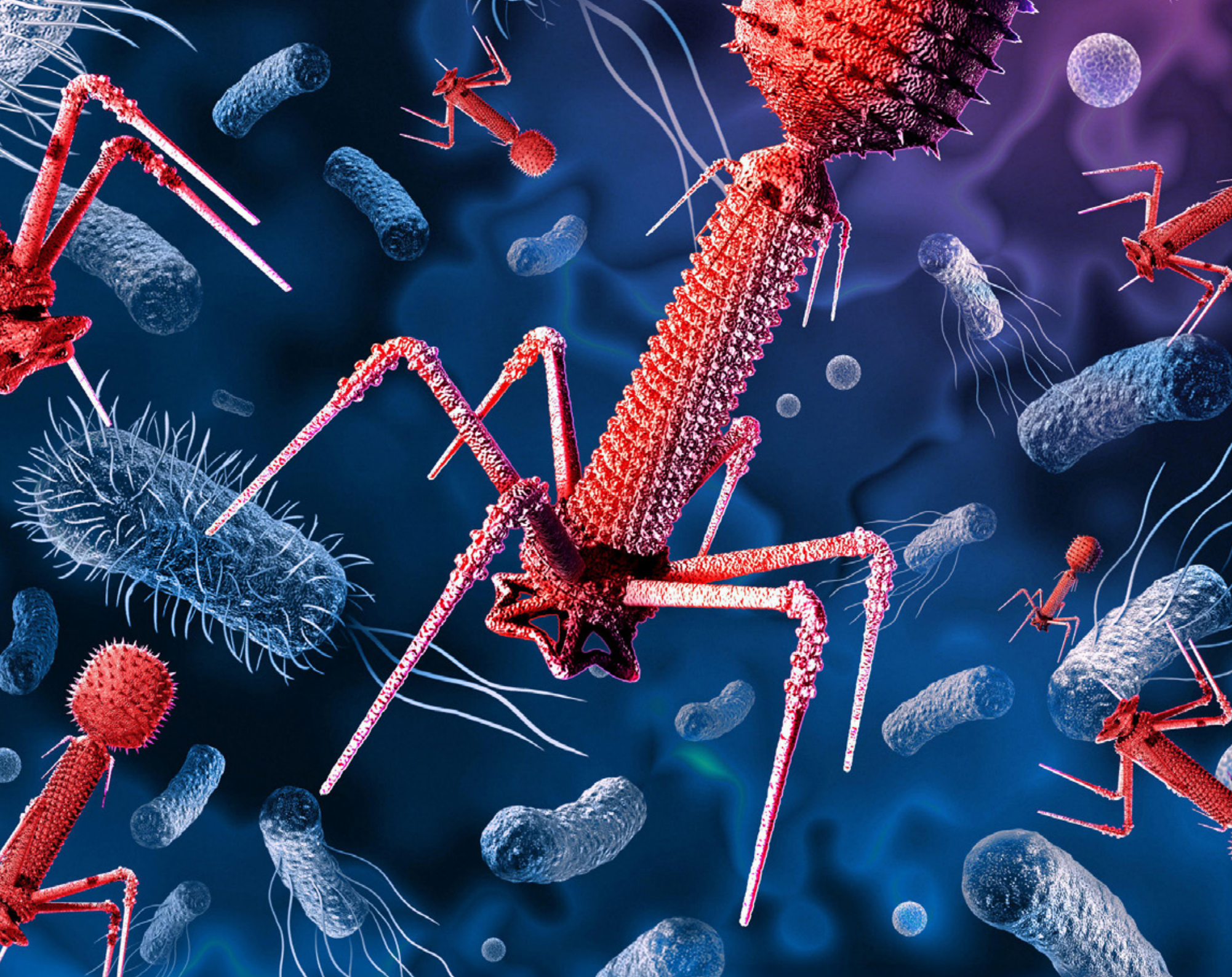




The Institute

BASIL HETZEL INSTITUTE RESEARCH REPORT 2025

Translational health research
at The Queen Elizabeth Hospital



The Hospital Research
Foundation Group

ON THE COVER

Phage Culture Lab Artwork
AusHealth
► aushealth.com.au

Photography
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► asbprophoto.com

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The Basil Hetzel Institute, TQEH, forms part of the Central Adelaide Local Health Network (CALHN), one of ten local health networks within SA Health.



ACKNOWLEDGEMENT OF COUNTRY

We acknowledge that this land we meet, work, live and play on is the traditional lands of the Kaurna people, and we respect their spiritual relationship with this country.

We pay our respects to their leaders, past, present and emerging and acknowledge that their language, cultural and traditional beliefs held for over 60,000 years are still as important and relevant to the living Kaurna and all Aboriginal people today.

Wardli Purrutintli, "Place to live or to be alive"
Designed by accomplished Aboriginal South Australian artist Allan Sumner, a descendant of the Ngarrindjeri, Kaurna and Yankunytjatjara people.



VISION

To be a premier institute for Translational Health Research.

MISSION

The BHI is the productive research arm of The Queen Elizabeth Hospital (TQEH) with a 'bench to bedside' approach.

At the forefront of an emerging area of medical science, it aims to improve public health through collaborative discoveries and innovations in patient care, education and research.

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Director's Report



PROFESSOR GUY MADDERN
Director of Research

Basil Hetzel Institute for Translational Health Research
THE QUEEN ELIZABETH HOSPITAL

2025 has been an exceptional year for the Basil Hetzel Institute for Translational Health Research, marked by significant achievements across our research programs and a strong sense of momentum within our community despite a very challenging research environment.

We have seen during the year considerable success in grants achieved, publications emanating from the work of the Institute, significant staff promotions, record numbers of Higher Degree by Research completions, and highly co-ordinated research efforts flowing from The Queen Elizabeth Hospital (TQEH) campus of the Central Adelaide Local Health Network (CALHN).

The year finished well with the annual TQEH Research Expo highlighting the outstanding research efforts of both the BHI research community as well as a number of other CALHN researchers.

These outcomes reflect the dedication of our researchers, clinicians, students and professional staff, who remain committed to advancing health and medical research. Their resilience and focus have ensured that the BHI remains a vibrant and productive research environment despite the broader pressures facing the sector including considerable turbulence within the research community in CALHN.

One of the challenges of conducting research, particularly in a clinical facility, is that many of the lead researchers have busy clinical commitments, and trying to fit these into an unnecessarily complex, ambiguous and constantly changing research environment often leads to frustration, delays and ultimately decisions

not to develop the challenging and costly research opportunities. Additionally, when key performance indicators are not embedded in clinical streams nor at the board level, it results in a lack of focus on research and diminishes opportunities to deliver world-class research.

Demonstrating year on year growth in research activity, along with measurable success through Category 1 grants and increasingly prominent publications in high impact journals, would signal a clear organisational commitment to strengthening research excellence. While these metrics are not the only means of measuring research output, they can be documented relatively easily and clinical streams or other areas that are able to support and encourage research can perhaps receive more appropriate recognition than the current system is providing.

From the BHI's point of view the year has been a success thanks in large measure to the supportive team working at The Queen Elizabeth Hospital and particular the coordination provided by Brooke Ramsey as the Director of Communications and Systems and Imogen Ball who has maintained a tight control of the infrastructure within the BHI research building.

I would also like to thank CALHN for reappointing me as the Director of Research at the Basil Hetzel Institute for a further five-year term. Working with a new merged university structure, a health system under extreme pressure and changes within the research leadership of the Network will provide no shortage of challenges going forward.

○ **These outcomes reflect the dedication of our researchers, clinicians, students and professional staff, who remain committed to advancing health and medical research.**

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Research Metrics

FROM THE ANNUAL ASSESSMENT OF RESEARCH PRODUCTIVITY (2024-2025)

At the end of each financial year the Director of Research, BHI, TQEH engages with the research leaders at the precinct to assess productivity and progress. This involves collecting data on research inputs (staff, students and grants) and on the research outputs generated by the institute (including papers, patents, policies, products and graduates). Over the 25 years that this process has been happening TQEH has collected a rich, longitudinal data set of research indicators that track research productivity at the precinct.

Here is a summary of the 2024-2025 Annual Assessment of Research Productivity. Detailed information on grants and publications can be found on the BHI website.

► www.basilhetzelinstitute.com.au/latest-news/research-reports



\$32M+ REVENUE
Grants, clinical academic salaries, contracts, scholarships and infrastructure support



\$5.7M+ Peer-reviewed grants



\$2.6M+ Scholarship funding



\$23.9M+ Other research support



\$0.4M+ Infrastructure support



154
New and continuing grants



100+
FTE Clinical and Research Staff



160+
Research students



29
Research groups



507
Journal articles, books and abstracts
► See publications

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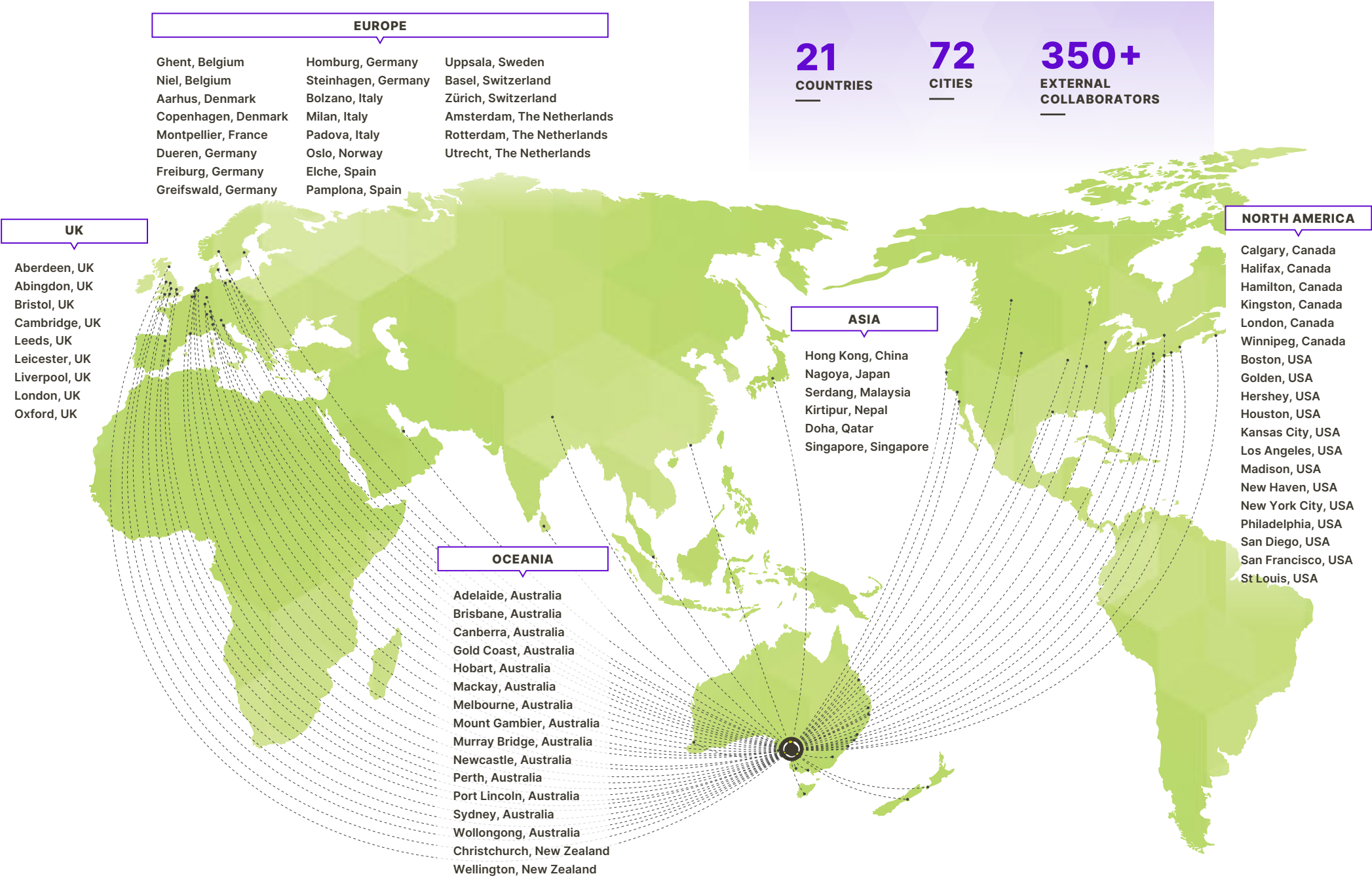
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The translational health research program of the Basil Hetzel Institute, TQEH, is underpinned by a well-established Committee structure.

The BHI Policy Committee, chaired by the Director of Research, BHI, TQEH, has a membership drawn from the research leadership of the BHI, the BHI research community and key stakeholders. The committee provides strategic counsel for the operation of the BHI, support for the Director of Research and advice on available support for the BHI's research programs.

The BHI Policy Committee is assisted by a number of sub-committees, with membership drawn from the BHI and stakeholders, and with defined areas of expertise: the BHI Research Advisory Committee, the BHI Management Committee, BHI Scholarship Selection Committee and the organising committee for the annual TQEH Research Expo.



BHI POLICY COMMITTEE REPORT

During 2025 the BHI Policy Committee met on four occasions and maintained oversight of the activities of the virtual and actual research institute.

The annual audit demonstrated in excess of \$32M of research activity being expended at The Queen Elizabeth Hospital/ BHI campus.

Over the past 12 months there have been 25 Higher Degree by Research completions and in excess of 500 publications emanating from staff and researchers based within the BHI.

Financially we have maintained a responsible and stable expenditure, with essential funding from THRF Group for which the Policy Committee is most grateful. This funding enabled researchers to purchase key pieces of equipment, funded 8 supplementary scholarships being awarded and has been able to support 29 research groups within the BHI.

PROFESSOR GUY MADDERN
Chair



BHI RESEARCH ADVISORY COMMITTEE REPORT

In 2025, the Research Advisory Committee (RAC) continued to provide strategic advice to strengthen research capacity, training pathways, and translational impact at the Basil Hetzel Institute (BHI). Key areas of focus included student development, infrastructure planning, consumer engagement, and professional development, particularly in the context of the Adelaide University merger and evolving HDR pathways.

The Committee reviewed the effectiveness of BHI scholarship schemes, noting continued success of supplementary scholarships while identifying the need to refine approaches to attract high-calibre new Higher Degree by Research candidates. Structured student exit feedback and improved visibility of BHI's clinician-researcher model were identified as priorities.

The RAC also supported strategic allocation of equipment funding and highlighted the need for longer-term infrastructure planning, particularly for shared and translational research platforms. Progress was made in advancing consumer engagement,

with agreement to include consumer representatives in governance and explore broader consumer input models.

Professional development activities were well received, with a shift toward targeted, cost-effective training approaches planned for 2026. Overall, the RAC remains committed to strengthening BHI's research profile, governance, and translational impact within CALHN and the evolving university landscape.

DR ERIC SMITH
Chair

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BHI MANAGEMENT COMMITTEE REPORT

The BHI Management Committee continues to provide strategic oversight of BHIs facilities and operations, working closely with Facility Manager, Imogen Ball, to ensure the ongoing maintenance, enhancement, and reliability of our infrastructure. Over the past year, this has included significant upgrades such as replacement of the liquid nitrogen gas system, improvements to internal and external security swipe access, and installation of a new centrifuge system for TQEH Experimental Suite.

I appreciate everyone’s support in my first year as Chair for the committee, with excellent representatives from across the BHI research community including students, academics, and professional staff. Keeping the Institute running smoothly is a team effort. Repairs to systems like air conditioning and water might not be exciting and occur behind the scenes, but they are fundamental to enabling the Institute’s research excellence.

This collaborative team spirit is exemplified by a total of \$1,640 raised this year at The Longest Table for The Hospital Research Foundation Group (THRFG).

The BHI Management Committee also extends its sincere thanks to THRFG for its continued support, with three high-quality pieces of equipment funded in 2025: a new PCR machine for Level 2, 3D printers for foot orthotic research to the Vascular Surgery Research Group, and a UV-Vis spectrophotometer.

DR NEIL McMILLAN
Chair



BHI SCHOLARSHIP SELECTION COMMITTEE REPORT

With the support of The Hospital Research Foundation Group, scholarship money was available this year to provide 8 top-up scholarships, 3 Honours scholarships, 1 Masters by Coursework and 3 Summer Vacation Scholarships.

The Committee in recent years has moved away from funding full scholarships, believing that the type of researchers we are wishing to attract to the campus are those who are competitive for either speciality interest scholarships, university-supported or NHMRC-supported research scholars. This strategy seems to be working well and it has been clear that we have been able to absorb most scholars wishing to work within the BHI.

Currently there are in excess of 119 higher degree scholars and 58 of these are full time individuals working on either Masters or PhD programmes.

The Scholarship Selection Committee is very grateful for the contribution made by a number of key individuals within the BHI and their support, interest and commitment is gratefully acknowledged.

PROFESSOR GUY MADDERN
Chair



TQEH RESEARCH EXPO ORGANISING COMMITTEE REPORT 2025

On behalf of the TQEH Research Expo Organising Committee, I extend our thanks to The Hospital Research Foundation Group (THRFG) for underwriting the flagship event in TQEH’s research calendar. With the generous support of THRFG, The University of Adelaide, UniSA, our trade sponsors, and the dedicated efforts of the Organising Committee, along with the many staff across CALHN, The University of Adelaide, UniSA, and THRFG who served as session chairs and judges, the 34th annual TQEH Research Expo was an exceptional success.

The Committee received 46 abstracts in 2025, a record total for this event. Across two-days, we learned of the comprehensive portfolio of translational research being conducted at TQEH and CALHN, and received an outstanding plenary address by Professor Michael Goodsie, Pro Vice-Chancellor, Research Operations and Commercialisation, The University of Adelaide.

MS IMOGEN BALL
Chair

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RESEARCH SUPPORT SERVICES

Operations at the BHI are supported and enriched by the following services.

Statistical support

Dr Suzanne Edwards of the Data, Design and Statistics Service, Adelaide Health Technology Assessment (AHTA), School of Public Health at The University of Adelaide provides support and training to BHI staff and students in statistical methods. This support, of one day a week, is provided through The Hospital Research Foundation Group.

Library support

Anna Holasek and Rachel Davey from the SA Health Library Service help staff and students at the BHI, TQEH with literature and database searches and accessing relevant material from libraries and publishers. They also provide training in the use of online resources and bibliographic tools. The librarians provide the research support team at the BHI with publication lists that document the outputs of TQEH-based researchers which are used in all our reporting processes.

TQEH Institutional Biosafety Committee

TQEH Institutional Biosafety Committee, chaired by Dr Eric Smith, ensured that the PC2 laboratory spaces of the BHI Research Facility comply with the Office of the Gene Technology Regulator PC2 licence requirements.

Operational support

Many people give of their time to support the researchers and the BHI Facility Manager with procedural compliance, research services and grant applications. Their service to our community is greatly appreciated.

- Mr Shane Spencer, Health and Safety Representative, Basil Hetzel Institute
- Ms Elham Faez, Senior Work Health & Safety Consultant and Annette Skoda, Work Health & Safety Coordinator, Central Adelaide Local Health Network and their team
- HSW Advisory team, The University of Adelaide



- Dr Tony Cambareri, Faculty Executive Director, Faculty of Health and Medical Sciences, The University of Adelaide and his team
- Dr Rebecca Cook, Research Support Lead, Health and Medical School, The University of Adelaide and Nicole Moore, Strategic Development Manager, Innovation and Commercialisation Service, Division of Research and Innovation, The University of Adelaide
- Professor Amanda Page, Associate Dean Graduate Studies, Research Education and Development, Faculty of Health and Medical Sciences, The University of Adelaide
- Mr Martin Hutchens, Team Leader Main Campus/LHN East Precinct, Faculty of Health and Medical Sciences, The University of Adelaide
- Mr Vus Andrushenko and TQEH Biomedical Engineering team
- Mr Matthew Smith, Mrs Bronwyn Hutchens and Mrs Michelle Slawinski from TQEH Experimental Surgical Suite

CALHN HREC and Research Office Support

The BHI has a dedicated offices for use by CALHN Research Services. Research Services staff members provide essential ethics and governance support to all researchers working at TQEH.

