TRI
TRANSLATIONAL RESEARCH INSTITUTE
AUSTRALIA

2021 TRI Annual Review

Translational Research Institute

TRI is home to medical researchers from The University of Queensland, the Queensland University of Technology, Mater Research and Metro South Health, who together deliver exceptional research in both the laboratory and the clinic.

TRI is also home to several start-up companies and industry bodies, including the university spinouts Vaxxas, Microba, Microbio and EMVision. There is a waiting list for emerging biotech, medtech and pharmaceutical companies who want to be situated in TRI's unique, collaborative research community.

TRI and our partners aspire for these research discoveries to ultimately to lead to healthier lives for our community.

Board Chair: Emeritus Professor David Siddle

CEO: Professor Scott Bell

"TRANSLATIONAL RESEARCH IS KEY TO IMPROVING THE HEALTH OF AUSTRALIANS."

Professor Scott Bell
TRI CEO

About this review

This document provides a summary of the activities, achievements and outcomes at TRI during 2021. It highlights significant events and selected milestones to give readers an insight into the institute's performance and progress during the year. New strategies and goals for 2022 are also outlined.

Contents

Acknowledgement of Country

TRI acknowledges the traditional custodians of the land on which its premises are based, the *Turrbal and Jagera people.* We recognise their continuing connection to land, waters and community. We pay deep respect to them and their cultures and to Elders past, present and emerging.

2021 Highlights at a glance

Total people based at TRI

- Partner researchers & support staff
- Commercial tenant staff
- TRI Corporate staff

TRI partner research achievements

$47M+ in research grants

45 researcher awards

690 research publications including journal articles, reports, reviews, letters, books and book chapters

4
9
4 publications in journals in the top quartile for the subject

93 publications mentioned in 467 news outlets *(Altmetric Explorer)*

Public & researcher engagement

- 102,028 website visitors
- 15,557 social media followers
- 171 events held at TRI

TRI operational achievements

- Hosted the inaugural *Cores 2021 Professional Development Conference* for Core Facilities staff
- 530 new people inducted into TRI
- 38,500 surgical masks issued to contain COVID-19
- $2.6M invested in new IT infrastructure and network capability
- $594,000 invested in new research equipment

Support for translational research

- Conducted 202 clinical trials through the Clinical Research Facility
- Supported a further 66 clinical trials through the Translational Trials team
- Secured $20M in 2021 for a new translational manufacturing facility at TRI
- Launched the $400,000 LINC grant program
- Launched the Translational Pathways training program to help scientists increase the impact of their research
- Created the new business unit of Clinical and Research Translation
- Introduced a building-wide confidentiality agreement to encourage collaboration among researchers at TRI
- Launched the Research Translation seminar series

2021 Research highlights

01

Cured a patient of brain lymphoma – a rare form of blood cancer confined to the brain – using a world-first therapy.

(Mater Research)

02

Commenced phase II clinical trials in COVID-19 patients in the United States of a new anti-inflammatory drug, IC14, which is the lead therapeutic compound for biotech company Implicit Bioscience, which was co-founded by TRI founder and UQDI Professor Ian Frazer AC.

(UQ Diamantina Institute)

03

Led an international team that discovered a potential new treatment for the aggressive childhood brain tumour medulloblastoma.

(UQ Diamantina Institute)

04

TRI-based biotech company Vaxxas's needle-free, micro-array patch entered clinical trials for measles, rubella and COVID-19.

05

With Chinese collaborators, developed a potential new treatment for 2 of the leading causes of blindness: age-related macular degeneration and retinal neovascularisation linked to diabetes.

(UQ Diamantina Institute)

06

Used imaging technology to identify a number of metabolite signatures that can differentiate between types of kidney lesions and predict which have the potential to develop into kidney malignancies.

(Metro South Health)

07

Identified a new regulator of genome stability, which modulates the switch between different DNA double-strand break repair pathways, and which could have implications for cancer treatment.

(QUT)

08

Found that pre-diabetes worsens the impact of tuberculosis, and potentially also COVID-19, causing more severe lung damage.

(Mater Research)

09

As part of an international collaboration, developing new treatments for neurogenic heterotopic ossifications, an extremely debilitating complication of spinal cord injuries.

(Mater Research)

10

Identified a critical metabolic switch that facilitates treatment resistance in prostate cancer, and identified the unique mechanism by which this occurs.

(QUT)

11

Used miniature 3D bone-like tissue models to study advanced prostate cancers that have spread to the bones, and discovered that commonly used anti-androgen therapies could fuel the spread of bone tumours.

(QUT)

12

Identified that a biomarker for cell 'fitness' could be used to help predict health outcomes in COVID-19 patients.

(UQ Diamantina Institute)

13

Reduced skin scarring in laboratory models by blocking the gene that instructs stem cells to form scars.

(UQ Diamantina Institute)

14

Based on pre-clinical studies, concluded that children who consume too much sugar could be at greater risk of becoming obese, hyperactive and cognitively impaired as adults.

(QUT)

15

Led the third iteration of the largest public health survey in the world – the International Society of Nephrology Global Kidney Health Atlas project – with 159 countries contributing data.

(Metro South Health)

16

TRI-based precision microbiome company Microba Life Sciences significantly advanced its 3 therapeutic programs spanning inflammatory bowel disease, immuno-oncology and autoimmune disorders.

17

Provided Metro South Health surgeons with 3D printed models of spinal injuries sustained by a patient, and developed new implants.

(Australian Centre for Complex Integrated Surgical Solutions)

Chair's report

It is with great pleasure that I report on the activities and achievements of the Translational Research Institute (TRI) for 2021. During the year, the institute continued its large program of work, despite the challenges posed by the global COVID-19 pandemic. Research groups continued to make significant advances in translational research and some particularly notable examples are listed below.

- The Executive Director of Mater Research, Professor Maher Gandhi, developed a world-first combination therapy that cured a patient of a rare form of lymphoma.
- Phase II clinical trials of a new anti-inflammatory drug, IC14, started in the United States. The drug is the lead therapeutic compound for Brisbane and Seattle-based biotech company, Implicit Bioscience, which was co-founded by TRI founder and UQ Diamantina Institute's Professor Ian Frazer AC.
- A QUT research team, led by Dr Nathalie Bock, found that a commonly used anti-androgen therapy for prostate cancer could fuel the cancer's spread to the bones.
- TRI-based biotechnology company Vaxxas's needle-free vaccine patch entered clinical trials for measles, rubella and COVID-19.

These are just a few of the many significant achievements TRI-based research and commercial groups recorded in 2021. You can read about many other exciting developments in this report.

Collaboration is at the heart of everything TRI does. Our multi-partner institute was established to drive greater collaboration across Brisbane's medical research sector. During the year, TRI's leadership continued to build our culture of collaboration by establishing new cross-partner committees, events and forums. There is no better example of TRI's success in collaboration than the multi-partner COVID-19 Response Group. With the COVID-19 pandemic continuing to affect the institute's operations in 2021, the response group convened quickly, as needed, to respond to the changing environment and to regular changes in government restrictions. I commend the response group for their efforts in keeping the TRI community safe and in ensuring research could continue. I also commend the whole TRI community for its ongoing resilience in the face of the pandemic.

A highlight of the year was the Queensland Government's announcement in June of up to $20 million towards a new translational manufacturing facility at TRI (TM@TRI). This project was born from TRI's vision for a facility to help early-stage companies develop new therapies by providing high-tech manufacturing suitable for clinical trials. The funding – from the Industry Partnership Program under the State Government's Queensland Jobs Fund – was a crucial first step in making this vision a reality. As of the end of December 2021, TRI was seeking another $20 million in external support. I look forward to providing an update on this project in our 2022 annual review. Most importantly, I thank the Queensland Government for supporting TRI's vision to build our state's biomedical manufacturing capabilities so that we can retain local start-up companies and give our population access to leading clinical trials.

In 2021, TRI welcomed Associate Professor Helen Benham, who was appointed to the new position of Director, Clinical Translation. Helen brings a wealth of clinical and research experience to the role, which will oversee TRI's clinical trial facilities and our clinical and research engagement programs. I pay tribute to Professor David Theile AO, who stepped down from Chairing TRI's Clinical Research Facility Committee during the year. David has made a tremendous contribution to TRI over the last 5 years and will maintain close links to the institute.

Four new start-up companies and MTP-sector associated organisations moved to TRI during the year: Microbio, EMvision Medical Devices, 360biolabs and Therapeutic Innovation Australia. These commercial groups and industry bodies enrich the TRI community by providing closer links with industry and more opportunities for cross-sectoral collaborations. And ultimately, the ecosystem they help to create is helping us to translate our research for the benefit of the community.

Finally, I thank the Directors of TRI Pty Ltd for their hard work and dedication in the governance of the organisation.

Emeritus Professor David Siddle
Chair, Translational Research Institute Board

"A HIGHLIGHT OF THE YEAR WAS THE QUEENSLAND GOVERNMENT'S ANNOUNCEMENT IN JUNE OF UP TO $20 MILLION TOWARDS A NEW TRANSLATIONAL MANUFACTURING FACILITY AT TRI (TM@TRI)."

CEO's report

TRI-based research groups have continued to produce globally significant research in 2021, as the case studies referenced throughout this report attest. From discovering a potential new treatment for an aggressive form of childhood brain cancer, to developing 3D-printed spinal implants that gave a patient back her normal life, the research groups at TRI are at the forefront of investigation into a wide range of medical conditions.

Such discoveries go to the heart of TRI's overarching purpose: to encourage and facilitate collaboration with clinicians and industry to translate research findings into new treatments, vaccines and diagnostics. In 2021, we launched several initiatives to further this goal. An example is the $400,000 LINC grant program – a joint initiative with Metro South Health and Mater Research – which offered grants for research projects with clinical translation potential that involve TRI-based scientists collaborating with clinicians. We also launched the Translational Pathways program, which provided training and one-on-one coaching to enable our early-to-mid career researchers and affiliated clinicians to better understand how to translate their research.

In 2021, we continued to build on our program of events by introducing the Game Changer seminar series and the Research Translation seminar series. Our inaugural Game Changers proved particularly popular, and included Queensland's Chief Health Officer, Dr Jeanette Young; the state's Chief Scientist, Professor Hugh Possingham; the Chief Entrepreneur, Wayne Gerard; and one of the developers of UQ's COVID-19 vaccine, Professor Paul Young.

TRI's seminar series are crucial for sharing knowledge and promoting collaborations within and outside of the institute. However, until now, this knowledge sharing has been hampered by the need to keep some information confidential to protect intellectual property and patent rights. During the year, our Legal Services team negotiated a building-wide confidentiality agreement that allows researchers and students from our partners to share their ideas and research findings without jeopardising intellectual property rights or patentability.

While many of TRI's events are aimed at our research and MTP sector communities, in 2021 we initiated and hosted a new event aimed at Core Facilities staff from research organisations across Australia. The inaugural *Cores 2021* conference filled a gap in professional development opportunities available to these operational employees who run our microscopy, histology, imaging, flow cytometry, proteomics, and biological resources facilities, including gnotobiotics. TRI and QIMR Berghofer collaborated to establish this unique Queensland-based conference. The highly successful day-long event attracted delegates from across Australia and will return in 2022.

Throughout 2021, we continued our '*One*TRI' initiative to build a single culture, with shared values, across all of the organisations that make up our diverse community. This culminated in the inaugural *One*TRI Awards in late November, which recognised 6 individuals, teams or committees that embody the TRI values and actively promoted a *One*TRI culture. You can read more about the award recipients in Chapter 10 of this report.

We know sexual harassment is a problem across the broader research sector, and is one of the reasons there are fewer women in leadership roles. In 2021, the leaders of our research partners initiated an inaugural Sexual Harassment Awareness and Prevention week to take a strong proactive stand on

the issue. The week included keynote lectures and several training programs that sent a message to our community that sexual harassment will not be tolerated. Importantly, we have trained a network of 24 'first responders' across the institute and will ensure they are given regular refresher training. We believe all organisations have a corporate responsibility to prevent harassment before it can occur, and, in doing so, to protect their workforces and support career progression.

As well as taking leadership on issues affecting the TRI community, we also take seriously our responsibility to be leaders in our broader, local community. In 2021, we took our first steps towards developing a Reconciliation Action Plan for TRI by establishing a working group to lead the process. The group will consider how TRI can become champions for reconciliation in our local community. I look forward to updating you on our progress in our 2022 annual review.

Finally, I would like to thank TRI's Shared Leadership Committee – comprising Professors Maher Gandhi, Paul Clarke, Patsy Yates and John Upham – as well as all of the research and support staff from our 4 partners for their ongoing commitment to TRI. I also thank all of the staff of TRI Corporate – including the Executive Leadership Team – for their contributions to all that TRI has achieved in 2021.

Professor Scott Bell
CEO, Translational Research Institute

"TRI-BASED RESEARCH GROUPS HAVE CONTINUED TO PRODUCE GLOBALLY SIGNIFICANT RESEARCH IN 2021 ... THE RESEARCH GROUPS AT TRI ARE AT THE FOREFRONT OF INVESTIGATION INTO A WIDE RANGE OF MEDICAL CONDITIONS."

About TRI

TRI is one of Australia's youngest medical research institutes, having opened in late 2012.

The award-winning facility was constructed with a $356 million investment from the Queensland and Federal Governments, the Atlantic Philanthropies, the Queensland University of Technology and The University of Queensland.

TRI was born from the international success of the Gardasil cervical cancer vaccine. This vaccine is one of Australia's most successful examples of translational research, and was co-invented by TRI's founding CEO, Professor Ian Frazer AC.

TRI was designed specifically to improve the translation of innovative research by providing:

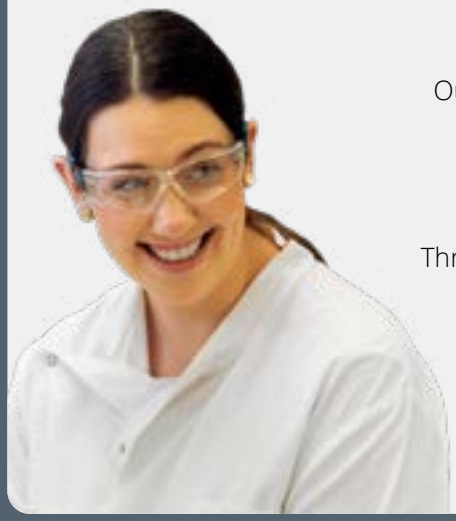
- world-class research and scientific laboratory facilities
- small-scale manufacturing capabilities
- clinical trial facilities and expertise, with links to clinicians
- start-up commercial facilities with links to industry, government and other funding opportunities
- an education and training program aimed at producing a skilled workforce along the entire translational pathway.

TRI is home to 818 researchers and support staff from our 4 research partners: Metro South Heath (MSH), The University of Queensland (UQ), the Queensland University of Technology (QUT) and Mater Research. The company Translational Research Institute Pty Ltd (known as TRI Corporate), in its capacity as trustee of the Translational Research Institute Trust, employs 97 staff who manage and support the institute's operations and provides a range of services to advance TRI's strategic goals. TRI also provides commercial space for early-stage medical technology, biotechnology and pharmaceutical (MTP) companies. This includes 197 staff from 8 start-up companies, and a further 7 companies and industry bodies associated with the MTP sector.

In addition to the main building, TRI has a clinical trial facility within the Princess Alexandra Hospital (PAH), a paediatric clinical trial facility on the Queensland Children's Hospital campus, and leases a large-scale bio-pharmaceutical manufacturing facility to Patheon by Thermo Fisher Scientific.

Values

We LIKE Collaboration



***L**eadership:*
Our actions will shape a healthier world

***I**ntegrity:*
We do the right thing. Always

***K**nowledge:*
Through sharing, we empower innovation

***E**xcellence:*
We strive for exceptional outcomes

***C**ollaboration:*
Together we're better

Our research partners

The University of Queensland's Faculty of Medicine and Diamantina Institute

The University of Queensland Australia

Queensland University of Technology

QUT

Mater Research

mater research

Metro South Health

Metro South Health

Queensland Government

Our commercial tenants in 2021

360biolabs (Brisbane)

Brandon Capital (Brisbane)

EMvision Medical Devices

Health Translation Queensland

Jingang Medicine (Australia) Pty Ltd

Layton Vision Foundation & Ocugene

Microba Life Sciences

Microbio

MTPConnect (Queensland)

Oroborus

Patheon by Thermo Fisher Scientific

Therapeutic Innovation Australia

National Imaging Facility (Brisbane)

Vale Life Sciences

Vaxxas

TRI Strategic Plan 2019–2021

Between 2019 and 2021, TRI worked towards the strategic plan outlined below. This annual report measures TRI's performance against the Strategic Plan (2019–2021).

As outlined later in this report, during 2021, TRI developed a new Strategic Plan (2022–2024). Details of the new plan (against which 2022's performance will be measured) are outlined at the end of this report (see Section 12.1.2).

Goal 1: Promote and increase innovative translational research

Strategies

1. Create an environment that encourages collaboration, innovation and excellence.
2. Work with the university senior managers, hospital CEOs and state government Directors-General (Health, Science, Innovation and Manufacturing and Industry Development) to consider, and pursue, new initiatives leading to an increase in healthcare delivery and product delivery.
3. Improve on the interface between clinicians and scientists to solve important clinical questions.
4. Form strong collaborations with internationally recognised institutions to both learn from and jointly deliver product and/or improved healthcare outcomes. In doing so, provide a means of benchmarking TRI internationally.

Goal 2: Provide world-class facilities

Strategies

1. In collaboration with shareholder organisations, ensure that the combined internationally competitive strengths – which include but are not limited to immunotherapy, diagnostic genomics, diagnostic imaging, complex integrated surgical planning, and dermoscopy – have access to state-of-the-art human and hardware infrastructure.
2. In collaboration with shareholder organisations, ensure that TRI has a computing capability that exploits:
   - the advantages of the digital hospital integrating with innovative research and development programs; and ensures
   - a secure data transfer system to facilitate ease of access for TRI programs that do not yet have digital capacity.
3. Work with shareholders to maintain the leading-edge facilities at TRI and in Brisbane through cost sharing where appropriate.

Goal 3: Effective clinical interfaces

Strategies

1. Deliver new clinical trial capability to partner with internationally recognised sites, and, in doing so, fulfill the requirements for United States FDA-approved trials.
2. Increase participation in clinical trials by all partners and stakeholders.
3. Address clinician-driven questions in a seamless manner with multidisciplinary teams that include world-leading genomics, immunology, imaging and health economic evaluations, with a patient and industry interface, to deliver product and/or improved health outcomes.
4. Provide additional support to full-time clinicians supporting translational research programs by providing research nurses, program managers and other program support. Expand Translational Trials, with TRI becoming a trial centre sought after by clinical and commercial enterprises nationally and internationally.
5. Ensure that the start-ups in TRI have access to clinical trial capability.

