brain inflammation



Dr Andrew Mitchell, a young researcher from the University of Sydney, has identified a previously unknown cell type that drives inflammation. The results of his study will form the foundation for developing innovative new therapies for bacterial meningitis.

Dr Andrew Mitchell

Dr Janet Davies The University of Queensland \$100,000 from 2015 to 2016

Towards an improved allergen immunotherapy vaccine targeting subtropical grass pollens

Dr Davies has received \$100,000 from the NFMRI to advance her research towards developing a standardised vaccine for Bahia grass pollen allergy. Dr Davies' previous research has shown that subtropical grass pollen allergens are different from temperate grass pollen allergens. With new grass pollen allergy vaccine tablets for temperate grasses having just received regulatory approval as drugs in Australia and the US, Dr Davies' research aims to fill this market need by developing an improved allergen immunotherapy vaccine targeting subtropical grass pollens.

The outcomes will have the potential to meet the growing need of patients in subtropical regions of Australia, Asia, Africa and America. Grass pollens are the major outdoor allergen trigger of hay fever and allergic asthma. These affect up to 500 million people worldwide contributing to severe disease, reduced quality of life and decreased productivity. Allergy vaccines have been shown to diminish symptoms of moderate to severe hay fever and reduce the risk of asthma, but most treatments for grass pollen allergy are based on temperate grasses.

Towards the end of 2015, Dr Davies was promoted to Associate Professor and accepted a position at the Queensland University of Technology, where she will continue her research.

A/Prof. Wendy Cooper Royal Prince Alfred Hospital, Tissue Pathology and Diagnostic Oncology

\$95,000 from 2014 to 2015

Personalised medicine in lung cancer – massively parallel sequencing of lung tumours enriched for actionable mutations

There is a revolution underway in cancer management whereby treatment is 'personalised' to the genetic changes in each person's cancer.

This promises to maximize the benefit of specific treatments and reduce harmful side effects. A key part of this process is finding biomarkers that predict response to particular treatments. The aim of this research project is to identify biomarkers in lung cancer and mesothelioma that can be used to help select the best treatment for every individual patient. The team is investigating abnormal expression of Prof Sandra O'Toole and A/Prof Wendy Cooper

protein and amplification of genes in lung



cancer and mesothelioma that can potentially determine how well a patient will respond to treatment or how quickly or slowly their disease is likely to progress.

This research has provided new diagnostic capability at Royal Prince Alfred Hospital and is now scaling up to assist more patients in need.

Dr. Lenka Munoz

The University of Sydney, School of \$396,956 from 2013 to 2016 Medical Sciences & Pharmacology

Improving chemotherapy response rates in brain cancer



Dr Lenka Munoz

In a search for ways to limit the spread and to stop lethal recurrence of brain cancer, Dr Munoz' research focuses on the inflammation caused by the tumour as a key to brain cancer progression. This research has found that cells surrounded with inflammation appear to move farther because the inflammation makes it easier for tumour cells to propel themselves through tissue. The more inflammation in the proximity of a tumour cell, the faster glioblastoma cells travel. This project will make this the first group to report that drugs turning off the activity of an inflammatory protein called MK2 are effective in blocking inflammation in brain tumours. Blocking

inflammation may prevent the invasive spread of cancer cells into healthy brain tissue, thus preventing the

formation of novel tumours and potentially improving patient's response to temozolomide (Temodal) during chemotherapy.

Discovering Novel Biomarkers in Heptocellular Carcinoma (HCC)

This research will develop new clinical tests in liver cancer, which will impact on diagnosis and determine outcomes using new genomic technologies. The research is novel and will lead to the development of personalised genomic medicine in which an individual can be uniquely assessed for the likelihood of developing liver cancer, enhance diagnosis, determine the risk of cancer spread and responses to treatment.

Prof. John McAvoy Save the Sight Institute, Sydney Hospital and Eye Hospital

\$3,669,902 from 2001 to 2015

Chair in Experimental Ophthalmology

With approximately 20 million people affected, cataract is the most common cause of blindness in the world today. Currently, the most effective treatment for cataract is surgery, which involves removal of opaque cellular material and insertion of a plastic intraocular lens into the remaining capsular bag. Although initially effective in restoring sight, a complication of surgery is the

development of а secondary cataract. A major focus of this research has been to identify ways of maintaining the normal lens cell phenotypes and provide conditions that promote regeneration of normal lens structure and function. To achieve this qoal. greater understanding is required on the factors



Prof McAvoy at the Lens and Cataract Symposium in Yokohama, Japan

that maintain epithelial cells and promote their growth and differentiation into the highly elongated and oriented/aligned fibres that determine lens optical properties. In other words, the team needs to find out how to recapitulate normal developmental processes in order to successfully regenerate lenses after cataract surgery.

Pathology Museum, University of Sydney

\$102,988 from 2001 to 2015

Restoration of Pathology Specimens

Support has been provided on an annual basis towards the restoration of pathology specimens to populate the museum's database. This year's final contribution has helped complete and finish the database. This specimen bank is a vital asset to the medical research community as it is accessible to those requiring unique specimens to conduct their research.

