

# Mater Research Annual Report 2022

materresearch.org.au

# The Heart to Heal, The Strength to Grow.

Our spirit is strong, it thrives as we embrace those whom we must always care for.

Our journey has been long and we will continue to flourish as we open our hearts to those who walk with us. **Always.** 

Mater acknowledges that our services are provided on Aboriginal and Torres Strait Islander lands and pays respect to their Elders – past, present and emerging. This artwork concept and narrative was developed by David Williams. David is a proud Wakka Wakka artist at Gilimbaa.





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### Foreword

### **Executive Director Report**

I am delighted to provide an introduction to this Annual Report on behalf of the Research Advisory Board. My colleagues Professors Denise Doolan, Frank Gannon, Karen Moritz, Professor Sir John Savill and I would like to acknowledge the advances in medical science made by so many Mater Researchers in 2022, led by Professors Maher Gandhi and Allison Pettit.

The recent Mater Research Showcase provided an opportunity for Advisory Board members and our Foundation donors to see the valuable contributions being made by Mater Researchers and to congratulate award winners. Professor Anne Kelso AO's keynote, which outlined the new National Health and Medical Research Council (NHMRC) initiative to level the playing field for female researchers across the emerging and mid-career researcher and senior researcher spectrum, was very well received.

Mater Research has long been proactive in active support for career advancement of researchers identifying as female, allowing them to overcome some of the roadblocks that family and carer duties impose on women. Mater Research is proud that more than 50 per cent of its Group leaders are female and this was recognised in the Employer of Choice Award from Women in Technology (WiT) in 2017 and as a finalist in 2022. Associate Professor Kym Rae won the 2022 WiT Inspiring Diversity in STEM Award.

The Mater Research Strategic Grant for Outstanding Women has been hotly contested since inception in 2017 and this year's winners were Dr Elizabeth Martin and Dr Jodi Saunus. We are very grateful to the Mater Foundation for supporting this important grant program, which has been instrumental in developing the careers of some of Mater's most successful researchers.

Now that Mater Research has matured, some of its research programs are already on the path to translation, either with commercial partners or directly to improve clinical practice.

The report highlights Dr Cathy Franklin, who won a targeted grant from the NHMRC who will use the Assessment Program she and her team developed in a trial to support General Practice Nurses to work with intellectually disabled people and to improve their health outcomes.

A/Professor Paul Dawson and Dr Elizabeth Hurrion developed a novel test for neonatal brain development now in clinical use. The Mater Clinical Trials Service is an important part of the translation of products and procedures into the clinic and this is now very well managed by a capable team, led during most of 2022 by Dr Julie Cichero, who was Highly Commended by Women in Technology in the Community Impact Award. I also draw attention to the award of the Sister Madonna Josey Medal for years of outstanding service in respiratory and infection clinical trials to Ms Megan Martin.

Professor Maher Gandhi was recognised in one of TRI's Top 10 Translational Achievements for his discoveries in viral associated lymphomas that led to a new treatment and was awarded a \$2.8M grant to trial it.

A/Professor Ingrid Winkler and Glycomimetics are now testing the novel drug, Uproleselan, in a phase 3 clinical trial – the last stage of new drug development.

The chart on page 12 shows just how much activity has occurred in 2022.

The Research Advisory Board congratulates all the award and grant winners of 2022 and wishes the Mater Research team success in 2023. I write this, in the lead up to the New Year, a moment in time when it seems fitting to look back at what we have achieved and acknowledge all our amazing researchers and professional staff within Mater Research that made it happen.

As illustrated by 'Our Year at a Glance' by any standards, 2022 was a big year, with a number of notable achievements, as our researchers continue to tackle global challenges in health and medical research.

Across our research programs there are so many success stories. Exemplifying the importance of evidence-based practice, in our story on Professor Janet Hardy and her colleague Professor Phillip Good, we learn that not all is as it has been hyped up to be with medicinal cannabis. Despite very limited evidence of its benefit, the use of cannabis for therapeutic benefit has risen exponentially over the past few years. Janet and Phillip's Medical Research Future Fund (MRFF) funded trial, aimed to determine whether cannabidiol (CBD), a key component of cannabis, resulted in better symptom control in patients with advanced cancer than standard palliative care. Although well tolerated, CBD was no better than placebo in improving individual symptoms, depression/anxiety, and quality of life or reduce requirements for pain relief.

We look forward to the outcomes from their follow-up study, an ongoing MRFF funded trial that tests other medicinal cannabis combinations.

For those of you with a more biomedical disposition, I recommend turning to the pages on Professor Katharina Ronacher. Her work on the oxysterol-sensing receptor GPR183 resulted in a discovery that receptor blockade lessened the severity of COVID-19 in animal models, paving the way for a new therapeutic approach. Her discovery that the receptor is also pivotal to the host response to Tuberculosis, led to an NHMRC Ideas Grant. Her recent elevation to a full Professor, is clearly well-deserved.

Amongst other 'firsts', these pages also outline big strides Mater Researchers made across such diverse areas as the genetics of transposons, in new service provision models for intellectual disability, and in the prevention of fetal distress. Recognition of the quality of research undertaken is the external support they receive from prestigious overseas and national funding bodies such as the NHMRC. But to continue their amazing work, Mater Researchers also need the support and generosity of donors to Mater Foundation, so that they can spend their valuable time on research, and less time applying for scarce research dollars from grant funding bodies.



Dr Carrie Hillyard AM FTSE FAICD



These are just a few examples of the work we are so proud to undertake. I'd like to extend my warmest thanks to everyone who contributed to Mater Research's success in 2022, including Mater Foundation and all the philanthropists who support it, our Research Advisory Board, our students, researchers and professional staff, to the University of Queensland, to the Clinical Triallists, and of course our fellow ministry partners at Mater Health and Mater Education.

It's my pleasure to introduce the 2022 Mater Research Annual Report. I hope you enjoy reading about our endeavours and feel inspired to continue to be engaged with our mission to discover, translate and integrate. Thank you for your ongoing support.

Happy New Year.



Professor Maher Gandhi Executive Director



# **About Us**

Based on a bench-to-bedside philosophy, Mater Research is a recognised leader in medical research and is the research arm of Mater. Collaboration sees us working across Mater Health's hospitals and health services, Princess Alexandra (PA) Hospital and our partners The University of Queensland, the world-class Translational Research Institute (TRI) and Health Translation Queensland (HTQ).

We have a strong commitment to working closely with Mater Health, Mater Education and our growing network of partners and collaborators to turn scientific discovery into the best possible treatment, care, and outcomes for patients and the broader community.

Our strong track record of successful grant applications and fellowship recipients is underpinned by the significant financial support of the Mater Foundation which contributes millions of dollars to fund pilot clinical trials, research projects, vital infrastructure and resources, student scholarships and backfilling clinical time to enable more clinician-led research and fellowships for our senior researchers. This allows us the flexibility to sustain research beyond short-term grants.

### Leadership

**Executive Director** and Director Clinical Research



### Professor Maher Gandhi

Holding the roles of Executive Director and Director of Clinical Research, Maher's role is to set strategy and create clinical research programs that influences future national and international health policy and practice through the full integration of Mater Research with clinical care.

### Director **Biomedical Research**

### Professor Allison Pettit

In her role as Director of Biomedical Research, Allison provides oversight, leadership and guidance in the management and execution of biomedical research activities at Mater. She is involved in strategic planning, developing and executing organisational frameworks and supports improving clinical connectivity of biomedical research activity.

With expertise across all facets of medical research-study design, ethics and governance, data collection, biobank management, analysis, and implementation science-we are responsible for the robust management of all research and clinical trials at Mater.

We also maintain a broad external focus, horizon scanning national and international high-quality research to reduce duplication of effort and wasted resources, working alongside Mater Education and Mater Health to support the prompt and efficient translation of research into clinical care.





### Director Operations

### **Ms Emily Bailey**

As Director of Operations, Emily oversees a portfolio which is responsible for the operational management of Mater Research (including finance, facilities and compliance), continuing to strengthen existing and new partnerships, and research commercialisation activities.