Goal 4: Strengthen research links to industry and government

Strategies

1. Promote a strong, cohesive presence by TRI, its shareholders and stakeholders in Southeast Queensland.
2. Form strong collaborations locally, nationally and internationally to deliver on state and federal government initiatives as well as business opportunities.
3. Provide strong support for the new programs now under development at TRI that include, but are not limited to, the role of the microbiome in health and disease; tissue engineering for complex reconstructive surgery; and, prevention of acute pain transitioning to chronic pain.
4. Ensure that a business and marketing capability is available to support opportunities.
5. Ensure that TRI leadership in specific translational disciplines is documented and clearly visible to current and potential academic, commercial and government partners.
6. Work with the State Government to expand the presence of industry on site at TRI – including start-ups and big industry – to strengthen the interface with industry and assist them to achieve translational outcomes.
7. Make available health economic evaluations in order to generate commercial and government interest and support.
8. Engage closely with the Cross River Rail development.

Goal 5: Generate health workforce capability in the translation of innovation

Strategies

1. Create a positive culture and environment that promote collaboration and educate on the translational pipeline(s) used to translate a wide variety of scientific and clinical research.
2. Train future leaders in the successful translation of innovation, and, in particular, how to interface with industry and to think globally.
3. Maintain and enhance the SPARQ-ed program for inspiring primary and secondary school children to consider a career in biomedical research.
4. Embed a new Stanford Spark program at TRI to assist the new innovation programs to learn from, and work with, industry and business. In doing so, train future leaders in how to translate and interface with industry.
5. Support the TRI Science Business Inspiration Series to encourage early-career researchers and clinicians.

QUT scientists at TRI are developing new, peptide-based therapies for cancers and antimicrobial treatments.

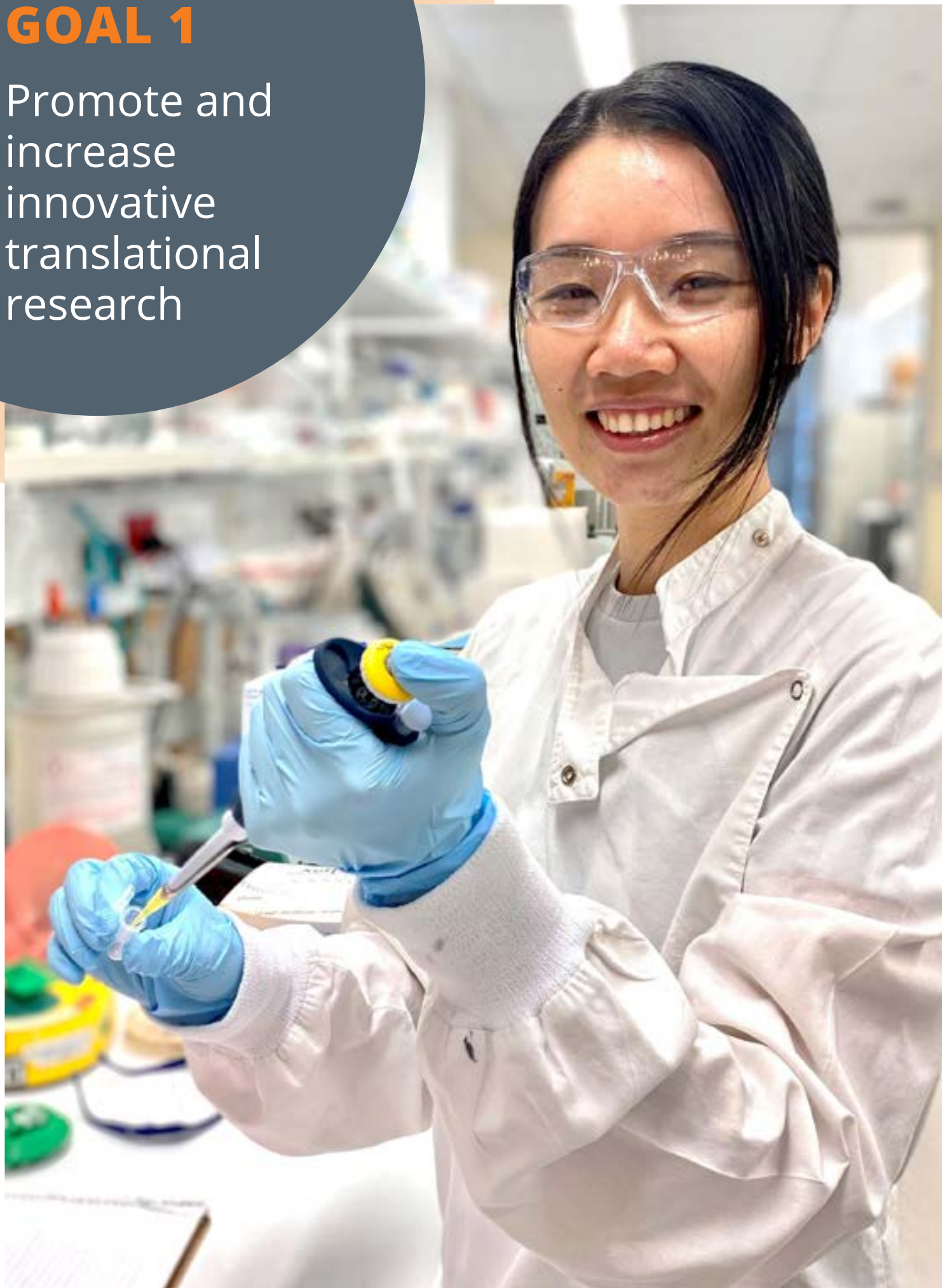
Group Leader Dr Sónia Henriques is leading the development of more selective and potent anti-cancer peptide-based treatments for melanoma, triple negative breast cancer, leukaemia and metastatic circulating cells, as well as more selective and potent anti-cancer bacterial diseases such as the tropical disease, melioidosis.

Dr Henriques says peptides have many advantages as therapeutics.

"Peptides can have high specificity for the target. They can be safer, and bacteria are less likely to develop resistance to them. In our own body, peptides are expressed by our immune system in response to infections and some have been shown to be able to kill tumour cells," Dr Henriques said.

GOAL 1

Promote and increase innovative translational research



Highlights

$47M+
in research grants

690
research publications

45
researcher awards

Research mentioned by
467
news outlets

New
Translational Pathways program

From TRI's initial conception, translational research has been a key focus. Our mission and strategic plan have a clear focus on prioritising the progression of basic research into human clinical research, and, ultimately, changing clinical practice for improved healthcare outcomes.

3.1 Overview

In 2021, TRI introduced a suite of translational research initiatives, including a new seminar series, education and training, coaching, and grant funding for researchers working at, and affiliated with, TRI.

These initiatives focused on developing entrepreneurial skills, and supporting translational research development along the technology translation continuum.

Importantly, TRI's activities and programs filled discernible gaps in the medical research environment and do not replicate programs already available either via our partners and their technology transfer units, or via government. Together, these programs are creating a unique, translational research culture for TRI-based researchers.

TRI also sought to build stronger partnerships between its research community and the medical technology, biotechnology and pharmaceutical (MTP) industries.

TRI continued to promote our translational research outcomes and endeavours through media, social media and events.

3.2 Translational Research Funding

TRI launched a new funding program in 2021 in collaboration with Metro South Health and Mater Research, the *Leading Innovations through New Collaborations* (LINC) grant program.

LINC was the result of 18 months of research and planning by TRI and our partner, Metro South Health. The grant scheme provides seed funding for collaborative research projects with potential for clinical translation and that are jointly led by early-to-mid-career clinicians and TRI-based researchers. See section 7.2 for more details about this program.

Additionally, on application, TRI will consider requests from TRI-based researchers for translational research funding and/or support for grant applications. During the year, TRI received 7 requests for letters of support for grant applications and/or in-kind funding, as well as direct financial support. TRI was able to meet 6 of the 7 requests, including a $10,000 grant to co-fund the production of a short film on QUT's TRI-based Queensland Bladder Cancer Initiative. The video was shown as part of the American Urological Association (AUA) Thought Leader Film Series at the 2021 AUA Annual Meeting.

3.3 Education, training & coaching

3.3.1 Translational Pathways program

Following a successful pilot, TRI introduced the Translational Pathways program in 2021. It was aimed at early-to-mid-career researchers based at TRI, and affiliated clinicians from our partners.

The program included 2 training workshops and 6 months of one-on-one coaching for selected workshop graduates.

This program was designed to help researchers increase the impact of their research and its translational potential; to develop the mindset and stakeholder engagement skills to translate their research; to up-skill their entrepreneurial knowledge and capability; and to accelerate translational research outcomes. The participants also learnt how to engage with key stakeholders, including industry.

3.3.2 Research Translation seminar series

Through its Research Translation Committee, TRI introduced a new seminar series focused on educating scientists in research translation.

The series, which consisted of 26 seminars, was designed to provide case studies on entrepreneurial and translational research projects and the role of partners – such as clinicians, patients, industry and funding agencies – in the success of these projects.

3.3.3 TRI communication training

TRI ran a small online, interactive workshop, *Communication Skills for Scientists,* presented by organisational psychologist Dr Karen Whittingham. The workshop was open to TRI Corporate staff and a small group of TRI-based researchers. The workshop was designed to help participants find the relevance of their science for the audiences they most want to reach.

"The Translational Pathways training program was insightful and an important conduit to see how our work can be focused for engagement with external investors."

Dr Arutha Kulasinghe, UQDI

3.3.4 Queensland Immunology Networking Symposium

The TRI Communications and Marketing team provided significant organisational support for the inaugural Queensland Immunology Networking Symposium, which was held at TRI in November 2021.

The 2-day event brought together 359 immunologists from across Queensland and provided an opportunity to network, share insights and discuss challenges and opportunities with keynote speakers and other researchers.

3.4 Partner research publications

The partner researchers based at TRI authored 690 research publications in 2021 (2020: 580), as shown in figure 3.1.

Significantly, 494 (71.6%) of the publications were published in journals in the top quartile for the subject, as defined by the CiteScore percentile. This included an 88% jump in the number of publications in top-ranking medical journals from 2020 to 2021, driven primarily by an increase in publications in the Nature journal portfolio, as seen in figure 3.1.

TRI's 2021 publications generated on average 3.8 citations each during the year (2020: 3.5), with a Field-Weighted Citation Impact of 2.02, meaning that they were being cited 102% more than expected for their field, age, and type. Of the papers, 11 were ranked as Highly Cited Publications, and 3 as Hot Papers. *(Sources: SciVal, InCites and Web of Science.)*

3.5 Partner research grants & awards

3.5.1 Grants

In 2021, 101 competitive research grants were announced for TRI-based researchers from our 4 partners – UQ, QUT, Mater Research and MSH – either as the principal investigator (PI) or as a co-investigator (CI).

These grants from 45 funding bodies totalled $47,672,674.

Notably, the new grants included 14 from the National Health and Medical Research Council (NHMRC), one from the Medical Research Future Fund (MRFF), 3 from the Australian Research Council (ARC) and 5 from the US Department of Defense.

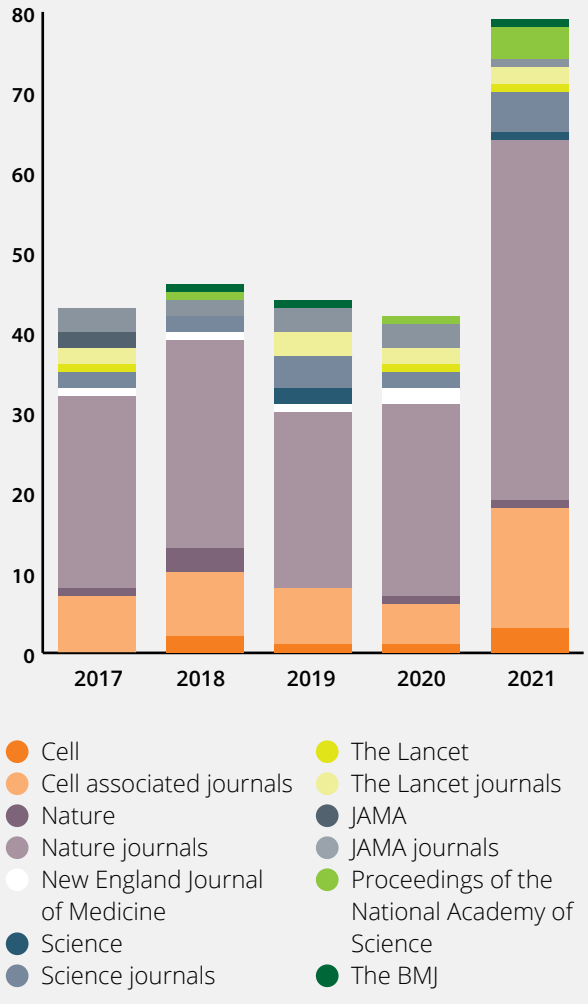
3.5.2 Awards

During the year, researchers at TRI received 45 awards from 22 organisations.

Notable awards include:

- QUT's Professor Colleen Nelson was made a Member of the Order of Australia.
- Mater Research's Dr Seth Cheetham received the Genetics Society of Australasia, Alan Wilton Early Career Researcher Award.
- UQDI's Professor Di Yu was awarded the Australian Academy of Health and Medical Sciences 2021 Jian Zhou Medal for his translational research.
- UQDI's Dr Aideen McInerney-Leo received an Australian Institute of Policy and Science Young Tall Poppy Science Award.
- UQDI's Professor Ian Frazer AC received the LSQ McCullough Robertson Industry Excellence Award.

Figure 3.1: Publications by top journals (2017-2021)



By blocking part of the healing process, TRI-based researchers from UQDI have reduced skin scarring. Their research could make a significant difference for burns and other trauma patients.

UQDI's Professor Kiarash Khosrotehrani said his team reduced scarring in laboratory models by targeting the gene that instructs stem cells to form scars.

"Now that we've found the molecular drivers, we understand the process better and we are hopeful that a treatment can be developed," said Professor Khosrotehrani.

"Whatever we propose has to go through the further trials, but we believe this application won't be difficult to apply to human patients."

The research was partly funded by an Australian Research Council Discovery Project grant, with Professor Khosrotehrani also supported by a National Health and Medical Research Council Fellowship.

3.6 Promoting research

TRI works in collaboration with our partners to promote the research outcomes of scientists based in the building through the news media, social media, the TRI website and intranet, and internal and external e-newsletters.

From 2020, TRI began to actively promote research papers authored by TRI-based scientists, as well as prioritise greater promotion of research outcomes, grants, awards and general research activity.

During 2021, TRI actively promoted 32 researchers and their projects, both via TRI media releases and articles, and by sharing our partners' media releases through our channels.

Our team issued social media posts on more than 230 research publications authored by TRI-based researchers. Excitingly, 93 publications were mentioned 1,375 times by 467 news outlets *(Source: Altmetric Explorer)*, while 598 of the publications were mentioned in 22,483 tweets by 14,236 unique tweeters in 143 countries.

TRI supported media conferences by our partners, including the announcement of a phase II clinical trial for a COVID-19 treatment being trialled by a company co-founded by UQDI Professor Ian Frazer AC. TRI also hosted a media conference to announce a new breakthrough lymphoma treatment pioneered by Mater Research's Professor Maher Gandhi.

In 2021, TRI also released a research video series to highlight 8 translational projects and 5 prominent areas of research in the institute.

The Australian Academy of Health and Medical Sciences awarded the 2021 Jian Zhou Medal to UQDI's TRI-based Professor Di Yu.

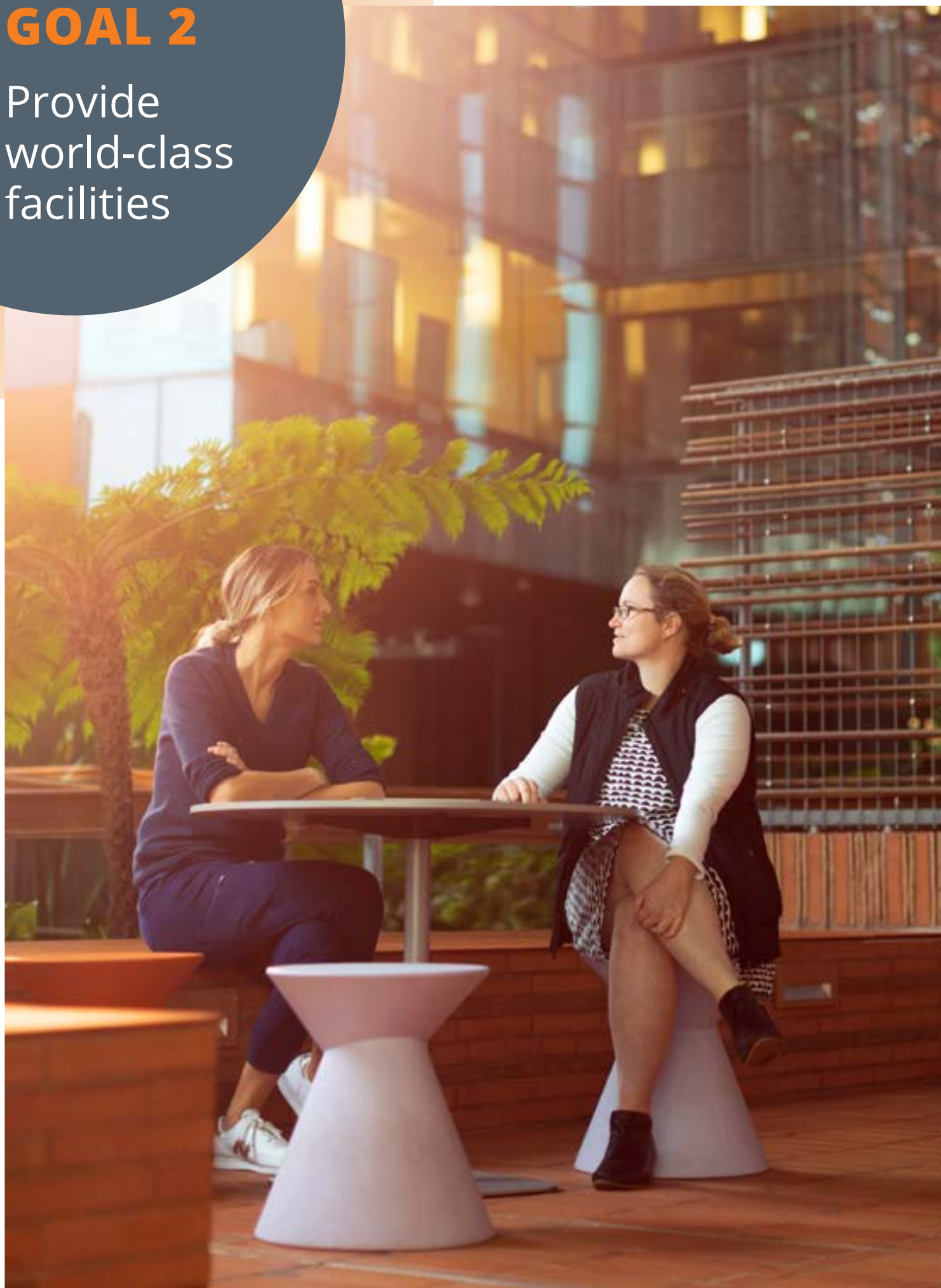
The Medal is awarded annually to a rising star of Australian health and medical science.