The office is continually seeking ways to streamline and simplify the provision of this support to BHI, and all sites of CALHN. Research Services staff members also provide help with grant submissions and post-approval and reporting requirements.

Many thanks to Ian Tindall (CALHN HREC Chair), and his team, for their ongoing support of BHI staff and students.

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THRFG CEO Report



PAUL FLYNN
CEO
THE HOSPITAL RESEARCH
FOUNDATION GROUP

We are continually inspired by the life-changing research being conducted at the BHI and TQEH.

Again in 2025, The Hospital Research Foundation Group was proud to fund a range of grants, scholarships and equipment upgrades to enable the BHI to continue its groundbreaking work and deliver real impact to the community.

One example that stood out this year was Professor John Beltrame AM's initiative to connect the CADOSA coronary angiogram database with a real-world clinical tool called PAMICO (Personalising Acute Myocardial Infarction Care to Improve Outcomes).

Using the database to predict risks, guide treatment and tailor care for each heart patient, this project has already made a significant difference in cardiovascular care within CALHN.

As a result, PAMICO received the prestigious 'Minister's Award for Innovation' at SA Health's 2025 Awards, and plans are underway to expand its reach to SALHN and NAHLN.

This is a clear example of research making a tangible difference to patients' lives – and why we are so proud to support the real-world impact of the BHI.

We are continually inspired by all the BHI's researchers across all fields – from cancer to kidney disease, Covid, inflammatory bowel disease, diabetes, ENT, surgery and healthy ageing.

And as a profit-for-purpose, none of our support would be possible without the generosity of donors, fundraisers, corporate partners and Home Lottery supporters.

A wonderful example of this came to life last year when lifestyle business Adelady contributed \$126,000 towards the BHI's new Zeiss LSM900 confocal microscope.

We love connecting passionate fundraisers with research – and when the Adelady team came to visit, it was a real full-circle moment of impact.

To all the BHI researchers, clinicians and students, thank you for your tireless dedication, innovation and passion.

Your work is changing lives, and we are proud to stand alongside you.

The Hospital Research Foundation Group was proud to fund a range of grants, scholarships and equipment upgrades to enable the BHI to continue its groundbreaking work and deliver real impact to the community.

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Grants



Prof John BELTRAME

CADOSA-PAMICO Connect: Connecting CADOSA Data and Personalised Care for Better Heart Outcomes



A/Prof Robert BRYANT

- Microbial manipulation in inflammatory bowel diseases: a novel therapeutic paradigm
- The 4-SURE (4-Sulphide-Reducing) project: pioneering a new diet paradigm in the management of ulcerative colitis



A/Prof Branka GRUBOR-BAUK

Validation of a novel long COVID biomarker



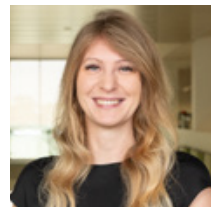
A/Prof Anne HAMILTON-BRUCE

FAST-IT - Find A Simple Test In TIA (Transient Ischaemic Attack)



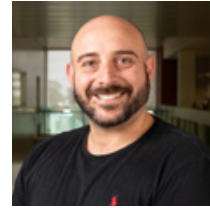
Prof Catherine HILL

- Optimising transition care for adolescents with juvenile rheumatic disease in South Australia
- Research Prioritisation in Musculoskeletal Health in South Australia



Dr Agathe Daria JADCZAK

Translation of Dynamic-Balance-for-Life™ program to up-skill the aged care allied-health workforce to teach older adults how to land safely from a fall



Dr John LICARI

Support for liposomal phosphoantigen project



Prof Guy MADDERN

Hernia mesh tissue integration



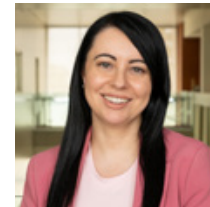
Dr Sivabaskari PASUPATHY

The Anti-Anginal Benefits of Zinc in Angina with Non Obstructive Coronary Arteries (ANOCA) Patients



Prof Michael SAMUEL

Informing the development of next-generation mechanotherapies against breast cancer metastasis



A/Prof Rosanna TAVELLA

Gender Matters: Coronary Heart Disease – An Old Disease with New Problems



Prof Renuka VISVANATHAN

Empowering Community Dwellers to AVOID Frailty and Age Well

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Grants cont.**HDR SCHOLARSHIPS****Ms Zahraa AL-DELFI**

The development of novel mRNA vaccines
against SARS-CoV-2

Dr Matheesha HERATH

Surgical coaching using video feedback
for non-technical skills in the operating
theatre, consulting clinic and ward round

Mr Joshua DALTON

Comparison of morphological and
physiological profiles in healthy and
diseased skin

Mr Avisak BHATTACHARJEE

Mammographic density: optimising
communication and clinical care

**SUPPLEMENTARY HDR
SCHOLARSHIPS****Mrs Angela BOAHEN**

Plasma-activated water as an antibiotic-
free treatment against Staphylococcus
aureus biofilms in diabetic foot infections

Miss Fangmeinuo WU

Repurposing the anti-anginal drug
perhexiline for the treatment of cancer

Mr Reza MALEKI

The role of human breast milk in prevention
of postpartum breast cancer

Ms Rachel DAVIS

Evaluating the fate of dietary protein in the
gastrointestinal tract and its relevance to
ulcerative colitis

Mr Runhao LI

Over-expression of SFRP5 in hepatocytes:
a novel treatment strategy for colorectal
cancer liver metastases

Ms Samantha PLUSH

Extending the scope of the
gastroenterology dietitian: improving
access to gastroenterology specialist care
in a tertiary setting

Mr Bjoern Hendrik KOLBE

A novel sanitiser to prevent food poisoning

Mr Ryan SANTOS

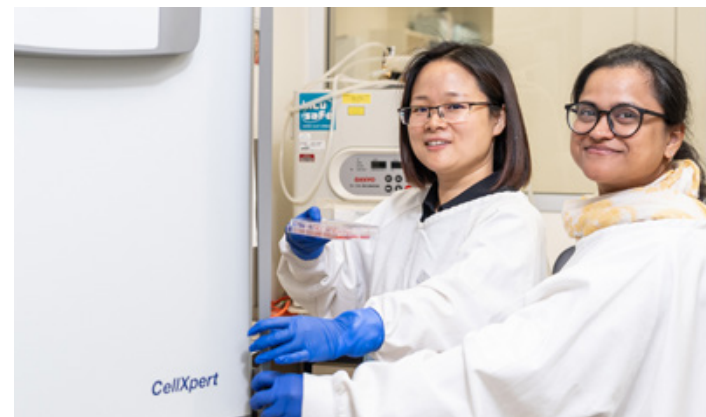
Nucleic Acid Vaccines Against Clinically
Important Flaviviruses

HONOURS SCHOLARSHIPS**Miss Monique WINTER**

Prognostic Significance of Cardiac
Magnetic Resonance Imaging Confirmed
Infarct in Myocardial Infarction with Non-
Obstructive Coronary Artery (MINOCA)
Patients from Sweden and Australia
(SWEET Study)

Mr Jake BAKER

Characterising antigenic interference
in multivalent mRNA vaccines against
hepatitis C virus (HCV)



L-R: Xiaojing Wang
and Dr Zenab
Dudhwala, CPTG,
with the CellXpert®
C170 CO2 Incubator.

Miss Georgia HARRIS

Exploring community perspectives of
breast density notification

VACATION SCHOLARSHIPS**Mr James TSIMIKLIS**

Isolation and characterization of novel
bacteriophage targeting Pseudomonas
aeruginosa

Mr Nadir ABDULLE

Understanding MINOCA

Mr Karan SETHI

Bacteriophage isolation and evaluation
against multi-drug resistant proteus
mirabilis from diabetic foot ulcers and
chronic rhinosinusitis patients

Miss Ofelia CARRENO

A new model for biobanking – the TRIAGE
Biobank

TRAVEL/CONFERENCE GRANTS

- Ms Elisa Calabrese
- Ms Sarena La
- Ms Hanieh Heydarlou
- Ms Lee Mai
- Dr Kevin Fenix
- Mr Jesse Ey
- Dr Suhanya Seimon
- Dr Alice Day

EQUIPMENT

- Zeiss LSM 900 Confocal Microscope upgrade
- CellXpert® C170 CO2 Incubator (pictured)
- Miele Laboratory Glassware Washer & basket bundle set
- QS7-Pro 96-well 0.1ml Real Time PCR machine
- Uv/Vis Spectrophotometer
- Layerloop XE 200 3D Printers (2)

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BHI Research Equipment

THRF Group is proud to fund state-of-the-art medical research equipment each year to support BHI researchers in their work. In 2025, THRF Group provided \$200,000 for equipment to keep BHI technology at the cutting edge, and to enable researchers to continue their vital work with updated equipment.



SHIMADZU UV-2600IPLUS UV-VIS DOUBLE BEAM SPECTROPHOTOMETER

A UV/Vis spectrophotometer using a quartz cuvette is an essential piece of laboratory equipment that supports a wide range of health and medical research at the Basil Hetzel Institute. In simple terms, this instrument measures how light passes through a liquid sample, allowing researchers to

accurately determine what substances are present and in what amounts. This is crucial for understanding how diseases affect the body at a molecular level and for developing and testing new medicines.

For example, researchers can measure how much of a drug is present, how quickly it is released, how stable it is, and how it breaks down under conditions mimicking the human body. This equipment will support high-quality translation health research, across multiple groups, including:

- ENT Surgery Research Group developing improved medications
- Richter Lab studying reactive molecules in plasma-activated water
- Inflammatory Bowel Disease Research Group measuring key compounds linked to gut and metabolic health
- Cardiovascular Pathophysiology and Therapeutics Group researchers who want to better understand harmful molecules produced during heart disease.

LAYERLOOP 3D PRINTERS

Diabetes-related foot ulcers are the leading cause of lower limb amputations within Australia, costing the health system approximately A\$1.6 billion per year. The International Working Group of the Diabetic Foot recommends specialised footwear and custom foot orthoses to help prevent these ulcers.

Currently, custom orthoses are made by layering foam materials shaped to a person's foot to reduce pressure on high-risk areas. While effective, this process is slow, expensive, labour-intensive, and can expose clinicians to health risks from machinery and airborne particles. Over time, these foam devices can also compress and lose their ability to protect the foot, increasing the risk of new wounds.

New 3D-printing technology offers a promising alternative by using digital foot scans and computer-guided design to create customised orthoses from durable materials and tailored

internal structures. However, there is limited clinical research testing these 3D-printed orthoses in people at high risk of foot ulcers.

Two, new layerloop 3D printers will enable the Vascular Surgery Research Group to compare 3D-printed orthoses with current methods to see how well they reduce pressure, maintain their shape, and work in real clinical settings.

THERMO FISHER QS7-PRO QPCR

Real-time PCR is a powerful clinical research method because it can detect and measure tiny amounts of genetic material quickly and accurately. This makes it essential for monitoring viral or bacterial load, studying gene activity, and supporting cancer and genetic research.

The QuantStudio 7 Pro from Thermo Fisher Scientific will allow BHI researchers to see results as the test runs and test multiple targets at once, maximising information obtained from a clinical sample, saving time and improving accuracy.

The QS7-Pro qPCR machine will benefit researchers from Breast Biology and Cancer Unit, Cardiovascular Pathophysiology and Therapeutics Group, Inflammatory Bowel Disease Research Group, Richter Lab, Viral Immunology Research Group and more.

ESSENTIAL EQUIPMENT

THRF Group also funded essential equipment to support all laboratory research groups at BHI. These include a laboratory washer and CO2 incubator.

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The Basil Hetzel Institute, TQEH, has provided basic and clinical research training to undergraduate and Higher Degree by Research (HDR) students for more than 30 years through its teaching and research affiliations with the South Australian Universities.

In 2025, over 160 research students undertook their Honours, Masters or PhD research projects with BHI, TQEH research supervisors. Over 95% of these students conducted their research within the BHI, TQEH precinct.

In 2025, 25 students were awarded a PhD or Masters Degree. In addition, 17 students completed their Honours or Masters by Coursework degrees. For those students completing their research training we congratulate them on their achievements and wish them well in their future careers.

The BHI plays a central role in Adelaide in training the clinical researchers of the future. Of the total student cohort of 2025, over 60% of our trainees were clinically-trained or allied health practitioners. TQEH Clinical Researchers take an active role in student supervision of clinically-trained and scientifically-trained students providing valuable insights into unmet needs in healthcare. Through our student training we provide real-life opportunities to make a difference to health and medical outcomes.

BHI, TQEH based research students enrolled through the Faculty of Health and Medical Sciences at The University of Adelaide were expertly assisted by Honours and Postgraduate Coordinator Dr Peter Zalewski, and Postgraduate Coordinators Prof Sarah Vreugde, Prof Betty Sallustio and A/Prof Branka Grubor-Bauk.



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THE UNIVERSITY OF ADELAIDE

PhD AWARDED

Sally Suriani AHIP MBBS Doctor of Family Medicine
The Malaysian Pictorial Fit-Frail Scale (M-PFFS): Development and Testing of Feasibility, Validity and Reliability In Malaysia

Supervisors: Visvanathan R, Theou O (Department of Medicine, Dalhousie University), A/Prof Dr Sazlina Shariff (Universiti Putra Malaysia)

Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre
Government of Malaysia Scholarship
The University of Adelaide, Awarded March 2025

Avisak BHATTACHARJEE MBBS FCPS FMAS MPH
Breast Density: Optimisation of Communication and Clinical Care

Supervisors: Ingman W, Turnbull D (School of Psychology, The University of Adelaide), White S (School of Clinical Medicine, University of New South Wales)

Breast Biology & Cancer Unit
The Hospital Research Foundation Scholarship
The University of Adelaide, Awarded May 2025

Madeleine BRYANT MBBS
Patient reported experience measures in Australian outpatient rheumatology care

Supervisors: Hill C, Black R
Rheumatology Research Group
Arthritis Australia Scholarship, Australian Government Research Training Program (RTP) Scholarship
The University of Adelaide, Awarded May 2025

Brigette CLARKE MBBS FRACP PhD
Exploring adrenocortical cell transplantation for primary adrenal insufficiency

Supervisors: Torpy DJ, Coates PT, Hurtado PR
Diabetes & Endocrinology Group
Dawes scholarship (2019-2023)
The University of Adelaide, Awarded May 2025

Anupam Datta GUPTA MBBS, MD, Clin Dip Pall Med, Grad Dip Musc Med, FAFRM (RACP)

Lower limb spasticity and dystonia

Supervisors: Visvanathan R, Koblar S (The University of Adelaide, SAHMRI), Wilson D (The University of Adelaide), Cameron I (University of Sydney)

Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre
The University of Adelaide, Awarded June 2025

Sarena LA
Clinical Insights into the NOCA Syndromes

Supervisors: Beltrame JF, Pasupathy S, Tavella R

Translational Vascular Function Research Collaborative
The University of Adelaide Research Training Program Stipend
The University of Adelaide, Awarded February 2025

Getandale Zeleke NEGERA BPharm MSc
Investigation of the cardiovascular complications of diabetes

Supervisors: Chong CR, Chirkov Y, Horowitz J

Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
The University of Adelaide Research Scholarship
The University of Adelaide, Awarded December 2025

Tomomichi SAKAI MD
The validation Study of FRAIL-NH in Japanese Nursing Homes and the Comparison Study with Australia

Supervisors: Visvanathan R, Masafumi K (Department of Community Healthcare and Geriatrics, Nagoya University), Jadczak AD

Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre
The University of Adelaide and Nagoya University, Awarded March 2025

Ying Yang TING MBBS
Surgical Care Needs Improvement

Supervisors: Maddern G, Bruening M

Surgical Science Research Group
THRF Group BHI TQEH Research Scholarship / The University of Adelaide Research Training Program
The University of Adelaide, Awarded August 2025



Top: Honourable Catherine Branson presenting **Avisak Bhattacharjee** with a PhD from The University of Adelaide in May 2025.

Bottom: **Sarena La** was awarded with a PhD from The University of Adelaide in February 2025.

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MASTERS IN CLINCIAL RESEARCH AWARDED

Praba SEKHAR
High flow nasal oxygen for apnoeic oxygenation
Supervisors: Van Wijk R, Thiruvenkatarajan V
Anaesthesia Research Group
The University of Adelaide, Awarded September 2025

MASTER OF PHILOSOPHY (SURGERY) AWARDED

Annika MASCARENHAS MBBS
An endoscopic bovine model of small vessel intracranial arterial haemorrhage control
Supervisors: Wormald PJ, Psaltis A, Vreugde S
ENT Surgery
The University of Adelaide Scholarship
The University of Adelaide, Awarded July 2025

MASTERS OF BIOTECHNOLOGY AWARDED

Aravind SRIDHAR
In vitro evaluation of perhexiline, hydroxy-perhexiline and nanoparticle-hydroxy-perhexiline formulations for colorectal cancer
Supervisors: Smith E
Solid Tumour Group
The University of Adelaide, Awarded December 2025

BACHELOR OF HEALTH AND MEDICAL SCIENCES, HONOURS AWARDED

Tasnim AZRIN
The effect of an inflammatory stimulus on human mammary epithelial cells
Supervisors: Ingman W, Ghith A
The Hospital Research Foundation Honours Scholarship
The University of Adelaide, Awarded July 2025

Aisha GLAZIER
Turning Up the HEAT (Hawthorne Effect Audit Tool): Investigating the Effectiveness of a Novel Tool and Analysing the Impact of the Hawthorne Effect on Video-Based Observational Research Outcomes

Supervisors: Maddern G
Surgical Science Research Group
The University of Adelaide, Awarded December 2025

Georgia HARRIS
Exploring community perspectives about breast density notification
Supervisors: Ingman W, Crabb S (School of Public Health, The University of Adelaide)
The Hospital Research Foundation Honours Scholarship
The University of Adelaide, Awarded December 2025



L-R: Aisha Glazier, A/Prof Wendy Ingman and Tasnim Azrin at The University of Adelaide graduation ceremony in July 2025.