# **Mission and Vision**



To translate our research discoveries and integrate them into improved healthcare.



To **discover** new knowledge central to the Mater mission, **translate** this knowledge into practice and **integrate** these research outcomes into improved healthcare and educational practices across Mater.

#### **Mercy Values**

Mater Research wholeheartedly commits to the Mater Values:

- We honour and promote the dignity of human life and of all creation
- We act with compassion and integrity
- We strive for excellence.



In addition to the Mercy Values, working across our five research programs Mater Research is committed to upholding the values relating to our scientific, medical and management mission:

- Integrity we conduct ourselves and our work honestly and ethically to build a culture of excellence.
- Innovation developing and extending knowledge to improve health.
- Inspiration educating and imparting knowledge to inspire each other and future generations.
- Engagement fostering and encouraging teamwork, collaboration and commitment to the community.





# Our Year at a Glance



Professor Vicki Clifton awarded an ARC Discovery Project grant

### Dr Cathy Franklin awarded an NHMRC Targeted Call for Research grant

**QUARTER 4** 

Associate Professor Paul Dawson and Professor Katharina Ronacher each awarded an NHMRC Ideas Grant.

**Dr Kate Irvine** becomes a Group Leader

### Associate Professor Jake Gratten awarded an NHMRC Investigator

Grant

### Professor Brian Gabrielli

awarded an Ovarian Cancer Research Fund Grant



# **Our Strategy**

### To achieve health impact through integrated research excellence:



0

### Establish and maintain a strong culture of collaboration to deliver greater outcomes in line with Mater's strategy:



Drive research programs that reflect integration, prioritise preventative health and enhance community

Develop links with academic inst

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Discover Discover the factors that underpin wellbeing at birth, through adolescence and into later life.

Translate Translate discovers for Mater to become a global leader.

Enhance Mater's expertise in areas of excellence through high-quality research.



Ensure the balance of research across discovery, translation and integration is aligned with Mater's strategy.

academic institutions and commercial agencies.



Prioritise internal and external partnerships in external partnerships in areas of strategic focus.



beyond.

## **Research Advisory Board**

The Research Advisory Board is established to provide independent strategic advice on clinical research or scientific-related matters to the Mater Research Executive Leadership and Mater Chief Executive Officer.

### Dr Carrie Hillyard AM Board Chair

Dr Carrie Hillyard AM chairs the Australian Pesticides and Veterinary Medicine Authority and Fitgenes Australia Limited boards and was a Director of the Academy of Technology and Engineering (ATSE) until 31 December 2022. Previously, she was a co-founder of venture fund, CM Capital Investments, a Director of several of its investee companies and led its Life Sciences group. Dr Hillyard AM served as Deputy Chair of the Mater Research Board from 2007–2020.



#### Professor Denise Doolan

Professor Denise Doolan is Deputy Director (Research) of The University of Queensland's Institute for Molecular Bioscience and former Director of the James Cook University Centre of Molecular Therapeutics. She is a member of The Australian Medical Research Advisory Board.

### Professor Sir John Savill

Professor Sir John Savill has been Executive Director of the Melbourne Academic Centre for Health (MACH) since July 2019, having served in the United Kingdom as an honorary consultant in renal and acute medicine from 1990 to 2018.



Professor Frank Gannon was the Director and CEO of QIMR Berghofer Medical Research Institute from 2011 to 2020 and has been the Director General and board member of Science Foundation Ireland (The Irish Research





Karen Moritz Professor Karen Moritz was appointed Director of the Child Health Research Centre in 2016 of

Funding Agency) since 2007.

Health Research Centre in 2016 and in 2021 became the Associate Dean of Research at The University of Queensland's Faculty of Medicine.



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## **Career Track Fellows**

Mater Research recognises that for full-time health researchers the period between postdoctoral research and the establishment of research independence is often challenging.

The purpose of Mater Research's Career Track Fellow (CTF) program is to provide high-potential emerging investigators with a pathway to progressively build stepwise independence in a supportive environment that provides a high level of mentoring and exposure to research leadership mechanisms and research group management responsibilities. Previous CTFs who have recently transitioned to independence are Dr Katharine Irvine and Dr Seth Cheetham.

Mater Research is currently mentoring four CTFs.

### Dr Ran Wang

Immune activation is the key to combating

bacterial and viral infections. However, in some cases, overactivated immune cells are not only killing the bacteria or virus but also causina damaae to our own body via releasing a large amount of immune mediator -"cytokine" to cause harm. Dr Wang and collaborators have been developing a "sponge-like" material that can "mop up" excess cytokines, dampening the overactivated immune response. Preliminary data shows that the novel material reduced immune activation and lessened tissue damage in a preclinical model of inflammatory bowel disease. The team is excited to test the material in other diseases where bystander health tissue damage contributes to morbidity and mortality including COVID-19 in the future.

### Dr Camille Guillerey

As part of the Cancer Immunotherapy Group, Dr Camille Guillerey leads a small research team focusing on Natural Killer (NK) cells, which are bloodcirculating lymphocytes with potent anti-cancer properties. As part of the international top 100 authors in the field of immune responses to multiple myeloma, Dr Guillerey's contributions to cancer research have been, and continue to be, highly significant. Dr Guillerey's research has provided invaluable contributions to the understanding of two immune cell types: Natural Killer (NK) cells and Dendritic (DC) cells. Dr Guillerev's work spans a total of 28 publications.

### Dr Mitchell Sullivan

Dr Mitchell Sullivan is an expert in the energy storage molecule glycogen, a glucose or sugar "battery" and how perturbations in glycogen can contribute to disease. Dr Sullivan published eight research articles in 2022 sharing the work of his group and collaborators towards understanding whether the abnormal accumulation of glycogen molecules within kidneys contributes to diabetic kidney disease. Dr Sullivan is also focusing on why individuals with diabetes are at a higher risk of severe disease after SARS-CoV-2 infection (the virus responsible for COVID-19). He is currently testing a new therapy in pre-clinical models of these diseases with preliminary data promisinaly indicating that it lessens the severity of symptoms in diabetic pre-clinical models infected with SARS-CoV-2.

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Dr Jodi Saunus

Career Track Fellows who in 2022 were promoted to Group Leaders either at Mater Research or other research organisations include:

#### **Dr Seth Cheetham**

Dr Seth Cheetham is an NHMRC Early Career Fellow and has recently been promoted to Group Leader at the Australian Institute for Bioengineering and Nanotechnology at The University of Queensland. After his Bachelor of Science (Hons) at The University of Queensland, he completed his PhD at the University of Cambridge, supported by the Herchel Smith Research Studentship.



Dr Cheetham is a molecular biologist and geneticist with a focus on synthetic biology, RNA medicines and epigenetics and was recently awarded a prestigious Australian Research Council Discovery Early Career Research Award (DECRA) Fellowship.

#### Dr Katharine Irvine

Dr Kate Irvine has been formally promoted to Group Leader within the Chronic and Integrated Care Program. In parallel, Dr Irvine has also been successful in an academic promotion to Associate Professor at The University of Queensland with this appointment being recognised from 01/01/23.

Dr Irvine will head the Innate Immunity and Inflammation Laboratory with a research program including dissecting the roles of macrophages in homeostasis, inflammation and tissue regeneration, with a particular focus on chronic liver disease. Dr Irvine aims to exploit knowledge of macrophage biology to understand the development of chronic inflammatory disease, and to identify macrophage-targeted therapies to treat disease or promote tissue regeneration.