Professor Yu (pictured), an immunologist, was awarded the medal in recognition of his landmark discoveries in revealing the differentiation and functions of T cells in human health and disease.

His research has enabled new diagnosis and therapy for autoimmune, allergic and infectious diseases, and improvement in vaccine efficacy.

GOAL 2

Provide world-class facilities



Highlights

Managed
$23M
in shared Core Facilities equipment

Purchased
$0.56M
worth of new specialised research equipment

Housed
47
Core Facility staff

Hosted
170+
events in our event spaces

Hosted visits by
1405
secondary school students through the SPARQ-ed program

TRI is one of the largest medical research institutes in the southern hemisphere. It combines world-class laboratory and clinical translational research facilities, along with company incubator and educational spaces to seamlessly advance medical discoveries to healthcare solutions.

4.1 Overview

TRI incorporates 32,000 square metres of floor space, including 4 floors of laboratory research, plus a further 3 floors of specialised research and event/teaching facilities.

Clinical trial facilities are based at the Princess Alexandra Hospital and Queensland Children's Hospital (see Chapter 5).

All of TRI's specialised research, clinical trial and event facilities are available for use at varying fee rates for researchers based at TRI, non-TRI researchers and commercial organisations.

In 2021, TRI continued its ongoing investment in these facilities to ensure researchers have the best quality infrastructure and equipment at their disposal.

For further information on the teams supporting the daily operations of TRI's facilities, please refer to Chapter 8.

"The thing that makes the core facilities that I mostly use so great is the staff running them..."

Respondent to 2021 Cores User survey

4.2 TRI Core Facilities

TRI's Core Facilities provide dedicated research equipment, valued at more than $23.9 million, to advance translational research.

The Core Facilities, which are fully supported by 47 technical and laboratory staff, include:

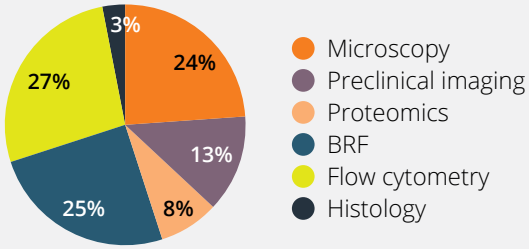
- flow cytometry
- microscopy
- histology
- proteomics
- preclinical imaging
- biological resources facility (BRF)
- gnotobiotics (see figure 4.1).

Annually, TRI invests in its Core Facilities with a program of infrastructure review and investment, both to ensure the replacement of ageing essential equipment and to meet emerging research needs.

In 2021, TRI purchased 11 new pieces of equipment for the Core Facilities at a cost of $561,725. New infrastructure included a Zeiss AxioObserver Z1 Live Cell Imager and an Olympus VS200 Fluorescence Slide Scanner.

Additionally, the Core Facilities upgraded their Olympus FV1200 to an Olympus FV3000 Confocal System, and upgraded the capability of their KOS Tissue Processing System.

Figure 4.1: Percentage distribution of capital infrastructure by Core in 2021



4.2.1 Operational changes

A significant focus for 2021 (and through to 2023) was to mature business processes in the Core Facilities and increase usage by both external academic research groups and commercial entities.

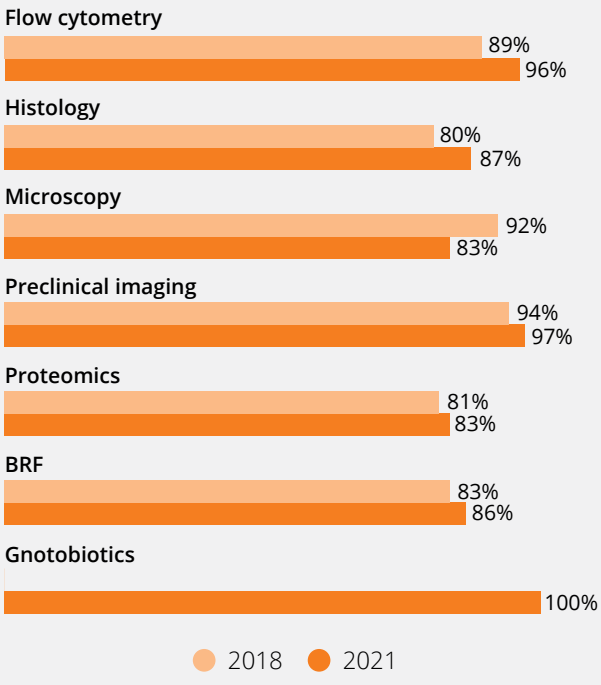
Working with TRI's Finance and ICT teams, the Core Facilities management team reviewed and documented its operations to improve its governance and streamline its activities.

4.2.2 User satisfaction survey

TRI surveyed users of its Core Facilities in 2021.

Overall, user responses were positive, with most of the Core Facilities noting an increase in total user satisfaction (refer to figure 4.2).

Figure 4.2: Per-Core summary of respondent satisfaction 2018 vs 2021



4.3 T3Cleanrooms

TRI is home to a state-of-the-art Good Manufacturing Practice (GMP) clinical manufacturing and training facility, known as T3Cleanrooms.

Launched in 2020, this is the only facility of its kind in Australia for the medical technology and pharmaceutical sector. Through this hub, TRI is accelerating the translation of new medicines and devices for early-stage clinical trials. Interest in using the facility remained strong in 2021, with TRI fielding more than a dozen enquiries from potential new customers.

4.3.1 GMP Cleanroom training

In 2021, TRI began a collaboration with the Centre for Biopharmaceutical Excellence (CBE) on a GMP Uplift Program, which will launch in 2022.

The program will provide participants with a real-world perspective on GMP and is designed to assist with the interpretation and application of GMP into practice for those involved in human health products.

This program is supported by MTPConnect's Researcher Exchange and Development within Industry (REDI) initiative, funded by the Medical Research Future Fund (MRFF).

The Program also involves ARCS Australia and Merck Life Sciences Australia and the University of Technology Sydney's Biologics Innovation Facility.

4.4 Event spaces

TRI has a range of beautiful and functional spaces available for use by building occupants, as well as for hire by external organisations. Events spaces include a 250-seat auditorium, seminar and student rooms, and the centrepiece of our building – an open-air, 7-storey atrium.

The TRI Communications and Marketing team offers logistics and booking support for clients. During 2021, the team provided support for 40 TRI events, 90 internally booked partner events and 41 externally booked events.

4.5 SPARQ-ed

The Students Performing Advanced Research Queensland (SPARQ-ed) program is an educational outreach collaboration between the Queensland Department of Education and UQ.

SPARQ-ed's facilities include a classroom and PC2 laboratory – located on level 2 at TRI – accessible to high school students and staff across Queensland.

Through its programs, SPARQ-ed delivers sustainable and accessible world-class biomedical education experiences to inspire students to consider STEM subjects and careers, to enhance the professional practice of teachers and to build strong connections with the community.

During 2021, SPARQ-ed ran 6 five-day Research Immersion programs, 44 excursions at TRI, and 21 incursions (2-hour visits to schools), as well as 6 professional development sessions for teachers and school science technicians. Overall, the program saw 1,405 secondary school students visit TRI.

TRI is home to Australia's only GMP cleanroom facility that is available to researchers and industry for manufacturing products for clinical trials.

CORES 2021

Core Facility Professional Development Conference

Thursday 7 October 2021

In October 2021, TRI hosted the inaugural CORES 2021 Conference.

More than 100 people attended CORES 2021 in person, as well as 50 attendees online from across Australia. Registration costs were subsidised by sponsorships from 14 vendors.

The one-day event was developed by TRI in partnership with QIMR Berghofer, while the organising committee also included representatives from Griffith University, UQ and QUT.

The aim of the conference was to support networking and professional development for Core Facilities staff.

Core Facility staff operate in a niche environment, where they 'bridge the gap' between the academic and professional services career progression streams.

With their backgrounds and hands-on involvement in research and in operational management and customer service, Core Facilities employees' development often falls between the cracks of what is offered to mainstream industries.

TRI will continue its involvement in the CORES Conference in 2022.

The TRI Preclinical Imaging team hosted the 6th *Annual Scientific Meeting of the Australian Society for Molecular Imaging* (ASMI) at TRI in June 2021.

The event was attended by 200 researchers under a hybrid in-person and virtual format. Many imaging projects conducted within the TRI Preclinical Imaging Facility were showcased at the conference, placing TRI-based researchers under the national spotlight and raising the profile of TRI and our Core Facilities.

GOAL 3

Effective clinical interfaces

Highlights

Formed
New
business unit of Clinical and Research Translation

Conducted
202
clinical trials through the Clinical Research Facility

Supported a further
66
clinical trials through the Translational Trials team

Funded
4
clinical innovation programs with clinicians

Partnered with
'Join Us'
to link consumers with research

As a translational medical research institute based on a hospital campus, TRI is continually striving to foster strong links among researchers, clinicians and industry. The formation of these collegial partnerships ensures the flow of ideas across research and clinical interfaces. TRI ensures the efficient translation of patient-centred research outcomes.

5.1 Overview

TRI was purpose built on the campus of one of the largest tertiary referral hospitals in Queensland – the Princess Alexandra Hospital (PAH) – to facilitate research collaborations between scientists and clinicians.

This is particularly enabled by 2 dedicated clinical trial facilities, one based at the PAH and the other at the Queensland Children's Hospital. TRI's Translational Trials team provides expert support to clinicians who conduct clinical trials through the 2 clinical research facilities.

In addition to a range of programs and initiatives aimed at facilitating an effective clinical interface, TRI supports 4 clinical innovation programs led by clinicians. These are outlined in section 5.3.

We were delighted by the progression of several research projects in the clinical space, along with more than a dozen projects in preclinical studies that have the potential to progress to clinical trials in the next few years.

5.2 Clinical and Research Translation

In 2021, TRI created a new business unit, Clinical and Research Translation. Overseen by newly appointed Associate Professor Helen Benham (see section 9.3), this business unit is responsible for enhancing the interface between TRI and clinical care delivery.

The Clinical and Research Translation unit has oversight of TRI's purpose-built clinical research facilities. It also incorporates the Translational Trials team, which provides fee-for-service support for clinical trials. Clinical and Research Translation is also supported by the TRI Communications and Stakeholder Engagement Manager.

For further details on the business unit, see section 8.7.

"[TRI's Translational Trials team] understand the system, and can help guide users through the governance, and ensure that the project is compliant."

Response from 2021 Translational Trials survey

5.2.1 Clinical trial facilities

TRI's 2 state-of-the-art, purpose-built and fully staffed clinical research facilities allow TRI to support investigator-led and commercially sponsored clinical trials for TRI-based researchers, clinicians and industry clients.

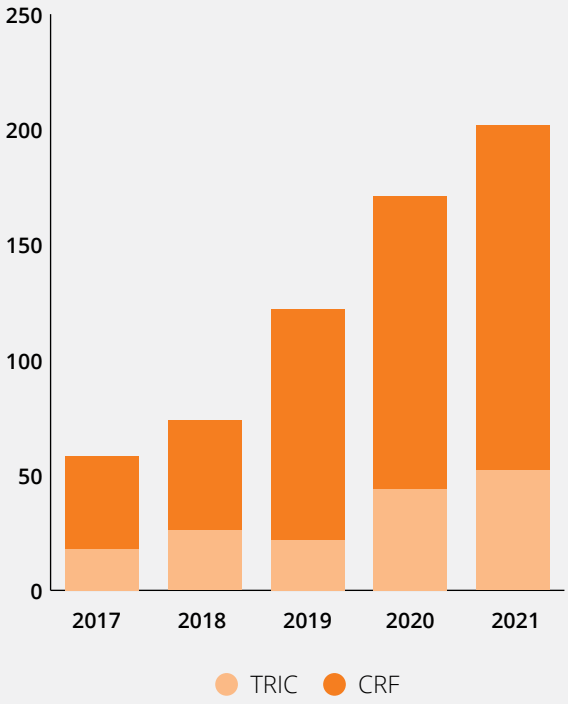
The Clinical Research Facility (CRF) is situated in the Research Wing (R Wing) of the PAH and specialises in adult clinical research across multiple phases.

TRI at Children's (TRIC) is located at the Centre for Children's Health Research next to the Queensland Children's Hospital and specialises in paediatric research.

The proximity of both facilities to major hospitals offers seamless integration of research and clinical trials in adults and children. Both facilities offer a range of specialised resources and expertise, including an on-site nurse manager to manage day-to-day operations and provide support and assistance with clinical trial activities.

In 2021, the CRF and TRIC were the sites for 202 trials in total (2020: 171), predominantly industry-led trials. The use of these facilities has continued to grow over the past 5 years, with a 300% increase in annual trials run in the facilities over the period. The growth was particularly strong in the CRF (refer to figure 5.1). This increase in trials has been possible due to growth in TRI's Translational Trials team, who provide support to many clinical trials (see section 5.2.2).

Figure 5.1: Annual clinical trials run in the TRIC and CRF (2017-2021)



Use of the TRI clinical trial facilities has increased by 300% over the past 5 years.

5.2.2 Clinical trial support services

The Clinical and Research Translation unit also has a Translational Trials team, who provide clinical trial management and coordination services across multiple phases of clinical research. This team works with industry, clinical researchers, principal investigators and site staff to provide quality clinical trial services for investigator-initiated and commercially sponsored clinical trials.

The fee-for-service support includes feasibility assessment, protocol development, ethics and governance submissions, budget negotiations and the full conduct of clinical trials by our pharmacy and laboratory staff and our nursing staff at the CRF.

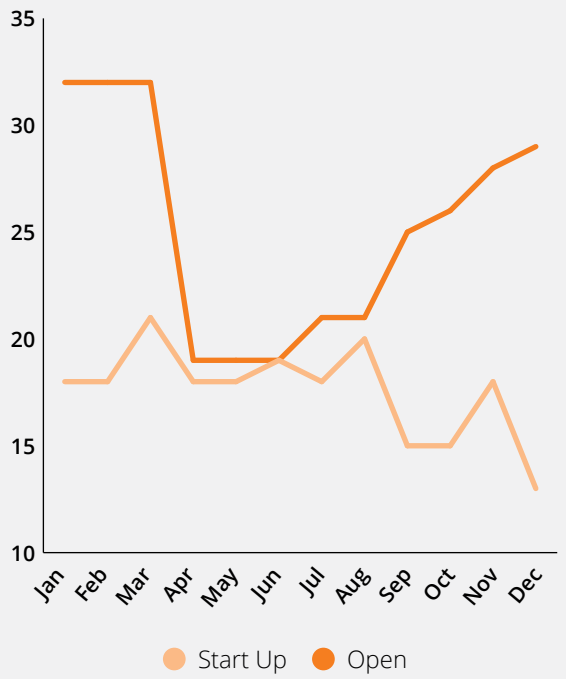
In total, the Translational Trials team supported 66 trials in 2021 (2020: 48), representing a 37.5% increase on the previous year. The number of clinical trials both in the start-up phase and open to recruitment varied across the year (see figure 5.2). A total of 12 new studies being supported by the Translational Trials team progressed from the start-up phase and opened for recruitment in 2021.

The team continued its focus on developing commercial trials and engaging with new areas. In 2021, these areas included oncology – including paediatric oncology – hepatology, ophthalmology, respiratory, orthopaedics and haematology.

Other disease/therapeutic areas supported through the Translational Trials team included arthritis, bladder cancer, brain cancer, cardiology, complementary medicine, COVID-19, gastroenterology, endocrinology, head and neck cancer, hepatology, intensive care, imaging, lung cancer, nephrology, neurology, pain, prostate cancer, rare cancer, reconstructive surgery, respiratory, rheumatology, skin cancer, solid tumour cancer, stress, surgery, and vaccine delivery.

The team also successfully established 2 new joint working models – one with the PAH Haematology Department and Cancer Trials Unit, and another with Children's Health Queensland's Oncology Department. The Translational Trials team provided administrative services – including ethics, governance and financial management – while the hospital departments provided the patient-centred clinical components of the trials. These partnerships allowed 2 crucial clinical trials to proceed, giving patients access to new treatments.

Figure 5.2: Translational Trials team's support for clinical trials in 2021



5.2.3 Translational Trials survey

The Translational Trials team ran its first survey in 2021 across TRI researchers, commercial tenants and partner clinicians. Survey respondents included principal investigators on trials, medical officers, research nurses, trial coordinators, and administrative and executive staff.

Overall, 92% of respondents reported they had heard of TRI's Translational Trials, with 21% having used the service and 17% intending to do so. Overall satisfaction with the team and its service was high (85%) along with the quality of the service (70% rated it as positive to very positive).

In a world-first therapy conducted at the Princess Alexandra Hospital by TRI-based Mater Researcher and Haematologist Professor Maher Gandhi, 46-year-old patient Scott Griffiths was cured of a rare type of lymphoma.

Scott had brain lymphoma, a form of blood cancer confined to the brain, which developed following a bout of glandular fever he experienced after an organ transplant.

"My therapy had a dual approach, targeting the cancer and the glandular fever. First, I used a new type of drug. Following this, I used a vaccine to encourage the patient's body to attack the glandular fever virus and mop up any cancer cells," Professor Gandhi said.

"Fortunately, it worked brilliantly in the patient and he has been completely cured and the transformation is remarkable."

5.3 Clinical innovation programs

Through discrete funding and in-kind support for clinician-led innovation programs, TRI has been actively helping to build translational research through the clinical interface. In 2021, TRI continued its support for 4 clinical innovation programs, which are detailed below.

5.3.1 Australian Centre for Complex Integrated Surgical Solutions (ACCISS)

Established at TRI in 2019, the Australian Centre for Complex Integrated Surgical Solutions (ACCISS) is a multidisciplinary department that helps clinical teams better understand and solve complex medical challenges. ACCISS's services include:

I. The design and development of reference anatomical models; patient-specific splints and prostheses; and patient-specific surgical cutting guides and customised surgical tools, as well as a wide range of assistive medical devices.

II. A physical and virtual surgical planning service using 3D printing, virtual and augmented reality technologies to improve clinician assessment and evaluation of complex cases to reduce operating times and better enable clinical outcomes for patients.

III. Collaborating with industry partners to develop and test new medical device technology in clinical trials.

Key projects

In 2021, the ACCISS team worked on a range of projects and clinical trials supporting numerous clinical teams and their patients.

A new, key initiative for ACCISS was creating fistula models to assist dialysis departments at MSH and Ipswich Hospital with patient education prior to surgery and with management of chronic renal disease.

In addition, ACCISS also assisted the PAH Department of Anaesthesiology with advanced professional training programs in intubation techniques and assisted ventilation support by providing trachea (airway) models for training in tracheotomies.

Team expansion

ACCISS expanded its team significantly in 2021, led by the appointment of Dr Allison Sutherland to oversee and expand the clinical research and development focus in collaboration with industry partners, as well as the integration of clinical services. Two Senior Clinically Applied Digital Innovation (CADI) Engineers were also appointed in 2021. Additionally, ACCISS appointed a CADI Technician Trainee.

Clinical training program

In 2021, the ACCISS team implemented a Research House Officer (RHO) program for clinicians, with 3 RHOs completing rotations with ACCISS during the year.