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PhD STUDENTS

Nikzad ABBARIKI

Developing CFD Simulation for Optimised Airflow Following Sinus Surgery

Supervisors: Pourmehran O, Vreugde S

ENT Surgery

The University of Adelaide Research Scholarship

Md Hasib ADNAN

Unravelling the underlying mechanisms of chronic rhinosinusitis (CRS) pathogenesis and exploring the potential of bacteriophages as a therapeutic option

Supervisors: Vreugde S, Psaltis A, Awad M

ENT Surgery

The University of Adelaide Scholarship

Sara AGHILI

Developing Bio-mimetic 3D Printed Sinonasal Model for Drug Delivery Applications

Supervisors: Pourmehran O, Vreugde S, Awad M

ENT Surgery

The University of Adelaide Research Scholarship

Zahraa AL-DELFI

Development of novel DNA-based COVID-19 vaccines

Supervisors: Grubor-Bauk B, Masavuli M, Mekonnen Z

Viral Immunology Group

The University of Adelaide Scholarship

Zahra Ahovan ALIAKBAR

A wound healing device for delivery of bacteriophage to infected wounds

Supervisors: Vreugde S, Wormald PJ, Awad M

ENT Surgery

The University of Adelaide Research Scholarship

Mirabel ALONGE BHIthMedSc (Hons)

Using Pharmacokinetic Principles to Improve the Safety of Tacrolimus in Kidney Transplant Recipients

Supervisors: Sallustio BC, Collier JK (The The University of Adelaide), Jesudason S (CALHN, The The University of Adelaide), Lange SR (University of South Australia)

The University of Adelaide Research Training Program Scholarship

The University of Adelaide, Awarded date: 2026 conferral

Christopher BELDER

Blood-based biomarkers in familial Alzheimer's disease - understanding pathogenesis and predicting clinical and pathologic heterogeneity

Supervisors: Kleinig T (The University of Adelaide), Fox N, Brodtmann A

CALHN Cognitive Neurology Clinical Trials Unit

Melkamu Bedimo BEYENE BSc MPH

An Investigation into the Genetic Basis of Human Intrinsic Reserve

Supervisors: Visvanathan R, Amare A (Adelaide Medical School, The University of Adelaide)

Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre

Angela BOAHEN

Cold plasma technology for antibiotic-free treatment of multidrug resistant pathogens and biofilms in diabetic wounds

Supervisors: Richter K, Abdo A

Richter Lab

International RTP Scholarship

George BOURAS LLB (Hons) B MaCompSci, B Fin

Investigating Phage, Microbe and Host Interactions by Integrating Systems Multiomics

Supervisors: Vreugde S, Edwards R (Flinders University)

ENT Surgery

Isabella BURDON

Precision medicine in bacterial infections; exploring the use of personalised phage therapy and multi-omics technologies to improve the management of chronic rhinosinusitis

Supervisors: Psaltis A, Vreugde S, Wormald PJ

ENT Surgery

The University of Adelaide Research Scholarship

Elisa CALABRESE

The creation, challenges, durability, and impact of surgical clinical practice guidelines

Supervisors: Maddern G, Babidge W

Surgical Science Research Group

RACS SAGES ASERNIP- S Evidence Guidance Research Scholarship

Harriet COOLING

CSI Superbugs: Unveiling unique fingerprints of antibiotic-resistant microbes through light

Supervisors: Richter K, Nigel Spooner (The University of Adelaide), Abdo A

Richter Lab

RTP Scholarship & Westpac Future Leaders Scholarship

Jonathan DANIEL

Linking oral microbiome composition and oral cancer outcomes

Supervisors: Psaltis A, Fenix K, Hodge JC, Wormald PJ

ENT Surgery

Passe and Williams Surgeon Scientist Research Scholarship

Marzieh ESKANDARZADEH

Novel nanoformulations for delivery of corticosteroids to the paranasal sinuses

Supervisors: Vreugde S, Wormald PJ, Awad M

ENT Surgery

The University of Adelaide Research Scholarship

Jesse EY

Understanding and improving non-technical skills in surgery

Supervisors: Maddern G, Bruening M, Wells A

Surgical Science Research Group

The University of Adelaide Research Scholarship and The Hospital Research Foundation Group Supplementary Scholarship

Andrew FON MBBS FRACP

The Physiological Changes Following Bronchoscopic Lung Volume Reduction Treatment for Chronic Obstructive Pulmonary Disease (COPD)

Supervisors: Nguyen P, Reynolds P (CALHN), Jersmann H (CALHN)

Respiratory Research Group

Olivia GIROLAMO

Clinical Considerations in Coronary Vasomotor Disorders

Supervisors: Tavella R, Zeitz C, Beltrame JF

Translational Vascular Function Research Collaborative

The University of Adelaide Research Training Program Stipend

Chelsea GRAHAM BSc (Animal Sc)(Hons)

Developing a Schwann cell line from Tasmanian devil (Sarcophilus harrisii) dental pulp stem cells

Supervisors: Hamilton-Bruce MA, Pyecroft SB (The University of Adelaide), Kremer KL (The University of Adelaide)

Stroke Research Programme

Tahlia GRAMMATOPOULOS BHIthMedSc(Adv)

Vaping in the adult population: Assessing the effectiveness of current interventions and investigating the knowledge and perceptions among key stakeholder groups

Supervisors: Carson-Chahhoud K, Perveen S, Miller C, Shah S

Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group

Houd Research Group and The University of Adelaide RTIS industry co-funded scholarship

Aashray GUPTA BMBS MS(Cardiothoracic Surgery) GDipSurgAnat GDipClinUS

Evidence supporting strategies for coronary artery revascularisation

Supervisors: Maddern G, Bennetts J (FMC, Flinders University)

Surgical Science Research Group

Scholarship: NHMRC

Mehrdad HADADIAN M.Sc.

Hypericin-Ampicillin Lipid Liquid Crystalline Nanoparticles: Targeted Photodynamic Therapy against Antibiotic-Resistant P. aeruginosa

Supervisors: Wormald PJ, Pourmehran O

ENT Surgery

Jordan HALL BSc Hons

The use of phage therapy to prevent infection of an open wound

Supervisors: Ramezanpour M, Vreugde S, Kopecki Z

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Farazi Muhammad Yasir HASIB DVM MSc
Unravelling the Role of Corynebacterium in Chronic Rhinosinusitis and Translating Insights into Therapeutic Strategies

Supervisors: Psaltis A, Wormald PJ, Awad M
ENT Surgery
The University of Adelaide Research Scholarship

Matheesha HERATH MBBS
POWER to the people – Improving communication in surgery

Supervisors: Maddern G, Bruening M
Surgical Science Research Group
THRF Group-BHI Supplementary Research Scholarship, The University of Adelaide Research Training Program

Hanieh HEYDARLOU
The role of TLR4 in mammographic density and breast cancer risk
Supervisors: Ingman W, Smith E, Faraipour A

Breast Biology & Cancer Unit
International student scholarship, The Hospital Research Foundation Group Supplementary scholarship

Kay HON
Evaluating musculoskeletal effects in diabetes-related foot disease

Supervisors: Fitridge R, Loughry C, Thewlis D (Royal Adelaide Hospital, The University of Adelaide)

Vascular Surgery Research Group
Royal Adelaide Hospital Dawes Scholarship; 2026 RACS Francis & Phyllis Thornell-Shore Research Fellowship

Fatemeh HOSSEINI
Investigating the effect of dietary intake on mammographic density and risk of breast cancer

Supervisors: Ingman W, Dasari P
Breast Biology & Cancer Unit
International student scholarship

Beidong HUANG MD
The integrity of the endothelial glycocalyx in normal ageing and cardiovascular disease

Supervisors: Chong CR, Frenneaux M, Horowitz H, Dudhwala Z

Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
The University of Adelaide Research Scholarship

Muhammed IMRAN M.S. Microbiology and Molecular Genetics
Exploring Bacteriophages as Potential Therapeutics Against Antibiotic-Resistant Mycobacterium spp.

Supervisors: Vreugde S, Wormald PJ, Awad M
ENT Surgery
The University of Adelaide Research Scholarship

Shizuku INOMATA
Nebulised plasma-activated water as an antimicrobial treatment of foodborne and clinical pathogens

Supervisors: Richter R, Abdo A, Coad B (The University of Adelaide)

Richter Lab
The University of Adelaide Research Scholarship

Connor JESSOP BSc Hons
Ecological interactions between fungal and bacterial elements in chronic rhinosinusitis

Supervisors: Psaltis A, Wormald PJ, Vreugde S, Awad M

ENT Surgery
The University of Adelaide Research Scholarship

John Henrik JOHANSSON
Harnessing the potential of mRNA vaccines against Hepatitis C Virus

Supervisors: Grubor-Bauk B, Masavuli M, Mekonnen Z, Beard M (The University of Adelaide),

Viral Immunology Group
The University of Adelaide Scholarship

Sumeena KARKI MSc (Biotech)
Essential oils to target pathogenic bacteria
Supervisors: Vreugde S, Wormald PJ, Ramezanpour M

ENT Surgery
The University of Adelaide Research Scholarship

Sima KIANPOUR RAD BSc MMedSc
The Biology of Triple Negative Breast Cancer
Supervisors: Smith E, Townsend A, Ingman W

Solid Tumour Group

The University of Adelaide International Research Scholarship

Stephen KINSEY-TROTMAN BMBS, B.Pharm (Hons), MS, PGDip (Surg.Sci), FRACS
Defining male breast cancer: From the biological, clinical and patient perspective

Supervisors: Ingman W, Dasari P
Breast Biology & Cancer Unit
Research Training Program Scholarship

Tanja KLOTZ BSc, BSc(OT), MClinSc
Hypertrophic scar measures relationship to trans epidermal water loss, and the effect of generic moisturisers on transepidermal water loss model

Supervisors: Maddern G, Wagstaff M (RAH)
Surgical Science Research Group

Björn KOLBE
Plasma-activated water as a novel disinfectant against foodborne bacteria

Supervisors: Richter K, Coad B (The University of Adelaide)

Richter Lab
The University of Adelaide Research Scholarship

Jessica LEE MD FRACP
Optimisation of diagnosis and treatment of adrenal insufficiency using mass spectrometry for measurement of CBG cleavage and glycosylation status in the setting of sepsis

Supervisors: Torpy D, Meyer E
Diabetes & Endocrinology Group

Runhao LI BSc (Biotechnology) MBiotechnology (Biomedical)
Over-expression of SFRP5 in hepatocytes: a novel treatment strategy for colorectal cancer liver metastases

Supervisors: Smith E, Fenix K, Price T

Solid Tumour Group
The University of Adelaide International Research Scholarship

Abdul Haseeb LODHI
Designing Focused Magnetic and Acoustic Systems for Targeted Drug Delivery: Strategy for Frontal and Maxillary Sinus

Supervisors: Pourmehrnan O, Wormald PJ, Cazzolato B

ENT Surgery
The University of Adelaide Research Scholarship

Suellen LYNE MBBS FRACP
Epidemiology, clinical phenotype and treatment implications of giant cell arteritis in Australia and New Zealand

Supervisors: Hill C, Ruediger C, Shanahan EM (Flinders University)
Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship

Lee MAI
Microbial Infiltrates in Head and Neck Cancers as mediators of chemotherapy responsiveness

Supervisors: Fenix K, Vreugde S
ENT Surgery
The University of Adelaide Scholarship and HSCB Ray and Shirl Norman Cancer Research Trust

Reza MALEKI
The role of human breast milk in prevention of postpartum breast cancer

Supervisors: Ingman W, Ghith A
Breast Biology & Cancer Unit
International student scholarship, The Hospital Research Foundation Group Supplementary scholarship

James MARTIN
Biomarkers of Self Disorder in Psychosis

Supervisors: Schubert O (NALHN), Clark S, Hartmann S (The University of Adelaide)

Psychiatry Research Group
Rotary Scholarship

Jun Xiao MENG
Applying Computational Fluid Dynamics (CFD) to understand the flow behavior in patients with Empty Nose Syndrome (ENS)

Supervisors: Pourmehrnan O, Psaltis A
ENT Surgery
The University of Adelaide Research Scholarship

Alireza MEYVAND
Developing electric charged nanoparticles for enhanced drug performance

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Supervisors: Pourmehran O, Wormald PJ, Vreugde S
ENT Surgery
The University of Adelaide Scholarship

Alex MINOPOULOS
Biological Studies in Coronary Vasomotor Disorders
Supervisors: Tavella R, Sallustio B, Wilson D, Beltrame JF
Translational Vascular Function Research Collaborative
The Hospital Research Foundation & The University of Adelaide Research Scholarship

Georgina NEVILLE
Defying gravity: Cold plasma technology to defeat superbugs in microgravity
Supervisors: Richter K, Abdo A
Richter Lab
RTP scholarship & Elevate Boosting Diversity in STEM scholarship

Jem NINAN MBBS MD FRACP RACP CCPU
Giant cell arteritis – understanding mechanisms of disease, improving the diagnostic certainty, and optimising management through Fast Track Clinics
Supervisors: McNeil J, Hill C
Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship

Christopher OVENDEN MBBS, PGDip, MSurg, MPhil
Improving Efficacy and Prognostication in Endoscopic Pituitary Adenoma Surgery
Supervisors: Psaltis A, De Sousa S, Candy N
ENT Surgery
Neurosurgical Research Foundation Abbie Simpson Clinical Fellowship, Royal Australian College of Surgeons WG Norman Scholarship, The University of Adelaide Research Training Program Scholarship

Stephen OYEJIDE BSc, MSc
Molecular Investigation of the Pathophysiological Mechanisms of Staphylococcus aureus Biofilm in Chronic Rhinosinusitis
Supervisors: Vreugde S, Wormald PJ, Psaltis A
ENT Surgery
The University of Adelaide Scholarship

Andrew PEEL MBBS
The relationship between obesity, insulin resistance and male fertility
Supervisors: Wittert G, Jesudason D
Diabetes & Endocrinology Group

Cristina PELKAS MBBS
Living with Sjögren's Disease: the Impact on Australian Patients
Supervisors: Rischmueller M, Hill C, Vincent F (Monash University)
Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship

Damon PHILLIPS-CHANTELOIS BS (Biopsychology)
Development of intrinsic motivators through contingency management in addiction-related behaviour change
Supervisors: Carson-Chahhoud K, Perveen S, Arthur A
Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group

Karen ROYALS RN
Respiratory nurse management of chronic obstructive pulmonary disease (COPD)
Supervisors: Nottle M (The University of Adelaide), Veale A, Carson-Chahhoud K (University of South Australia)
Respiratory Research Group

Oscar RUSSELL MBBS FRACP
The impact of socioeconomic factors on medication use and health outcomes in Australians with rheumatoid arthritis
Supervisors: Hill C, Black R, Hoon E
Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship, 2023 Arthritis SA Post Graduate Research Scholarship

Zandile RWODZI
Investigating modifiable dementia risk factors: Towards development and evaluation of Your Best Day, a digital tool for dementia risk reduction
Supervisors: Smith A (University of South Australia), Dumuid D (University of South Australia), Laver K (Flinders University)

CALHN Cognitive Neurology Clinical Trials Unit
Research Training Program Scholarships
Ryan SANTOS
A trivalent vaccine for clinically important flaviviruses
Supervisors: Grubor-Bauk B, Masavuli M, Mekonnen Z
Viral Immunology Group
The University of Adelaide Scholarship

Deeksha SHARMA BHlthSc (Hons)
Multimic Exploration in Plasma to Differentiate Between Cerebrovascular Ischaemic and Mimic Events to Improve Identification of Transient Ischaemic Attacks (TIAs) and Minor Ischaemic Strokes
Supervisors: Hamilton-Bruce MA, Koblar SA
Stroke Research Programme

Kelsey SHARRAD MPhil
Evaluations of health professional training for smoking cessation
Supervisors: Carson-Chahhoud K, Perveen S, Elliott J
Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
Houd Research Group and The University of Adelaide RTIS industry co-funded scholarship

Elham SHOKATI
The development of more effective next-generation cytokine-induced killer cell therapies for the improved treatment of metastatic colorectal cancer
Supervisors: Fenix K, Tomita Y, Smith E, Roach M
Surgical Science Research Group
The University of Adelaide Research Scholarship

Janet Helena SMITH
Sex Differences in Coronary Heart Disease
Supervisors: Tavella R, Beltrame J
Translational Vascular Function Research Collaborative

James SMYTH FFSEM FRCM FACEM DCh FRCSI MB BCh BA(Mod)
Roles of assessment activities of daily living (ADL's) and frailty for transfers of nursing home (NH) residents to the emergency department
Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre

Supervisors: Visvanathan R, Arendts G (The University of Western Australia), Grantham H (Curtin University/ Flinders Medical Centre)
Brandon STRETTON MBBS
Perioperative haemostasis and anticoagulation
Supervisors: Liu D (University of Queensland), Maddern G
Surgical Science Research Group

Xiaohan SUN PhD
Exploring the efficacy of Bacteriophage Therapy in disrupting poly-microbial biofilms in chronic rhinosinusitis
Supervisors: Vreugde S, Wormald PJ, Psaltis A
ENT Surgery

Sam TAFARI MBBS
Promoting timely and Effective Engagement in healthcare by men
Supervisors: Wittert G, Jesudason D
Diabetes & Endocrinology Group

Junnn Jye TAN BLabMed MMedSci
Understanding the role of the endothelial glycocalyx in early heart disease and heart failure
Supervisors: Chong CR, Frenneaux M, Horowitz H
Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
The University of Adelaide Research Scholarship

Reena TEWARI MD
Dementia diagnosis in residential care settings
Supervisors: Visvanathan R, Jadczak AD
Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre

Benjamin THURSTON MSc MA BMBCh MRCS
The role of coding and non-coding RNA in atherosclerotic plaque phenotype in diabetic vs non-diabetic patients with peripheral arterial disease
Supervisors: Psaltis P (The University of Adelaide, CALHN, SAHMRI), Fitridge R, Polo J (The University of Adelaide)
Vascular Surgery Research Group
2025 RACS Francis & Phyllis Thornell-Shore Research Fellowship

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Ellie TRELOAR BHIthMedSc
Optimising the Surgical Ward Round
Supervisors: Maddern G, Bruening M
Surgical Science Research Group
The University of Adelaide Research Training Program

Edward YOUNG MBBS
Abdominal Wall Mesh Tissue Integration Index
Supervisors: Maddern G, Karatassas A
Surgical Science Research Group

Xiaojing WANG MD
Modulation of cellular function via differential substrate transport across the mitochondrial membrane: physiological and pathophysiological implications for heart disease
Supervisors: Chong CR, Frenneaux M, Horowitz H, Dudhwala Z
Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
The University of Adelaide Research Scholarship

Sintayehu WONDEMAGEGN BSc MSc
The effect of bacterial exoproteins on the mucosal barrier of human nasal epithelial cells (HNECs)
Supervisors: Vreugde S, Fenix K, Psaltis A
ENT Surgery
The University of Adelaide Research Scholarship

Fangmeino (Mona) WU
Investigating perhexiline as a repurposed drug with potential in cancer therapy
Supervisors: Smith E, Fenix K, Tomita Y
Solid Tumour Group
The University of Adelaide International Research Scholarship

Shawn YONG
Proteomic signatures of adverse events in clozapine treatment
Supervisors: Schubert O (NALHN), Clark S, Pukala T (The University of Adelaide), Jawahar C (The University of Adelaide)
Psychiatry Research Group

Kavan ZAREI
A comprehensive study of magnetic drug targeting in human maxillary sinuses for drug delivery applications
Supervisors: Pourmehran O, Wormald PJ, Vreugde S
ENT Surgery
The University of Adelaide Scholarship

UNIVERSITY OF SOUTH AUSTRALIA

PhD STUDENTS

Joshua DALTON
Pathways of small molecule xenobiotics in health and disease following exposure – implications for human health

Supervisors: Mackenzie L, Roberts MS, Wiese M (University of South Australia), Roberts D (University of NSW) and Venkatesh B (George Institute for Global Health/ University of NSW/University of Queensland)

Therapeutics Research Centre
The Hospital Research Foundation and University of South Australia Research Training Program Stipend

MONASH UNIVERSITY

PhD STUDENTS

Anne WALKER MBBS FRACP
New models of Integrated Palliative Care and Dyspnoea Management for People with Lung Cancer
Supervisors: Smallwood N (Monash University), Nguyen P
Respiratory Research Group
Research Training Program Scholarship

LA TROBE UNIVERSITY

PhD STUDENTS

Sonya McDOWALL BVetTechnol, GAICD
Exploring the Influence of the Social Determinants of Human Health on Companion Animal Welfare
Supervisors: Howell T (La Trobe University), Stuckey R

(La Trobe University), Hazel S (The University of Adelaide), Hamilton-Bruce MA
Stroke Research Programme

THE UNIVERSITY OF ADELAIDE

MASTER OF CLINICAL SCIENCE STUDENTS

Julia NEW TOLLEY MBBS FRACP
Rheumatoid arthritis and exercise in Australia
Supervisors: Hill C, Black R

Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship

Grainne MURRAY MBBS FRACP
Optimising transition care for adolescents with juvenile rheumatic disease in SA
Supervisors: Hill C, Marshall H

Rheumatology Research Group
Australian Government Research Training Program (RTP) Scholarship

Suhanya SEIMON
Gender disparities in quality of life in Australian & New Zealand patients with chronic limb-threatening ischaemia
Supervisors: McMillan N, Fitridge R
Vascular Surgery Research Group

MASTER OF PHILOSOPHY (SURGERY) STUDENTS

Katerina FLABOURIS MBBS
Perioperative glycaemic control and post-operative outcomes in indigenous Australians with diabetes mellitus undergoing surgery in South Australia
Supervisors: Jesudason D, Thompson C
Diabetes & Endocrinology Group

Joe HEWITT MBBS
Risk Assessment in Emergency Laparotomy
Supervisors: Trochsler M, Dobbins C
Surgical Science Research Group
The University of Adelaide

Matthew MARSHALL-WEBB MBBS
Validation of a simple and practical method to monitor the efficacy of medical vs. surgical therapy for patients with Barrett's oesophagus

Supervisors: Thompson S (Flinders University), Watson D (Flinders University), Myers J, Bright T (Flinders University)

Oesophageal Physiology Group

MASTER OF PHILOSOPHY (MS) STUDENTS

Pabitra THAPA
Co-design and feasibility of deploying different evidence-based behaviour change strategies to support smoking and vaping cessation among people experiencing psychological distress

Supervisors: Carson-Chahhoud K, Perveen S, Clark S
Cardiovascular Pathophysiology and Therapeutics (CVPT) Research Group
Houd Research Group industry sponsored scholarship

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34th TQEH Research Expo 2025



MS IMOGEN BALL
Chairperson

TQEH Research Expo Organising Committee
BASIL HETZEL INSTITUTE

The Expo's program was designed to encourage student engagement, communication and knowledge transfer, all in a supportive environment.