Dr Saunus was recruited to Mater Research in 2022 through a successful bid for a postdoctoral fellowship offered by The University of Queensland in association with COVID-19 pandemic-driven increased Federal Budget injection of the Block Grant Research Support Package. Dr Saunus has already made significant breast cancer research progress in her short time at Mater Research including initiating a new study to identify why some breast cancer patients respond well to chemotherapy while others don't In collaboration with the Mater Breast Cancer Centre, and Mater breast cancer patients who donate breast tissue samples for research. this study focuses particularly on

"triple-negative breast cancer" - a subtype that tends to affect younger women and those with BRCA1 gene mutations. The team, which includes a breast care nurse consultant, an oncologist Dr Kathryn Middleton, and Mathematician A/Professor Dan Nicolau Jr (King's College London) will apply new single-cell sequencing technology to survey the cancer genome in tumour samples from patients who have complete versus incomplete responses to chemotherapy. Dr Saunus was this year's recipient of the Mater Research Strategic Grant for Outstanding Women, which has funded the pilot phase of this project.



## **Student Successes**

# Dr Chloe Yap

Chloe won the CSL Florey Next Generation

Award. This is a prestigious award conferred to a current PhD candidate who has demonstrated outstanding capability, creativity and potential in the biomedical sciences and/ or health and medical research. This award was developed from the CSL Young Florey Medal.

She was also a winner of the Best Presentation by a HDR Student at The University of Queensland Faculty of Medicine Research Week.

Chloe recently graduated as valedictorian with dual medical doctor and PhD qualifications.

### Rabina Giri

Rabina won Best Abstract Prize at the Falk Symposium in Frankfurt Germany.



Aleysha won the 2022 Dr Laurence Catley Clinical Student Prize presented

at the Mater Research Showcase.

### Selwin Samuel Selwin won the following awards:

- Peter Blundy Small Grant from SpinalCure Australia to attend the BSI Annual Congress
- ASI (Australia and New Zealand Society for Immunology) Travel Bursary to attend the ASI Annual Congress
- Judges' choice and People's choice at The University of Queensland 2022 Faculty of Medicine HDR symposium
- Mater Research International Student Travel Award to attend the BSI Annual Congress



- Student Training Award
  2022 Mater Research HDR
- Biomedical Student Prize

  The University of Queensland
- Faculty of Medicine 3MT (People's Choice Award)
- Mater Research 3MT (Judge's Choice Award).



Haressh won the Mater Research International Student Travel Award.

Haressh Sajiir

### Anthony Johnson

Anthony won the Mater Research 3MT Honours Competition (Judge's Choice Award).

### Hayley Favelle

Hayley won the Mater Research 3MT Honours Competition (People's Choice Award).

> Taylan Gurgenci, Kayden Kwah and Lashith Wickramasuriya were all successful recipients of the Equity Trustees' support, with contributions towards their Frank Clair Scholarships.







## **Mater Student Research Committee**

In 2022, the Mater Student Research Committee (MSRC) led numerous activities to attract new students and support a high-quality research program for the 120+ students at Mater.

The Committee's annual student information event as well as participation in The University of Queensland Honours Week events, showcased more than 40 research projects on offer for students to commence in 2023.

Some highlights of the MSRC-led activities include:

- Peer-review of more than 20 student applications
- A series of professional development training courses for our HDR students
- student training award
  - Development and implementation of the Mater Mates mentoring program

Monthly meetings were held by the MSRC members:







Prof Brian Gabriell

Dr Kylie Alexander

A/Prof Paul Dawson (Head of Education)





Dr Kavita Bisht

Dr Camille Guillerev

- Review and administration of
- the international travel awards
- including the Dr David Serisier

- Weekly communication via the "Happy Wednesday" email
- Monthly Mater Research Mixer
- Honours student research presentation events
- Mater Research 3MT with PhD student Jennifer Stables progressing to win the Faculty of Medicine People's Choice Award and then competing in The University of Queensland 3MT wildcard
- A student local retreat.





Dr Jav Gunawardana

#### Student representatives:

Jade Kubler

### Secretariat:

## **Early and Mid-Career Researcher Committee**

The Early and Mid-Career Researcher Committee (EMRC) aims to offer peer support, professional development opportunities, enhance research capability and create a safe space to discuss research. We currently have over 50 EMCRs supported by this Committee. The committee is chaired by biomedical researcher, Dr Kavita Bisht, health services researcher, Dr Christine Andrews and clinical researcher, Dr Joshua Tobin.

This leadership trio ensures that the priorities of the diverse EMCR cohort at Mater Research are well represented. The Committee would also like to acknowledge Dr Camille Guillerev who recently stepped down as the biomedical research chair.

We have EMCR leads promoting:

- mentoring processes
- grant writing support
- social and networking opportunities
- scientific discussions
- outside academic connections, and
- Mater Foundation links.



In the past year, they organised many events to support EMCRs. Key highlights include:

- Establishing mentoring opportunities and initiating collaborations between biomedical EMCRs and clinician researchers including TRI LINC grants and some Medical Research Future Fund (MRFF grants).
- Establishing an online platform: "Confluence", where Mater EMCRs can share and discuss their skills, projects, and career tips.

- Grant writing support workshops.
- · Informal discussions with external speakers to discuss opportunities outside academia.
- Social networking events such as breakfasts, escape room adventures and dinners.

Overall, the scope of support for Mater EMCRs provided through the Committee would not be possible without the combined contributions and leadership of all members.

## **Equity, Diversity** and Inclusion Committee



The aim of the Committee is to promote the diverse backgrounds, experiences and identities of colleagues across Mater Research.

Their focus has been to raise the profile of the Equity, Diversity and Inclusion (EDI) Committee and increase their commitment and accountability at Mater Research.

### (IWD) Event

IWD was led by Committee members, There was an engaging discussion to the panellists, Prof Janeen Baxter, Rice (chair), Prof David Hume and Dr Helen Benham (pictured above).

The Committee contributed to a range of other events at TRI and Mater including RU OK day, Wear it Purple Day bake sales and Mental Health Week.

### **Committee Co-chairs**







### International Women's Day

on how to "Break the Bias" in medical research and to work together to forge a gender-equitable world. Thank you A/Prof Terrance Fitzsimmons, Dr Alison

#### **First Responders Event**

At the Sexual Harassment Awareness and Prevention (SHAP) Week, five of the EDI Committee members were trained as First Responders. First Responders provide a safe and supportive environment for survivors of sexual assault and sexual harassment to receive information on the support services that are available.

The Committee continued its efforts to promote diversity by:

- reaching gender/career stage balance on the EDI Committee
- auditing and reporting on diversity considerations for Mater Research-led symposia
- increasing awareness and initiatives to bolster equity
- · helping bring the vacation care program to TRI for parents, and
- leading the assessment of Strategic grant for Outstanding Women.

Each one of us has a role to play in building a more equitable, inclusive, and diverse work environment, and we are committed to promoting this at Mater Research. The Committee welcomes feedback and can be contacted at ediresearch@mater. uq.edu.au or contact EDI Committee Chair, A/Prof Sumaira Hasnain at sumaira.hasnain@mater.uq.edu.au

## **Mater Clinical Trials Service**



Mater Research provides support for clinicians to run clinical trials in Mater's therapeutic focus areas including Maternal & Neonatal Health, Medical Oncology, Gynaecological Oncology, Neuroscience, Respiratory Disease, Infection, Haematology, Liver Disease, Metabolic Medicine, Intensive Care and Surgery.

Clinical trials are an important component of modern healthcare. The knowledge gained through clinical trials is essential to support evidence-based practice. Clinical

trials also give patients access to the latest investigational therapies and provide alternative treatment options to patients with unmet medical needs under the current standard of care.

Mater clinicians leading trials are supported by teams of specialist research staff within Mater Clinical Trials, including Clinical Research Managers, Clinical Trial Coordinators, Research Nurses, Research Assistants, Administrative Assistants, Technicians and other specialists. Without the expertise and dedication of our clinical research staff, our life-changing clinical trials would not be possible.

There are currently 206 active clinical trials at Mater, which aim to evaluate the safety and efficacy of experimental medications, medical devices, or other health interventions.

These trials include 115 studies sponsored by Pharmaceutical and Medical Device companies, 51 collaborative group trials, and 40 Investigator-initiated trials. Dr Julie Cichero was acting Senior Manager of the service for much of 2022.