Project Updates

The following four examples demonstrate the growing impact of our funding:

A/Prof Guillaume Lessene

Walter and Eliza Hall Institute of Medical Research Field: Cancer research Innovation: Potential new drugs

Since receiving the inaugural Dr John Dixon Hughes Medal together with a prize of \$50,000 in 2015,



A/Prof Lessene has applied this funding to support assay development and part of the screening activity. This support was critical because "funding for screening activity and early drug discovery is very difficult to obtain within the Australian landscape of traditional government funding," said A/Prof Lessene. Yet this is a critical stage of translational medical research because it enables the discovery of the very first compounds that will be transformed into the next generation of drugs.

A/Prof Lessene and his lab team have been busy

A/Prof Lessene and Dr Dixon Hughes OAM

developing a robust assay to screen the WEHI library, with the first set of 5.000 compounds (out of a total of 150.000)

screened as part of an initial pilot screen. The remaining screening is scheduled to take place in early 2016.

This work will eventually lead to the development of the first inhibitors of the cell death pathway called apoptosis.

Prof Michael Good AO

Institute for Glycomics, Griffith University Field: Rheumatic heart disease (Group A Streptococcus) Innovation: Potential new vaccine

Professor Michael Good AO was awarded an NFMRI grant commencing in 2015 to support the production and testing of a GMP-grade peptide conjugate vaccine to prevent infection with group A streptococcus – the causative agent of tonsillitis, deep tissue sepsis, pyoderma and rheumatic heart disease.

Despite the project only commencing in early 2015, support from the Foundation has already assisted Professor Good and his team to attract the interest of a multinational pharmaceutical company.

They have now entered into a formal relationship with that company and pending the achievement of certain endpoints are hopeful of licensing the technology to the company.



Prof Michael Good AO

A/Prof Janet Davies, *Queensland University of Technology* Field: Asthma and Allergies Innovation: Potential new vaccine

A/Prof Janet Davies was awarded an NFMRI grant commencing in 2015 to help develop an improved allergen immunotherapy vaccine targeting subtropical grass pollens. Despite only receiving funding for less than a year, A/Prof Davies is already attracting industry interest, and has recently been promoted to Associate Professor after accepting a promotion at the Queensland University of Technology.



She was recently selected as a finalist in the Queensland State Government and Johnson & Johnson Innovation Quick Fire Challenge. As a finalist she will also be receiving mentoring from the Johnson & Johnson mentors ahead of the final live presentation in front of a panel of judges, which is set to take place on the 21st of March 2016. The challenge will award a top prize of AUD \$100,000 for up to three winners with innovative ideas.

The outcomes of this research will have the potential to meet the growing needs of patients with allergies in subtropical regions of Australia, Asia, Africa and America.

Prof Stephen Haswell, *Deakin University* Field: Infectious diseases Innovation: Potential new detection and diagnostic device

Funded through a partnership between the NFMRI and the NSW Department of Primary Industries, Professor Haswell's project focuses on the design, manufacture and commercialization of a costeffective lab-on-a-chip device that can rapidly identify the presence of infection and the causative virus from a range of existing possibilities. The analytical chip, which will cost less than \$20, will take lass than an hour to generate results and will be able to be linked wirelessly to a database to produce a range of control and treatment options, including vaccine-specific selections, where appropriate.



This project has been progressing exceptionally well. Formatting of the initial three chip functions and intermediarv conduits have now been completed and are currently being optimised. Professor Haswell and his team have been carrying out the work in close collaboration with both end users (NSW DPI and AAHL) and technology providers (MiniFAB and Romar) to ensure the technology is both fit for purpose and commercially available.

Further developments are currently being implemented, with the team already in the process of looking to the scalable

manufacture of the control device and analytical chip in a facility compliant with quality systems. This technology will help minimize the spread of infection and will enable better disease management strategies to be developed. This project is quickly moving towards being a spin-off opportunity.

Our people

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

The Foundation welcomed three new RAC members in 2015: Professor Douglas E. Joshua AO, Professor John McAvoy and Professor Maree Smith, all of whom bring extensive experience and unique skill sets.