The 34th annual TQEH Research Expo, on 16–17 October 2025, highlighted the current research efforts at TQEH and Central Adelaide Local Health Network (CALHN). The Expo successfully brought together a vibrant community of student researchers, clinical trainees, laboratory scientists, clinicians, sponsors and stakeholders to showcase high-quality research spanning foundational science to early clinical insights, all with the shared goal of improving healthcare outcomes.

The Expo's program was designed to encourage student engagement, communication and knowledge transfer, all in a supportive environment. The two-day event began on Thursday afternoon with Mini-Oral Presentations, offering a platform for our emerging researchers to present three-minute, impactful summaries of their work. Nineteen presenters highlighted diverse research themes from gastrointestinal disease mechanisms and antimicrobial innovations to immune cell profiling and consumer-driven healthcare policies. Twenty-four oral presentations were given across six categories, the first being CALHN Clinical Trainees, reinforcing the indispensable role of clinicians in translating bench discoveries into practice. The enthusiasm and depth of discussion evident in these sessions added to the Expo's success in bridging laboratory research with clinical relevance.

Friday's full-day program progressed through presentations by Honours and Masters by Coursework students, moving into Junior and Senior Laboratory Research, and concluding with Junior and Senior Clinical Research. Session content was vast, representative of the diverse TQEH



Plenary Lecturer
Professor Michael Goodsite, Pro Vice-Chancellor (Research Operations and Commercialisation) at The University of Adelaide.

research groups, from novel bacteriophage applications against resistant infections to applying computational fluid dynamics to understand patient-specific disease processes. Across all presentations, the unifying thread was translation; each speaker reflected on pathways that could meaningfully influence patient care, clinical decision-making or therapeutic innovation.

A highlight was the Plenary Lecture given by Professor Michael Goodsite, Pro Vice-Chancellor (Research Operations and Commercialisation) at the University of Adelaide, who delivered insightful perspectives on building a robust health research strategy with a strong focus on collaboration to deliver translational impact.

Following the Plenary Lecture, we celebrated the recipients of the 2025 THRFG-BHI Supplementary Scholarships, supported by The Hospital Research Foundation Group. The awards recognise excellence, future potential and collegial spirit among the current student cohort and were presented by the Hon Chris Picton MP, Minister for Health and Wellbeing.

The Expo was supported by generous sponsorship from THRFG as well as The University of Adelaide Faculty of Health and Medical Science, University of South Australia Clinical Health and local distributors. Sponsors held trade displays and break times allowed for networking, discussion and collaboration among all attendees.

The event was also made possible by the time and dedication of TQEH Research Expo Committee members along with CALHN, University and THRFG staff who assisted in chairing sessions and judging abstracts and presentations. Once again, TQEH Research Expo was a success, showcasing the breadth, depth and translational promise of health research undertaken by our researchers in training. The diverse program, strategic insights and strong focus on moving evidence toward impact not only celebrated research excellence but also strengthened the collaborative foundations necessary to advance healthcare innovation in South Australia and beyond.

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Award Winners



AWARD CATEGORY	VALUE AWARD SPONSOR	WINNER	BHI RESEARCH GROUP
Best Lay Description	\$350 The Hospital Research Foundation Group	Elham Shokati	Surgical Science Research Group
Honourable mention, Lay Description	The Hospital Research Foundation Group	Bjoern Kolbe	The Richter Lab
Best Mini-Oral Presentation	\$500 The Hospital Research Foundation Group	Harriet Cooling	The Richter Lab
Best Oral Presentation: Honours & Masters by Coursework	\$1,000 The Hospital Research Foundation Group	Monique Winter	Translational Vascular Clinical Physiology
Best Oral Presentation: CALHN Clinical Trainee Research	\$1,000 Medtronic	Dr Darshan Nitchingham, Basic Physician Trainee	
Best Oral Presentation: Junior Laboratory Research	\$1,000 University of South Australia	Georgina Neville	The Richter Lab
Best Oral Presentation: Senior Laboratory Research	\$1,000 University of South Australia	Bjoern Kolbe	The Richter Lab
Best Oral Presentation: Junior Clinical Research	\$1,000 University of South Australia	Negin Amin	Breast Biology & Cancer Unit
Best Oral Presentation: Senior Clinical research	\$1,000 University of South Australia	Elisa Calabrese	Surgical Science Research Group

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Dr Basil S Hetzel AC 1922 – 2017

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The Adelaide Geriatrics Training and Research with Aged Care (GTRAC) Centre collaborates with research groups globally and is associated with The University of Adelaide and the Aged and Extended Care Services (Geriatric Medicine) at The Queen Elizabeth Hospital.

Our research focus includes healthy ageing, frailty, sarcopenia, gerontechnology, aged care, dementia assessment and management and falls prevention. The team is committed to building the next generation of clinician and research leaders in the field of geriatric medicine and gerontology.

2025 RESEARCH

- Dr Melkamu Beyene (PhD candidate) was selected to present as a rising star at the 2026 International Conference of Sarcopenia and Frailty Research (Washington DC, USA)- Associations and Interactions Effects of Socio-economic, Lifestyle and Genetics Factors and Intrinsic Capacity.
- Dr Agathe Daria Jadczak was a keynote speaker at the International Conference on Safe Falling for Older People through Judo that was held in Kanagawa, Japan, in December 2025. She presented on her research relating to Judo-based safe falling.
- Prof Renuka Visvanathan presented a plenary lecture on Under-nutrition in Older People at the Australian and New Zealand Society for Geriatric Medicine Annual Scientific Meeting in Sydney, June 2025.
- Dr Sally Ahip (PhD candidate) was awarded the Public Service Medal by the Sarawak State Government, Malaysia for her public service, including her efforts in establishing publicly funded primary care frailty clinics.
- Three PhD candidates graduated in 2025 - Dr Anupam Datta Gupta (Head of Central Adelaide Rehabilitation Services in Central Adelaide Local Health Network), Dr Sally Ahip (Head of Family Medicine Specialists in Samarahan Division, Ministry of Health, Malaysia), Dr Tomomichi Sakai (Geriatrician, Kyushu University, Japan). ➤



RESEARCH HIGHLIGHT OF 2025

Prof Renuka Visvanathan has been collaborating with the World Health Organisation as part of a global group of experts supporting a Delphi process to identify research priorities to improve care for older people. These efforts are aligned with action areas 3 and 4 of the UN Decade of Healthy Ageing and will contribute to its fourth enabler- Strengthening research, data, and innovation.

Our group continues to lead globally in collaboration with The University of Adelaide's Genetic Epidemiology Group in the research topic of the genetics of intrinsic capacity, identifying 10 novel genomic loci associated with intrinsic capacity, with relevance to Healthy Ageing.

Our team has completed a frailty prevention trial (funded by The Hospital Research Foundation

Group) where we have investigated an adapted digital behaviour change intervention developed by our collaborators, the Canadian Frailty Network. This is the first time that this intervention has been trialled outside of Canada. This project has received tremendous support from our community, the citizens of Charles Sturt Council. A wrap up session with participants and stakeholders was held at the Charles Sturt Council Civic Centre on the 9th of December 2025. We expect to submit publications relating to this research to journals in the first quarter of 2026.

Postdoctoral research fellow Dr Agathe Daria Jadczak also completed a two-year Judo-based Safe Falling Study funded by The Hospital Research Foundation Group.

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- Prof Renuka Visvanathan was invited to assess the implementation of Smart Wards for research and quality improvement in the Geriatric and Evaluation and Management Unit in Peninsular Health in October 2025.
- Prof Renuka Visvanathan was invited to present two talks and be part of a panel at the Western Australia Division of Geriatric Medicine Annual Scientific Meeting in Perth, November 2025.



Our team has completed a frailty prevention trial where we have investigated an adapted digital behaviour change intervention developed by our collaborators, the Canadian Frailty Network.

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The Rehabilitation Medicine Research Group within the Central Adelaide Local Health Network (CALHN) is led by Associate Professor Anupam Datta Gupta. The group's research program encompasses stroke rehabilitation, management of spasticity, functional restoration, gait analysis, reduction of diagnostic errors in clinical medicine, and the recovery of upper-limb and hand function following stroke through the application of brain-computer interface technologies.

In 2025, the group engaged in multidisciplinary collaborations with several clinical and academic units, including Neurology (within the Division of Neuroscience and Rehabilitation), Aged and Extended Care, and the Electrical and Electronic Engineering Division at The University of Adelaide. These collaborations strengthened translational research efforts and facilitated the integration of engineering solutions into clinical rehabilitation practice.

RESEARCH HIGHLIGHT OF 2025

The principal research milestone in 2025 was the successful completion of Associate Professor Anupam Datta Gupta's part-time PhD by publication, entitled "*Use of Botulinum Toxin A in Improving Health Outcomes in Post-Stroke Spasticity and Foot Dystonia*," which was formally awarded on 31 July 2025.

This body of work contributes to the evidence base supporting targeted pharmacological interventions for the management of post-stroke spasticity and movement disorders, with implications for improving functional outcomes and quality of life in affected patient populations.¹

In parallel with academic research activities, the group maintained active engagement with consumer and advocacy groups, including Stroke SA and the Post-Polio community. Knowledge translation activities included delivery of an invited presentation titled "*Improving Walking Following Stroke*" at the stroke survivor conference *Empowering Recovery: Navigating Life After Stroke*.

Additionally, Associate Professor Anupam Datta Gupta participated in the Annual General Meeting of Polio SA and delivered a presentation to the Post-Polio Survivor community entitled "*Journey of Australian Polio Survivors*," highlighting long-term outcomes and rehabilitation challenges.

2025 RESEARCH

- **PROMOTE Trial (Upper Limb Therapy):** A 12-month national clinical trial evaluating evidence-based upper limb rehabilitation interventions in accordance with established stroke guidelines. Local lead: Kumara Hurworth (Senior Occupational Therapist).
- **CHAT – Comprehensive High-Dose Aphasia Therapy:** A clinical research initiative examining the effectiveness of intensive aphasia therapy protocols. Local lead: Olivia Wong (Senior Speech Pathologist).
- **Quality of Life and Functional Independence Measure (FIM) Project:** This study investigates functional outcomes and quality-of-life measures in rehabilitation populations. Project lead: Dr Kasturi Mariappa.
- **Sleep Apnoea and Stroke:** A research project exploring the relationship between sleep apnoea and stroke outcomes. Lead investigator: Dr Nalinda Andraweera.
- **Hypnotherapy for Rehabilitation Patients:** A study evaluating the role of hypnotherapy as an adjunctive intervention in rehabilitation settings. Lead investigator: Dr Yulia Kravchenko.

1. Datta Gupta A. Stroke impairments: understanding the science behind brain damage and recovery. *Curiosita*. 2025 Jul 16.

► curiositamagazine.com/stroke-impairments-understanding-the-science-behind-brain-damage-and-recovery/

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Breast Biology and Cancer Unit

The Breast Biology and Cancer Unit investigates development and function of the breast across puberty, lactation and ageing to understand how disease states occur. Our research integrates basic biology model systems together with clinical and public health research to improve breast health across the life course.

We research breast cancer risk factors, including breast density and menstrual cycling, to better understand the underlying biology of the disease. We also research a common lactation condition known as mastitis, investigating why some women are more susceptible than others.

With a focus on community-driven outcomes, we work alongside clinicians within the Breast-Endocrine Surgical Unit, the Oncology Unit and Radiology Unit at TQEH, with pathologists at SA Pathology, and with lactation consultants.



Knowledge of their breast density empowers women to participate in decision-making including whether they want to access supplementary MRI or ultrasound.



RESEARCH HIGHLIGHT OF 2025

Breast density influences both breast cancer risk and mammogram sensitivity. In May 2025, BreastScreen Australia made a landmark change to their policy, now recommending routine breast density reporting and reversing their 2020 stance against it. BBCU research contributed to this new position, through (1) the development of an accessible website ► www.informd.org.au to synthesise and share the scientific evidence on breast density with the public, research to (2) qualitatively assess ethical implications of breast density and (3) to quantitatively evaluate women's responses to breast density notification.^{1,2}

This policy change is leading to real-world health impacts for individual women. The newly adopted BreastScreen Australia policy is affecting 1 million women screened each year – 80,000 of them will be notified they have category D extremely dense breasts. Knowledge of their breast density empowers women to participate in decision-making including whether they want to access supplementary MRI or ultrasound. Supplementary MRI or ultrasound in women with extremely dense breasts enables earlier cancer detection leading to reduced mortality. ►

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Breast Biology and Cancer Unit cont.

2025 RESEARCH

- InforMD was established as a not-for-profit organisation with the goal of scaling up the reach of our breast density information to support the roll out of national breast density notification. A/Prof Wendy Ingman is Director and Chair of the Board.
- A/Prof Wendy Ingman won a Research Excellence and Impact Award in the category of Outstanding Mentorship at the University of Adelaide Awards for Outstanding Achievement.

1. Ingman WV, Richards B, Street JM, Carter D, Rickard M, Stone J, Dasari P. Breast Density Notification: An Australian Perspective. *J Clin Med.* 2020 Mar 3;9(3):681. doi: 10.3390/jcm9030681. PMID: 32138307; PMCID: PMC7141298.
▶ <https://pubmed.ncbi.nlm.nih.gov/32138307/>

2. Bhattacharjee A, Walsh D, Dasari P, Hodson LJ, Edwards S, White SJ, Turnbull D, Ingman WV. Factors Associated with Increased Knowledge about Breast Density in South Australian Women Undergoing Breast Cancer Screening. *Cancers (Basel).* 2024 Feb 23;16(5):893. doi: 10.3390/cancers16050893. PMID: 38473255; PMCID: PMC10930536.
▶ <https://pubmed.ncbi.nlm.nih.gov/38473255/>



InforMD was established as a not-for-profit organisation with the goal of scaling up the reach of our breast density information to support the roll out of national breast density notification.

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Breast Cancer Research Unit

The aim of the Breast Cancer Research Unit is to find novel treatments for breast cancer. Our work is focused around how we can reprogram the patient's own immune system to not only locate but also attack and eliminate primary and metastatic breast cancer.

We have developed a world first approach of delivering therapies directly into cancer cells. We have packaged chemical sensitisers, known as phosphoantigens, in lipid carriers for transportation into the cancer cells. The patient's own circulating cancer fighting T-cells recognise the chemical sensors and bind to and eliminate cancer cells selectively, leaving normal cells unharmed.

This research provides robust preclinical data that will facilitate the translation of novel therapeutic drugs and approaches to clinical trials for breast cancer and its spread.

2025 RESEARCH

In collaboration with Dr Eric Smith from the Solid Tumour Group we are developing a new formulation of the antianginal drug perhexiline for use in conjunction with currently available chemotherapy in the treatment of metastatic liver diseases.

RESEARCH HIGHLIGHT OF 2025

The HER2 protein, residing on the surface of cells in normal breast tissue, plays a crucial role in the regulation of tissue growth and repair. However, when HER2 is present at abnormally higher levels on the surface of breast cancer cells, it triggers abnormal growth patterns. This specific subtype of breast cancer tends to be more aggressive and has a higher likelihood of recurrence post-treatment.

In response to this challenge, our research has yielded a groundbreaking technology poised to significantly enhance the effectiveness of T cell-based adoptive immunotherapy for HER2-positive breast cancer. This approach involves the recruitment of a specialised subunit of T cells known as gamma-delta T cells. These gamma-delta T cells exhibit a unique capability to selectively target HER2 breast cancers, thereby holding the potential to elevate therapeutic outcomes.

Crucially, what sets this technology apart is its ability to specifically target and attack HER2 breast cancer cells while concurrently minimising damage to surrounding non-cancerous cells. This targeted therapeutic strategy represents a promising advancement in the field, offering a more nuanced and effective approach to combating HER2-positive breast cancer with reduced collateral damage to healthy tissues.



These gamma-delta T cells exhibit a unique capability to selectively target HER2 breast cancers, thereby holding the potential to elevate therapeutic outcomes.

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Cancer Mechanotherapies Laboratory

The spreading of cancers from their primary site to other parts of the body, a process called metastasis, is the principal reason for cancer deaths. The Cancer Mechanotherapies Laboratory investigates how cancers hijack the physical properties of their surrounding normal tissues (such as stiffness or viscosity) to metastasise. We aim to exploit this new knowledge to develop new ways to treat cancers.

Our research is guided by the lived experience of our patient advocates, who work closely with us on all our projects. Their advice led us to consider whether our expertise could contribute to increasing our understanding of cancer recurrence.

The risk of cancer recurring or discovering that it has spread to distant sites is a chilling prospect for our patients. To address this, we are investigating ways in which information from tumour tissue removed from patients can be used to estimate the likelihood of cancer recurrence and spread.

We hope that at the completion of this project, we will have a new way of estimating recurrence risk, and that this information will be useful in guiding how the care of people living with or who have survived cancer is managed.

○
**Interfering with
and reversing the
consequences of this
process forms the
basis for a new cancer
therapy approach
that we have termed
Mechanotherapy.**



RESEARCH HIGHLIGHT OF 2025

An emerging concept in tissue biology is the role of mechanical force in determining disease outcomes. The forces associated with excessive tissue stiffness frequently observed in cancers and caused by the enhanced production and abnormal remodelling of the extracellular matrix (ECM) have been well-studied by us and others.

We previously showed that ROCK signalling, frequently enhanced in epithelial cancers, is the principal regulator of tumour-promoting tissue stiffness. More recently, we showed how cancers engage a ROCK-induced unfolded protein response that results in the education of tissue fibroblasts into tumour-promoting cancer-associated fibroblasts that establish a stiff and tumour-promoting tissue environment.^{1,2}

We therefore wondered whether there is a role for the substantial mechanical force experienced by cancer cells at the very early stages of cancer, determining disease outcomes. This year we demonstrated that compressive force unexpectedly engages the mechanosensitive ion channel (MSIC) PIEZO1 to initiate Rho-ROCK signalling.

We demonstrated that PIEZO1, (but not PIEZO2 or TRPV4, other key MSICs in epithelia) is the specific mechanosensor for compressive stress in early mammary tumours and showed that it mediates persistent epigenetic changes that regulate genes central to tumorigenesis and tumour progression. Interfering with and reversing the consequences of this process forms the basis for a new cancer therapy approach that we have termed Mechanotherapy. ➤

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Cancer Mechanotherapies Laboratory cont.