The following examples illustrate the broad variety of clinical trials being conducted by Mater Research.

#### Practice-Changing Clinical Trials in Cystic Fibrosis

Mater's Respiratory, Infectious Disease and Oncology (RIO) Clinical Trials team has been working with Pharmaceutical companies to develop the first highly effective treatment for Cystic Fibrosis.

Cystic Fibrosis is a genetic condition, predominantly affecting the lungs, leading ultimately to respiratory failure and death. Mater has the secondlargest adult Cystic Fibrosis Unit in Queensland, caring for over 150 adults with this condition. As recently as 10 years ago, Cystic Fibrosis was a fatal condition with an average life expectancy of around 30 years.

On average, the Mater Clinical Unit was referring 3-4 patients for lung transplantation every year.

Since 2007 the RIO unit has been participating in both early and latephase clinical trials giving Mater Cystic Fibrosis patients access to these treatments at an early stage. On 1 April 2022, one of these highly effective medications (Trikafta) came on to PBS, profoundly changing the course of this disease. This drug is so effective that it provides a "functional cure" for the condition, akin to HIV medications in the treatment of AIDS.

The Mater respiratory clinical and research units work closely together to identify patients for these life-changing studies. A typical example is \*Sarah\* a young patient with Cystic Fibrosis under assessment for transplant.

#### Trialling New Treatment Options for Difficult to Treat Cancers

The Medical Oncology Clinical Research team, led by Dr Cath Shannon, currently manages 75 studies, with 20 actively recruiting trials, 40 studies with patients in follow up and 15 new studies set to commence in the coming year. Our trials address a range of cancer types, with a special focus on women's cancers. Preference is shown towards trials utilising novel treatment types, and in disease states without good treatment options for patients. Clinical trials also give patients access to otherwise high-cost treatments that have promising early clinical data, but that are not yet available through standard treatment channels. Patients are recruited through the Mater Cancer Care Centre, and through referrals from the greater Brisbane

and Central Queensland regions and regional areas throughout Queensland.

Six current phase-one studies are trialling novel treatments for a variety of solid tumour types, including breast, ovarian and urogenital cancers. These studies investigate the safety, tolerability and clinical activity of newly developed drugs, often with a novel therapeutic mechanism of action, in patients with advanced and progressive disease which has failed to respond to standard therapies, or where there is no established standard therapy.

These studies can provide unique opportunities for patients to support the development of knowledge regarding both disease states and promising new therapeutic options.

Her lung function was down to 35 per cent. The entry criteria for the clinical trial was 40 per cent. The clinical and research teams worked together to optimise Sarah clinically to enable her to successfully screen onto the study. She started treatment on trial in 2017, later rolling into an open-label extension study, and recently transitioned to PBS-funded treatment. Her lung function is now nearly 60 per cent, she is off the transplant list, working full time and planning a family. Things that were not possible for her just a few years ago.

This is why we do clinical trials.

"Of course, I want to do something to prevent my cancer from coming back. Doing nothing, when I have the option to take part in a trial and do something, that's an easy decision for me."

### - Mater Clinical Trials patient

Patient-reported outcomes and quality-of-life measurements provide information regarding the lived experiences of patients enrolled in our trials. This information, combined with objective data relating to rates of disease progression and adverse events, allow biostatisticians to make meaningful conclusions regarding the safety and efficacy of novel compounds in difficult-to-treat cancers.

### **Future Leaders Symposium**

### Mater Research Showcase



The annual Future Leaders Symposium was held at TRI on Thursday 9 September 2022 and commenced with the inaugural Professor John Prins Oration, which honours the contributions of the former Mater Research CEO.

This year's oration was a clinicianconsumer partnership talk between Dr Lisa Gillinder and Mr Kasey Lucas that highlighted the implementation of Dr Gillinder's epilepsy research at Mater, as well as the health benefits of this clinical research for Mr Lucas.

Mr Lucas, through Dr Gillinder's research activity, has been able to participate in clinical trials allowing him access to novel treatments for autoimmune encephalitis.

The Symposium included presentations from Mater Research's best and brightest Clinical and Biomedical PhD students, and early-mid career researchers.

Competitive international travel awards were presented to PhD students Selwin Samuel and Haressh Sajiir to assist with their attendance and research presentations at overseas conferences. The prestigious Dr David Serisier Student Training Award and the Mater Research Higher Degree Biomedical Student Prize were presented to PhD student Jennifer Stables who will travel to California and Melbourne to showcase the outcomes of her laboratory-based research into the biology of multiple sclerosis.

Early Career Research Seeding Grants were awarded to clinical researcher, Dr Grace Branjerdporn who will evaluate the consumer experience and economic outcomes in families attending the soon to open Catherine's House for Mothers. Babies and Families at Mater: and biomedical researcher, Dr Natasha Jansz who will investigate the genetics of a retrovirus (HTLV-1) that is endemic in central Australia.

The Mater Research Showcase 2022 highlighted the outstanding research contributions and achievements made over the last 12 months.

The annual event with over 170 attendees was held at the Translational Research Institute (TRI) and recognised the ground-breaking work of Mater Research's emerging and experienced biomedical and clinical researchers, toward better health outcomes for the community.

Mater Research Executive Director, Professor Maher Gandhi highlighted how research at Mater fosters internal and external collaborations and through a combination of philanthropic support and external government grants, has enabled Queensland to have a global impact.

Professor Anne Kelso AO, CEO of the National Health and Medical Research Council, gave an overview of the NHMRC's agenda for 2022-2023 in her keynote, including current funding trends and proactive measures taken by the NHMRC to encourage greater creativity and innovation, and bring about better gender equity and diversity in Australia's medical research industry.

The attendees had an opportunity to learn about the history and heritage of Mater Research from Associate Professor John Burke AM, former Chairman of the Mater Medical Research Institute Development Council, and Sister Anne Herrington RSM.





The Mater Research Prizes and Sister Medals awardees were also announced at the Showcase, recognising those who performed above and beyond in their roles in 2022. The five recipients of the 2022 Betty McGrath Seeding Grants were also announced.





"Throughout this time Mater Research has been consistent, focussing on the unmet needs of the vulnerable, indigenous, and culturally diverse. Over the course of our history, the biggest asset of Mater Research is our people and that is what makes Mater Research so special."

- Professor Maher Gandhi



# **Program Reports**

Mater Research is a recognised leader in medical research. Our bench to bedside philosophy means we are committed to working closely with Mater Health, Mater Education and our collaborating partners to turn scientific discovery into the best possible treatment, care, and outcomes for patients and our broader community.

Four of our programs are co-led by a clinical and biomedical lead, while our Healthcare Delivery and Innovation program has a medical and nursing co-lead.

Our programs are Cancer, Chronic and Integrated Care, Healthcare Delivery



and Innovation, Mother and Baby and Neuroscience. We encourage our programs to be interlinked, and many of our research groups perform ground-breaking research that spans across individual programs.

### **Cancer Program**

Researchers within this program study the biological basis of solid and blood borne malignancies, and approaches to improving diagnostics. The continuing outcomes of this research are discovery, development and trialling of new therapies and diagnostics, as well as improving all aspects of the management of cancer for all patients, including palliative care.

**Program Leads:** 



Professor Kristen Radford (Biomedical)

Professor Janet Hardy (Clinical)

### Group Leaders:



Professor Maher Gandhi Blood Cancer Research



Professor John Hooper Cancer Biology Research



Professor Janet Hardy Palliative Care Research



ngrid Winkler em Cells and Cancer Research





Professor Brian Gabrielli Smiling for Smiddy Cell Cycle Melanoma Research

Professor Kristen Radford

Cancer Immunotherapies

Research

Professor Allison Pettit

Bones and Immunology

Dr Adam Ewing

Translational Bioinformatics



Professor Janet Hardy

Professor Janet Hardy is a Senior Researcher, a Clinical co-lead of the Cancer Program and leads the Palliative Care Research Group at Mater Research. In addition to these Mater Research roles she is also the Medical Director of the Mater Cancer Care Centre, the Director of Palliative Care and the Acting Medical Lead of the Cancer Care Stream at Mater.