The program offers Principal House Officers (medical practitioners who are not enrolled in a specialist training program) with an interest in either a surgical discipline or radiology the opportunity to spend 6 months at ACCISS as part of a research rotation in preparation for specialist training. During this time, they are required to participate in conducting industry-sponsored clinical trials, as well as smaller research projects where they learn and apply skills using image segmentation software to create and manufacture 3D models.

Charitable work

During 2021, ACCISS commenced a philanthropic collaboration with Shelly Porter, which resulted in the establishment of the Maddox Helping Hand Foundation. This charity supports the development of a nascent clinical service within the public hospital sector.

"I approached TRI's ACCISS for a kidney model that I could travel with and take to yarning sessions...it's a great way to explain surgery, kidney location and transplant location."

Gary Torrens, Outreach Renal Transplant Workshop Coordinator for First Nations People of Queensland, and Clinical Nurse Consultant at the Princess Alexandra Hospital, and a Bundjalung man.

Pictured above: ACCISS Technician Trainee, Mr Jeremy Keevers, with the kidney model developed by ACCISS

5.3.2 Familial Breast Cancer Clinic

The Preventative High-Risk Familial Breast Cancer Clinic at the PAH is advancing the benefits of world-leading research so that patients with a high risk of cancer receive predictive analysis and early intervention.

The clinic harnesses research from TRI in MR spectroscopy to predate and predict the onset of cancer for those women with familial risk due to the BRCA1 gene mutation.

In 2021, TRI supported a PAH Research Fellow to ensure links with breast cancer researchers at TRI, which included formal mentoring in research methodology.

5.3.3 Imaging Technology

TRI funded a Director of Imaging Technology, Professor Graham Galloway, again in 2021, having done so since 2016.

In this role, Professor Galloway focused on novel breast cancer imaging technologies and the use of advanced MRI technologies for a range of clinical disorders including psychiatry, neurology, brain injury and trauma.

He is also the Academic Lead for the TRI Preclinical Imaging Facility and provides mentoring and strategic advice to the team.

During 2021, he supervised 4 PhD students who were supported on an Advance Queensland grant.

Professor Galloway was involved in developing the following new translational imaging projects during the year:

- REWARD Cogrem: A study of the functional structural changes in the brain as a result of a cognitive remediation therapy for non-responder patients with schizophrenia.
- Biomarkers for chronic kidney disease: To use structural and chemical measures to identify CKD patients at risk of progressing to kidney failure.
- Linking advanced neuroimaging, disease state and clinical measures in multiple sclerosis.
- Identifying liver glycogen in poorly controlled diabetics with a genetic comorbidity.

5.3.4 Microbiome

TRI contributes to funding microbiome research led by UQDI's Chair of Microbial Biology and Metagenomics, Professor Mark Morrison.

Professor Morrison is collaborating with several TRI-based research groups on microbiota research – as well as MSH's Professor Gerald Holtmann and TRI-based biotechnology company Microba Life Sciences – to look at the role of microbes in areas of health such as gut disorders, skin cancer and kidney failure. Both Professor Morrison and Professor Holtmann are also chief investigators in the Centre for Research Excellence in Digestive Health, which was launched in 2020.

During 2021, Professor Morrison helped establish a Digestive Health Biobank via MSH, UQ and TRI, which includes samples for microbiota analysis.

He was a co-investigator on 4 grants, securing $3.2 million in total in funding. These included an ARC Discovery Project grant, an MRFF Rare Cancers grant, and a US Department of Defense Expansion Award.

Professor Morrison also filed a patent for a "Diagnostic marker for functional gastrointestinal disorders" and made several presentations to community groups and at conferences.

5.4 Join Us

In 2021, TRI partnered with Join Us. This national online research register provides researchers with access to community members who have provided consent to be contacted about research that might be relevant to their health status.

5.5 Supporting MSH during COVID-19

The Queensland rollout of the COVID-19 vaccine in 2021 directly impacted on our partner, Metro South Health. For much of the year, the PAH auditorium was commandeered for the Hospital's vaccination hub.

TRI opened up its clinical research facility to MSH for clinical use. The institute also made its auditorium and seminar rooms available for use by the hospital for the duration of the year. This included helping the hospital host its annual week-long, PAH Symposium.

A new anti-inflammatory drug has entered a phase II clinical trial in COVID-19 patients in 10 to 15 hospitals across the United States.

The drug, IC14, is the lead therapeutic compound for Brisbane and Seattle-based biotech company, Implicit Bioscience, which was co-founded by TRI founder and UQDI's Professor Ian Frazer AC.

Professor Frazer said IC14 represented a world-first approach to treating the effects of COVID-19.

If successful, the drug could become part of routine care for COVID-19 as well as any disease that causes severe long-lasting inflammation.

GOAL 4

Strengthen research links to industry and government

Highlights

$20M
in state government funding announced for TM@TRI

Incubating
8
early-stage MTP companies

Home to
7
biotech companies and industry bodies

Hosted
2
industry networking events

Launched the
'Game Changer'
seminar series

Held an
MTP
Careers Symposium

Met with
9
state and federal Ministers and MPs

TRI is the only medical research institute in Australia to incubate start-up and early-stage medtech, biotech and pharmaceutical (MTP) companies, while also working with the wider MTP industry to support their research and development. TRI also regularly engages with government on issues affecting the research, MTP and innovation sectors in Queensland and Australia.

6.1 Overview

Multiple stakeholders, including industry and government, play key roles in the successful translation of research into the clinic.

TRI provides incubator space for start-ups and early-stage medtech and biotech companies. In doing so, TRI is able to nurture their growth and foster collaborations and ongoing research and development projects between these companies and academic researchers based at TRI.

In 2021, TRI devoted considerable resources to securing government funding to extend its manufacturing capability and support for emerging biotechs and medtechs (see section 6.4).

Importantly, TRI has state-of-the-art research equipment, specialised research facilities and expertise (see Chapter 4), which external industry research groups can access. Increasing utilisation of our facilities by these groups is an important focus for TRI in the coming years.

6.2 Supporting MTP companies

TRI licences office space and wet labs to early-stage and scale-up MTP companies as well as commercial organisations. In 2021, TRI welcomed 2 new start-up companies: Microbio and EMvision Medical Devices. TRI's commercial occupants are listed below.

Additionally, TRI leases a large-scale bio-pharmaceutical manufacturing facility to Patheon by Thermo Fisher Scientific.

6.2.1 EMvision Medical Devices

EMVision (ASX:EMV) is an innovative medical device company developing a portable brain scanner that is set to revolutionise stroke care. The company aims to deploy its portable scanners in both hospitals and ambulances to boost stroke survival. EMVision's R&D is now based at TRI, as it advances its world-first stroke and brain imaging technology. More than 101 million people globally have experienced a stroke, most with permanent disability. EMVision is on a mission to enable faster diagnosis and treatment, which will save lives and dramatically reduce rates of permanent disability for patients.

emvision.com.au

6.2.2 Jingang Medicine (Australia) Pty Ltd

Jingang is an early-stage biotechnology company developing and trialling new vaccine technologies developed by Professor Ian Frazer AC.

6.2.3 Ocugene (and the Layton Vision Foundation)

Ocugene is a start-up biotechnology company founded by prominent Brisbane Ophthalmologist, Associate Professor Chris Layton, and former National Institutes of Health Molecular Biologist, Jason Steel. Ocugene develops next generation retinal therapeutics and gene delivery vectors with enhanced safety profiles for diseases such as macular degeneration, uveitis and uveal melanoma. Its core products are enhanced AAV gene therapy vectors with proven activity in models of ocular angiogenic, inflammatory and neoplastic diseases. Ocugene's vectors are designed to be regulatable, allowing clinicians to tailor delivery of therapeutics. In partnership with the Layton Vision Foundation, Ocugene funds research fellowships and not-for-profit ophthalmic research.

laytonfoundation.org.au

6.2.4 Microba Life Sciences

Microba Life Sciences is a precision microbiome company driving the discovery and development of novel therapeutics and delivering gut microbiome testing services globally to researchers, clinicians, and consumers. With world-leading technology for measuring the human gut microbiome, Microba has built a state-of-the-art metagenomics sequencing laboratory at TRI, optimised for the high-throughput processing of samples, to enable partnerships with leading organisations globally. Microba's facilities for anaerobic microbiology and laboratories directed to therapeutic development are generating candidates to address unmet clinical needs by leveraging the biology of the healthy human gut microbiome.

microba.com

6.2.5 Microbio

Microbio was founded by Chief Scientific Officer Dr Flavia Huygens and CEO Paul Carboon to commercialise a unique and revolutionary pathogen detection technology. Microbio's flagship product – InfectID-Bloodstream Infection – uses real-time Polymerase Chain Reaction (qPCR) to identify sepsis-causing pathogen species directly from blood without the need for pre-culture. The company also has a novel COVID-19 test designed to detect the virus in its replicating phase.

microbio.com.au

6.2.6 Oroborus

Oroborus is a private biotechnology company founded in 2012 to develop chemical technology for making peptide mimetics. The company has technology for stabilising peptide alpha helices into more drug-like compounds, and has also made discoveries in related chemical processes. Oroborus was founded by organic and medicinal chemist, Peter Cassidy.

oroborus.com.au

6.2.7 Vale Life Sciences

Vale Life Sciences's patented products are used worldwide by researchers to improve the reproducibility and relevance of their biological experiments. Vale has developed 2 main product lines: Happy Cell® ASM – a novel, multi-purpose cell culture reagent which is primarily used for the 3D cell culture market; and Bioclime+ 96 – an advanced microplate system that substantially lowers the costs of cell and tissue-based research and has the potential to reduce the costs of experimentation by up to 1,000 times.

valelifesciences.com

6.2.8 Vaxxas Pty Ltd

Vaxxas is a privately held biotechnology company focused on enhancing the performance of existing and next-generation vaccines and making vaccination more accessible globally. The Vaxxas needle-free technology uses a patch with thousands of vaccine-coated micro projections to deliver a vaccine to the abundant immune cells immediately below the skin surface. Vaxxas has been a key tenant of TRI since 2015, rapidly transforming from a small university-based entity to a medium-sized biotech company with more than 100 employees. It is using TRI office, laboratory and GMP cleanroom space to develop a pipeline of products with some of the world's largest vaccine manufacturers and humanitarian organisations.

vaxxas.com

"We were delighted when we were invited to move into TRI, which is the home of some of the greatest scientific and medical innovators in Australia."

Dr Flavia Huygens
Chief Scientific Officer, Microbio

New study data released by UQ in 2021 showed TRI-based biotech company, Vaxxas's needle-free, micro-array patch had the potential to provide needle-free COVID-19 vaccination. The team is looking for funding to accelerate to clinical trials.

During the year, Vaxxas also began a clinical trial for a measles and rubella vaccine using their patch.

6.3 MTP-sector-associated tenants

TRI also provides office space to investment companies, charities, contract research organisations and organisations accelerating the translation of research discoveries. In 2021, TRI welcomed 360biolabs and Therapeutic Innovation Australia to the building.

6.3.1 360biolabs

360biolabs is a contract service organisation providing specialist expertise and laboratory services (PK/PD) for the development of new therapeutics, vaccines and diagnostics in a quality-assured environment. The organisation's Australian head office and laboratory facilities are based at the Burnet Institute in Melbourne. The US head office and laboratories are based in Durham, North Carolina, while the European head office and laboratories are based in Hamburg, Germany. TRI is the organisation's only Australian satellite office.

360biolabs.com

6.3.2 Brandon Capital

Brandon Capital is a leading Australasian life science venture capital firm with a strong global presence supported by key partnerships and team members across the US and UK. Through collaboration and investment, the firm transforms promising medical research breakthroughs into medical therapies that improve patients' lives. It has supported more than 50 start-up companies to date, the majority of which were founded in collaboration with the inventor and their research institutes. From early-stage seed investment through to expansion capital, Brandon Capital supports life science companies from proof-of-concept through to commercialisation. TRI is home to Brandon Capital's Queensland office.

brandoncapital.vc

6.3.3 Health Translation Queensland

Health Translation Queensland (HTQ) provides a platform for greater integration and collaboration between clinicians, educators, researchers, academics, policy makers and health consumers. As an NHMRC-accredited Advanced Health Research and Translation Centre, HTQ works to mobilise research into clinical practice and to support health system and business transformation.

healthtranslationqld.org.au

6.3.4 MTPConnect

TRI is home to the Queensland office of MTPConnect, the growth centre for the medical technology, biotechnology and pharmaceutical sector. MTPConnect was formed in 2015 as part of the Federal Government's Industry Growth Centres Initiative. It is an independent, not-for-profit organisation that is championing a sector-led approach to accelerating the rate of growth of the medical products ecosystem in Australia.

mtpconnect.org.au

6.3.5 National Imaging Facility

The National Imaging Facility is Australia's advanced imaging network, providing open access to flagship imaging equipment, expertise, tools, data and analysis to address Australia's strategic science and research priorities.

anif.org.au

6.3.6 Therapeutic Innovation Australia

Therapeutic Innovation Australia relocated its headquarters to TRI in 2021. The consortium is a national network of leading translational research infrastructures across 3 product-focused capabilities. It provides access to expertise and services to assist researchers and small and medium-sized enterprises in the development of new therapeutic products, including biologic drugs, pharmaceuticals, vaccines, RNA therapeutics, cell therapies and gene therapies.

therapeuticinnovation.com.au

The new manufacturing facility to be built alongside TRI, named Translational Manufacturing @ TRI (TM@TRI).

6.4 Translational manufacturing facility

The limited facilities and capabilities for early-stage manufacturing for the MTP sector in Australia is a critical issue for emerging companies. To address this gap, in 2020, TRI developed a comprehensive business case for a new manufacturing facility to be built alongside TRI, named Translational Manufacturing @ TRI (TM@TRI).

It would be Australia's first scale-up manufacturing facility, providing purpose-built manufacturing capabilities and specialist support for up to 350 on-site staff, and providing contract services for off-site companies. The facility would enable companies to scale-up product manufacture for phase II and III clinical trials rapidly and economically to produce globally competitive products, such as medical devices, pharmaceuticals, biologics and novel implants.

During 2021, TRI continued intensive engagement with industry, government, and the research and health sectors to ensure the facility will deliver on the priorities of all sectors. The State Government announced enabling support for the project in June 2021. Construction is expected to begin in December 2022.

6.5 Game Changer seminar series

TRI's CEO, Professor Scott Bell, introduced the new Game Changer seminar series in 2021.

The popular 4-part series featured the following speakers:

- UQ's Professor Paul Young discussed the trials, tribulations and rewards of developing a COVID-19 vaccine.
- Queensland's Chief Scientist Professor Hugh Possingham talked about the major environmental challenges for Queensland, including climate change.
- Queensland's Chief Health Officer, Dr Jeannette Young, discussed Queensland's response to the COVID-19 pandemic.
- Queensland's fourth Chief Entrepreneur, CEO and co-founder of RedEye, Wayne Gerard, shared what it takes to succeed as an entrepreneur in Queensland and how to grow Queensland's start-up ecosystem.

The series was open to the general public and promoted widely through the research community in Southeast Queensland.

6.6 MTP Industry Career Symposium

Hosted by the TRI Student Committee, the one-day 2021 MTP Career Symposium provided an opportunity for students and early-career researchers to gain insights into future career opportunities in the MTP sector.

Attracting more than 150 in-person attendees, plus online delegates, the symposium brought together industry leaders in the sector including from QUT, Vaxxas, MTPConnect, APRIntern, and the Bridge and BridgeTech Industry Fellowships.

6.7 Industry networking events

TRI hosted 2 industry networking events in 2021.

6.7.1 Industry Meet & Greet

An inaugural 'Meet & Greet' event was held in September. The COVID-19-restricted event allowed more than 70 TRI-based researchers to meet with commercial tenants based in the building.

6.7.2 AusBiotech 2021 (TRI event)

TRI organised and hosted a Discussion Panel and In-Person Queensland Watch Party as part of the AusBiotech 2021 conference.

Focusing on MTP manufacturing, the discussion panel brought together industry leaders to discuss their international and Australian perspectives on *What biotech and medtech start-ups need to succeed in scaling up manufacturing.*

This session was streamed from TRI to a live national audience with Queensland conference registrants able to join the watch party in person and attend a networking function, proudly supported by TRI.

TRI CEO Professor Scott Bell addresses a media conference at TRI where the State Government announced $20 million in funding for TM@TRI.

In 2021, a potential new treatment for obesity-related liver disease received $1.3 million in seed investment from IP Group.

UQ start-up company, Jetra Therapeutics Pty Ltd, is developing the treatment for non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH). The original discovery and ongoing R&D is led by Mater Research's TRI-based Associate Professor Sumaira Hasnain.

6.8 Meetings with government

TRI met with, or was visited by, several state and federal government Ministers and MPs during the year. These included:

- Federal Minister for Industry, Science and Technology, Hon Karen Andrews MP
- Shadow federal Mister for Health and Aged Care, Hon Mark Butler MP
- Shadow federal Minister for Industry and Science, Hon Ed Husic MP
- Shadow federal Minister for the Environment and Water, and Member for Griffith, Hon Terri Butler MP
- Queensland Deputy Premier, Hon Dr Steven Miles MP
- Queensland Treasurer and Minister for Investment, Hon Cameron Dick MP
- Queensland Minister for Health and Ambulance Services, Hon Yvette D'Ath MP
- Queensland Minister for State Development, Tourism and Innovation, Hon Kate Jones MP
- Queensland Minister for the Environment and the Great Barrier Reef and Minister for Science and Youth Affairs, Hon Meaghan Scanlon MP.

6.9 Patheon by Thermo Fisher Scientific

Thermo Fisher Scientific, together with its pharma services brand, Patheon, provides clinical and commercial biopharmaceutical products – as well as analytical services, process validation, technical transfer and commercialisation strategies – to a global clientele.

Its Woolloongabba-based biologics manufacturing facility, co-located with TRI, is one of only 2 commercial-scale bio-manufacturing companies in Australia that meets regulatory standards and has Therapeutic Goods Administration approval. It is also the first company in Australia to contract manufacture drugs on a commercial scale using mammalian cell lines for both clinical trials and commercial manufacturing.

Thermo Fisher Scientific's biologics manufacturing facility now employs more than 200 graduate to PhD staff and continues to collaborate closely with universities to ensure science and engineering graduates are highly trained and job-ready.

Photo courtesy QUT

"I'm working with a great industry partner to develop a new prostate therapeutic and a treatment for patients with COVID-19 suffering from acute respiratory distress syndrome, or ARDS.

"The best-case scenario is that we could end up in clinical trials in the next few years, but it depends on the science and regulatory approvals."

Dr Lisa Philp
Group Leader, Translational Adipokine Group, QUT

GOAL 5

Generate health workforce capability in the translation of innovation

Photo courtesy UQ

Highlights

Introduced a clinical trial-focused **seminar** series

Disbursed **$400,000** through the new LINC grant program to foster clinician-researcher collaborations

Hosted a clinical trial training **workshop**

TRI has strong research partnerships with the Princess Alexandra Hospital (PAH), Mater Hospital Brisbane, Mater Mothers' Hospital and the Queensland Children's Hospital. Many of our programs and initiatives are extended to the clinicians in these hospitals to help build their research capability and their involvement in informing and translating innovative research outcomes into the clinic.