2025 RESEARCH

Elaine Thomas, from our lab has been working to optimise a suite of immunohistochemical biomarkers for evaluation as predictors of cancer recurrence. Together with Sergei Bedrikovetski, a collaborator at CALHN, she has begun training a neural network (NN, commonly termed AI) to identify patterns in how these biomarkers are distributed throughout tumour tissue and establish whether they have predictive power.

Sergei and Elaine are in the process of iteratively training the NN, and we hope to commence testing the accuracy of its predictions using a new cohort of patient specimens in 2026.

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▶ <https://pubmed.ncbi.nlm.nih.gov/32451439/>



Sergei and Elaine are in the process of iteratively training the NN, and we hope to commence testing the accuracy of its predictions using a new cohort of patient specimens in 2026.

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Molecular Imaging and Therapy Unit

TQEH Nuclear Medicine Molecular Imaging and Therapy Unit (MITU) conducts clinical research the following areas:

- 1. Molecular imaging and therapy (Theranostics) for neuroendocrine neoplasms (NENs), pheochromocytoma/paraganglioma, and thyroid cancer
- 2. Patient well-being and health related quality of life
- 3. CNS Related disorders
- 4. Medical and health physics

RESEARCH HIGHLIGHT OF 2025

The SA Peptide Receptor Radionuclide Therapy (PRRT) Service based in the TQEH MITU provides comprehensive and equitable access to cancer care for patients with tumours expressing somatostatin receptors. Therapy has also been expanded from NENs to other tumour types including pheochromocytoma, paraganglioma and meningioma.

Data entry into our service registry is embedded as part of standard of care for patients receiving PRRT. We have recently published data from the first 11 years of our service in *ESMO Gastrointestinal Oncology*. Our safety, toxicity and overall survival data is comparable to centres of excellence globally.¹

Another significant research highlight for the medical physicists was the World Congress on Medical Physics and Biomedical Engineering 2025 which was held in Adelaide in 2025. The medical physicists played a pivotal role as conveners and committee members for this highly regarded meeting which showcased the fusion of leading research and technological innovation.



2025 RESEARCH

- We have continued our involvement in the AUSNET study under the auspices of the Medical Research Future Fund, which will develop and evaluate a nurse-led shared care model to support Australian patients with NENs.
- At the annual national nuclear medicine conference (ANZSNM), Dr Ashlesha Vaidya presented a case series of a unique and rare side effect related to PRRT in a patient with orbital metastasis. The orbit is an uncommon but clinically significant site of metastasis in patients with metastatic neuroendocrine neoplasms (NENs). Our case report highlights the need for improved awareness when reviewing baseline imaging due to the potential for orbital metastases to become symptomatic with administration of PRRT.
- We have developed a clinical practice guideline for CALHN for identification and early management of patients at risk of hormonal flare whilst undergoing PRRT. Our NET Nurse, Jessica Mercurio, was the lead author for this important safety guideline.
- Our robust data registry allows us to continue to collaborate with the other six national PRRT centres, including the designated centres of excellence Peter MacCallum Cancer Centre and Royal North Shore Hospital. We are part of an ongoing multicentric study assessing the outcomes of retreatment PRRT. ➤

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Molecular Imaging and Therapy Unit cont.

- With the support of South Australian Comprehensive Cancer Network, we are developing a digital patient engagement platform.

MEDICAL PHYSICISTS TEAM

- Modelling the distribution and dose effects of daughters in therapy with radionuclides with decay chains: Current dose models assume that the daughters of radionuclides deposit their radiation dose at the location of the parent. This research shows the effects on the dose of off-target organs of transport in the body of these radioactive daughters.
- A literature review was performed to investigate radiation doses to the eye lens from paediatric CT scans. The review included studies using direct patient measurements, phantom-based experiments, and computational modelling. This is part of a larger project aiming to improve the management of children undergoing repeated imaging who may receive lens doses that exceed the cataractogenic threshold.
- Cancer treatment with radionuclide therapy: Medical physics have been providing radiation safety and other physics support for clinical trials into Lu-177 PSMA treatment and P-32 OncoSil™ for locally advanced pancreatic cancer.
- The team commenced development of a software pipeline for performing image-based radiation dosimetry for radionuclide therapy patients. Producing dose estimates involves various tasks including image conversion, image registration, organ and lesion segmentation, and Monte Carlo radiation track structure simulations. Our efforts emphasise reproducibility, portability, and correctness.

1. Altus LM, Forster JC, Mercurio J, Kitchener M, Corsini N, Nenke M, Price T, Patel D, Chew R, Moffat D, Unger S, Cehic G. The South Australian ¹⁷⁷Lu-DOTATATE peptide receptor radionuclide therapy service: an 11-year review of toxicity, health-related quality of life, and survival. *ESMO Gastrointest Oncol.* 2025 Mar 4;8:100146. doi: 10.1016/j.esmogo.2025.100146. PMID: 41646272; PMCID: PMC12836679.
▶ <https://pubmed.ncbi.nlm.nih.gov/41646272/>

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Peritoneal Cancer Research Group

The research focus of the Peritoneal Cancer Research Group at TQEH continues to be on effective clinical treatment of peritoneal cancer.

There are a variety of cancers that can spread to the lining of the abdomen (the peritoneum). They can be difficult to treat because they grow into the cavity (the peritoneal cavity) surrounding the abdominal organs and chemotherapy given into the blood stream may not effectively penetrate the peritoneum and the cavity to treat peritoneal cancers.

By delivering chemotherapy directly into the peritoneal cavity, PIPAC may offer improved local control with reduced systemic toxicity and enhanced treatment outcomes.

RESEARCH HIGHLIGHT OF 2025

The Pipac-O Study

Dr Markus Trochsler completed recruitment to the PIPAC-O study, and Dr Josipa Petric (pictured below) presented this work at the Australian & Aotearoa New Zealand Gastric & Oesophageal Surgery Association (AANZGOSA) ASM on 17 September 2025 at the Brisbane Convention and Events Centre.

Gastric cancer remains a major global health challenge, with up to 40% of patients diagnosed with metastatic disease and poor prognosis. Peritoneal metastases are particularly difficult to treat, affecting up to 45% of cases in recent studies. Traditional chemotherapy struggles to penetrate the blood-peritoneal barrier, limiting its effectiveness.

The PIPAC-O study aimed to assess the safety and feasibility of adding Pressurised Intra Peritoneal Aerosol Chemotherapy (PIPAC) with oxaliplatin to the standard FLOT pathway for high-risk gastric cancer patients. By delivering chemotherapy directly into the peritoneal cavity, PIPAC may offer improved local control with reduced systemic toxicity and enhanced treatment outcomes.^{1, 2, 3}

The close link that the Peritoneal Cancer Research Group has with the Upper GI Surgical Unit and the Colorectal Surgical Unit is indispensable in delivering these innovative treatments.

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3. Kaur H, Litinas MC, Lauder C, Da Silva N, Bradshaw EL, Price T, Trochsler M, Wright J, Woods SL, Hewett P. Long-Term Survival Following Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy (HIPEC) for Pseudomyxoma Peritonei: A 22-Year Single Institution Experience. *ANZ J Surg*. 2025 Oct;95(10):2112-2122. doi: 10.1111/ans.70214. Epub 2025 Jun 20. PMID: 40539400.

► <https://pubmed.ncbi.nlm.nih.gov/40539400/>

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Solid Tumour Group

The Solid Tumour Group, led by Professor Tim Price, is a large multidisciplinary team uniting researchers and clinicians from the Basil Hetzel Institute (BHI), The Queen Elizabeth Hospital (TQEH), and statewide collaborators.

The group's comprehensive research program focuses on advancing prevention strategies, enhancing diagnostic methods, and developing novel therapeutics for a range of solid tumours, including colorectal, appendix, breast, neuroendocrine, head and neck cancers.

The group maintains a strong connection with clinical services at TQEH, fostering a robust clinical trials program and enabling the translation of preclinical research into tangible improvements in patient care.

The group is structured into three key components:

- Clinical Trials Group
- Molecular Oncology Group
- Young Onset Colorectal and Appendix Cancer Group



The group is also the lead site for a novel PD-1 vaccine trial assessing the impact of pre operative immunotherapy for dMMR colon cancer (NEOPOLEM trial).



RESEARCH HIGHLIGHT OF 2025

CLINICAL TRIALS GROUP

During 2025, the Clinical Trials Group had 28 trials open for patients with multiple tumour types including a number of novel Phase 1 trials assessing new agents and novel interventions including intratumoral delivery of IVX037 receptor targeted oncolytic virus. The group is also the lead site for a novel PD-1 vaccine trial assessing the impact of pre operative immunotherapy for dMMR colon cancer (NEOPOLEM trial). The first patient in the world was enrolled at TQEH and the recruitment is ongoing.

As part of the group's training focus and collaboration with Belgium and Antwerp University Hospital, Dr Laura Depauw was able to complete her Clinical Trials Fellowship during the beginning of 2025 and has now returned to Belgium to complete her training and take up a consultant post.

MOLECULAR ONCOLOGY GROUP (Dr Eric Smith)

In 2025, our research program generated two PhD-led translational advances with clear commercial and intellectual-property relevance, targeting tumour microenvironment-driven therapeutic resistance in colorectal and triple-negative breast cancers.

Runhao Li's PhD research established a novel therapeutic strategy for colorectal cancer liver metastases based on targeted modulation of Wnt signalling. Through integrated biomarker discovery, in vivo validation, and immune-transcriptomic profiling, this work demonstrated that pathway modulation can reprogram the metastatic liver tumour microenvironment, enhancing adaptive immune recruitment while suppressing stromal and pro-tumourigenic signalling. Importantly, this research underpins a gene-therapy-based platform with strong translational potential, including compatibility with >

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immune checkpoint blockade and applicability across Wnt-driven malignancies. Key aspects of this work are subject to embargo due to active intellectual property and commercial development pathways.¹

In parallel, Sima Kianpour Rad's PhD delivered a fully published translational pipeline addressing chemotherapy resistance and immune modulation in triple-negative breast cancer. This work identified Bacopaside II as a candidate chemosensitising agent that enhances intracellular doxorubicin accumulation independently of canonical drug efflux mechanisms, highlighting a repurposing opportunity for combination therapy. In addition, systematic microbiome analyses and mechanistic studies demonstrated that intracellular bacteria modulate immune checkpoint expression and chemotherapy response, supporting the development of microbiome-informed therapeutic stratification and adjunctive treatment strategies. Multiple peer-reviewed publications in 2025 validate the robustness and translational readiness of these findings.²

Together, these PhD programs generated commercially relevant therapeutic concepts, biomarker opportunities, and platform technologies, positioning them for downstream patenting, industry engagement, and early-phase translational development.



YOUNG ONSET COLORECTAL AND APPENDICEAL CANCER GROUP

In 2025 the group has focussed on consolidating the data obtained over the last 15 years. During this year we farewelled A/Prof Joanne Young who was pivotal in setting up the South Australian Young Onset colorectal database (SAYO) and who established the overarching research strategy for this group.

Dr Kevin Fenix was appointed to replace A/Prof Young at the end of 2025 and will bring his expertise in novel CIK therapy to the group and work with the team to ensure the ongoing research into young onset colorectal cancer.

2025 RESEARCH

- PhD candidate Runhao Li was awarded the Professor Richard Jepson THRFG-BHI Supplementary Scholarship.
- PhD candidate Fangmeinuo Wu was awarded the Dr Prue Cowled THRFG-BHI Supplementary Scholarship.
- Aravind Sridhar was awarded an Adelaide University International Research PhD Scholarship.

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▶ <https://pubmed.ncbi.nlm.nih.gov/39858449/>

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The group aims to address risk factors, causes and treatment of heart diseases, especially those for which there is currently no effective treatment, and translate the findings into clinical practice or policy.

Examples of such problems include using innovative methods to reduce smoking or vaping in vulnerable populations, finding out the causes and treatment for accelerated heart disease in diabetes, acute heart failure, Takotsubo (“broken heart”) syndrome which occurs mainly in elderly women, and heart disease occurring together with cancer.

Our group has combined research expertise that spans from pre-clinical research to clinical trials and implementation science.

2025 RESEARCH

Smoking & vaping cessation

Beyond finding out the mechanism, diagnosis and treatment of heart diseases, our group also focused on translating and implementing research evidence into real-world practice. This programme is led by A/Prof Kristin Carson-Chahhoud, with proven track record and strengths in translating research evidence into clinical practice and policy. Largely supported by South Australian government, she leads several projects that are conducted to reduce smoking and vaping, particularly aiming at high-risk populations and adolescents/young adults.

One of which is the world’s first financial incentive to quit (I2Q) smoking and vaping cessation programme, which aims to reduce the negative cardiovascular/respiratory impact of tobacco use in the South Australian community. An evaluation of clinical efficacy, scalability and sustainability of this 6-month public policy initiative is underway across LHNs.

To date, the I2Q pilot programme has been implemented across >30 sites within SALHN and NALHN, demonstrating a biochemically verified 6-month quit rate >30% (intention to treat), a result outperforming currently recommended quit guidelines. Grant applications have been submitted to evaluate cardiovascular biomarkers, long-term sustainability, hospital admissions, and feasibility for national scalability and implementation. >



RESEARCH HIGHLIGHT OF 2025

The most exciting finding in our laboratory in 2025 related to findings from our pre-clinical model of diabetic heart failure, developed by Dr Cher-Rin Chong and PhD student Getandale Negera.

In this model, we demonstrated that damage to the innermost hair-like lining of blood vessels (the glycocalyx) might represent an “early warning” of blood vessel damage in diabetes. We also showed that heart failure is closely associated with damage to the glycocalyx and the very small vessels of the heart (coronary microvessels). It is therefore possible that damage to glycocalyx and coronary microvessels might lead to heart failure. We also have early evidence that protection of some components of glycocalyx might represent a new treatment for heart failure in diabetes.

The results were presented at two American Heart Association (AHA) meetings in 2025: Basic Cardiovascular Science meeting in Baltimore, Maryland

in July 2025, and the major AHA Scientific Sessions conference in New Orleans, Louisiana in November 2025. Getandale Negera was awarded the prestigious 2025 Paul Dudley White International Award, which recognises the world’s best cardiovascular science and medicine research. We also congratulate the awarding of PhD degree to Getandale Negera this year, and wish him well for the future.

Further studies, particularly focusing on the causes, treatment and diagnostic implications of the above, will be undertaken with the support of a recent MRFF grant (CIA: Dr Cher-Rin Chong), Diabetes SA and National Heart Foundation of Australia. It will also involve testing some of the above observations in patients with heart failure and diabetes and include collaboration with Associate Professor Betty Raman from the University of Oxford, UK. In September 2025, Dr Chong was invited to present the research findings to the members of Oxford Cardiac Magnetic Resonance Imaging group.

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Cancer Mecanotherapies Laboratory

Molecular Imaging and Therapy Unit

Peritoneal Cancer Research Group

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Takotsubo Syndrome

- **NACRAM trial:** The NACRAM trial is the world’s first randomised controlled trial investigating treatment for acute attacks of Takotsubo syndrome. Led by Dr Gao Ong, the trial is now complete and results are under analysis.
- **EVEREST trial:** EVEREST is an international collaborative trial of treatment for Takotsubo Syndrome led by Professor Dana Dawson from the University of Aberdeen, Scotland, UK. The trial is already underway in the UK but not yet in Australia. In November 2025, Professor Dawson visited our group, which is central to co-steering the Australian arm of EVEREST.
- **International Takotsubo registry:** Long-standing ongoing collaboration with the international TakoTsubo registry (InterTak, Zurich; now Greifswald Germany). We continue our long-standing collaboration with the InterTak group to investigate pathophysiology, triggers, prognosis and outcomes of Takotsubo syndrome.

Metabolic therapy for heart disease

It has previously been shown that in patients with hypertrophic cardiomyopathy (HCM), the appearance and progression of left ventricular hypertrophy is preceded and probably caused by impaired cardiac energy level. Perhexiline, normally used for severe angina pectoris, has been shown to improve cardiac energetics.

To test the hypothesis that in symptomatic patients with LVH, perhexiline treatment also reverses hypertrophy and thereby improve patients’ symptoms, Professor Joseph Selvanayagam from Flinders University led a multicentre double-blinded placebo-controlled randomised trial to evaluate the effect of 12-month perhexiline treatment on the extent of left ventricular hypertrophy, in symptomatic HCM patients with at least moderate left ventricular hypertrophy. The trial has completed, and results are currently under analysis.

Professional contributions & new appointments

- **Professional contributions:** Dr Cher-Rin Chong continues to serve for the editorial board member of *Cardiovascular drugs and therapy*, Executive Committee member of the SA Cardiovascular Research Network, and Diabetes SA Research Advisory Committee. The latter two are committed to advancing cardiovascular and diabetes research in SA.

- **New PhD students:** In 2025, we welcome three new PhD students Beidong Huang, Xiaojing Wang and Jiunn Jye Tan. We wish them successes along their PhD journey.

Presentations at Australian Scientific Meetings

Australian Society of Clinical and Experimental Pharmacologists and Toxicologist & Hypertension Australia Joint National scientific meeting: Members of our group

presented their work at this meeting, held in Adelaide on 9-12th December 2025.

- Beidong Huang presented the synergistic effect of nitric oxide-hydrogen sulphide in a rat model of diabetic heart failure, funded by MRFF
- Dr Zenab Dudhwala presented the interplay between androgen receptor signalling & cardiac hypertrophy, funded by Foundation of High Blood Pressure Research.

TQEH Research Expo: Beidong Huang presented the impact of autocoids on nitric oxide-induced vasodilation, and Xiaojing Wang presented preliminary results related to cellular pyruvate metabolism at Junior Laboratory Research category.



Dr Yuliy Chirkov

We were deeply saddened with the news of Dr Yuliy Chirkov’s sudden passing in May 2025. He had played a focal role in our group’s research since 1990 and had been responsible for several key advances in the understanding of platelet pathophysiology in heart disease. Notably, he identified the phenomenon of nitric oxide resistance, its association with poor prognosis, and potential strategies to reverse the problem.

He will be greatly missed.

CARDIOVASCULAR DISEASE

GROUP MEMBERS

Research Leader
John Horowitz

Principal Medical Scientist
Yuliy Chirkov
(Deceased 25 May 2025)

Affiliate Associate Professor
Kristin Carson-Chahhoud

Grant-funded Postdoctoral Fellow
Cher-Rin Chong

Grant-funded Postdoctoral Research Officer
Zenab Dudhwala

Laboratory Manager/ Research Officer
Irene Stafford

Postgraduate Students
Beidong Huang
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Jiunn Jye Tan
Xiaojing Wang

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Alicia Chan
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Thanh Ha Nguyen
Darryl Ooi
Sven Surikow
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Joseph Selvanayagam
Flinders University, Adelaide, Australia

Michael Frenneaux
Hamad Medical Corporation, Doha, Qatar / Imperial College London, London, UK / The Queen Elizabeth Hospital, Adelaide, Australia

Dana Dawson
University of Aberdeen, Aberdeen, UK
Betty Raman
University of Oxford, Oxford, UK
Christian Templin
University Hospital Greifswald, Greifswald, Germany

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Translational Vascular Function Research Collaborative (TVFRC)



Vascular diseases remain a major cause of death and poor health in Australia. Vascular diseases can be largely attributed to abnormalities within blood vessels and compromised blood supply to the organs, including the heart.

The Translational Vascular Function Research Collaborative (TVFRC) undertakes interdisciplinary discovery, clinical and epidemiological research into vascular diseases aimed at improving our understanding of these disorders, optimising healthcare management and developing new and effective therapies.

The TVFRC comprises clinicians and medical scientists working at the BHI, Adelaide University, the Cardiology Departments of the Heart and Lung Unit, Central Adelaide Local Health Network, and the Cardiology Department of Northern Adelaide Local Health Network, who together form a large, multidisciplinary collaborative group that prioritises interdisciplinary input to the development of clinically relevant solutions for the treatment of vascular disease.