Prof Hardy leads the Palliative and Supportive Care Research Group which is a large multi-disciplinary group of health professionals dedicated to the care of people with advanced life-limited diseases. The group runs clinical trials to improve the quality of life of people with advanced cancer. They trial drugs and interventions to improve the management of common symptoms such as pain, nausea, shortness of breath and delirium.

Despite recent advances, patients still experience substantial symptom distress. Whilst medication provides a core component of improving symptoms, there remains a need for

more effective options to improve symptom control, especially in areas such as fatigue, anorexia, anxiety and weight loss.

Cannabis presents an alternate "natural" option for managing these symptoms. Medicinal cannabis has been approved by the Australian Government without the usual clinical evidence to guide its use by physicians. Over the last few years, Prof Hardy's research group has focused on trying to define a role for medicinal cannabis in palliative care.

There are so many "unknowns" when it comes to medicinal cannabis. For example, which of the large number of cannabinoids found in the cannabis plant is best suited to which symptom, what is the best dose, how often and what are the dose-limiting side effects?

As recipients of two Medical Research Future Fund grants, the Palliative and Supportive Care Research Group has been able to launch a number of clinical trials to investigate these issues. Their first study, published in the prestigious Journal of Clinical

"Over the last few years, our research group has focused on trying to define a role for medicinal cannabis in palliative care." - Professor Janet Hardy

# **Research Highlight: Cancer Program**

Oncology in 2022, showed that the use of pure cannabidiol (CBD) over good palliative care alone did not provide any benefit in reducing symptom burden. Sub-studies are investigating whether cannabinoids do have antiinflammatory properties, whether cannabis might be a good natural treatment for insomnia and whether only those with a certain genetic makeup will respond to cannabis.

Prof Hardy's group is currently running a second trial to look at the impact of tetrahydrocannabinol (THC) – a potentially intoxicating, psychoactive component of medicinal cannabis -used in combination with CBD, on palliative care patients with advanced cancer. This trial will determine whether THC, despite having psychoactive effects, is the "secret ingredient" and of greater benefit for patients in palliative care. The findings of this trial should be ready to publish in mid-2023.

There is also a third trial that will use a different combination of CBD and THC to see if this is of greater benefit to patients in palliative care.

# **Chronic and Integrated Care Program**

This program is focused on studying the pathophysiology and management of chronic diseases and using this information to direct the discovery of new therapies and preventative strategies to address unmet needs. Research is currently being conducted into Type 1 and Type 2 diabetes and associated complications, inflammatory bowel diseases, chronic respiratory and infectious diseases, chronic liver disease and cardiovascular and renal disease.

Program Leads:



Professor Josephine Forbes

Associate Professor Lucy Burr (Clinical)

#### Group Leaders:



Professor Kim Summers Senetics Genomics and











nnate Immunity and Inflammation Research

Dr Katharine Irvine

Professor

Professor

Josephine Forbes

Glycation and Diabetes

Complications Research

Katharina Ronacher

nfection. Immunity and

Metabolism Research



Associate Professor Lucy Burr espiratory and Infectious Diseases Research



Jean-Pierre Levesque Stem Cell Biology Research

Professor David Hume

1acrophage Biology



**Research Highlight:** 

Professor Katharina Ronacher is a Principal Research Fellow at Mater Research where she leads the Infection, Immunity and Metabolism Research Group. Prof Ronacher's Research Group aims to identify why individuals with underlying metabolic conditions (i.e. obesity and diabetes) are more susceptible to infectious diseases such as COVID-19. Influenza and Tuberculosis.

Prof Ronacher's lab investigates the immune-endocrine connection between Type 2 Diabetes and infectious diseases, in particular Tuberculosis. Her area of research has attracted worldwide interest largely due to the threat of a resurgence in Tuberculosis with the increasing prevalence of diabetes-The World Health Organisation (WHO), the International Union against Tuberculosis and Lung Disease and the World Diabetes Foundation, since 2011, have called for alobal action on this topic.

Prof Ronacher has been recently awarded a \$1.5m NHMRC Ideas grant, this project will address the current gaps and builds on the team's ground-breaking discovery that oxidised cholesterols are produced in the lung upon mycobacterium tuberculosis infection

to chemotactically attract immune cells via the oxysterol-sensing receptor GPR183. Pre-clinical models unable to upregulate the oxysterol producing enzyme CYP7B1 and preclinical models deficient in GPR183 have delayed macrophage infiltration into the lung upon M tuberculosis infection which is associated with more severe Tuberculosis.

In addition, and in response to the global COVID-19 pandemic, Prof Ronacher's aroup also works to identify and test novel therapies to reduce the severity of bacterial and viral respiratory infections including COVID-19 to improve treatment outcomes in patients both with and without underlying metabolic conditions.

Prof Ronacher's research group recently published a paper in the prestigious European Respiratory Journal regarding the outcomes of their study that identified a key cause of severe COVID-19 infections and exposed a novel treatment strategy for the disease. The researchers tested an existing drug that blocks cholesterol receptors on immune cells and found that it significantly lessens the severity of the disease in pre-clinical models infected with SARS-CoV-2. This was at least partly

"Our study is a very significant step towards developing a successful new treatment for both existing and future variants of COVID-19..."

### **Chronic and Integrated Care Program** Professor Katharina Ronacher

due to the drug significantly reducing viral loads in the pre-clinical models.

Prof Ronacher's study is a significant step towards developing a successful new treatment for both existing and future variants of COVID-19, especially as the problem we now face when treating COVID-19 is that drugresistant variants are emerging.

The drug that Prof Ronacher's group has tested is not an anti-viral which means that it does not attack the virus, instead, it works by targeting the host's own immune system and could be used as new viral variants emerge that are resistant to anti-viral drugs. This is a very exciting study and one which we hope could significantly improve the future treatment of patients with severe COVID-19.

There are suggestions that the drug will also be effective in humans and warrants human clinical trials. It is hoped that clinical trials of the oxysterol receptor drug will be undertaken by the pharmaceutical industry, while Prof Ronacher's team will continue research to better understand how targeting this pathway reduces viral loads in pre-clinical models to inform the development of more effective novel drugs.

- Professor Katharina Ronacher

# **Healthcare Delivery** and Innovation Program

This program focuses on facilitating research that improves the care and wellbeing of people accessing health services at Mater Health and across the nation, through the development and desian of robust, effective, multidisciplinary clinical questions that translate into effective practice and policy. This activity has an impact across all the Mater Research Programs and Mater Health disciplines. This program brings together education, health economics and implementation science, with active consumer input to address research topics of relevance to the community. Many Mater clinicians and educational specialists also actively undertake health services research across Mater campuses.



Associate Professor Simon Denny

Group Leaders:





Associate Professor

Dr Liisa Laakso

Simon Denny ater Youna Adult Research



Dr Cathy Franklin



**Research Highlight:** Dr Cathy Franklin

Dr Cathy Franklin is a psychiatrist specialising in intellectual and developmental disability in adulthood. In 2015 she was appointed as a Senior Medical Officer with Mater Health and as a Senior Research Fellow with Mater Research. Dr Franklin has a firm commitment to improving mental health and quality of life for adults with an intellectual disability through her research and clinical practice.

People with intellectual or developmental disabilities often have a higher burden of complex health issues and have a shorter life expectancy than the general population. Their poorer health outcomes are exacerbated due to barriers to accessing healthcare including challenges with the

capacity of health professionals to communicate effectively.

Dr Franklin's research expertise includes understanding the biological underpinnings of co-occurring conditions and how to improve healthcare delivery to this population. Dr Franklin has an interest in Down Syndrome and, specifically, investigating regression and catatonia. She is leading a large project to develop and evaluate training for hospital workers on working with people with intellectual disabilities and those on the autism spectrum.