7.1 Overview

Walking into TRI, the visitor is left in no doubt about its proximity to the healthcare workforce: the café on our ground floor is a mecca for neighbouring PAH clinicians seeking good coffee, often still dressed in their scrubs; almost all of our ground floor is occupied by the UQ School of Medicine and used as a training facility for the next generation of doctors; and the UQ School of Pharmacy's primary teaching building is next door.

For the TRI Board and CEO – leading respiratory specialist Professor Scott Bell – there is a deep commitment to embedding clinicians in the TRI community.

To drive closer clinical interactions and enhance clinicians' research skills, TRI created a new Clinical and Research Translation unit in 2021 (see section 5.2). This unit saw the introduction of a seed funding program aimed at clinicians, and bespoke training in research translation.

7.2 LINC Grant Program

LINC

Leading Innovations through New Collaborations

TRI Metro South Health Queensland Government mater research

Following 18 months of consultation and development with TRI partner Metro South Health, TRI launched the Leading Innovations through New Collaborations (LINC) grant program in September 2021.

The program provides dedicated funding for new, translational research collaborations between early-to-mid-career researchers based at TRI and early-to-mid-career clinicians based at either Metro South Health or the Mater.

To encourage new collaborations, TRI held a 'showcase' event prior to the grant round's opening. This event allowed 10 clinicians and researchers to pitch their research project concepts and attract potential collaborators. The showcase attracted more than 145 attendees.

The scheme offered $400,000 in total for eight $50,000 seed grants, with TRI putting forward $225,000 to support the program in grants and legal fees. MSH provided matched funding for 5 grants and Mater Research for 3 grants. MSH also provided grant administration support for the program.

TRI received 22 LINC grant applications. Grants were awarded in February 2022 to 8 successful groups.

7.3 Director's Choice seminars

Launched in 2020, the Director's Choice seminar series is an initiative led by TRI partner Directors.

In 2021, Mater Research's Professor Maher Gandhi and Professor John Upham from Metro South Health chaired an informative series focused on clinical trials.

The series was directed at both researchers and clinicians and involved leading clinical experts.

The first seminar looked at enablers and barriers to clinical trials in Queensland. The second seminar examined ways to improve clinical trial collaborations between clinicians and researchers. The third and final seminar for the year put the spotlight on biobanking and how to better use this resource to fast-track clinical research.

The seminars were widely promoted by TRI and on average attracted 150 attendees online and in-person.

7.4 Education and training

All of TRI's education and training programs are open and promoted to clinicians at Metro South Health, in particular the PAH and Mater Hospital.

To enable better research-clinician partnerships, and to upskill our scientists and partner clinicians, TRI's Clinical and Research Translation unit ran a range of training programs in 2021.

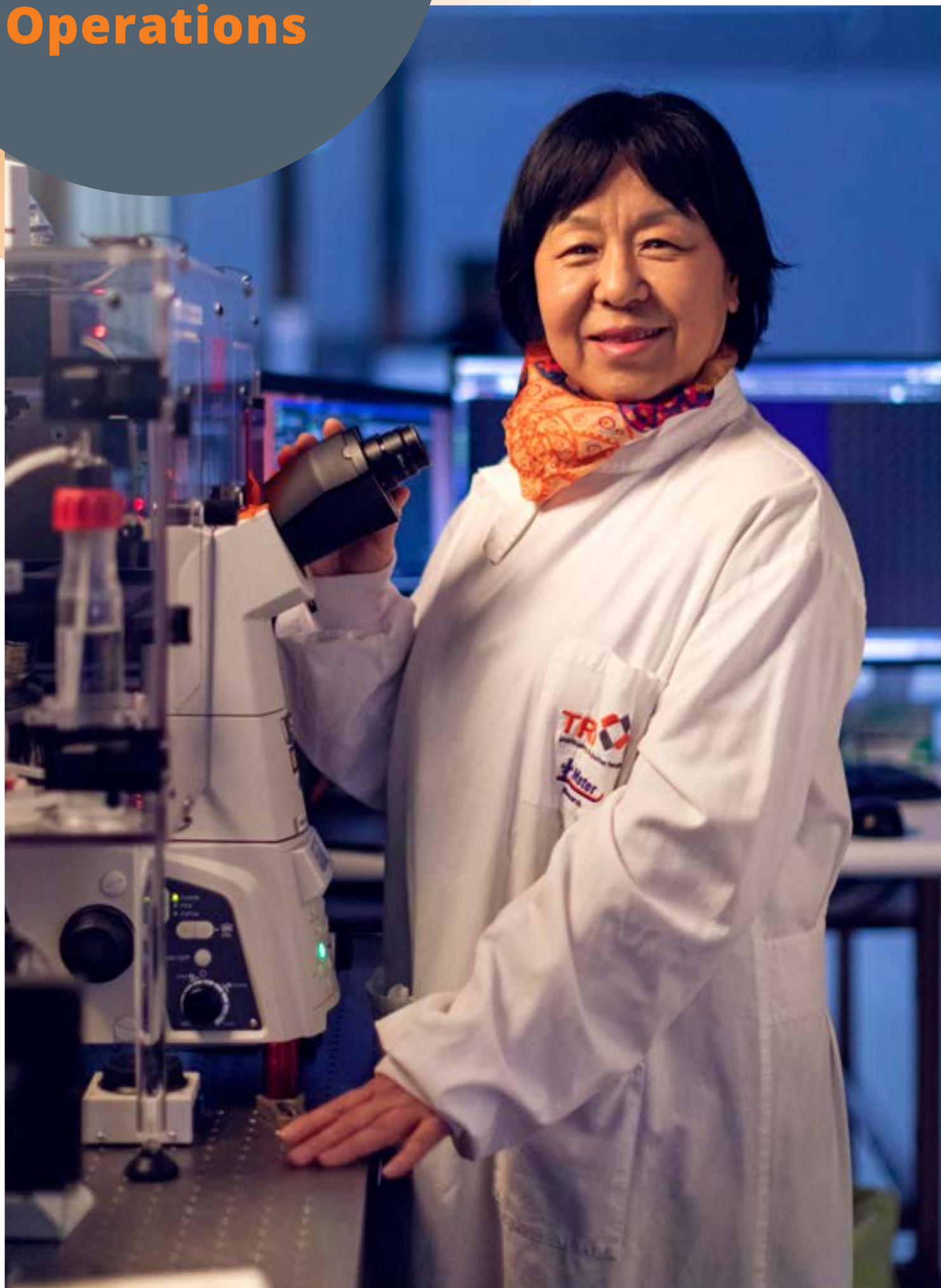
One of the most popular training initiatives was a two-part introduction to clinical trials workshop, which was run in collaboration with clinical training provider PRAXIS.

This tailored course was well received by researchers and clinicians.

In 2021, TRI-based biotech, Microba Life Sciences, appointed Mater Hospital Director of Gastroenterology, Associate Professor Jake Begun – who also has a research laboratory at TRI – to help translate Inflammatory Bowel Disease (IBD) research into clinical outcomes for people with IBD.

Photo courtesy Mater Research

Operations



Highlights

Building-wide
non-disclosure agreement
introduced

38,500
surgical masks issued for COVID-19

15,557
social media followers

171
events

New
Clinical and Research Translation unit launched

$2.6M
invested in IT system upgrades

TRI is a world-class medical research institution. Underpinning all our operations is a framework of services, processes and dedicated individuals.

8.1 Overview

The operational model for TRI is unique in the Australian medical research space.

Unlike at most medical research institutes, the academic researchers are employed by, and report directly to, TRI's 4 partners, not to TRI.

TRI Corporate as an entity is responsible for the following:

- operating and maintaining the infrastructure, including shared specialised equipment and facilities
- creating an ecosystem in which TRI-based researchers, clinicians and commercial tenants can thrive and collaborate
- facilitating research translation and a translational culture through training and education; seed funding; and engagement initiatives with clinicians and industry
- building an inclusive, cohesive and shared community for all of our research partners and commercial occupants.

In 2021, despite the restrictions imposed by the COVID-19 pandemic, TRI continued to provide exceptional service and facilities to its research community. New initiatives were introduced, including a building-wide non-disclosure agreement, new online booking and accounting programs, and the establishment of a new business unit, Clinical and Research Translation.

8.2 Impact of COVID-19

In 2021, the COVID-19 pandemic saw several snap lockdowns and workplace restrictions imposed in Brisbane where TRI is located.

While TRI Corporate and our partners are each responsible for our own workplace health and safety (WHS) and employee policies, TRI's COVID-19 Response Group continued to meet regularly throughout 2021 to assess risk, to determine how mandatory measures should be implemented, and to decide on any additional measures that should be adopted across the TRI community. The COVID-19 Response Group brought together representatives from TRI's 4 partners, as well as expertise from across TRI Corporate's business units.

The COVID-19 Response Group closely followed Queensland Health's COVID-19 requirements and recommendations, which at various times included density limits in meeting rooms, lifts and at events; mandatory mask wearing in TRI's premises; and, requirements or recommendations for staff and students to work from home wherever possible.

In addition, at various times throughout the year, the COVID-19 Response Group adopted a range of additional measures aimed at keeping the TRI community safe. These measures included providing free surgical masks to all members of the TRI community to encourage use; encouraging vaccination; issuing regular reminders about the importance of hand hygiene and COVID-19 testing; holding events virtually and requiring COVID-safe plans to be developed for in-person events; and, placing restrictions on visitors.

TRI's WHS team supplied more than 38,500 surgical masks to the TRI community in 2021.

In late December 2021, Queensland's Chief Health Officer updated the Health Directive *Workers in a healthcare setting (COVID-19 vaccination requirements)*. This meant the mandatory vaccination policy that applied to Queensland's hospitals also applied to the TRI building, given its location on a hospital campus.

8.2.1 Core Facilities staffing

During 2021, difficult external circumstances, as well as COVID-19 lockdowns and illness posed challenges for staffing in TRI's Core Facilities.

This was especially acute in the Biological Resources Facility and the Gnotobiotic Facility, with staff having to work longer days and extended weeks, which led to unprecedented staffing stress and burnout.

To manage the staff fatigue and burnout, and ensure the animals continued to receive a high level of care, it was necessary to reduce research services for a period of time in order to prioritise critical operational activities.

TRI and UQ collaborated to address the Core Facilities staffing issues, including process improvements to enable rapid staff recruitment, and the use of software to manage workloads and staffing. These changes resulted in tangible improvements in staff welfare and service provision to researchers.

8.3 TRI Building Operations

Building Operations encompasses many of the services, staff and facilities within TRI.

8.3.1 Core Facilities

The Core Facilities team consists of 47 staff who manage TRI's Core Facilities, which include a suite of specialised research equipment worth more than $23 million. It also includes the Biological Resources Facility (BRF), which is managed by The University of Queensland. Managers of TRI's Core Facilities offer expert advice and assistance to users.

8.3.2 Scientific Services team

TRI's Scientific Services team provides frontline support for the partner research laboratories and commercial groups at TRI. The team of 7 provides services including coordinating equipment servicing and repairs; work health and safety and other audit actions; responding to equipment alarms; and facilitating communication between researchers, institutes and TRI for laboratory requests and facility information. The Scientific Services team also staffs a Good Manufacturing Practice (GMP) cleanroom facility, which provides the infrastructure and regulatory compliance necessary for small-scale manufacturing of medicines and devices.

8.3.3 Workplace Health and Safety

The TRI WHS team oversees health and safety for everyone at TRI, including visitors. The team works with WHS teams from TRI's 4 partners with the aim of a consistent risk management approach throughout the whole TRI facility. In addition, the team manages many of the regulatory requirements that apply to TRI's research laboratories, and also runs mandatory safety training. In 2021, the TRI WHS team ran an internal safety audit. By the end of the year, more than 95% of the issues identified had been satisfactorily addressed. An external audit of TRI's safety management system was also completed as part of our ongoing commitment to continual improvement. The promotion of safety glasses in the laboratory was a major focus in 2021.

47 staff support the $23M+ Core Facilities at TRI

8.3.4 Building Services

TRI's Building Services team is responsible for looking after the TRI building, its facilities and maintenance services. This includes operating and maintaining the building management system, as well as providing electrical, plumbing, building fire systems, ventilation and waste management services. The Building Services team also includes contracted security and cleaning services.

8.3.5 Central Stores and Lab Services

The TRI Stores and Dock manage supplies of laboratory consumables as well as mail and courier deliveries. The Lab Services team operates a building-wide wash-up and sterilisation service.

8.4 Finance

In 2021 the Finance team focused on delivering strong financial governance and control for TRI following the economic impact of the COVID-19 pandemic. The team delivered several significant projects during the year, including implementing more advanced and collaborative methods of financial forecasting to support forward planning at TRI. The team also updated business practices across TRI, in particular supporting the operational growth of Translational Trials and ACCISS.

8.5 Information & Communication Technology (ICT)

The TRI ICT team provides technology infrastructure and support to the TRI community. The team's role and focus expanded significantly in 2021 with the development of a new technology strategy. During the year, the ICT team progressed planning and execution for a major refresh of the network and storage infrastructure, with significant upgrades made to TRI's infrastructure, including high-performance computing, virtualisation and storage. TRI's first Cybersecurity Manager was appointed, with responsibility for managing and enhancing cybersecurity.

8.6 Human Resources (HR)

TRI continued to invest in its people throughout 2021 and to manage the ongoing impact of COVID-19. Priorities during the year were strengthening the TRI team and promoting inclusion and safety. Staff were encouraged to balance work and life through TRI's flexible work policy, which allows employees to work from home one day per week. A number of wellbeing activities and programs were held, including programs to encourage fitness and to stop smoking, and providing a quiet drop-in space for staff.

8.7 Clinical & Research Translation

In 2021, TRI created a new business unit, Clinical and Research Translation – led by the new Director of Clinical Translation – with the goal of enhancing engagement between researchers and clinicians. The business unit now has oversight of TRI's clinical trial facilities and the Translational Trials team (see section 5.2.2). It is also responsible for clinician and researcher engagement activities, as well as the TRI research grant program. During 2021, the Clinical and Research Translation unit launched the new LINC grant program to support collaborative research between clinicians and researchers (see section 7.2) and launched new education and training programs (see section 3.3). During the year, the unit also saw an expansion in the Clinical Trials team and a significant growth in business (see section 5.2).

8.8 Communications & Marketing

The Communications and Marketing team manages TRI's internal and external communications, including the TRI website and intranet and the Institute's social media channels. The team also organises and promotes events, and manages the hiring of TRI's event spaces. In 2021, the team organised and promoted more than 40 events. They also supported 90 events for TRI's partners, and 41 externally booked events. In 2021, the team distributed a total of 1,077 social media posts (2020: 1,818) across Twitter, Facebook, LinkedIn, Instagram and YouTube. Combined, the social media channels ended the year with a following of 15,557 (2020: 14,586; 6% growth) (see figure 8.1). In 2021, there were 265,972 views of TRI website and intranet pages (2020: 285,923), over 144,360 sessions (2020: 132,065) by 102,028 users (2020: 92,638) (see figure 8.2).

Figure 8.1: Social media followers (2017–2021)

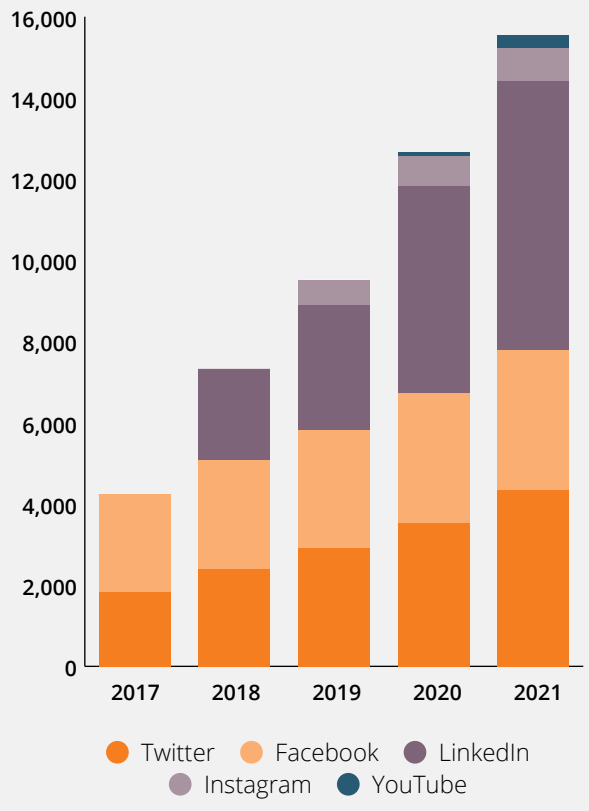
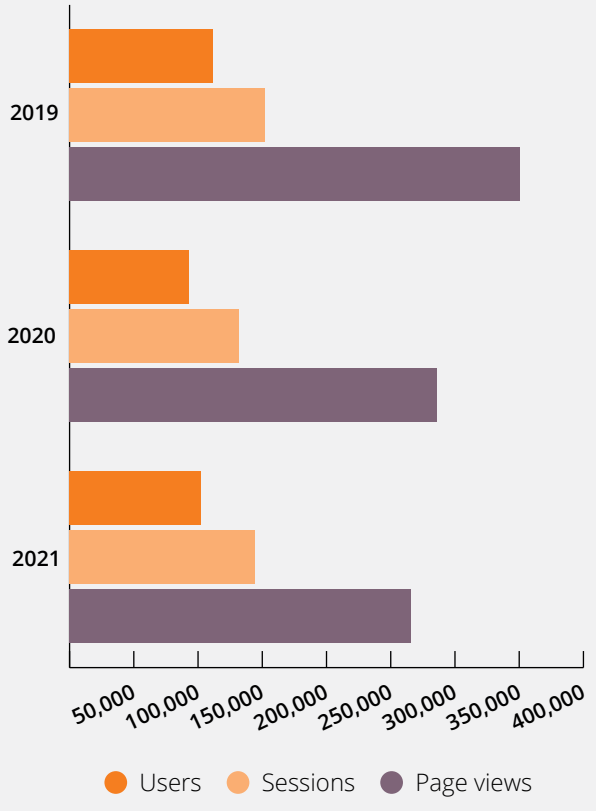


Figure 8.2: TRI website metrics (2019–2021)



Please note: metrics for TRI's social media channels and website are largely unavailable prior to 2019.

Genomic researchers at TRI are using artificial intelligence to discover potential new therapeutics for cancer.

Led by QUT's Dr Pascal Duijf, the scientists plan to investigate new treatments for several different cancers they unearthed using artificial intelligence.

Dr Duijf is also leading research projects to help clinicians diagnose cancers in patients.

Organisation and governance

Highlights

4
new committees

Built the
***One*TRI**
culture

New
Director of Clinical Translation

Introduced a
vacation care
program during school holidays

TRI has a strong organisational structure and governance practices in place. This framework enables TRI to create an environment for translational researchers to thrive and ultimately improve patient healthcare outcomes.