- The group is arranged around 3 themes:
- Translational Vascular Molecular Physiology
 - Translational Vascular Clinical Physiology
 - South Australian Cardiovascular Outcomes Registry (SACOR)

TRANSLATIONAL VASCULAR MOLECULAR PHYSIOLOGY

The Molecular Physiology group focuses on the pathophysiology and molecular signalling of vascular disorders including coronary artery spasm, coronary microvascular disorders and reperfusion injury. Laboratory studies include the assessment of isolated human vessel function using myography, followed by a series of biomolecular assays aimed to provide a mechanistic understanding of the disorders and thus direct the translation to improvements in medical therapy.



TRANSLATIONAL VASCULAR CLINICAL PHYSIOLOGY

The Clinical Physiology research team uses invasive and non-invasive techniques to identify the presence of vascular dysfunction in patients with vascular symptoms including angina (chest pain due to insufficient blood supply to the heart) and intermittent claudication (pain and/or cramping in the lower leg due to inadequate blood flow to the muscles). Techniques include the assessment of coronary artery spasm, coronary blood flow, cardiac magnetic resonance imaging, subcutaneous blood flow and endothelial function.

SOUTH AUSTRALIAN CARDIOVASCULAR OUTCOMES REGISTRY (SACOR)

The SACOR group is focused on health service delivery and patient health outcome improvement through healthcare quality assessment and evaluation of the health status of patients including symptoms, physical limitations and quality of life. Consistent with the changing environment in medicine, this group adopts a 'patient-orientated' approach to the delivery of health care by evaluating patient health status and quality of care delivered. The group has developed large databases and clinical quality registries from patients with coronary artery disease, microvascular disease, coronary spasm and peripheral artery disease. Most of these databases have international links thereby providing collaborative opportunities. ➤

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Translational Vascular Function Research Collaborative (TVFRC) cont.

RESEARCH HIGHLIGHT OF 2025

PAMICO Project – SA Health Awards 2025: Winner of the Minister's Award for Innovation

The PAMICO Project (Personalising Acute Myocardial Infarction Care to improve Outcomes) was awarded the Minister's Award for Innovation at the 2025 SA Health Awards, revolutionising heart attack care by using digital tools for personalised patient treatment and better outcomes. This world-first project helps clinicians tailor care and understand individual patient risks, reducing hospital stays and complications for heart attack patients.

The PAMICO Project was an NHMRC Partnership Grant led by Prof Beltrame, A/Prof Rosanna Tavella, Prof Chris Zeitz and Prof John Spertus, and supported by CALHN nursing staff Philip Cerna, Katherine Hines, and Samuel Kitto. PAMICO embedded predictive risk tools into clinical workflows for heart attack patients undergoing coronary angiography procedures which predicted key clinical outcomes such as length of stay, kidney damage and bleeding,

directly informing clinical decisions and enabling prevention strategies. For example, the amount of angiogram dye used was personalised for each patient, providing enough to capture required imaging but reducing the risk of kidney damage. PAMICO reduced procedural complications with a 46% drop in bleeding, 15% fewer cases of kidney damage and a 45% reduction in 30-day major cardiovascular events.

Clinicians were able to undertake more accurate discharge planning, identify high-risk patients, guide treatment adjustments and were provided with ongoing benchmarking to drive quality improvement. In an Australian-first, patients also received tailored consent forms outlining their expected discharge date and risks, empowering shared decision-making and improving confidence in their care.

▶ www.calhn.sa.gov.au/news/sa-health-awards-winners

Sarena La awarded a Deans Commendation

Dr Sarena La was awarded a Deans Commendation for Doctoral Thesis Excellence for her PhD thesis titled *Clinical Insights into The NOCA Syndromes*. Sarena was also awarded the Heart Foundation Kick Start Fellowship (2025-2027) for her research on Non-Obstructive Coronary Arteries (NOCA) Syndromes, with a particular emphasis on improving patient outcomes and advocating for those affected. Dr La's work exemplifies the fellowship's mission to foster innovation and improve cardiovascular health across South Australia.

TRANSLATIONAL VASCULAR MOLECULAR PHYSIOLOGY

GROUP MEMBERS

Research Leader and Consultant Cardiologist

John Beltrame

Senior Medical Scientists

David Wilson

Peter Zalewski

Consultant Cardiologists

Sharmalar Rajendran

Matthew Worthley

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Peter Zalewski

Zinc and Cardiovascular Disease Research Group

Betty Sallustio

Clinical Pharmacology Research Group

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Hugh Cullen

James Edwards

Fabiano Viana

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Adil Rajwani

Jon Spiro

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John Hunter Hospital, Newcastle, Australia

Cindy McCall

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SOUTH AUSTRALIAN CARDIOVASCULAR OUTCOMES REGISTRY (SACOR)

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Research Leads

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Rosanna Tavella

Consultant Cardiologists

Matthew Worthley

Christopher Zeitz

Postdoctoral Researchers

Sivabaskari (Tharshy)

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Amara Georgopoulos

Maxine Hallows

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Lynda Tully

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Sarena La

Janet Smith

BHI COLLABORATOR

Robert Fitridge

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Bertil Lindahl

Uppsala University Hospital, Uppsala, Sweden

Margaret Arstall

Lyell McEwin Hospital, NALHN, Adelaide, Australia

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Vascular Surgery Research Group

Our group is affiliated with CALHN Vascular and Endovascular Services and operates across The Queen Elizabeth Hospital and Royal Adelaide Hospital precincts.

Our research is focused on understanding, assessing, and treating peripheral arterial disease and diabetes-related foot complications. This program has a special focus on culturally-safe approaches for addressing gaps in care, service delivery via telehealth, and cross-disciplinary collaboration.

Our goal is to reduce amputations and improve quality of life for patients with lower-limb disease.

2025 RESEARCH

- Our team was awarded the 2025 CALHN Allied Health and Scientific Executive Director's Award for Research. This reflects the ongoing value our research program has for patients and as a collaboration between scientific and allied health.
- Prof Rob Fitridge was senior author on a new review published in Physics Reports (Impact Factor >30) on assessing biomedical markers in patient arteries using highly sophisticated computational techniques.
- We started a feasibility trial of augmented reality for telehealth, working together with clinical collaborators in Murray Bridge and Berri. Our first patients report high approval of this service, as reported by Dr Neil McMillan at an invited talk at the Australian Cardiovascular Alliance Workshop in Renmark.
- First patients have been enrolled into a collaborative project examining exercise for healing foot ulcers, including TQEH Podiatry and Exercise Physiology as well as UniSA academics. This trial aims to show that it is feasible to prescribe safe exercise for people with high-risk foot wounds.
- Initial analyses of over 5,000 patients with lower-limb disease across South Australia have been analysed in collaboration with Australian Institute for Machine >



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Learning researchers and presented at the 2025 ANZ Society for Vascular Surgery conference. This is an important first step to using AI for risk prediction in some of our highest-risk patients.

- We have completed a pilot study of optical coherence tomography to measure small vessels in highly-diseased feet, showing differences before and after endovascular surgery. This research was funded by a FAME grant from The University of Adelaide.

1. Desire CT, Arrua RD, Michalatos B, Zhang J, Venn XL, Breadmore M, Kopecki Z, McMillan N, Fitridge R, Hilder EF, Cowin AJ. Development of 3D printed microchips with encapsulated channels as miniaturized separation devices for bioanalysis. *Anal Chim Acta*. 2026 Jan 22;1384:344971. doi: 10.1016/j.aca.2025.344971. Epub 2025 Dec 1. PMID: 41513373.
▶ <https://pubmed.ncbi.nlm.nih.gov/41513373/>



RESEARCH HIGHLIGHT OF 2025

This year we closed recruitment to our *WoundBankSA* platform, with over 200 participants recruited across cohorts including: people without diabetes, people with diabetes and risk of foot ulcer, people with active diabetes-related foot ulcer, and people with healed ulcer.

With small contributions of blood every six months, these participants are helping us identify the biomarkers for predicting who will develop foot ulcers and whose wounds will heal. This is a first-of-its-kind longitudinal study tracking proteins in blood against new, healed, and non-healing wounds over >3 years among participants.

Supported by funding from an NHMRC Ideas Grant after startup funding from Health Translation SA and the Medical Research Futures Fund, this collaboration between BHI clinical researchers and laboratory scientists at UniSA's Future Industries Institute is set to identify new diagnostics and treatments for diabetes-related foot complications.

It also forms the basis for new statewide sample banks going forward, including biobanking of arterial tissues, infection swabs, and bloods to revolutionise our understanding of lower-limb disease.

This year's highlights from this research have included testing of development microchips for bioanalysis published in *Analytica Chimica Acta*, a new The Hospital Research Foundation Group grant analysing high-density lipoprotein ("good" cholesterol) in our samples, and presentations of initial results by Dr Zahra Lotfollahi at the 2025 ANZ Society for Vascular Surgery, Diabetes Feet Australia, and SA Cardiovascular Research Network meetings.

Our long-term goal is to develop a novel test kit – like a COVID Rapid Antigen Test – to easily assess the risk of people with diabetes to develop a foot ulcer that may require amputation.¹

CARDIOVASCULAR DISEASE

GROUP MEMBERS

Professor of Vascular Surgery
Robert Fitridge

Associate Professor, Consultant Vascular Surgeon
Joseph Dawson

Consultant Vascular Surgeons
Albert Kota
Benjamin Thurston

Principal Medical Scientist, Senior Research Fellow
Neil McMillan

Senior Grant-Funded Scientist
Zahra Lotfollahi

Clinical Research Nurses
Li Lao
Rejish Koshy Mathew
Senior Research Podiatrists
Bonnie Dart
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Lucinda Weekes

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Chris Delaney
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Paul Worley
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Allison Cowin
Kristin Graham
Lisa Matricciani
Ancret Szpak
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Christina Bursill
Peter Psaltis
Emma Solly
SAHMRI, Adelaide, Australia

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Zinc and Cardiovascular Disease Research Group

The Zinc and Cardiovascular Disease Research Group investigates the role of the major dietary metal, zinc, in the blood vessels and in vascular diseases.

Our work will enable us to directly relate endothelial zinc levels and zinc transporter expression with endothelial dysfunction, vasoconstriction, cigarette smoking and small and large artery disease in humans. It will provide the rationale for zinc interventional clinical trials.

2025 RESEARCH

Collaboration with the Florey Institute in Melbourne:
Dr Peter Zalewski is collaborating with Dr Ashenafi Betrie who has a rodent model of coronary vasomotor disease.



Recent research in our lab has shown that zinc may have an important role in maintaining normal function of blood vessels and that many patients with angina have zinc deficiency.

RESEARCH HIGHLIGHT OF 2025

Ongoing clinical trial of zinc in treating treat heart disease

Research into heart disease has come a long way in recent years but some unknowns still exist, particularly for people living with ANOCA (a type of angina where no blockage in the artery is found). But that could be about to change.

Our group are investigating the role zinc supplements can play in managing chest pain symptoms in ANOCA. Recent research in our lab has shown that zinc may have an important role in maintaining normal function of blood vessels and that many patients with angina have zinc deficiency.

New technique to harvest vascular endothelial cells from patients with heart disease

We are collecting patient samples using our unique endothelial biopsy technique which isolates endothelial cells from the linings of human coronary arteries during coronary

angiography at no harm to the patient. This technique enables us to study the molecular and genetic basis of vascular dysfunction and cardiovascular disease.

This research infrastructure has demonstrated that there is a real potential for capture of biological data for personalised medicine. In particular, this biobank has been used to improve our understanding of zinc and its role in vascular disease. This has also resulted in a new international collaboration with the laboratory of Prof Hester den Ruijter at the Laboratory of Experimental Cardiology in Utrecht UMC, The Netherlands.

Dr Peter Zalewski took part in a laboratory visit to the group where he taught the researchers there the endothelial cell harvesting technique. Our two groups are now investigating a technique to culture these cells which will enable a range of biochemical techniques to be employed to further understand the role of zinc in endothelial cell activation and dysfunction.

GROUP MEMBERS

Research Leader, Senior Medical Scientist
Peter Zalewski

Consultant Cardiologists
John Beltrame
Chris Zeitz

Postdoctoral Researchers
Sivabaskari Pasupathy (Tharshy)
Rosanna Tavella

Collaborating Postdoctoral Researcher
Adrian Abdo

Technical Officer
Delicia Rachel

BHI COLLABORATORS

Susan Lester
Rheumatology Research Group
Irene Stafford
Cardiovascular Pathophysiology & Therapeutics Group

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Chiara Murgia
University of Melbourne, Melbourne, Australia
Eugene Roscioli
The University of Adelaide, Adelaide, Australia
Ashenafi Betrie
Florey Institute, Melbourne, Australia
Hester den Ruijter
Utrecht UMC, Utrecht, The Netherlands

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Clinical Pharmacology Research Group

The Clinical Pharmacology Research Group aims to improve the effectiveness and safety of medicines by taking into account the very large differences between individuals in the way medications are handled by the body.

We focus on medicines used to treat cancer, heart disease, epilepsy, or to prevent rejection following organ transplantation. These life-saving medications often have narrow margins of safety and doses based on a “one size fits all” approach can lead to toxicity or ineffective treatment. Understanding the underlying mechanisms of patient variability and tailoring doses for each individual patient can result in improved treatment efficacy, decreased adverse effects, greater patient satisfaction and treatment success.

In collaboration with Central and Northern Adelaide Renal Transplantation Service we are applying the principles of therapeutic drug monitoring (TDM) to develop new methods for measuring anti-rejection drugs in the blood of women who have received a kidney transplant and wish to become pregnant. In these high-risk pregnancies, our aim is to identify safe “windows” of exposures in the mother’s blood and use these TDM targets to guide dosing and minimise the risks of complications for both mother and baby.

In conjunction with Southern Adelaide Local Health Network, our group is similarly developing a comprehensive research program to monitor the levels of chemotherapy medications in patients’ blood and determine safe exposure windows to individualise dosing, prevent severe chemotherapy toxicity and improve overall cancer cure.



RESEARCH HIGHLIGHT OF 2025

We have continued to expand the range of targeted oral anticancer drugs measured by our laboratory.

At BHI, Dr Ramin Hassankhani has led the development of a test for measuring the anticancer drug lenvatinib. In collaboration with Dr Ganessan Kichenadasse (Flinders Medical Centre), we have completed an evaluation of lenvatinib dosing variability in patients treated for thyroid, endocrine, liver, kidney and adenoid cancers.

We found that only 58% of patients received the recommended starting dose of lenvatinib. Overall, 95% of patients reported at least 1 adverse event related to

lenvatinib within 25 days of starting treatment and, on average, required a treatment break, dose reduction or discontinuation by day 52.

This work offers new insight into real-world lenvatinib dosing patterns and associated toxicities, improving understanding of current dosing challenges in liver and thyroid cancers—the second most fatal cancers treated with lenvatinib—and provides the clinical evidence to support the application of TDM to enhance clinical outcomes. This work is currently under review for publication. >

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Clinical Pharmacology Research Group cont.

2025 RESEARCH

- We have published an evaluation of the benefits of everolimus TDM in patients treated for endocrine, advanced breast, kidney and ovarian cancers. It highlights the underutilisation of TDM in oncology and its potential to optimise everolimus dosing and improve survival and minimise toxicity.
- Dr Madele Van Dyk is completing an investigation of chemotherapy exposure–response relationships in paediatric acute lymphoblastic leukaemia to assess whether individualised dosing beyond weight-based approaches improves treatment response, and is currently developing a clinical trial protocol in Australia to relate drug concentrations to clinical outcomes and inform individualised therapy.
- Collaboration with Prof Michael Ward (UniSA) in a study investigating TDM of the antibiotic tobramycin in paediatric cystic fibrosis (CF) patients. The study evaluates the ability of current software packages to individualise tobramycin doses using levels measured in blood; and to compare performance of blood collection by finger-prick versus venepuncture for tobramycin TDM in children with CF.
- Collaboration with PARC Clinical Research on a clinical trial of sirolimus as a potential new treatment for Inclusion Body Myositis, a rare autoimmune disease that causes progressive muscle damage and weakness. The trial is ongoing and results are still blinded to the investigators.
- Collaboration in a multicentre clinical trial, led by Prof Joseph Selvanayagam (SALHN) investigating whether an older antianginal medicine, perhexiline may be an effective new treatment for hypertrophic cardiomyopathy, a genetic disorder that leads to dysfunction of the heart muscle. The trial is ongoing, patient recruitment is completed but results are still blinded to the investigators.

○ It highlights the underutilisation of TDM in oncology and its potential to optimise everolimus dosing and improve survival and minimise toxicity.

CHRONIC DISEASE

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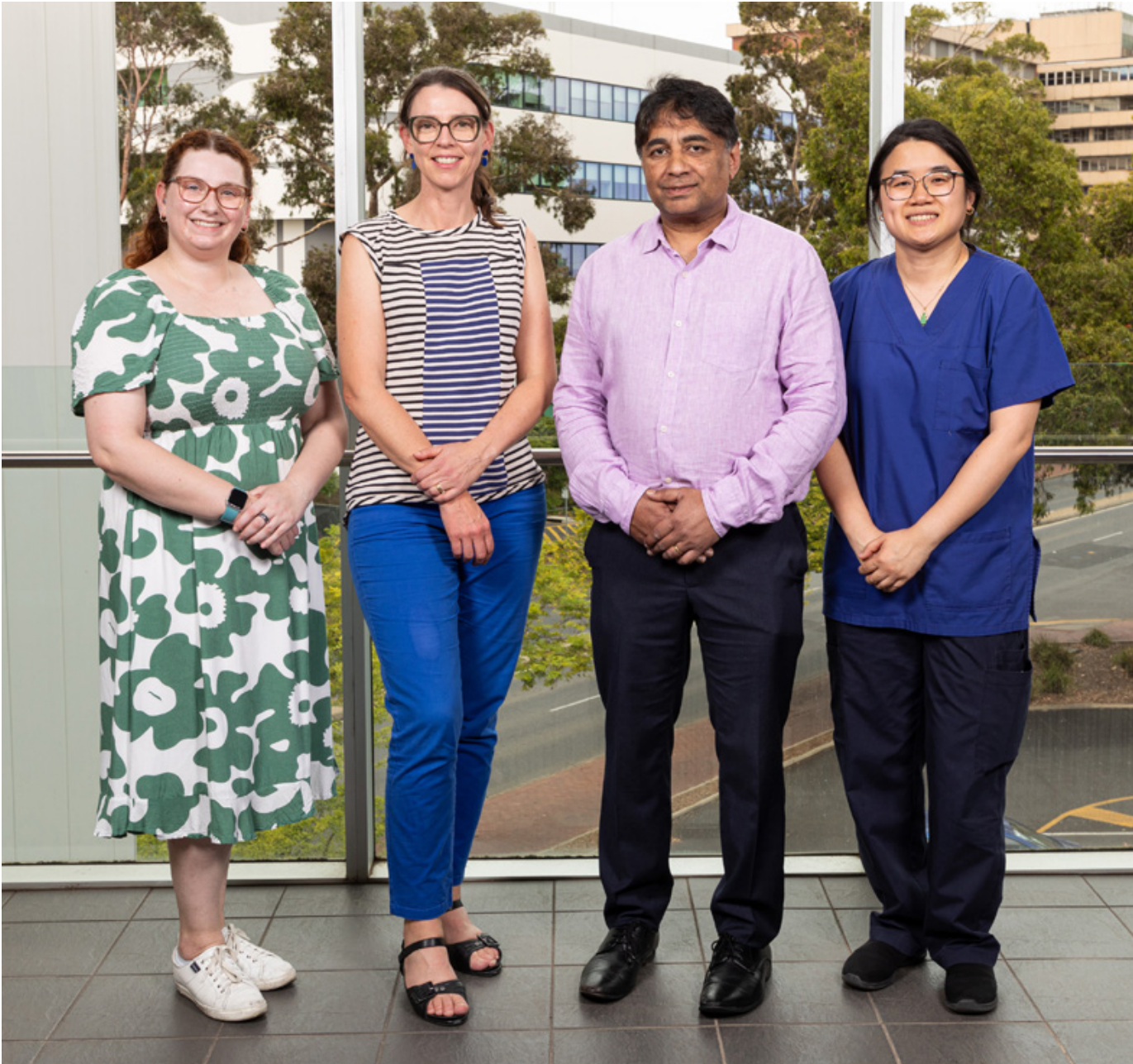
Diabetes and Endocrinology Unit

The TQEH Diabetes and Endocrinology Unit conducts research in the areas of diabetes and the metabolic syndrome, and endocrinology with a particular focus on andrology. Prevention and treatment of diabetes is a particular focus for the group. Our recent work aims to deepen understanding of inpatient diabetes management, the mechanisms and side effects of diabetes medications, broader clinical implications of the metabolic syndrome and strategies to improve diabetes care for Aboriginal communities.