Dr Franklin and her team were recently awarded a \$1.5m NHMRC Targeted Call for Research grant to conduct a cluster randomised controlled trial entitled "Bridge to Better Health". This project will develop a suite of resources to support General

- Dr Cathy Franklin

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# **Healthcare Delivery and Innovation Program**

Practice Nurses to play a larger role in the healthcare and delivery of health assessments for people with intellectual disabilities.

The project specifically will utilise the Comprehensive Health Assessment Program (CHAP) for annual health assessments, a tool the team developed in the early 2000s. The aim of Bridge to Better Health is to show how targeted practical intervention improves primary health outcomes of people with intellectual disabilities, reduces their need to be hospitalised and saves money for the healthcare system.

"My team and I were recently awarded a \$1.5m NHMRC Targeted Call for Research grant to conduct a cluster randomised controlled trial entitled 'Bridge to Better Health'."

### **Mother and Baby Program**

This program is focused on optimising the care of women and their babies during pregnancy and following delivery. Ongoing research activity is directed toward improving the clinical management of complications before, during and after pregnancy, optimising the care for premature and unwell neonates, and examining the relationship between fetal development, early life experience and life-long health. This program is home to the prestigious NHMRC-funded Stillbirth Centre of Research Excellence. It also supports the Queensland Family Cohort Study, a landmark research project to track health across Queensland families.

Program Leads:



Professor Vicki Flenady (Biomedical)







Dr Sandy Richardson Developmental Molecular Genetics Group





Professor Helen Liley

(Clinical)

Professor Helen Liley Critical Care of At Risk Newborns Research



Professor Sailesh Kumar Genesis Maternal Fetal Medicine Research



Professor Sailesh Kumar

Professor Sailesh Kumar is a Maternal and Fetal Medicine specialist at Mater Mothers' Hospital and Mayne Professor of Obstetrics & Gynaecology at The University of Queensland.

His area of research interest is in fetal imaging, placental biomarkers and the prediction of adverse perinatal outcomes. His team's vision is to identify reliably infants at-risk of stillbirth and other complications caused by labour delivery in a cost-effective and timely manner thus allowing tailored pregnancy management and appropriate timing of birth. Their focus is on the commonest cause of antepartum stillbirth – placental dysfunction and suboptimal fetal growth.

His team identified that an abnormal cerebroplacental ratio (reflects of fetal circulation), which can be measured by ultrasound during pregnancy, before labour commences is an indicator of poor placental function,

thus enabling recognition of infants at risk of fetal compromise in labour.

This showed that an abnormal cerebroplacental ratio was highly correlated with levels of a key biomarker of placental function (PIGF) thus elucidating the relationship between subtle fetal circulatory changes and placental dysfunction in apparently normal fetuses. Prof Kumar holds an NHMRC Investigator Fellowship and leads a MRFF funded multicentre RCT evaluatina a novel treatment for the prevention of intrapartum fetal compromise.

Prof Kumar is currently leading two large (~4,000 women) randomised clinical trials (ACTRN12621000354886 and ACTRN12621000231842) aiming to improve outcomes for women and babies.

In Australia, almost 1 in 4 caesarean sections are performed for suspected fetal distress, which occurs when the placenta is unable to supply

"Our team's vision is to reliably identify infants at-risk of stillbirth and other complications caused by labour delivery in a cost-effective and timely manner..." – Professor Sailesh Kumar



# **Research Highlight: Mother and Baby Program**

sufficient oxygen and nutrients in labour. The only therapeutic options are emergency caesarean section or instrumental vaginal birth – both of which can have serious consequences. Sildenafil Citrate (Viagra®) dilates blood vessels, thus improving blood flow to the baby. Prof Kumar's trials evaluate the potential of Viagra® to improve perinatal outcomes by reducing fetal distress during labour.

As part of these trials, ultrasound data and maternal plasma are collected for analysis. The logistics of sample collection and data transfer have been streamlined and one trial (which plans to recruit 3,200 women to potentially benefit from this new treatment approach) is projected to complete recruitment within 26 months of commencing. Processes for storage of maternal and placental samples are well established with adequate freezer space and dedicated sample tracking and management system at Mater Research.

### **Neuroscience Program**

This program focuses on the genetics and pathophysiology of diseases of the brain and nervous system and seeks to improve the life-long management across the spectrum of neurological disease, intellectual disability and mental health conditions. A strategic partnership with The University of Queensland's Queensland Brain Institute provides a nexus to worldclass research calibre (people, technology, infrastructure).

Program Leads:



Dr Dhanisha Jhaveri (Biomedical)



Professor Peter Nestor

Cognitive Neurology

Dr Lisa Gillinder

Epilepsv Research

Geoffrey Faulkner

Disease Research

Genome Plasticity and

Dr Andrew Swayne

uroimmunology Research

Professor

#### Group Leaders:



Associate Professor Jake Gratten Cognitive Health Conomice



Associate Professor Paul Dawson eurodevelopmental esearch



Professor Aileen McGonigal Epilepsy, Rhythms and Behaviour Research



Dr Carlie Cullen Glial Neurobiology, Cognition and Behaviour Research



Dr Dhanisha Jhaveri Veural Stem Cell Biology Research



Professor Geoff Faulkner

Professor Geoff Faulkner is a Professorial Research Fellow, jointly appointed at Mater Research and the Queensland Brain Institute (QBI). Prof Faulkner leads the Genome Plasticity and Disease Research Group at Mater with a team of 20 researchers. He is a computational and molecular biologist with research interests in transposable elements, genomics and neuroscience.

Prof Faulkner's group seeks to understand the role of a type of DNA jumping gene called L1 in causing genetic variation between neurons within an individual brain. This variation may be a fundamental aspect of healthy brain function but it also appears to change in neurological diseases, including Rett syndrome, Parkinson's Disease and schizophrenia. Prof Faulkner's most important work has shown that endogenous mobile DNA that

causes somatic genome mosaicism in the human brain. Genetic mosaicism is defined as the presence of two or more cell lineages with different genotypes arising from a single fertilised egg in a single individual. Somatic genome mosaicism is restricted to non-germ cell tissue. This is a novel source of molecular diversity in neurons that may impact how the brain functions.

Prof Faulkner's group are looking to find the root causes of Parkinson's Disease, seeking an explanation for why certain brain cells die in this progressive neurodegenerative disorder. The objective is to better understand how mobile DNA causes or indicates brain cells dying in the early stages of the disease, following on from strong data suggesting mobile DNA is unusually active in pre-clinical models of Parkinson's Disease.

Prof Faulkner's work on mobile DNA retrotransposition in cancer, may help to understand the molecular

changes their position (retrotranspose)

"We are studying the root causes of Parkinson's Disease, seeking an explanation for why certain brain cells die in this progressive neurodegenerative disorder."

- Professor Geoff Faulkner





# **Research Highlight: Neuroscience Program**

processes underpinning various cancers, as well as early development, with a focus on how mobile DNA activity may cause miscarriage or reduce female fertility with age.

Prof Faulkner is working with clinicians locally and overseas to apply nanopore sequencing to study a range of biomedical research questions. These projects have included a collaboration with the Mater David Serisier Respiratory Biobank, funded by the Mater Foundation and Cancer Australia, to analyse mobile DNA in lung cancers. Lung cancer is the fifth most prevalent cancer in Australia, with only 17 per cent of patients surviving more than five years post-diagnosis. This study aims to greatly improve explanations for how normal lung cells transform into cancer cells and develop personalised tools to predict and detect patient relapse.



## **Catherine's House for** Mothers, Babies and Families

A landmark project is underway at Mater to deliver Australia's first integrated perinatal mental health service of its kind. Catherine's House for Mothers, Babies and Families will provide evidence-based in-patient and day programs to meet the significant need for mental health services for Queensland parents during pregnancy and in the first year of their baby's life.

Located alongside Mater Mothers' Hospital, Catherine's House will complement and integrate with the existing neonatal, paediatric, pregnancy and maternity services while delivering tailored mental healthcare led by a multidisciplinary team of psychiatrists, psychologists and allied health professionals.