9.1 Overview

The COVID-19 pandemic created a range of complex issues for TRI to address in 2021. Despite these unforeseen demands, TRI's leadership – driven by the CEO, and supported by the leaders of our 4 partners and TRI's Executive Leadership Team – committed to creating a *One*TRI culture and community with a shared set of values and goals. In 2021, TRI introduced new organisation-wide changes aimed at embedding the *One*TRI culture. These new initiatives have brought together our partners – The University of Queensland, the Queensland University of Technology, Metro South Health and Mater Research – to work collectively as one organisation, united in our desire to advance translational medical research.

Key initiatives included introducing 4 new committees, including a Sexual Harassment Awareness and Prevention Committee.

9.2 TRI Board

Translational Research Institute Pty Ltd is governed by a Board of Directors. Led by the Independent Chair, Emeritus Professor David Siddle, the Board is comprised of the following nominee directors from each of the shareholders:

- Dr Peter Bristow
  (The State of Queensland, Queensland Health)
- Professor Aidan Byrne
  (The University of Queensland)
- Emeritus Professor Carol Dickenson
  (Queensland University of Technology)
- Mr Jim Walker
  (Mater Research)

The Board has 2 Committees: The Audit Risk and Finance Committee and the Remuneration and the Nominations Committee. The Board is supported by the Company Secretary, Ms Kirsten Kiel-Chisholm.

Chair

Emeritus Professor David Siddle *BA (Hons) PHD FASSA QAAS*

Emeritus Professor David Siddle obtained his PhD from The University of Queensland in 1971. As an academic psychologist, he worked in universities in England, Canada and Australia. After appointments at Macquarie University, University of Tasmania, and The University of Queensland, he was appointed as Pro-Vice-Chancellor (Research) at the University of Sydney in 1997.

He served as Deputy Vice-Chancellor (Research) at The University of Queensland from 2001 until 2009, where he was responsible for the development and implementation of policy designed to enhance the university's performance in research and research training.

Emeritus Professor Siddle was Chair of the Humanities and Social Sciences Panel of the Australian Research Council in 1993 and 1994, and, after retirement, served on the Australian Research Council's Advisory Council. He has served as a Board member for many cooperative research centres, was a Director of the Australian Synchrotron Company, and from 2011 to 2014 served as a member of the Higher Education Standards Panel. Until 2017, he was Chair of Brisbane Diamantina Health Partners (now Health Translation Queensland) and from 2019 to 2021 was Chair of the Board of Opera Queensland.

UQ Nominee

Professor Aidan Byrne *BSc MSc PhD*
Provost and Senior Vice-President, The University of Queensland

Professor Aidan Byrne commenced as the Provost and Senior Vice-President of The University of Queensland in October 2016. Prior to this appointment, he was the CEO of the Australian Research Council from 2012 to 2016, a position in which he delivered increased knowledge and innovation by managing funding schemes, measuring research excellence and providing policy advice to government.

Before that, Professor Byrne was Dean of Science and Director of the Australian National University (ANU) College of Physical and Mathematical Sciences from 2008 to 2012. He was also Head of the ANU Department of Physics from 2003 until 2007.

Professor Byrne is a member of the New Zealand Ministry of Business, Innovation and Employment's Science Board, and a member of Singapore's National Research Foundational Scientific Advisory Board. He is also a Fellow of the Australian Institute of Physics.

QUT Nominee

Emeritus Professor Carol Dickenson AM *B Bus (Mgt) QIT PhD UQ*
Queensland University of Technology

Following a 30-year career at QUT, Emeritus Professor Carol Dickenson AM retired at the end of 2019. Of these 30 years, 20 were in leadership and management positions including Provost, Senior Deputy Vice Chancellor and University Registrar. Her career trajectory was different to many, moving between academic and professional senior roles, resulting in leadership over large parts of the university during times of significant growth in terms of size and outcomes.

Since retiring from QUT, she has taken on the role of President of The Women's College Council within The University of Queensland, a role equivalent to Chair of the Board. Emeritus Professor Dickenson has also remained on the TRI Board as the QUT nominee and undertaken consultancy work for a number of higher education institutions in Australia. She has also mentored/coached a number of senior executives.

MSH Nominee

Dr Peter Bristow *MBBS GradCertMgt GAICD FRACP FCICM FRACMA*
Chief Executive, Metro South Health

Prior to commencing as the Chief Executive Officer for Metro South Health, Dr Bristow was the CEO of Health Support Queensland, where he was responsible for a wide range of diagnostic, scientific, clinical and payroll services to enable the delivery of frontline healthcare across Queensland. While in this role, Dr Bristow was a part of Queensland Health's Leadership Team.

Dr Bristow has held the positions of CEO of the Darling Downs Hospital and Health Service and CEO of the Townsville Hospital and Health Service. From 2015 until 2017, he was Chair of the Queensland Health Service Chief Executive Forum and has also previously worked as Director of Intensive Care and Executive Director of Medical Services at Toowoomba Hospital.

Dr Bristow trained and worked as an intensive care physician at Liverpool Hospital in Sydney before moving to the Alfred Hospital in Melbourne. He is a Fellow of the Royal Australasian College of Physicians; a Fellow of the College of Intensive Care Medicine; a Fellow of the Australian and New Zealand College of Medical Administrators; and a Graduate of the Australian Institute of Company Directors. Dr Bristow also holds a Graduate Certificate in Management.

Mater Research Nominee

Jim Walker *AM*

Jim Walker has more than 40 years' experience in engineering, manufacturing and technology development in the aerospace industry. Mr Walker has held senior executive positions with United Technologies, Rockwell Collins and Boeing, both in Australia and Asia. He has also been the CEO of a number of Australian-based technology companies.

Mr Walker has also served on numerous company boards of directors in Australia, Singapore, the Philippines, China and India.

9.3 Executive Leadership Team (ELT)

Chief Executive Officer

Professor Scott Bell *MBBS MD FRACP FThorSoc GAICD*

Professor Bell is a leading clinician and researcher in Cystic Fibrosis (CF). As well as being TRI's CEO, he holds an appointment as a Senior Thoracic Physician at the Prince Charles Hospital. He also leads a lung bacteria group at UQ's Child Health Research Centre. Prior to his appointment as TRI's CEO, Professor Bell was the Executive Director of Research at Metro North Hospital and Health Service. He was the Editor-in-Chief of the *Journal of Cystic Fibrosis* from 2013 until 2020.

He recently co-led the development of a new global blueprint for the care of people with CF. His work will help the 3,500 Australians with the incurable genetic disorder to live decades longer. He has more than 290 peer-reviewed publications and has received more than $24 million in grant support over the past 10 years.

Director, Building Operations

Michelle Richards *BSc PGradDipCM MBA GAICD*

Michelle commenced as Director of Building Operations at TRI in 2016, after 4 years establishing key operational functions during the development of TRI. In her role, she oversees TRI's largest business unit, which incorporates Building Services, Core Facilities, Workplace Health and Safety, Scientific Services, and Central Stores and Sterilisation. Michelle is also responsible for the start-up industry presence at TRI, as well as the cleanrooms that provide manufacturing capabilities to the institute's commercial occupants. Prior to joining TRI, she worked in medical research in Australia and the United Kingdom for more than 10 years, gaining expertise in areas including molecular biology, immunology, developmental biology and clinical trials. Michelle is a Graduate of the Australian Institute of Company Directors.

Director, Legal Services

Kirsten Kiel-Chisholm *LLB (Hons I) BIntBus GradDipAppCorpGov FGIA ACC-ICC*

Kirsten commenced at TRI in July 2009 and is an experienced General Counsel and Company Secretary. As Director of Legal Services, Kirsten is responsible for managing the Institute's legal requirements and providing legal advice to the Board and management across a range of areas. Kirsten also oversees Human Resources, Compliance and Internal Audit for the Institute.

Kirsten previously worked as General Counsel and Company Secretary for the CRC for Sustainable Tourism. Prior to that she was a corporate lawyer in private practice in both Australia and the United States and co-authored 3 publications on compliance with ASX and APRA corporate governance requirements.

Director, Finance

Sue Davis *AssocDipBus BBus(Mgt) MAcctg CPA*

Sue joined TRI in July 2020 as Finance Director with strategic oversight of finance, IT and quality management. Prior to joining TRI, Sue held senior finance and operational roles with TAFE Queensland, Bond University and Infinite Aged Care Group.

Director, Communications and Marketing

Siobhan Barry *BA (Hons I) BJ*

Siobhan joined TRI in September 2021 after years working in communications management roles in the medical research sector. She started her career as a journalist with the Australian Broadcasting Corporation, and prior to joining TRI, was the Manager of Media, Government and Community Relations at QIMR Berghofer Medical Research Institute. Siobhan is experienced in corporate and strategic communications, media and government relations, community and stakeholder engagement, and issues and crisis management.

Director, Clinical Translation

Associate Professor Helen Benham *MBBS (Hons) B.App. Sci (Podiatry) PhD FRACP GAICD*

Helen is an experienced Rheumatologist who divides her time between clinical practice at the PA Hospital and translational research into rheumatic diseases. She is an Associate Professor with UQ and a previous NHMRC Translating Research into Practice (TRIP) Fellow.

Helen has experience across the research spectrum, including in basic science, clinical trials and applying the principles of implementation science to her clinical field. Helen is a Director on the Board of Metro South Health and was previously a Board Director of the Princess Alexandra Hospital Research Foundation. She is currently the Chair of Arthritis Queensland.

Director, Imaging Infrastructure

Professor Graham Galloway *BSc (Hons) PhD GradCertCompSci*

Graham is a former CEO of the National Imaging Facility. He is seconded from UQ to TRI as the Director, Imaging Infrastructure (0.5FTE). He is also the Academic Lead for the Preclinical Imaging Core Facility at TRI. Graham's research is defined by finding innovative solutions to novel problems by breaking new ground, and by advancing research using magnetic resonance.

Retired:

- Director, Communications and Marketing
  Louise Morland
  May 2014 – September 2021
- Chair, Clinical Research Facility Committee
  Professor David Theile AO
  January 2016 – August 2021

World-first research a game changer for spinal cord injuries

TRI-based Mater Research Principal Fellow, Professor Jean-Pierre Levesque, is leading an international collaboration to develop new treatments for neurogenic heterotopic ossifications (NHO) – an extremely debilitating complication of spinal cord injuries.

Professor Levesque says there are no effective treatments to prevent or stop the formation of these news bones outside of the skeleton.

"The only treatment is complicated surgical removal and even after this, the bones can still grow back," he says.

Professor Levesque's project is funded through a US Department of Defense Spinal Cord Injury Research Program – Expansion Award grant.

9.4 Committees

9.4.1 Shared Leadership Committee

The Shared Leadership Committee (SLC) is chaired by the TRI CEO and is comprised of the most senior member of each of TRI's partners. The SLC is a source of advice to the TRI CEO; a forum for planning collaborative activities; and, in some cases, a decision-making body, except for those matters that are the responsibility of the ELT. The SLC also facilitates two-way communication between the committees (outlined below) and TRI more broadly.

Mater Research

Professor Maher Gandhi

MBChB PhD FRCP (UK) FRCPath (UK) FRACP

Maher is the Executive Director and Director of Clinical Research at Mater Research, and the Group Leader of Mater's Blood Cancer Research Group. He is also a pre-eminent Senior Staff Haematologist at the Princess Alexandra Hospital. As the Director of Clinical Research, Maher's role is to set strategy and to create a clinical research program that influences future national and international health policy and practice through the full integration of Mater Research with clinical care. Whilst centred on Mater Research, the role also has close involvement with Mater Health, Mater Education and the Mater Foundation.

QUT

Distinguished Professor Patsy Yates AM

PhD RN FACN FAAN

Patsy is the Executive Dean of QUT's Faculty of Health and a Co-Director of the university's Centre for Healthcare Transformation. A Registered Nurse, Patsy has extensive experience as a leader in education and research in the health sector. She leads a large competitively funded research program and also holds visiting appointments at the Royal Brisbane and Women's Hospital and the Princess Alexandra Hospital. Patsy is the Director of Queensland Health's state-wide Centre for Palliative Care Research and Education. She is also a Senior Fellow at the University of Pennsylvania and is the President of the International Society of Nurses in Cancer Care.

Metro South Research

Professor John Upham

MBBS (Hons) FRACP PhD FThorSoc GAICD

John is the Chair of Metro South Research. He is also a Respiratory Physician and clinician scientist with interests in immune dysfunction in lung diseases, vaccination and innovative approaches to improving patient care. After completing clinical training in Brisbane, John undertook research training in Western Australia and Canada. He currently holds appointments with the Princess Alexandra Hospital and The University of Queensland. John is the President of the Thoracic Society of Australia and New Zealand.

UQ

Professor Paul Clarke

PhD FRSB

Paul is Director of The University of Queensland Diamantina Institute (UQDI), a leading medical research centre that focuses on cancer, immunology and the genetic basis of disease. UQDI forms a major part of the Translational Research Institute. Paul joined UQ in 2017 from the University of Dundee in Scotland. He previously held research fellowships at the University of Manchester in England, and the European Molecular Biology Laboratory in Heidelberg, Germany. His current research interests are the molecular mechanisms of cell division, chromosome instability and mitotic cell death. He also studies cellular responses to anti-cancer drugs.

Photo courtesy QUT

Anti-androgen therapy may fuel spread of bone tumours in advanced prostate cancer.

QUT scientists, led by TRI-based Dr Nathalie Bock, have developed miniature 3D bone-like tissue models to study advanced breast and prostate cancers that have spread to the bones.

Their latest finding could lead to improved personalised treatments for patients, following the discovery that commonly used anti-androgen therapies could fuel the spread of bone tumours.

In the future, Dr Bock will use her model with patient-derived cells from patients undergoing prostatectomy so that it could be used as a personalised preclinical diagnostic and drug testing tool.

"By screening existing and novel drugs using the bone tumour model in the laboratory, doctors will be able to treat individual patients with an anti-cancer therapy that can best suits their clinical needs," Dr Bock said.

This research was supported by the National Health and Medical Research Council of Australia, the Australian Research Council and the Prostate Cancer Foundation of Australia.

9.4.2 Shared Operations Committee

The Shared Operations Committee (SOC) supports TRI's overarching operational direction and oversees the facilities that are aligned with TRI's and its partners' strategic plans. This committee is chaired by the TRI Director of Building Operations and consists of the operational leads from each of the partners, along with TRI's Director of Finance and Core Facilities Manager. The members of this committee are responsible for ensuring that progress on TRI's initiatives are communicated to staff throughout their own organisations.

The SOC saw its first full year of operation in 2021, providing oversight to issues relating to the Core Facilities, as well as more general institute space and laboratory operations. The committee has been an effective forum for discussion and collaboration between partners, with notable successes including the recruitment and onboarding of Academic Leads for most core facilities, advocacy for appropriate resourcing within Cores, and review and endorsement of capital investments to renew or add capability to TRI's facilities. The SOC also established a formal connection with the TRI Research Translation Committee (RTC), scheduling shared meetings twice annually to discuss matters of strategic importance relevant to both.

SOC sub-committees

SOC sub-committees were established in the final quarter of 2021 to provide a greater focus on strategic and future planning and less emphasis on daily operations. The sub-committees' membership was established by the SOC and each committee is chaired by the relevant Academic Lead for that Core Facility. Membership has been sought from a combination of more senior researchers and Group Leaders, as well as hands-on users, to ensure core operations continue to align with and meet research needs.

9.4.3 Research Translation Committee

The Research Translation Committee (RTC) is chaired by Professor Ranjeny Thomas AM, Arthritis Qld Chair of Rheumatology with UQDI. The RTC consists of TRI-based researchers with expertise in research translation, an engagement representative from TRI and an industry partner representative.

The RTC has 3 key roles:

- To support the Shared Leadership Committee to facilitate and develop opportunities for translation at TRI.
- To support the development of translational pathways, and training and career development in research translation for TRI scientists and staff.
- To identify opportunities for research engagement with industry.

9.4.4 Clinical Alliance Network

The Clinical Alliance Network (CAN) first met in 2021 following the appointment of the Director, Clinical Translation. It works to establish strong links between TRI researchers and clinicians within TRI's partner organisations and across Brisbane to provide opportunities for clinicians to be actively and sustainably engaged in translational research.

9.4.5 TRI Hub Advisory Committee

This committee was created to engage with Chief Information Officers from TRI's partners as IT services moved from UQ to TRI. This committee has an independent Chair and meets up to 6 times a year in coordination with Board meetings.

9.4.6 Work Health & Safety Committee

The Work Health and Safety Committee is a consultative group comprising and representing TRI, its partners and commercial tenants. The committee exists to:

- facilitate cooperation between TRI and licensees of its premises to instigate, develop and carry out measures to secure the work health and safety of people working and studying in TRI's facilities
- establish and maintain a WHS risk management system
- assist in developing and reviewing health and safety policies, guidelines and procedures that apply across TRI's facilities
- perform any other functions prescribed by the *Work Health and Safety Regulations 2011* or agreed between TRI and the committee.

9.4.7 Sustainability Committee

This consultative group comprises and represents TRI, its partners and the commercial occupants. It is responsible for promoting, and developing when needed, sustainability programs and initiatives at TRI. It also ensures TRI's environmental and sustainability policies and practices are reviewed on a regular basis to ensure they are current, effective and in line with leading practice.

The committee is committed to:

- green purchasing (tender documents)
- sustainable waste management and recycling practices
- encouraging and supporting sustainable equipment lifecycle (purchase to disposal)
- minimising electricity and water usage
- promoting, using and developing TRI's garden and green space.

9.4.8 Wellbeing Committee

Established in 2015, this committee focuses on delivering initiatives that encourage healthy behaviours at TRI. It supports annual events such as R U OK? Day, as well as encouraging use of the PAH gym and relaxation spaces such as the wellbeing room on level 7.

9.4.9 Childcare Committee

New to TRI in 2021, the Childcare Committee worked collaboratively to introduce a highly successful on-site vacation care program at TRI during school holidays. The committee was recognised with an inaugural *One*TRI Award.

9.4.10 Sexual Harassment Awareness and Prevention Committee

The Sexual Harassment Awareness and Prevention (SHAP) Committee was launched in 2021 to take a strong proactive stand against sexual harassment and to send a message that it will not be tolerated at TRI. The SHAP Committee includes representatives from TRI and its partners. The committee organised an inaugural SHAP week in 2021, which included 'first responder' training, 'ethical bystander' training, and training for TRI's senior leadership teams.

People and community

Highlights

1,112
people based at TRI

Launched the
***One*TRI**
Awards

Introduced
Town Hall
meetings

TRI is home to a vibrant research community drawn from multiple academic, health and commercial organisations. Creating a *One*TRI community was a key focus for TRI and its partners in 2021.

10.1 Overview

TRI is home to more than 1,100 researchers and support staff. It also draws in more than 2,000 external and industry users of its Core Facilities and clinical trial facilities.