Our group has previously explored the effects of commonly prescribed drugs, such as Sodium-Glucose Cotransporter-2 Inhibitors (SGLT2i) and Glucagon-like Peptide-1 (GLP-1) agonists in the treatment of type 2 diabetes and are currently investigating the implementation of technology-based interventions to improve clinical care for individuals with diabetes. The primary aim of our research is to enhance the efficiency and quality of care and improve clinical outcomes for Australians with diabetes.

2025 RESEARCH

- Dr Emily Meyer oversaw expansion of the CALHN obesity service in 2025, with establishment of the Comprehensive Metabolic Care Clinic (CMCC). This builds on her project commenced in 2023 studying how technology can improve the management of patients with complex metabolic issues within a multidisciplinary clinic.
- Dr Jessica Lee, Dr Marni Nenke and Dr Emily Meyer continued their work investigating the role of the cortisol-binding globulin in septic shock, contributing several important publications relating to their original research.
- Dr Lucia Gagliardi was involved in clinical research studies evaluating the use of glucagon-like 1-1 receptor agonists and continuous glucose monitoring in cystic-fibrosis related diabetes.
- The unit continued to focus on metabolic health research, evaluating the interplay between metabolic health with >



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Diabetes and Endocrinology Unit cont.

male fertility and heart disease, and considering the role for medical interventions to modify risks. Prof David Jesudason also contributed to publications of research evaluating interactions between testosterone treatment, type 2 diabetes and associated health co-morbidities.

- The Queen Elizabeth Hospital was involved as a study site to recruit for the FlashGM clinical trial. This multi-centre, national randomised controlled trial, led by the University of Melbourne, is evaluating whether the use of continuous glucose monitoring can improve outcomes for Indigenous Australians with type 2 diabetes using injectable therapies.
- Recruitment for the “Balanced multi-Electrolyte solution versus Saline Trial for Diabetic KetoAcidosis (BEST-DKA)” clinical trial continued. This Australian multicentre randomised control trial is comparing two different types of intravenous rehydration solutions in the treatment of patients with diabetic ketoacidosis admitted to the ICU.



This system quickly identifies patients within the hospital with high or low blood sugar levels to ensure they receive timely multidisciplinary care.

RESEARCH HIGHLIGHT OF 2025

In 2025, Prof David Jesudason and his team were awarded one of three prestigious CALHN CRIPS grants, valued at \$200,000 over two years (2026-2028), to support the implementation of the *Proactive Automated Inpatient Multidisciplinary Diabetes Intervention* project.

This project looks to expand on the early positive outcomes from the state-wide multicentre randomised control trial, *Effect of Endocrinological Dashboard Implementation For the Instigation of Consult Engagement on health-care associated infection incidence in adult patients (EDIFICE)*. The intervention introduces a proactive automated electronic system, using the Electronic Medical Records to selectively collate data to a “diabetes dashboard”. This system quickly identifies patients within the hospital with high or low blood sugar levels to ensure they receive timely multidisciplinary care. Through automatic identification of at-risk individuals, treatment interventions can occur sooner.

As compared to traditional management, which requires the treating team to identify at risk patients, it is believed this will improve patient safety, reduce complications, assist in faster hospital discharge and reduce the risk of hospital readmission.

CHRONIC DISEASE

GROUP MEMBERS

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Stroke Research Programme

The Stroke Research Programme (SRP) is a collaborative of The Queen Elizabeth Hospital (TQEH) Neurology Department, Basil Hetzel Institute (BHI), and The University of Adelaide (UoA) and undertakes research in a wide range of fields.

Currently our principal study, and subject of a doctoral thesis which has been submitted this year, investigates biomarkers in stroke and Transient Ischaemic Attack (TIA), which can be a warning sign of an impending stroke, and aims to differentiate these from mimics, e.g., migraines and seizures.

This research to Find A Simple Test in TIA (FAST-IT) has several arms, including proteomics, lipidomics, metabolomics and oxidative stress. We also link on stroke-related biomarker research nationally and internationally via the TOTO (Targeting Optimal Thrombolysis Outcomes) multicentre cohort study.

And we undertake stem cell research with students and collaborators, with one study exploring dental pulp stem cells in the Tasmanian Devil on a potential alternative strategy for brain repair.

RESEARCH HIGHLIGHT OF 2025

Further to our completed action research project on dogs visiting patients at the Royal Adelaide Hospital (RAH) Stroke Unit, we have been funded by The Hospital Research Foundation Group to run 1-year pilots at the Royal Adelaide Hospital and The Queen Elizabeth Hospital for dogs to visit patients who have had a stroke.

It is heartwarming to see the patients, carers, visitors and staff interacting with the dogs every week and a very successful outcome of our action research DOgSS (Dogs Offering Support after Stroke) project at the RAH with Therapeutic Dog Services, which has helped to translate the research.



L-R: Seuki the dog with Dermot Keegan. Photo credit: The Hospital Research Foundation Group.

2025 RESEARCH

The SRP collaborates with researchers at La Trobe and Adelaide University in exploring the influence of the Social Determinants of Human Health on Companion Animal Welfare. Parts of this research have been presented and published, and a doctoral thesis on this was also submitted in 2025.

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Anaesthesia Research Group

The Anaesthesia Research Group is linked to Critical Care & Perioperative Services: The primary research interests of our group are:

- To improve the surgical outcome of patients with type 2 diabetes, especially those who are prescribed new class of medications called Gliflozins and GLP 1 analogues
- To validate the diagnostic tools to screen obstructive sleep apnoea in patients presenting for surgery
- To implement a strategy to minimise preoperative opioid use and long-term opioid use after surgery
- To explore the application of ultrasound guided nerve blocks for postoperative pain relief and opioid use
- Applications of high flow nasal oxygen for airway management and procedural sedation
- To assess the pattern and diagnostic utility of various tests for severe hypersensitivity reactions/anaphylaxis during anaesthesia
- To improve the outcomes for patients undergoing pressurised intraperitoneal aerosol chemotherapy and hyperthermic intraperitoneal chemotherapy procedures
- To assess environmental sustainability of various anaesthetic products.

RESEARCH HIGHLIGHT OF 2025

Obstructive sleep apnoea (OSA) is prevalent in 20-40% of patients presenting for surgery, and the rate could be as high as 70% among those presenting for bariatric surgery. It is vital to identify this condition during a preanaesthetic assessment, as unrecognised sleep apnoea can lead to adverse postoperative outcomes.

STOP-Bang is the most widely used screening tool in this regard. This screening instrument comprises eight parameters, all carrying equal weight. Some parameters are subjective and can result in false-negative results.

The B-APNEIC score is a newly introduced tool, published in 2022 by a group of researchers from Boston, USA. This tool incorporates only four parameters, which are weighted differently based on their predictive ability for OSA. The original study showed that the B-APNEIC score performs as well as STOP-Bang and can potentially replace it.

Validation studies for the original research were lacking, and we undertook a project to validate this new scoring system. Our results were identical to those of the original study and showed a better diagnostic profile for the new score compared with STOP-Bang. The study has been published in one of our top-ranked journals, "Anaesthesia".

One of our research papers on the basophil activation test in the diagnosis of perioperative anaphylaxis, published in "Anaesthesia and Intensive Care", won the Emerging Investigator Award for the anaesthetic trainee Noor Baig, the first author of this paper.

This study highlights what anaesthetists need to watch for, so patients are kept safe and comfortable during these complex cancer treatments.

2025 RESEARCH

- **High flow nasal oxygen and gastric insufflation: a meta-analysis**
We reviewed many studies to see whether using high flow nasal oxygen (HFNO) during medical procedures causes air to build up in the stomach, which can be a risk. Our findings help doctors balance the benefits of HFNO for breathing support with safety concerns about the stomach.
- **Anaesthetic implications of pressurised intraperitoneal aerosolised chemotherapy procedures: a single centre study**
We looked at how giving chemotherapy as a pressurised spray into the abdomen affects patients under anaesthesia. This study highlights what anaesthetists need to watch for, so patients are kept safe and comfortable during these complex cancer treatments.
- **Validation of the B-APNEIC score in a surgical population**
Our team checked how well the new B-APNEIC score works for finding sleep apnoea in people having surgery. We found it is as reliable as standard methods, and could help doctors spot sleep apnoea more accurately before an operation.

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SGLT2 inhibitors, GLP 1 RAs,
Obstructive Sleep Apnoea,
Environmental Sustainability

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CALHN Cognitive Neurology Clinical Trials Unit

CALHN Cognitive Neurology trials has been active at The Queen Elizabeth Hospital since 1995. Over the years, our team has grown and currently includes Consultant Neurologists, Clinical Neuropsychologists, Psychologists and Nursing staff.

We are a caring and dedicated team of health professionals with extensive experience in the management of patients with a range of cognitive concerns, ranging from mild cognitive impairment through to more severe dementia. Patient carers and other family members are also integral to all our clinical trials and are also enrolled in all patient studies.

Our primary research focus is Phase II and III pharmaceutical clinical trials for patients with predominantly mild cognitive changes and mild dementia, as well as Investigator-lead research projects. The majority of our trials are focussed on Alzheimer's disease, as it is the commonest form of dementia, however we have also been involved in research for other subtypes of dementia such as vascular and frontotemporal dementias.

Our process of trial selection involves advocating for patient needs first and foremost. The scientific validity of the investigational product is also important, as is the ability for our site to recruit well for the specific patient population in question without negatively impacting other potentially competing studies. Trial budget is also crucial to ensure we can cover the cost of staff employment and maintain a financial buffer.

Currently most of our focus has been on disease-modifying therapies. In particular, amyloid- and tau- targeting therapies, through a range of different mechanisms. We are also interested in novel treatments that effect other aspects of the Alzheimer's disease pathway, such as inflammation. In the majority of these studies, participants with Alzheimer's disease can continue taking their existing treatments. The CALHN Human Research Ethics Committee has approved all studies conducted within our unit.

RESEARCH HIGHLIGHT OF 2025

The CALHN Cognitive Neurology Clinical Trials unit has been involved in trials of anti-amyloid therapies in Alzheimer's disease since approximately 2010. We have had numerous negative outcomes which has been disappointing for our patients and families but also to the staff working on these trials.

However, in August 2023, we finally had a positive outcome with Donanemab and in May 2025, this anti-amyloid monoclonal antibody was approved by the Therapeutic Goods Administration (TGA) in Australia for use in mild cognitive impairment due to Alzheimer's disease and mild Alzheimer's Dementia.

A second monoclonal antibody Lecanemab, was then approved by TGA in September 2025. The Queen Elizabeth Hospital has been involved in clinical trials for both of these medications. These medications slow clinical progression in Alzheimer's Disease by approximately 30%.

We are currently hopeful that the PBS will also approve these treatments in the coming 12 months.

We are currently hopeful that the PBS will also approve these treatments in the coming 12 months.

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Dermatology Research Group

The Dermatology Research Group is a newly established and emerging research group based at The Queen Elizabeth Hospital. The team is currently involved in both sponsored and investigator led trials in specialty areas such as Atopic Dermatitis, Vitiligo and Hidradenitis Suppurativa, as well as observational research in vulval disease.

Our research aims to gain knowledge and improve patient care quality through clinical trials and other research projects. Currently, under the guidance of Head of Unit, Dr Arabella Wallett, the group are looking to expand on their research engagement, collaboration, and output in future. We are seeking research collaborations and are always looking for enthusiastic students.

RESEARCH HIGHLIGHT OF 2025

During 2025, the Dermatology Research Group commenced recruitment for the Pfizer Vitiligo Clinical Trial. This Phase 3 sponsored study explores and assesses the efficacy, safety and tolerability of Ritlecitinib in adult participants with non-segmental Vitiligo. The group screened six potential participants, with two proceeding to enrolment and active and ongoing trial participation. This has been a successful collaboration with Pfizer, and the study will continue into 2026.

Further, the Dermatology Head of Unit, Dr Arabella Wallett, commenced her PhD on the Development and Implementation of a Shared Care Model for the Long-Term Management of Stable Lichen Sclerosus in South Australia.

Dr Annabel Stevenson won a competitive research grant from the Australasian College of Dermatologists. Together with Dr Katherine Lissner, they have been awarded the \$25 000 L'Oreal Dermatological Beauty Research Grant. They plan to undertake a randomised controlled trial into the effect of supplying free sunscreen to secondary school students in South Australia in Term 1, 2026.

Dr Nicholas Hayes was also accepted into Australasian College of Dermatologist Training Program. He will commence in 2026 in the Northern Territory. ➤



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2025 RESEARCH

Current Clinical Trials, Research, and Registries

- Upcoming Hidradenitis Suppurativa Clinical Trial for 2026 (WHO Registration: U1111-1322-6148)
Early involvement in a Sanofi pharmaceutical trial for Hidradenitis Suppurativa treatment with an anticipated start date in 2026. This will be Phase 2 Clinical Trial to investigate the efficacy and safety of SAR445399 in participants with moderate to severe Hidradenitis Suppurativa.
- Australasian Dermatology Registry
The group has recently received approval to participate in this national registry across CALHN. Recruitment will commence in early 2026 for patients who have any of the following conditions: Psoriasis, Atopic Dermatitis, Vitiligo and Hidradenitis Suppurativa.

Presentations

- Moore H, Stevenson A. Allergic contact dermatitis during lactation and breastfeeding: A proposed nipple allergen series, Presented in “Contact Dermatitis”, RACD ASM, May 2025.
▶ <https://onlinelibrary.wiley.com/doi/10.1111/ajd.14499>
 - Moore H, Stevenson A. Breast Practice: Management of breast and nipple dermatoses during lactation, Presented in “Medical Dermatology” section of RACD ASM, May 2025.
▶ <https://onlinelibrary.wiley.com/doi/10.1111/ajd.14506>
-
- Hayes N, Ross C, Williams C, Tilakaratne D. How Dermatologically Aligned Are Territory Doctors? Assessing Dermatology Referrals in Darwin for Diagnostic and Therapeutic Concordance. *Australas J Dermatol.* 2025 Sep;66(6):e355–e360. doi: 10.1111/ajd.14561. Epub 2025 Jul 5. PMID: 40616359.
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- Sarsam S, Stevenson A, Murrell DF. The Efficacy of Using Oral Sodium Cromoglycate for Controlling Epidermolysis Bullosa-Related Pruritus. *Australas J Dermatol.* 2025 Aug;66(5):309–311. doi: 10.1111/ajd.14530. Epub 2025 May 24. PMID: 40411268; PMCID: PMC12334810.
▶ <https://pubmed.ncbi.nlm.nih.gov/40411268/>

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Recruitment will commence in early 2026 for patients who have any of the following conditions: Psoriasis, Atopic Dermatitis, Vitiligo and Hidradenitis Suppurativa.



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Intensive Care Medicine Research Group

The Queen Elizabeth Hospital (TQEH) Department of Intensive Care Medicine participates in, and conducts, clinical research aimed at improving patient outcomes, particularly in the areas of sepsis and nutrition.

We seek to answer important pragmatic, patient-centred, consumer-informed questions to deliver more efficient and effective treatments; treatments that will not only benefit critically ill patients but also decrease costs, preserve resources and increase access to scarce critical care beds. Research is undertaken across all craft groups including medical, nursing and allied health.

2025 RESEARCH

ARISE Fluids trial

In November 2025, the 1,000th participant was recruited into the ARISE Fluids multi-national randomised trial evaluating a restrictive fluid strategy and early vasopressors for haemodynamic resuscitation in patients presenting to the ED with septic shock. The trial results are expected to be presented in mid-2026, along with simultaneous publication in a high-ranking journal. Prof Sandra Peake is the Chief Investigator (CIA) for the trial and Patricia Williams is a member of the study management committee.

Prior to completion of recruitment into ARISE - Fluids, the trial Protocol and Statistical Analysis Plan were published in *BMJ Open* and *Trials*, respectively.^{1,2}

A trial level Systematic Review and Meta-Analysis of restricted fluids versus usual care in patients presenting to the ED with septic shock is currently underway (PROSPERO 2025 CRD420251134951) and is expected to be completed and published at the same time as the main trial results, to include the ARISE FLUIDS results.

TARGET Nutrition trial

This NHMRC funded, CALHN-led, multi-centre, double-blinded, randomised, controlled, parallel-group, phase III clinical trial completed recruitment of 4,000 patients in 2017 and was the largest blinded randomised trial of enteral nutrition to be



RESEARCH HIGHLIGHT OF 2025

The effect of augmented administration of enteral protein to critically ill adults on clinical outcomes: A cluster randomised, double cross-over, registry-embedded, pragmatic clinical trial, funded by the NHMRC completed recruitment in 2023 in 8 Australian and New Zealand sites, with 3411 participants enrolled over 12 months. The results of this trial were presented in June at the Critical Care Reviews Conference in Belfast, with simultaneous publication in JAMA. The trial found the administration of higher protein delivery during critical illness did not improve the number of days free of the index hospital and alive at day 90. Sub-group analysis suggested that in patients with acute kidney injury, augmented protein delivery was associated with harm. This finding is consistent with two other recently

completed trials wherein augmented protein delivery was associated with increased mortality, especially in those with acute kidney injury, and reduced quality of life at 6-months; prompting a re-evaluation of international nutritional guidelines.

The TARGET Protein trial is the largest randomised controlled trial to investigate the administration of augmented enteral protein in critically ill patients and follows the publication of the largest, blinded trial of augmented enteral calorie delivery in the New England Journal of Medicine in 2018 (Peake, co-first author). Prof Sandra Peake is a chief investigator of TARGET PROTEIN and both Prof Sandra Peake and Patricia Williams are members of the study management committee.

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conducted in the critically ill. It was also the first trial to deliver full-recommended calories.