More than \$17 million in generous community donations to Mater Foundation has enabled the former convent to be renovated into a fitfor-purpose, contemporary perinatal health centre with 10 in-patient beds and a range of out-patient services.

This exciting project is expected to be open in early 2023 and is designed to be a safe haven where families can stay together during treatment and where mothers and families can recover and connect.

Named in honour of Catherine McAuley, the founding Sister of



Mercy, the centre will enable Mater to continue to achieve its Mission to meet unmet community needs.

More than 60,000 babies are born every year in Queensland, but there are currently only four dedicated public hospital beds for women needing perinatal mental healthcare.

Catherine's House for Mothers, Babies and Families will triple the number of in-patient hospital beds for Queensland families experiencing mental health issues in the first year of having their baby.

Led by an experienced team of multidisciplinary healthcare professionals, in-patient care and outpatient programs delivered at Catherine's House will be evidencebased on the latest findings from Mater Research on the needs of new and expecting parents.

Dr Beth Mah has recently been appointed as the Director of Catherine's House for Mothers, Babies and Families. Dr Mah is a Perinatal and Infant Psychiatrist with an interest in trans generational trauma and Indigenous mental health. Her post includes protected time for research.

Dr Mah is passionate about Infant mental health, both as a clinician and a researcher, especially with regards to Indigenous mother and baby health. Dr Mah has published over 10 journal articles and has been the successful recipient of research grant funding. We are delighted to welcome Dr Mah to Mater and look forward to her working with the Mother and Baby Program at Mater Research as part of her clinical researcher role, when she starts on-site in 2023.

# Grant Successes 2022



Grant funding by research program

### Grant funding by research income category











Mediscrubs

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# Grant Successes 2022

### 2022 Grant Successes (Lead Investigator only)

#### Australian Research Council

Prof Vicki Clifton, Discovery Project, Glucocorticoid receptor-aD1 modulates stress and inflammation. \$478,327

### National Health and Medical **Research Council**

Prof Katharina Ronacher, Ideas Grant, Oxidised Cholesterols as Key Regulators of Host Immunity to Tuberculosis

### \$1,515,177

A/Prof Paul Dawson, Ideas Grant, Neuroprotective benefit and safety of preterm neonatal sulphate supplementation

### \$966,907

A/Prof Jake Gratten, Investigator Grant, Towards improved clinical outcomes in common brain disorders using large-scale statistical genomics

### \$2,356,790

Dr Cathy Franklin, NHMRC Targeted Call for Research into Improving Health of People Intellectual Disability. Bridge to Better Health: A Cluster Randomised Controlled Trial for Capacity Building in Intellectual Disability Health for General Practice \$1,497,939

### Medical Research Futures Fund

Prof Maher Gandhi, Clinical Trials - Rare Cancers, Rare Diseases and Unmet Need Grants (RCRDUN). An Open label, Multicentre, Phase I study of front-line TheRapy for EBy-associated Lymphomas – 2: TREBL-2

### \$2,844,745

Prof Josephine Forbes, MRFF Targeted Translation Research Accelerator (TTRA) for Diabetes and Cardiovascular Disease, 1F - Targeting energy deficiency in diabetic kidney disease using sonlicromanol

#### \$234.375

Prof Josephine Forbes, MRFF Targeted Translation Research Accelerator (TTRA) for Diabetes and Cardiovascular Disease, 3E - Targeting the Receptor for Advanced Glycation End-products (RAGE) to reduce beta cell damage at the onset of type 1 diabetes

#### \$250,000

#### Australian Government -Department of Health

Prof Vicki Flenady, Federal Department of Health Targeted Tender, Reducing Stillbirth: Stillbirth Education and Awareness

\$1.251.726

### Cancer Australia

Dr Joshua Tobin, Priority Driven Young Investigator Project Grant (pdCCRS), The Role of Lipids in the Immune Fitness of Malignant B cells, Intratumoral T cells and CAR-T cells in Follicular Lymphoma.

#### \$100,000

Dr Jithendra Gunawardana, Priority Driven Young Investigator Project Grant (pdCCRS), Harnessing the tumour microenvironment to stratify and treat nodular lymphocyte predominant Hodgkin Lymphoma. \$200,000

#### **Overseas Agencies**

Dr Kavita Bisht, American Society of Haematology, Global Research Award. \$149.456

Dr John Hooper, United States of America Department of Defense, US DoD CDMRP (Congressionally Directed Medical Research Programs) Grant.

### USD \$520,011 / AUD \$746,471

### Industry, Government, and other funding

Dr Cathy Franklin, Autism CRC Ltd, Autism CRC National Guidelines: Update and Capacity Building

### \$492,615

A/Prof Jake Begun, Gutsy Group, Understanding the function of OTUD3, a novel ulcerative colitis gene \$150,000

Prof Brian Gabrielli, Ovarian Cancer Research Fund, Targeting replication stress to improve immune recognition and reduce immunosuppressive in the tumour microenvironment

### \$500,486

Prof Allison Pettit, The Commonwealth Serum Laboratories (CSL) Ltd, Protecting hematopoietic stem cell (HSC) niches during HSC transplantation through enhancing bone marrow macrophage regenerative mechanisms.

\$421,100

### Industry, Government, and other funding

Prof John Hooper, Pheon Therapeutics Ltd, CDCP1 with

### \$352,495

Prof John Hooper, The Royal Australian and New Zealand College for Radiologists. Theranostic polyclonal antibodies for the detection and treatment of ovarian cancer.

#### \$38,950

Prof John Hooper, Tour de Cure, It glows, it goes - a targeted contrast agent for fluorescence guided ovarian cancer surgery. \$100,000

Ms Siobhan Loughnan, Stillbirth Foundation Australia, Caring for the Carers: Supporting the wellbeing of health professionals caring for parents following perinatal loss. \$34,162

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Pheon Therapeutics Ltd.

### The University of Queensland

Prof Katharina Ronacher, The University of Queensland, Australian Infectious Diseases Centre -Project Seed Funding. Preclinical Validation of a Novel Therapy for the Treatment of Severe SARS-CoV-2.

### \$50,000

#### Translational Research Institute

Dr Taylan Gurgenci/ Dr Md Moniruzzaman (Mater Research), TRI LINC Grant. Medicinal cannabis, inflammation, and symptoms in advanced cancer (Cann-Inflam). \$49,988

# Awards list in full **External Awards**

### Internal Awards

#### **Bionics Queensland Prizes**

Prof Aileen McGonigal, Bionics Qld, Investigating neurobiological and physiological changes of stress in epilepsy: towards personalized detection and management

### CSL Florey Next Generation Award Dr Chloe Yap

#### Women in Technology Award

A/Prof Kym Rae - Inspiring Diversity in STEM category

Dr Julie Cichero - Community Impact Award (highly commended in 2021, winner in 2022)

#### **UniQuest Commercialisiation Impact** Award

A/Prof Sumaira Hasnain

The University of Queensland **Faculty of Medicine Research Week** - Best Presentation by HDR Student Dr Chloe Yap

The University of Queensland Faculty of Medicine Research Week – Best Presentation by a Mid-Career Researcher Dr Andrew Swayne

The University of Queensland **Faculty of Medicine Research** Week – Best Presentation (People's Choice Award)

Dr Christine Andrews

The University of Queensland Faculty of Medicine Excellence Awards - Collaborators of the Year Award

A/Prof Jake Gratten with the MRI-UQ Autism Research Core Collaborative

The University of Queensland Faculty of Medicine Excellence Awards - Spirit of Recognition Award

A/Prof Kym Rae

The University of Queensland Faculty of Medicine Valedictorian Dr Chloe Yap

### The University of Queensland Faculty of Medicine Excellence Awards – Service Excellence Award

The Mater Research Equity, Diversity and Inclusion Committee (Highly Commended Finalist)

#### 2022 OneTRI Awards

Dr Kavita Bisht (Stem Cell Biology Group) and Dr Ran Wang (Stem Cells and Cancer Research Group) as members of the TRI EMCR Committee

Prof Kristen Radford was recognised through two awards:

- For establishing the only humanised mouse facility in Australia and sharing research innovations generously to benefit science as a whole.
- As one of the first five graduates of TRI's Translational Pathways program

### TRI Top 10 **Translational Achievements**

A/Prof Paul Dawson (Neurodevelopmental Research Group) and colleagues, with the support of Dr Elizabeth Hurrion (Mater Senior Staff Specialist Neonatologist) for demonstrating the importance of sulphate in neonatal brain development. The research led to a world-first test for serum sulphate now available for routine clinical use and an ongoing multisite clinical cohort study designed to provide evidence of whether neonatal sulphate deficiency contributes to poor neurodevelopment outcomes for premature babies.