Since its launch, the institute has been committed to creating a strong, collaborative TRI community. In 2021, TRI and its partners launched the *One*TRI initiative to further build a unified culture and to enhance and celebrate joint activities and programs.

10.2 People working at TRI

There are 3 core groups who work at the institute: TRI Corporate staff; researchers and research support staff who work for TRI's 4 partners; and staff who work for the commercial tenants based at TRI. Together, these groups totalled 1,112 people in 2021.

In addition to academic researchers, the UQ Faculty of Medicine also uses part of TRI's ground floor for lectures for its Southside Unit Medical School and its SPARQ-ed facility (see section 4.5).

Who's at TRI?

818
Researchers & research support staff

197
Commercial tenant staff

97 TRI
Corporate staff

2,098
External Core Facility users

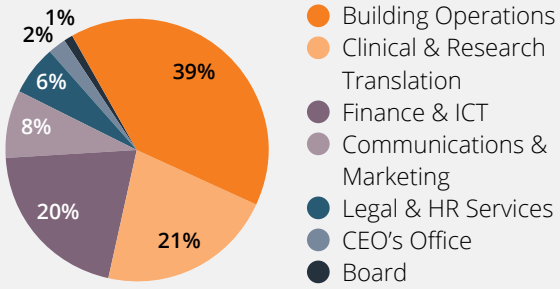
Some of the winners of the 2021 OneTRI Awards pictured with TRI CEO, Professor Scott Bell

10.2.1 TRI Corporate staff

Led by the CEO Professor Scott Bell, TRI Corporate comprised 97 staff (with an FTE of 83.4) at 31 December 2021. These staff were employed across 5 business units. Each business unit is led by a member of the Executive Leadership Team and performs a range of functions to help TRI achieve its strategic goals.

For a breakdown of the distribution of TRI Corporate staff across these business units, see figure 10.1. For more information about the TRI Corporate business units, see Chapter 8.

Figure 10.1: Distribution of TRI Corporate staff across business units in 2021



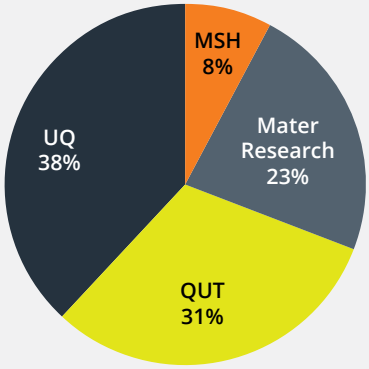
10.2.2 TRI's partners

As outlined above, TRI has 4 research partners: The University of Queensland, including the UQ Diamantina Institute (UQDI) and the Faculty of Medicine; the Queensland University of Technology; Mater Research; and, Metro South Health.

As of 31 December 2021, there were 89 research groups, with 818 researchers and research support staff, based at TRI. UQ (predominately UQDI) has the largest number of research groups – comprising 38% – followed by QUT with 31% (see figure 10.2). It should be noted that some MSH research groups also fall under UQ.

The research group leaders for each of the 4 partners are listed in Appendix 1.

Figure 10.2: Breakdown of academic research groups at TRI



10.3 *One*TRI Awards

In 2021, the TRI Shared Leadership Committee introduced the *One*TRI Awards to celebrate those members of our community who live the TRI values and actively promote a *One*TRI culture. The recipients of the inaugural *One*TRI Awards were:

- Dr Aideen McInerney-Leo, UQDI
- TRI Sexual Harassment Awareness and Prevention Committee
- TRI Childcare Committee
- SPARQ-ed program
- TRI Scientific Services team
- TRI Workplace Health and Safety team.

10.4 TRI Town Hall meetings

TRI's Shared Leadership Committee ran 3 Town Hall meetings in 2021.

The new initiative provided an opportunity for the TRI community to engage with and participate in information-sharing sessions on areas of interest and programs relating to all TRI occupants.

10.5 TRI community events

In 2021, TRI again supported a range of community-building initiatives, which were run throughout the year. These fun, social events bring together staff from across the building.

These included an end-of-year building-wide celebration; a building-wide clean-up on Melbourne Cup Day, followed by a lunch; an R U OK? Day morning tea; an inter-institute soccer competition; and a Christmas food drive for the Salvation Army.

A range of fundraising events for various external charities and causes were held in the TRI atrium, organised by different groups. TRI's student groups were also very active, organising several movie nights in the TRI auditorium.

10.6 Special initiatives

10.6.1 Sexual Harassment Awareness and Prevention (SHAP) week

The Association of Australian Medical Research Institutes (AAMRI) has identified sexual harassment as one of the reasons women leave the medical research sector in higher proportions than men. AAMRI has named addressing sexual harassment and promoting safe workplaces as one of its 4 priority areas, noting that the sector can be a fertile environment for harassment.

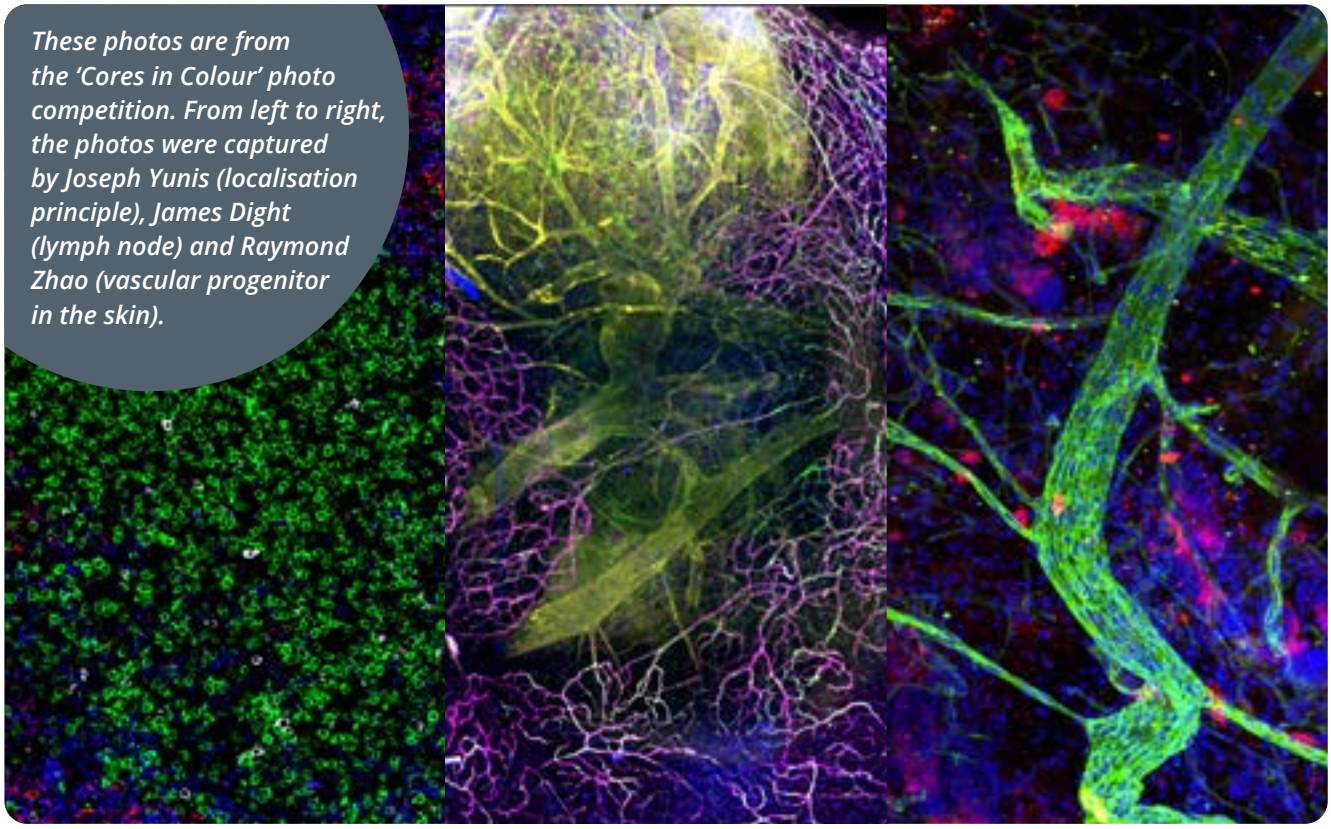
In response, TRI took a strong proactive stand against sexual harassment, hosting an inaugural *Sexual Harassment and Prevention (SHAP) Week* with our partners in October 2021. The week aimed to raise awareness about sexual harassment and promote prevention measures and the support available for those affected.

A cornerstone of the week-long program was creating a network of first responders. Twenty-four members of the TRI community participated in the 2-day First Responder training led by Shauna Crimean and Franc Hayes from UQ. This included participants from each of our partner organisations as well as TRI.

A further 30 members of our community took part in a shorter Ethical Bystander training program. Ethical bystanders play an essential role in keeping workplaces safe and helping to build a culture of respect and zero-tolerance for violence.

The week-long program also included training for senior leaders, as well as 2 seminars with keynote speakers: internationally recognised Emeritus Professor Marcia Devlin; and Shirralee Ransley, Director of SAFE Consulting.

As part of the program, TRI developed a booklet that summarised the support options available to staff impacted by sexual misconduct. The document includes details of TRI's and our partners' employee assistance programs and support services.



These photos are from the 'Cores in Colour' photo competition. From left to right, the photos were captured by Joseph Yunis (localisation principle), James Dight (lymph node) and Raymond Zhao (vascular progenitor in the skin).

10.6.2 Reconciliation Action Plan

In 2021, TRI formed a Reconciliation Action Plan (RAP) Working Group to lead TRI on its reconciliation journey.

The RAP Working Group – which includes representatives from TRI and its 4 partners – will collectively take responsibility for developing TRI's 'Reflect' Reconciliation Action Plan with support from Mr Murray Saylor of Tagai Management Consultants. The working group has also welcomed elders, Aunty Beryl Meiklejohn and Uncle Charles Passi, who will help guide TRI in developing the RAP. TRI will be also working with David Williams of Gilimbaa to develop artwork for our RAP.

10.7 On-site vacation care program

TRI's new Childcare Committee was proactive in organising several vacation care activities for primary-school-aged children of TRI-based staff. A range of programs – delivered by external providers – were held on-site at TRI during school holidays.

10.8 Postgraduate student activities

TRI is home to more than 100 postgraduate students. These research students are represented by an informal student group.

This active group organised a range of events in 2021 with funding and support from TRI. These included:

- MTP Career Symposium sponsored by TRI and MTPConnect
- a fortnightly seminar program
- a quarterly movie night in the TRI auditorium
- TRI Student Olympics with fun games and trivia
- an end-of-year pizza party.

Some of the initiatives organised by the TRI community in 2021.

TRI Foundation

UQDI Professor Ian Frazer AC and his wife Caroline at the premiere of the film *Conquering Cancer*

The TRI Foundation supports the training and development of early-career researchers and students at TRI. Tax-deductable donations made to the TRI Foundation are distributed directly to students and researchers as bursaries, or, in some cases, distributed to research groups to support specific projects.

11.1 TRI Foundation

In 2021, the TRI Foundation focused its efforts on building financial support, and on developing new competitive grant schemes funded by donations. The grant schemes have a particular focus on postgraduate students, and on research projects conducted by early-career scientists.

Funding was received from a range of sources. These include private ancillary funds, TRI staff, corporate donations and the general community.

The Foundation ran fundraising campaigns and events. In 2021, 2 notable events included a community-focused fundraising event for breast cancer research, and the world premiere of the documentary *Conquering Cancer*.

The TRI Foundation thanks the numerous individuals and organisations who supported it in 2021.

11.2 TRI Foundation Board members

Chair
Professor Ian Frazer AC

Professor Ian Frazer works to raise awareness and funds for medical research through his research role with UQ and as Chair of the TRI Foundation Board.

Professor Frazer is also Chair of the Australian Medical Research Advisory Board (AMRAB); Director and Chief Scientific Officer of Implicit Bioscience Pty Ltd; a Director of Frazer Family Foundation Pty Ltd, Australians Helping Abroad and the Skin Cancer Network; and non-Executive Director of Microba Life Sciences. He is a Fellow of the Australian Academy of Health and Medical Sciences and was the founding Chief Executive Officer and Director of Research at TRI.

Internationally renowned for the co-creation of the technology for the cervical cancer vaccines, Professor Frazer began his career as a renal physician and clinical immunologist in Edinburgh, Scotland, before immigrating in 1981 to Australia. He continued his clinical training and pursued studies in viral immunology and autoimmunity at the Walter and Eliza Hall Institute of Medical Research with Professor Ian Mackay. In 1985, Professor Frazer accepted a teaching post with UQ. In 2006, he was named Australian of the Year. Professor Frazer continues his research at with UQ at TRI, which includes the development of immunotherapies for head and neck cancers.

Director
Mr Dominic McGann

Mr McGann is a partner with McCullough Robertson, a leading Australian law firm. Prior to joining the firm in 1996, he held prominent positions with the Queensland Government. Mr McGann's extensive experience in communicating and negotiating with Indigenous communities positions him as one of Australia's leading experts in this field.

Mr McGann holds several additional appointments. He is the Chair of Flagship Investments Limited and Climate-KIC Australia Ltd; Co-Chair of the Carumba Institute Advisory Board, QUT; a Member of the QUT Council; a Director of the Frazer Family Foundation; and is currently completing a strategic review of the Office of the Information Commissioner in Queensland.

Director
Dr David Watson

Dr Watson has a PhD in accounting from Ohio State University and has previously worked as an Associate Professor at the University of Illinois Urbana-Champaign. He held several appointments at UQ, including Professor of Accounting and Business Finance, Head of the Department of Commerce, and Dean of the Faculty of Commerce and Economics.

In 1984, Dr Watson moved from academia into politics. He held a seat in the Australian House of Representatives before moving to the Queensland Government, where he held several prominent positions, including Deputy

Leader of the Liberal Party, Parliamentary Secretary, Minister for Public Works and Housing, and the Liberal Party Leader in opposition.

In 2004, Dr Watson retired from politics. He was subsequently appointed as Commissioner to the Commission of Inquiry into the Integrity Management Systems in the Queensland Racing Industry; as Deputy Chair of the Queensland Competition Authority; as a non-Executive Director of the Stanwell Corporation Ltd and The Tatts Group Ltd; and, as the inaugural Chair of the TRI Board.

11.3 Breast Cancer Appeal

In 2021, the TRI Foundation continued its support for breast cancer researchers based at TRI by holding a breast cancer appeal. The event was organised in conjunction with the research groups of QUT's Professor Rik Thompson and UQDI's Associate Professor Fiona Simpson, with several scientists providing a research update to breast cancer patients, survivors and their consumer advocates.

11.4 Bequest & memorials

The Foundation is honoured to receive bequests.

Bequests can be made to the Foundation via a donation from a last will and testament. These can fund a research program, sponsor a PhD student as they start their career in medical research, or purchase new equipment to get an important project off the ground.

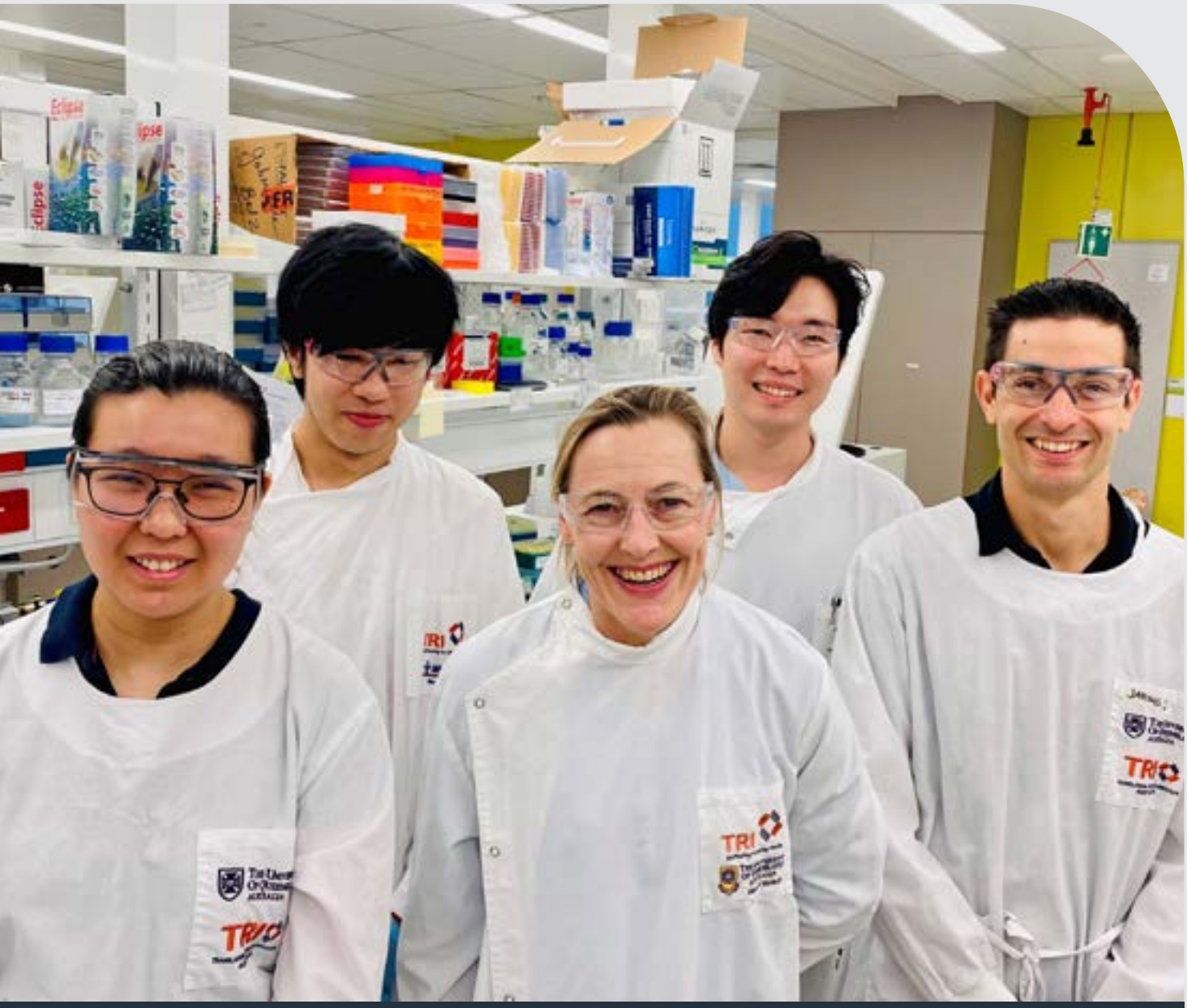
11.5 *Conquering Cancer* film premiere

The TRI Foundation and TRI supported the world premiere of the documentary, *Conquering Cancer*.

The film was distributed by Fan Force, who included a donation to the TRI Foundation from each ticket sold for the premiere.

The film played to a full cinema, with Brisbane the only Australian city able to hold the event due to major COVID-19 lockdowns interstate at the time.

The documentary was made with the assistance of Professor Frazer.



Researchers investigating a recently discovered type of immune cell find the cell can halt the rapid development of melanoma.