Trustees

| Trustees, qualifications and special responsibilities | | Experience |
|--|--------|---|
| Chairman Mr John Harkness | 1984 - | Partner of KPMG for 24 years and National Executive Chairman for five years. Chairman Reliance Rail Chairman Charter Hall Retail REIT Director Goodman Group Fellow of the Institute of Chartered Accountants in Australia and the Australian Institute of Company Directors. |
| Dr John Dixon Hughes OAM Chairman, Research Advisory Committee | 1977 - | Consultant General Surgeon Research Advisory Committee since 1977 and Chairman since 2000 Fellow, Royal College of Surgeons (Eng) Fellow, Royal Australasian College of Surgeons Fellow, Australian Medical Association Medical Services Committee NSW Administrator, formerly Chairman. Foundation member of the Australian Association of Surgeons, formerly serving as Chairman of the NSW State Committee and President of the Association Formerly; Board Member, Senior Vice President, Chairman Medical Staff Council, Chairman of Surgical Research Committee and Chairman of Ethics Committee at Sydney Hospital. Chairman of Infection Control Advisory Group NSW Health Convener (Chairman) Negotiating Committee to negotiate with the NSW Government, on behalf of the medical profession during the "Doctor's Dispute" in 1984. |

| Dr Vivienne Cowlishaw-Shortell | 1987 - | General Dental and Special Oral Services Fellow, Royal Australasian College of Dental Surgeons Member, Clinical Oncological Association of Australia Member, Australian Dental Association Member, Australian Federation of Graduate Women Inc. Life Member, Fiji Dental Association University of Queensland Alumni Otago University Alumni |
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| Dr Kevin Hellestrand | 2001 - | Cardiologist and Cardiac Electrophysiologist for 25 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 - | Co-Chairman of McGrathNicol Director, QBE Insurance (Australia) Ltd National Rugby League Commissioner Member, Institute of Chartered Accountants in Australia. Member, Insolvency Practitioners Association of Australia. |
| Dr John Graham | 2002 - | Emeritus Honorary Consultant Physician at Sydney Hospital Formerly; Consultant physician on Macquarie Street, Sydney from 1973 to 2010 Chairman, Medical Staff Council, Sydney Hospital Chairman, Department of Medicine, Sydney Hospital President, NSW Council of Professions |
| A/Prof. Ray Garrick AM | 2002- | Neurologist with over 35 years experience Fellow, Royal Australasian College of Physicians Member, Australian New Zealand Association of Neurologists Associate Professor of Medicine at the University of Notre Dame, Sydney Campus |

| | | Head of St Vincent's & Mater Hospital Clinical School of University of Notre Dame Medical School (Sydney) Fellow and Faculty Board Member, Faculty of Pain Medicine ANZCA and Deputy Chairman of the Education Committee Senior investigator at Sydney Hospital/Sydney Eye Hospital for the RENEW clinical trials in optic neuritis |
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| Mr Jane Schwager AO | 2005 - | Director, Campbell Page Ltd Chair, Hunter New England Central Coast Primary Health Network Member, Defence Honours and Awards Appeals Tribunal Member, NSW Civil and Administrative Tribunals Chair, Teachers TV Member, Social Ventures Australia Formerly; CEO, The Benevolent Society CEO, Nonprofit Australia CEO, Olympic Parklands Foundation Director General, Department of Ageing and Disability Executive Director, NSW Social Policy Directorate. |
| Mr Keith Drewery | 2010 - | Director, Drewery Consulting Pty Ltd Consultant, KPMG Private Enterprise Division Consultant, Private Wealth Network Trustee, The Balnaves Foundation Director, Abbott Foundation Pty. Limited Director, Documentary Australia Foundation Director, Manjeri School Project |
| Dr Ashley Bates | 2014- | Director, AusIndustry Entrepreneur's Programme Principal, Ashley Bates Consulting Treasurer and Company Secretary, BioMelbourne Network Formerly: National Executive, Manufacturing Excellence Taskforce Australia Head of Product Development and Head of R&D Alliance, GlaxoSmithKline |
| Ms Alison Choy Flannigan Company Secretary | 2014- | Company Secretary since 2014 Partner, Holman Webb Lawyers Member, NSW Law Society Member, Australian Institute of Company |

| ate Lawyers |
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Research Advisory Committee

| Chairman Dr John Dixon Hughes OAM | Consultant general surgeon with over 55 years experience |
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| A/Professor Ray Garrick AM | Associate Professor of Medicine (Neurology) at the University of Notre Dame, Sydney Campus |
| Professor Douglas E. Joshua AO | Emeritus Professor in Haematology at the University of Sydney and Consultant Haematologist at RPHA. |
| Professor Maree Smith | Inventor on patented technologies including Qrx Pharma, Spinifex Pharmaceuticals and QUE Oncology; Executive Director CIPDD/TetraQ at the University of Queensland |
| Professor Stan McCarthy AO | Senior Staff Specialist and Consultant Histopathologist at Royal Prince Alfred Hospital in Sydney |
| Professor John McAvoy | Emeritus Professor of Ophthalmology at the University of Sydney, previously Professor of Experimental Ophthalmology at the Save Sight Institute |
| Dr Ashley Bates | National Executive, Pharmaceutical and Biotechnology at META, previously Head of R&D Alliances ANZ at GSK |
| Dr Noel Chambers | CEO with over 25 years experience in biomedical research, innovation, commercialisation and biotechnology. |

Management and Administration

| Dr Noel Chambers | Chief Executive Officer |
|-------------------|--|
| Mrs Vanessa Chase | Management Accountant and Administrator |
| Mrs Nancy Ranner | Grants, Communications and Engagement Coordinator |



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