A/Prof Ingrid Winkler (Stem Cells and Cancer Research) along with industry partner GlycoMimetics for development of Uproleselan, which is in Phase 3 clinical trials for the treatment of acute myeloid leukaemia.

Prof Maher Gandhi (Blood Cancer Research Group) and Dr Colm Keane (UQ-Frazer) for ground-breaking discoveries in the immuno-biology of viral and non-viral-associated lymphomas, which led to a new treatment for these lymphomas that has been successfully used and is currently being further evaluated in national clinical trials.

### Betty McGrath Seeding Grants -Healthcare Delivery & Innovation

Dr Anne Leditschke – "Inspiring Beyond ICU" – A multi-centre randomised controlled trial of inspiratory muscle training in intensive care patients mechanically ventilated for more than five days

Prof Vicki Clifton – A sustainable and cultural approach to asthma care for improving outcomes for Indigenous Australian women: Aboriginal and Torres Strait Islander Antenatal Asthma Management Service (AAAMS)

Dr Jennifer Utter – Supporting healthcare staff to share meals with family, friends or colleagues to improve nutritional and emotional wellbeing

Dr Reuben Beer – Advanced imaging in multiple sclerosis: Utilising multimodal magnetic resonance imaging to model response before and after highly active disease modifying therapy

#### **Betty McGrath Education** Seeding Grant

Mr. Rohan Bates – Measuring the Emotional Responses and Self - Regulation skills of Learners in Problem Based Learning Simulations **Dr Laurence Catley Clinical Student Prize** Ms Aleysha Martin

Early Career Researcher Prize

Dr Christine Andrews

Early Career Researcher Seeding Grants

Dr Natasha Jansz Dr Grace Branjerdporn

**Higher Degree Research Biomedical Prize** Ms Jennifer Stables

**Dr David Serisier** Student Trainina Award Jennifer Stables

### **Publication Recognition Scheme**

A/Prof Jake Begun Prof Katharina Ronacher Dr Yong Sheng Dr Grace Branjerdporn Ms Sally McCray Mr Cheng Xiang Foo Prof Janet Hardy Prof Josephine Forbes

### Sisters of Mercy Medals

Ms. Megan Martin – The Sister Madonna Josey Medal

Prof Kristen Radford – The Sister Michaeleen Ahern Medal

A/Prof Jake Gratten – The Sister Regis Mary Dunne Medal

Prof Lewis Perrin – The Sister Eileen Pollard Medal

### Strateaic Grant for **Outstanding Women**

Dr Elizabeth Martin Dr Jodi Saunus

### Mater People Awards

Centre of Research Excellence in Stillbirth Team - Mater Research Excellence Award

Dr Caroline Nicholson - Mater Innovator of the Year Award

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# **Publication information**

Total number of Publications





Source: Mater Research EndNote Library - Last import conducted on 03 January 2023. Please note: epub dates for publications during 1 January - 31 December 2022 have been used. Program allocation is based on first author/corresponding author Program affiliation. Where the author name is unfamiliar, the title/abstract of the publication has been used for Program allocation.

Notes: N/A denotes that the journal is not currently ranked by SCImago (Scopus Data) or could not be found in the SCImago database. Field-weighted Quartiles are derived from the SCImago Journal Rank (SJR) (scientific influence) of a publication. These 'best quartiles' are assigned based on the published research alignment with the subject area of a journal.

## **Outstanding Mater Research** Achievements in 2022





New clinical studies

**Publications** 

5 Clinical trials



Cohort studies

Top tier journals

Giving patients access to novel drugs and treatments.

Number of grants





### Education





### **Publications list in full** Citations

Citations added to the Endnote database from 1 January – 31 **December 2022.** Publications from all five programs have been combined together in one list. Publications have been arranged in alphabetical order by first author's last name.

- 1 Abberton, K.M., et al., Identification and Re-consent of Existing Cord Blood Donors for Creation of Induced Pluripotent Stem Cell Lines for Potential Clinical Applications, Stem Cells Transl Med, 2022. 11(10): p. 1052-1060.
- 2. Alexander, K.A., et al., Lymphocytes Are Not Required for Neurogenic Heterotopic Ossification Development after Spinal Cord Injury. Neurotrauma Rep, 2022. 3(1): p. 87-96.
- 3 Alharthi, S., et al., Formulation and Biological Evaluation of Mesoporous Silica Nanoparticles Loaded with Combinations of Sortase A Inhibitors and Antimicrobial Peptides. Pharmaceutics, 2022, 14(5),
- 4 Ali S. et al. The association between diabetes mellitus of different durations and risk of pancreatic cancer: an Australian national datalinkage study in women. Cancer Epidemiol, 2022. 81: p. 102266.
- 5. Allen, J., et al., *Is a randomized* controlled trial of waterbirth possible? An Australian feasibility study. Birth, 2022.
- 6. Altemani, F., et al., Reduced Abundance of Nitrate-Reducina Bacteria in the Oral Microbiota of Women with Future Preeclampsia. Nutrients, 2022. 14(6).
- 7. Alwash, S.M., et al., Triceps skinfold thickness and body mass index and the risk of gestational diabetes mellitus: Evidence from a multigenerational cohort study. Obes Res Clin Pract, 2022. 16(1): p. 44-49.
- Amarasena, L., et al., Offshore 8. detention: cross-sectional analysis of the health of children and young people seeking asylum in Australia, Arch Dis Child, 2022.
- 9 Amarasena, S., et al., Differences in the pattern and cost of hospital care between Indigenous and non-Indigenous Australians

with cirrhosis: an exploratory study. Intern Med J. 2022.

- 10 Ambeskovic, M., et al., Elemental analysis of hair provides biomarkers of maternal hardship linked to adverse behavioural outcomes in 4-year-old children: The QF2011 Queensland Flood Study. J Trace Elem Med Biol, 2022, 73; p. 127036.
- 11. Andersen, L.M. and P. Yuide, Replacing plastic bread clips with cardboard will prevent bowel perforation. ANZ J Surg, 2022.
- 12. Anderson, E., et al., WT1 complete gonadal dysgenesis with membranoproliferative glomerulonephritis: case series and literature review Pediatr Nephrol, 2022.
- 13. Anderson, L.A., et al., A Comparison of the Timing of Hand Expressing of Human Milk with Breast Massage to Standard Care for Mothers of Preterm Infants: An Exploratory Pilot Using a Randomized Controlled Design. J Hum Lact, 2022: p. 8903344221088789.
- 14. Anderson, L.A., et al., Midwives experiences of interventions to improve breast expression following preterm birth: A qualitative study. Midwifery, 2022. 116: p. 103530.
- 15 Aouira, N., et al., Practitioners' Perspective on Metabolic Monitoring of Second-Generation Antipsychotics: Existing Gaps in Knowledge, Barriers to Monitoring, and Strategies. J Child Adolesc Psychopharmacol, 2022. 32(5): p. 296-303.
- Atcheson, R.J., T.H.J. Burne, and 16 P.A. Dawson. Serum sulfate level and Slc13a1 mRNA expression remain unaltered in a mouse model of moderate vitamin D deficiency. Mol Cell Biochem, 2022.
- 17 Atkins, B., et al., Is care of stillborn babies and their parents respectful? Results from an international online survey. Bjog, 2022.

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