A TRI-based team from The University of Queensland – along with their collaborators from the Walter and Eliza Hall Institute and Peter MacCallum Cancer Centre – took a close look at the Group 2 innate lymphoid cells (ILC2), which are crucial for initiating and orchestrating immune responses.

UQ Diamantina Institute's Professor Gabrielle Belz (pictured, centre, with her team) said, "We discovered these cells can halt the rapid development of full-blown melanoma lesions and can potentially be harnessed to drive protective functions with potential immunotherapeutic applications."

"This gives us real hope for improving outcomes for patients."

Looking forward

One of TRI's focuses in 2021 was developing a new strategic plan to take effect on 1 January 2022. This new plan was developed in consultation with groups across TRI and will guide the institute's direction, strategy and priorities until the end of 2024.

12.1 Overview

TRI's Strategic Plan (2019–2021) expired at the end of 2021. The plan – against which TRI's achievements have been reported in this annual review – provided the institute's roadmap for 3 years, including for the first 2 years of the COVID-19 pandemic.

12.1.1 Consultation and development

In 2021, TRI's CEO, Professor Scott Bell, began consulting widely with groups across the TRI community on the priorities for TRI's new Strategic Plan (2022–2024). TRI engaged the consultancy PwC to help guide the consultation process, and to help develop the plan itself. PwC led 2 consultation workshops. The first was with TRI-based researchers. The second involved TRI's Executive Leadership Team (ELT), the Shared Leadership Committee (SLC), the Shared Operations Committee (SOC) and the head of the Research Translation Committee (RTC).

The workshops involved brainstorming sessions to develop goals that would have buy-in from the whole TRI community. Importantly, during these sessions, participants also workshopped a new Vision and Purpose for TRI.

12.1.2 New Strategic Plan (2022–2024)

The new Strategic Plan, which took effect on 1 January 2022, has set 4 overarching goals for the institute. These goals are what TRI wants to achieve through collaboration, leveraging our resources, looking after our people, and connecting with our stakeholders. After the new plan was approved, the CEO hosted 2 lunchbox sessions in September 2021 to update researchers, operations leaders from TRI's partners, and TRI Corporate managers on the final strategy (detailed below).

Goal 1: Partnerships – Promote thriving research, clinical and industry partnerships

Key Strategies

- Map TRI research capabilities and capacity to national health priorities to enable and facilitate collaboration.
- Increase connections for TRI-based scientists with clinicians and industry.
- Collaborate on grant opportunities (including Medical Research Future Fund) to address important clinical questions.

Goal 2: Collaboration – Foster a collaborative environment for people and ideas to flourish

Key Strategies

- Promote a *One*TRI culture through the creation of joint opportunities, initiatives and shared collaborative spaces.
- Provide a workplace that values safety, diversity, inclusion, health and wellbeing.
- Support, train and mentor our people to increase translational capability and to promote career success.

Goal 3: Excellence – Achieve research excellence through access to world-class capabilities

Key Strategies

- Maintain and facilitate access to cutting-edge research infrastructure for TRI researchers and for our collaborative networks in Queensland.
- Develop and publicise TRI-based research excellence, infrastructure and capabilities.
- Provide opportunities to increase capability of TRI research support and professional staff.
- Deliver and support novel investigator-initiated, MTP industry and sponsored clinical trials.

Goal 4: Relationships – Strengthen relationships for investment in ideas, discovery and outcomes

Key Strategies

- Promote a strong, cohesive TRI through its influence nationally and internationally by collaboration with health and medical research organisations.
- Build sustainable relationships with industry and peak industry bodies.
- Engage with community consumer networks.
- Foster relationships with governments.

The Australian Centre of Excellence in Melanoma Imaging and Diagnosis (ACEMID) was launched at TRI in September 2021, making world-first 3D scanning technology available for diagnosing skin cancer.

TRI-based UQDI dermatologist, Professor H. Peter Soyer, said the technology enabled researchers to track moles and skin spots over time using full-body mapping.

"This technology is revolutionising early melanoma detection using 3D state-of-the-art body imaging systems that take an image in milliseconds," Professor Soyer said.

ACEMID will use the technology in the world's largest melanoma imaging trial using the 3D full body imaging system located at the Princess Alexandra Hospital next to TRI.

Pictured: Mr Tim Crommelin, ACRF Board member; The Hon Mrs Julieanne Gilbert, Queensland Assistant Minister for Health and Regional Health Infrastructure; Professor H. Peter Soyer, Director, Dermatology Research Centre, UQDI; and, Professor Deborah Terry AO, Vice-Chancellor and President, UQ.

Appendix

Appendix: 2021 TRI Partner Group Leaders

Mater Research

Title	First Name	Surname	Position
Associate Professor	Jakob (Jake)	Begun	Group Leader, Inflammatory Bowel Diseases (IBD) Director, Gastroenterology, Mater Hospital
Professor	Vicki	Clifton	NHMRC Senior Research Fellow Group Leader, Pregnancy and Development
Associate Professor	Paul	Dawson	Mater Foundation Principal Research Fellow Group Leader, Neurodevelopmental Research Head (Education), Mater Research MRI-UQ Director, Higher Degree Research
Dr	Adam	Ewing	Senior Research Fellow Group Leader, Translational Bioinformatics
Professor	Geoffrey	Faulkner	Professor in Neuroscience, Queensland Brain Institute and Mater Research Group Leader, Genome Plasticity and Disease
Professor	Josephine	Forbes	Program Leader, Chronic and Integrated Care Group Leader, Therapies for Diabetes
Professor	Brian	Gabrielli	Professorial Research Fellow Group Leader, Smiling for Smiddy Cell Cycle Research
Professor	Maher	Gandhi	Executive Director and Director, Clinical Research Group Leader, Blood Cancer Research Pre-eminent Senior Staff Haematologist, Princess Alexandra Hospital
Dr	Jake	Gratten	Principal Research Fellow Group Leader, Cognitive Health Genomics
Associate Professor	Sumaira	Hasnain	NHMRC Career Development Fellow and Senior Research Fellow Group Leader, Immunopathology
Professor	John	Hooper	Mater Foundation Fellow and Senior Research Fellow Group Leader, Cancer Cell Biology
Professor	David	Hume	Professorial Research Fellow Group Co-leader, Macrophage Biology
Dr	Dhanisha	Jhaveri	Senior Research Fellow Mater Research and Queensland Brain Institute Program Leader, Neuroscience; Group Leader, Neural Stem Cell Biology Research
Professor	Jean-Pierre	Levesque	Group Leader, Stem Cell Biology Research
Professor	Allison	Pettit	Professor of Medicine Director, Biomedical Research Group Leader, Bones and Immunology
Professor	Kristen	Radford	Principal Research Fellow Co-Leader, Cancer Program Group Leader, Cancer Immunotherapies Research
Dr	Sandra (Sandy)	Richardson	Career Track Fellow Group Leader, Developmental Molecular Genetics
Associate Professor	Katharina	Ronacher	Principal Research Fellow Group Leader, Infection, Immunity and Metabolism Research
Professor	Kim	Summers	Professorial Research Fellow
Associate Professor	Ingrid	Winkler	Senior Research Fellow Group Leader, Stem Cells and Cancer

Queensland University of Technology

Title	First Name	Surname	Position
Dr	Mark	Adams	Senior Research Fellow Group Leader within the Cancer and Ageing Research Program
Professor	Selena	Bartlett	Professor of Neuroscience Group Leader, Neuroplasticity, Addiction and Neuroscience
Associate Professor	Jyotsna	Batra	Advance Queensland Fellow Group Leader within APCRC-Q
Dr	Nathalie	Bock	Senior Research Fellow Deputy Co-Director, Regenerative Medicine Program Group Leader, Bone and Tumour Bioengineering Research
Dr	Emma	Bolderson	Senior Research Fellow Group Leader, Molecular Biology of Ageing Laboratory Co-founder, Carpe Vitae Pharmaceuticals
Professor	Lisa	Chopin	Group Leader, Gherlin Research
Distinguished Professor	Judith	Clements	NHMRC Principal Research Fellow Director, Cancer Program Scientific Director, APCRC-Q
Dr	Laura	Croft	Advance Queensland Industry Research Fellow Group Leader within the Cancer and Ageing Research Program
Associate Professor	Michael (Mike)	Doran	NHMRC Research Fellow Program Leader, Stem Cells and Tissue Engineering Group leader, Stem Cells and Cancer
Associate Professor	Pascal	Duijf	Group Leader, Genomics and Informatics
Dr	Neha	Gandhi	Advance Queensland Industry Research Fellow Group Leader, Biomolecular Modelling
Dr	Jennifer	Gunter	Senior Research Fellow Group Leader, Cancer Metabolism
Dr	Sonia	Henriques	Senior Lecturer Group Leader, Peptide Therapeutics and Membrane Biology
Dr	Brett	Hollier	Senior Research Fellow Group leader within APCRC-Q
Associate Professor	Paul	Leo	Principal Research Fellow Senior Bioinformatician, Australian Translational Genomics Centre
Dr	Simon	McIlroy	ARC Future Fellow Team Leader within the Centre for Microbiome Research
Professor	Colleen	Nelson	Executive Director, APCRC-Q Chair, Prostate Cancer Program
Professor	Kenneth	O'Byrne	Professor, Medical Oncology Clinical Lead, Cancer and Ageing Research program and the Australian Translational Genomics Centre Consultant Medical Oncologist, Metro South Health
Dr	Jatin	Patel	National Heart Foundation Future Leader Fellow Group Leader, Vascular Regeneration and Repair Group
Dr	Lisa	Philp	Advance Queensland Industry Research Fellow – Mid Career Group Leader, Translational Adipokine Group

Associate Professor	Pamela	Pollock	Principal Research Fellow Group Leader, Endometrial Cancer
Professor	Derek	Richard	Chenhall Research Scientist and Principal Research Fellow Scientific Director, Cancer and Ageing Research Program Director, Queensland Centre for Drug Discovery
Dr	Aaron	Smith	Senior Lecturer Group Leader, Melanoma Group
Associate Professor	Sally-Anne	Stephenson	Group Leader, Protein Ablation Cancer Therapeutics
Professor	Erik (Rik)	Thompson	Professor of Breast Cancer Research Group Leader, Invasion and Metastasis Unit – Breast Cancer
Professor	Gene	Tyson	Professor of Microbial Genomics ARC Future Fellow Director, Centre for Microbiome Research Co-founder, Non-Executive Director, Microba Life Sciences
Associate Professor	Ian	Vela	Lead Clinician, Queensland Bladder Cancer Initiative Urologic Oncologist, Princess Alexandra Hospital Urologic Oncologist, Urocology
Professor	David	Waugh	Head, School of Biomedical Sciences Group Leader, GU Precision Cancer Medicine
Associate Professor	Elizabeth D.	Williams	Head, Tumour Models Group Leader, Queensland Bladder Cancer Initiative
Dr	Ben	Woodcroft	Senior Research Fellow Team Leader within the Centre for Microbiome Research

The University of Queensland

Title	First Name	Surname	Position
Professor	Andrew	Barbour	Professor, General Surgery (upper gastrointestinal) Group Leader, Surgical Oncology, UQ Diamantina Institute
Professor	Gabrielle	Belz	Chair in Immunology NHMRC Research Fellow Group Leader, Innate Immunology, UQ Diamantina Institute
Professor	Antje	Blumenthal	Group Leader, Infection and Inflammation, UQ Diamantina Institute
Dr	Andrew	Brooks	Senior Research Fellow Group Leader, Cytokine Receptor Signalling, UQ Diamantina Institute
Professor	Paul	Clarke	Director, UQ Diamantina Institute Group Leader, Cell Division and Cell Death, UQ Diamantina Institute
Professor	Riccardo	Dolcetti	Group Leader, UQ Diamantina Institute Head of Clinical and Translational Immunotherapy, Cancer Immunology Program, Peter MacCallum Cancer Centre
Professor	David	Evans	NHMRC Senior Research Fellow Group Leader, Statistical Genetics, UQ Diamantina Institute
Professor	Ian	Frazer AC	Professor of Medicine Group Leader, Epithelial Cancers, UQ Diamantina Institute

Dr	Fernando S. Fonseca	Guimaraes	Senior Research Fellow Group Leader, Experimental and Translational Immunology, UQ Diamantina Institute
Professor	Nikolas	Haass	Principal Research Fellow Group Leader, Experimental Melanoma Therapy
Associate Professor	Emma	Hamilton-Williams	Principal Research Fellow Director (Research Training) Group Leader, Type 1 Diabetes Pathogenesis and Therapy, UQ Diamantina Institute
Dr	Colm	Keane	NHMRC Emerging Leadership Fellow Group Leader, Rare Lymphomas, UQ Diamantina Institute
Professor	Kiarash	Khosrotehrani	Professorial Research Fellow Group Leader, Experimental Dermatology, UQ Diamantina Institute
Dr	Arutha	Kulasinghe	NHMRC Early Research Fellow Group Leader Spatial Biology and Liquid Biopsy, UQ Diamantina Institute
Dr	Snehlata	Kumari	Senior Research Fellow Group Leader, Immuno-modulatory Signalling, UQ Diamantina Institute
Associate Professor	Graham	Leggatt	Associate Professor in Immunology Director (Research Training), Research Strategy and Support (Medicine) Group Leader, Skin Cancer Immunotherapy, UQ Diamantina Institute
Dr	Aideen	McInerney-Leo	NHMRC Early Career Fellow Group Leader, Integrating Genomics into Medicine, UQ Diamantina Institute
Professor	Mark	Morrison	Group Leader, Microbial Biology and Metagenomics, UQ Diamantina Institute
Emeritus Professor	Michael (Mike)	Roberts	NHMRC Senior Principal Research Fellow Emeritus Professor of Clinical Pharmacology and Therapeutics Director, Therapeutics Research Centre, UQ Diamantina Institute
Associate Professor	Fiona	Simpson	Principal Research Fellow Group Leader, Cancer Therapy, UQ Diamantina Institute
Dr	Christopher	Slape	Senior Research Fellow Group Leader, Blood Stem Cell, UQ Diamantina Institute
Professor	Peter H.	Soyer	MRFF Next Generation Practitioner Fellow Director, Dermatology Research Centre, UQ Diamantina Institute Director, Dermatology Department, Princess Alexandra Hospital
Dr	Mitchell	Stark	UQ Amplify Researcher Group Leader, Skin Cancer Genomics and Biomarker Discovery, UQ Diamantina Institute
Associate Professor	Raymond	Steptoe	Principal Research Fellow Group Leader, Autoimmunity and Tolerance, UQ Diamantina Institute
Affiliate Professor	Michael (Mike)	Stowasser	Professor, Princess Alexandra Hospital Southside Clinical Unit, Faculty of Medicine Director, Endocrine Hypertension Research Centre, UQ Diamantina Institute Physician (General), Greenslopes Hospital
Professor	Ranjeny	Thomas AM	Arthritis Queensland Professor of Rheumatology Group Leader, Autoimmune Disease and Restoration of Tolerance, UQ Diamantina Institute
Professor	Brandon	Wainwright AM	Co-Director, Children's Brain Cancer Centre, UQ Diamantina Institute

Associate Professor	James	Wells	Senior Research Fellow Group Leader, Skin Cancer Immunotherapy, UQ Diamantina Institute
Dr	Timothy	Wells	Senior Research Fellow in HMR Group Leader, Host Immune System, UQ Diamantina Institute
Professor	Di	Yu	Professor of Immunology Group Leader, T Cell Immune Mechanism, Monitoring and Modulation (TIM3), UQ Diamantina Institute
Professor	Graham	Galloway	Director of Imaging, TRI Director, Herston Imaging Research Facility
Associate Professor	Glenda	Gobe	(Joint) Group Leader, Kidney Cancer Research Group, School of Biomedical Sciences
Dr	Simon	Wood	Director, Urology; Renal Transplant Surgeon, Princess Alexandra Hospital (Joint) Group Leader, Kidney Cancer Research Group, School of Biomedical Sciences

Metro South Health Hospital and Health Service (& UQ)

Title	First Name	Surname	Position
Professor	Carmel	Hawley	Senior Staff Specialist, Director Haemodialysis Services, Princess Alexandra Hospital Chair, Australasian Kidney Trials Network (AKTN)
Associate Professor	Ingrid	Hickman	Principal Research Fellow, Department of Nutrition and Dietetics, Princess Alexandra Hospital Southside Clinical Unit, Faculty of Medicine, UQ
Professor	Gerald	Holtmann	Director, Department of Gastroenterology and Hepatology, Princess Alexandra Hospital Director of Clinical Innovation – UQ Faculty of Medicine and Faculty of Health and Behavioural Sciences
Professor	David	Johnson	Director, Metro South and Ipswich Nephrology and Transplant Service (MINTS) Medical Director, Queensland Renal Transplant Service, The Princess Alexandra Hospital NHMRC Leadership Fellow Professor of Medicine and Professor of Population Health, UQ Director, Centre for Kidney Disease Research, Faculty of Medicine, UQ
Professor	Elizabeth	Powell	Senior Staff Specialist, Department of Gastroenterology and Hepatology, Princess Alexandra Hospital Director, Centre for Liver Disease Research, Princess Alexandra Hospital Southside Clinical Unit, Faculty of Medicine, UQ
Professor	John	Upham	Professor of Respiratory Medicine, Princess Alexandra Hospital Southside Clinical Unit, Faculty of Medicine, UQ Director, Lung and Allergy Research Centre Chair, Metro South Health Research
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User guide

Abbreviations

AAMRI	Association of Australian Medical Research Institutes
ACCISS	Australian Centre for Complex Integrated Surgical Solutions
ARC	Australian Research Council
BRF	Biological Resources Facility
CAN	Clinical Alliance Network
CI	Co-investigator
CRC	Cooperative Research Centre
CRF	Clinical Research Facility
ELT	Executive Leadership Team
FDA	Food and Drug Administration
FTE	Full time equivalent
GMP	Good manufacturing practice
HR	Human resources
HTQ	Health Translation Queensland
ICT/IT	Information (and Communication) Technology
LINC	Leading Innovations through New Collaborations
LSQ	Life Sciences Queensland
MP	Member of Parliament
MR/MRI	Magnetic resonance (imaging)
MRFF	Medical Research Future Fund
MSH	Metro South Health
MTP	Medical technology, biotechnology and pharmaceutical
NHMRC	National Health and Medical Research Council
PAH	Princess Alexandra Hospital
PI	Principal investigator
QUT	Queensland University of Technology
RHO	Research House Officer
RNA	Ribonucleic acid
RTC	Research Translation Committee
SHAP	Sexual Harassment Awareness and Prevention Committee
SLC	Shared Leadership Committee
SOC	Shared Operations Committee
SPARQ-ed	Students Performing Advance Research Queensland
TM@TRI	Translational Manufacturing at TRI
TRI	Translational Research Institute
TRIC	TRI at Children's
UQ	The University of Queensland
UQDI	The University of Queensland Diamantina Institute
WHS	Workplace Health and Safety

List of figures

Soil microbe artwork by Georgina H. Joyce, PhD Candidate, Centre for Microbiome Research, Queensland University of Technology

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