The results published in the *New England Journal of Medicine* in 2018 showed that in patients undergoing mechanical ventilation, the rate of survival at 90 days associated with the use of an energy-dense formulation for enteral delivery of nutrition was not higher than that with routine enteral nutrition.³

In 2025, our team contributed two additional publications related to the TARGET Nutrition trial. These included a post-hoc analysis regarding nutrition provision over time in longer-stay critically ill patients published in *JPEN J Parenter Enteral Nutr*, and an evaluation of six-month outcomes following traumatic brain injury published in *Australian Critical Care*.^{4,5}

1. Howe BD, Macdonald SPJ, Arendts G, Bellomo R, Burcham J, Delaney A, Egerton-Warburton D, Fatovich D, Fraser JF, Higgins A, Jones P, Keijzers G, Milford E, Udy AA, Williams P, Young P, Peake SL. Australasian Resuscitation In Sepsis Evaluation: FLUID or vasopressors In emergency Department Sepsis (ARISE FLUIDS) trial: study protocol. *BMJ Open*. 2025 Jul 20;15(7):e101215. doi: 10.1136/bmjopen-2025-101215. PMID: 40685240; PMCID: PMC12278162.
▶ <https://pubmed.ncbi.nlm.nih.gov/40685240/>

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▶ <https://pubmed.ncbi.nlm.nih.gov/39915843/>

3. TARGET Investigators, for the ANZICS Clinical Trials Group; Chapman M, Peake SL, Bellomo R, Davies A, Deane A, Horowitz M, Hurford S, Lange K, Little L, Mackle D, O'Connor S, Presneill J, Ridley E, Williams P, Young P. Energy-Dense versus Routine Enteral Nutrition in the Critically Ill. *N Engl J Med*. 2018 Nov 8;379(19):1823-1834. doi: 10.1056/NEJMoa1811687. Epub 2018 Oct 22. PMID: 30346225.
▶ <https://pubmed.ncbi.nlm.nih.gov/30346225/>

4. Viner Smith E, Lange K, Peake S, Chapman MJ, Ridley EJ, Rayner CK, Chapple LS. Nutrition provision over time in longer stay critically ill patients: A post hoc analysis of The Augmented vs Routine Approach to Giving Energy Trial. *JPEN J Parenter Enteral Nutr*. 2025 Feb;49(2):214-221. doi: 10.1002/jpen.2717. Epub 2024 Dec 20. PMID: 39704108.
▶ <https://pubmed.ncbi.nlm.nih.gov/39704108/>

5. Wittholz K, Fetterplace K, Chapple LA, Ridley EJ, Finnis M, Presneill J, Chapman M, Peake S, Bellomo R, Karahalios A, Deane AM. Six-month outcomes after traumatic brain injury in the Augmented versus Routine Approach to Giving Energy multicentre, double-blind, randomised controlled Trial (TARGET). *Aust Crit Care*. 2025 Mar;38(2):101116. doi: 10.1016/j.aucc.2024.09.001. Epub 2024 Oct 10. PMID: 39389845.
▶ <https://pubmed.ncbi.nlm.nih.gov/39389845/>

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In patients undergoing mechanical ventilation, the rate of survival at 90 days associated with the use of an energy-dense formulation for enteral delivery of nutrition was not higher than that with routine enteral nutrition.

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Oesophageal Physiology Group

The Oesophageal Physiology Group explores abnormalities of swallowing function (oesophageal motility) for those experiencing swallowing discomfort or gastric reflux and associated symptoms (e.g. heartburn and regurgitation). Swallowing difficulties and reflux affect the enjoyment of meals and nutritional intake.

Studies of swallow pressures and bolus flow are complex, yet reveal subtle variations, like the interplay between swallow muscle vigour and impaired food passage in those struggling to eat or drink.

Clinical research helps us better manage patients undergoing surgery for reflux disease, swallowing disorders or obesity at TQEH Upper GI Surgery & Bariatric Surgery Units.

RESEARCH HIGHLIGHT OF 2025

Exercise caution when undertaking surgery for gastro-oesophageal reflux – outcomes are different for females and males!

After more than 35 years of key-hole surgery for reflux disease, one factor dominates the literature on surgical outcome: males consistently report higher satisfaction scores compared to females. The reason for this is unclear.

Prior to surgery, three main factors are known to influence good outcome after anti-reflux surgery: 1) the presence of typical symptoms (heartburn; regurgitation), 2) a positive response to anti-reflux medication, and 3) objective evidence of reflux disease (positive endoscopy or 24-h reflux test).

After anti-reflux surgery, side-effects, such as inability to belch, bloating & flatulence tend to dissipate with time, and are of more concern to females than males.

Dr Jenny Myers, co-author of an invited editorial, bids us o consider: the key to understanding variability in patient >



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satisfaction with surgery is greater awareness of the differences between the sexes in reflux disease presentation.

At pre-operative assessment, both males and females report heartburn and regurgitation, but females report higher symptom severity scores. They also report more troubling nocturnal regurgitation, greater levels of anxiety, and higher scores for lower gastrointestinal symptoms.

In contrast, males experience more disease severity, with higher grades of oesophagitis, higher prevalence of Barrett's oesophagus (cells altered by chronic reflux), and greater burden of oesophageal cancer.

The scientific evidence indicates: a sex-specific approach to disease management is needed. Females need management of reflux to reduce *symptom severity* while males need management of reflux to reduce *disease severity*.

Patients need to be counselled during the operation consent process and post-operative expectations for both patient and surgeon need to align.

2025 RESEARCH

Obesity surgery and reflux

Obesity surgery induces long-lasting weight loss, but might affect adjoining structures like the oesophagus and anti-reflux valve.

Dr Julian Süssstrunk, Upper GI Fellow, TQEH [collaboration with Basel, Switzerland] examined a large patient cohort, who underwent *endoscopy* (view the gullet), *high-resolution manometry* (swallow pressures) and *24-h pH monitoring* (reflux record), seven years after sleeve gastrectomy or Roux-en-Y bypass surgery.

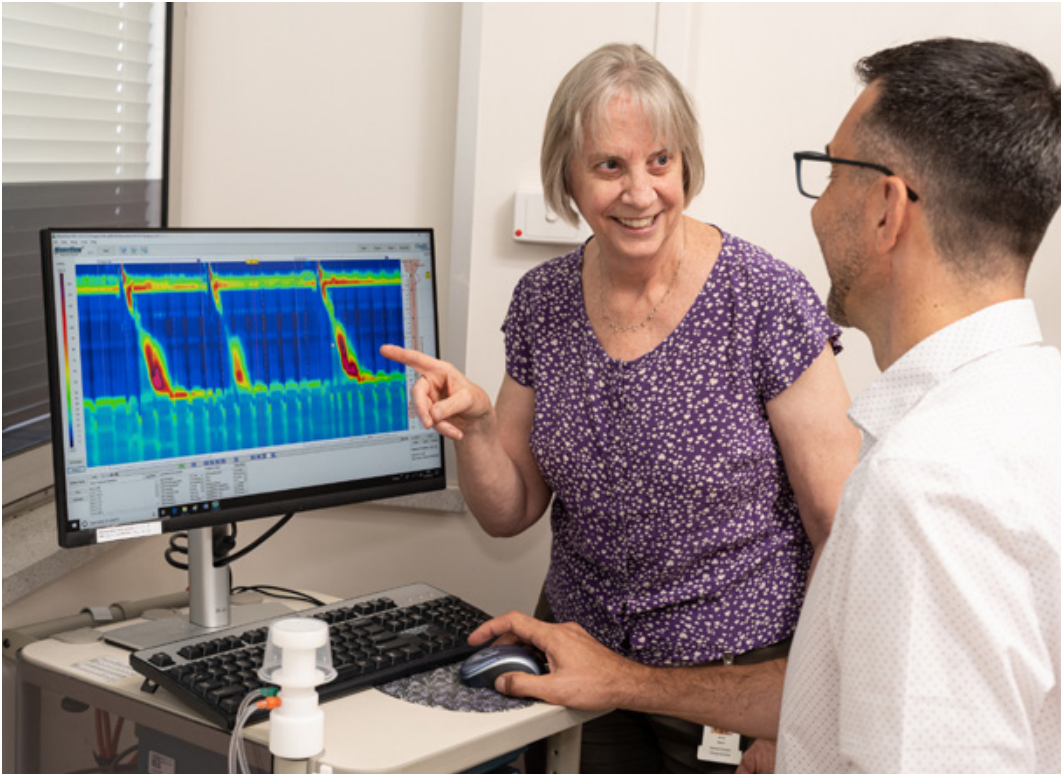
Motility pressures were similar after either surgery and motility disorders were rare at long term follow-up. However, significantly more acid reflux, reflux oesophagitis and reflux symptoms occurred after sleeve gastrectomy than gastric bypass and therefore, endoscopic surveillance should be considered.

Oesophagectomy for end-stage achalasia

Achalasia, where the stomach valve fails to relax while eating and drinking, is a rare, debilitating benign disease affecting nutrient intake and quality of life due to problems swallowing, chest pain and regurgitation.

Little is known about function and quality of life after oesophagectomy for end-stage achalasia (i.e. to remove part of the oesophagus affected by disease recurrence or failed treatment).

Dr Nikhil Kundu found 3.1% patients (11 of 350) underwent oesophagectomy after cardiomyotomy (cut of stomach valve muscle). The operation was feasible and safe, resulting in high patient satisfaction, thus oesophagectomy is a reasonable treatment and not an option of last resort.



The operation was feasible and safe, resulting in high patient satisfaction, thus oesophagectomy is a reasonable treatment and not an option of last resort.

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Ophthalmology Research Group

The Ophthalmology Research Group at The Queen Elizabeth Hospital conducts clinical and translational research aimed at improving the prevention, diagnosis, and treatment of eye diseases. Working closely with clinicians, scientists, and partners at SA Health, University of Adelaide, and International collaborators, the group focuses on delivering research that directly benefits patient care and visual outcomes.

Our work spans areas such as retinal disease, glaucoma, cataract surgery, and ocular imaging, with a strong emphasis on translating research findings into real-world clinical practice.

RESEARCH HIGHLIGHT OF 2025

Edited by Research Lead, A/Prof Michael Goggin, The Royal Australian and New Zealand College of Ophthalmologists' journal *Clinical and Experimental Ophthalmology* achieved an Impact Factor of 5.6, reflecting its strong influence in the field.¹

In the Clarivate Journal Citation Reports, the journal ranked 6th out of 98 international ophthalmology journals. This result highlights the journal's growing global impact and the high quality of research published by the ophthalmology community, and reinforces the journal's role as a leading platform for advancing clinical and experimental ophthalmic research worldwide.

2025 RESEARCH

The paper "Deciphering corneal astigmatism: calculation pitfalls and how to avoid them" published in the *Journal of Cataract and Refractive Surgery* addresses common sources of error in the calculation and interpretation of corneal astigmatism.

By highlighting practical pitfalls in handling astigmatic surfaces and spherocylindrical calculations, the authors provide clinicians with clear guidance to avoid mistakes that can lead to suboptimal refractive outcomes. The work brings together international expertise, including contributions from Research Lead, A/Prof Michael Goggin, to clarify concepts that are often misunderstood in everyday clinical practice.

As precision in astigmatism correction becomes increasingly important with toric intraocular lenses and refractive procedures, this paper offers timely insights that can improve surgical planning and patient outcomes.²

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2. Langenbucher A, Szentmáry N, Wendelstein J, Cayless A, Hoffmann P, Goggin M. The Homburg-Adelaide toric IOL nomogram: How to predict corneal power vectors from preoperative IOLMaster 700 keratometry and total corneal power in toric IOL implantation. *Acta Ophthalmol*. 2025 Feb;103(1):e19-e30. doi: 10.1111/aos.16742. Epub 2024 Jul 16. PMID: 39011876; PMCID: PMC11704817. [► https://pubmed.ncbi.nlm.nih.gov/39011876/](https://pubmed.ncbi.nlm.nih.gov/39011876/)

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As precision in astigmatism correction becomes increasingly important with toric intraocular lenses and refractive procedures, this paper offers timely insights that can improve surgical planning and patient outcomes.

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- TQEH Ophthalmology Unit Coordinator

Sophia Ziakos

EXTERNAL COLLABORATORS

- Achim Langenbucher

Dept Ophthalmology, Saarland University, Homburg, Germany
- Stephen Bacchi

Ashley Hopkins

The University of Adelaide, Adelaide, Australia

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Psychiatry Research Group

The Psychiatry Research Group follows five main themes:

1. Personalising psychiatry assessment and treatment using genetics and other biological markers
2. Exploring the changes in brain structure, function and the role of inflammation in mental illness
3. The bidirectional effects between mental illness and physical health and the side effects of treatment
4. Exploring ways in which thinking, mood and psychosis present in clusters and their impact on day to day function
5. The conduct of clinical trials, including pharmacological, psychological, digital and neurostimulation interventions.

RESEARCH HIGHLIGHT OF 2025

Our highlight for 2025 was convening the highly successful Australian Society for Mental Health Research Conference “Pathways for Diversity, Equity, and Personalisation in Mental Health Care” at the Adelaide Convention Centre in November.

The conference brought together a comprehensive National and International program of scientists, clinicians and lived experience to develop strategies for the translation of cutting-edge mental health science into meaningful improvements in quality of life for people with mental illness.

► www.smhrconference.com.au

2025 RESEARCH

• Completion of recruitment to 3 national trials

1. Transcranial Magnetic Stimulation for Social Cognition in Autism
► <http://tmsautism.com>
2. Cognitive Screening in Early Psychosis¹
3. D-Cycloserine Augmentation of Intermittent Theta Burst Stimulation (iTBS) in Depression (COGENT).
► <https://clinicaltrials.gov/study/NCT05591677>

• Implementation the Hearts & Minds

Metformin and Atorvastatin for the Treatment of Depression trial
► www.anzctr.org.au/Trial/Registration/TrialReview.aspx?id=384488&isReview=true

• Clozapine Research

Implementation of the Clozapine Adverse Tractories (CAPture) study and associated mouse model of Clozapine Associated Myocarditis – A forwards-Backwards Translation Study in CALHN and associated commentary in Lancet Psychiatry²

• Registry Development

Implementation of the South Australian Adult Psychiatry Registry (SAAPR) in collaboration with the South Australian Office of the Chief Psychiatrist.

1. Stainton A, Bryce S, Rattray A, Pert A, Zbukvic I, Fisher E, Anderson D, Bowden SC, Chakma S, Cheng N, Clark S, Crlenjak C, Francey S, Gao C, Gee D, Gelok E, Harris A, Hatfield L, Hopkins L, Jensen C, Morell R, O'Halloran C, Purdon S, Schubert KO, Scully A, Tang H, Thomas A, Thompson A, Uren J, Wood SJ, Zhao W, Allott K. Validating cognitive screening in young people with first-episode psychosis: The CogScreen protocol. *Early Interv Psychiatry*. 2025 Jan;19(1):e13558. doi: 10.1111/eip.13558. Epub 2024 May 25. PMID: 38794960; PMCID: PMC11730438.
► <https://pubmed.ncbi.nlm.nih.gov/38794960/>
2. Clark SR, Toben C, Jawahar MC, Amare AT, Palmer LJ, Schubert KO. Infection, inflammation, and personalisation: time for an integrated approach to clozapine monitoring. *Lancet Psychiatry*. 2025 Sep;12(9):620–621. doi: 10.1016/S2215-0366(25)00237-8. Epub 2025 Jul 28. PMID: 40744047.
► <https://pubmed.ncbi.nlm.nih.gov/40744047/>



The conference brought together a comprehensive National and International program of scientists, clinicians and lived experience to develop strategies for the translation of cutting-edge mental health science into meaningful improvements in quality of life for people with mental illness.



GROUP MEMBERS

Head of Discipline of Psychiatry, The University of Adelaide

Scott Clark

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Prashant Tibrewal

NHMRC CRE Post Doc

Simon Hartmann

Clinical Academic Titleholder

Oliver Schubert

Study Coordinator

Zsuliet Kristof

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Kelly Allott

Barnaby Nelson

Orygen, Melbourne, Australia

Leo Chen

Monash University, Melbourne, Australia

Dan Siskind

University of Queensland, Brisbane, Australia

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Respiratory Research Group

The Respiratory Research Group conducts clinical trials and investigator-led research in respiratory and sleep diseases, and is the research arm of The Queen Elizabeth Hospital's Respiratory Medicine Unit.

The unit has a number of research studies underway addressing knowledge and practice gaps for prevalent respiratory conditions, including: chronic obstructive pulmonary disease (COPD), asthma, bronchiectasis, sleep apnoea, pneumonia, respiratory failure and smoking. Other key areas of research are non-invasive ventilation and intervention pulmonology, and indigenous health.

RESEARCH HIGHLIGHT OF 2025

After years of conducting purely industry-sponsored clinical trials, 2025 saw the Respiratory Research Group conduct investigator-led research funded by grants from the Medical Research Future Fund and the Building Research Leaders scheme of the Adelaide Medical School.

2025 RESEARCH

- Karen Royals submitted her PhD titled, *Respiratory nurse management of chronic obstructive pulmonary disease (COPD)*.¹
- Andrew Fon completed data collection for his PhD titled, *The Physiological Changes Following Bronchoscopic Lung Volume Reduction Treatment for Chronic Obstructive Pulmonary Disease (COPD)*.^{2, 3, 4}



1. Royals K, Smith S. Leading women in respiratory clinical sciences: Letter from Australia. *Respirology*. 2025 Jan;30(1):86-87. doi: 10.1111/resp.14855. Epub 2024 Nov 14. PMID: 39542430.
► <https://pubmed.ncbi.nlm.nih.gov/39542430/>

2. Fitton J, Lechat B, Reynolds AC, Toson B, Manners J, Nguyen P, Loffler KA, Altree TJ, Catcheside P, Eckert DJ. An investigation into sleep, perceived experiences, and exercise performance in elite male cyclists during the Tour de France. *Physiol Rep*. 2025 May;13(10):e70395. doi: 10.14814/phy2.70395. PMID: 40420614; PMCID: PMC12106952.
► <https://pubmed.ncbi.nlm.nih.gov/40420614/>

3. Altree TJ, Pinczel AJ, Toson B, Loffler KA, Hudson AL, Zeng J, Proctor S, Naik G, Mukherjee S, Catcheside P,

Somogyi A, Currow DC, Eckert DJ. The Effects of Low-Dose Morphine on Sleep and Breathlessness in COPD: A Randomized Trial. *Chest*. 2025 Jun;167(6):1578-1590. doi: 10.1016/j.chest.2024.11.040. Epub 2024 Dec 13. PMID: 39675518.
► <https://pubmed.ncbi.nlm.nih.gov/39675518/>

4. Kochovska S, Chang S, Ferreira D, Brunelli V, Luckett T, Morgan L, Macdonald J, Altree T, Johnson MJ, Ekström M, Currow D. Don't ask, don't tell (DADT): under-recognition of breathlessness in clinical care-a national survey. *BMJ Open Respir Res*. 2025 Nov 18;12(1):e003431. doi: 10.1136/bmjresp-2025-003431. PMID: 41253412; PMCID: PMC12636879.
► <https://pubmed.ncbi.nlm.nih.gov/41253412/>



GROUP MEMBERS

Lead of Research

Thomas Altree

Research Coordinators

Pamela Kidd

Karen Royals

Respiratory Consultants

Andrew Fon

Jon Polasek

Anil Roy

Zafar Usmani

Annie Walker

Medical Scientists

Kushani Dharmabandu

Donna Keatley

Pamela Kidd

Jeremy Mercer

Hoang Nguyen

Menuri Samarakoon

Respiratory Nurses

Kathy Lawton

Karen Royals

EXTERNAL COLLABORATOR

Sutapa Mukherjee

Flinders University Sleep Health, Adelaide, Australia

The unit has a number of research studies underway addressing knowledge and practice gaps for prevalent respiratory conditions.

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Rheumatology Research Group

The Rheumatology Unit research program use clinical data and biological samples from clinical cohorts with autoimmune and chronic inflammatory diseases to investigate the epidemiology, causation, clinical outcomes, to develop new treatments, and new models of disease monitoring that incorporate patient reported outcome measures.

The group has expertise in population epidemiology, randomised clinical trials, qualitative research, biobanking, laboratory science and quality improvement. It is the South Australian hub of Australian Arthritis and Autoimmune Biobank Collaborative (A3BC), and incorporates the South Australian Primary Sjögren's Syndrome Research Clinic and Database and South Australian Giant Cell Arteritis Registry.

2025 RESEARCH

Publications

- The Group produced 41 publications in 2025, including in *Nature Reviews Rheumatology*, *Annals for the Rheumatic Diseases*, *The Cochrane Database of Systematic Reviews*, *Environmental Research*, and the *Journal of Clinical Epidemiology*.

Grants

Awarded in 2025

- CALHN CEO Clinical Rapid Implementation Project Scheme (\$197,961; 2026-2028) & Prof John Beltrame AM/CEO Innovation Award (\$100,000) A randomised controlled trial (RCT) of patient-initiated follow-up in rheumatoid arthritis and fibromyalgia. CI: Hill C, Whittle S, Black R, van der Haak H, Stanhope J, Ruediger C, Keehl Rogers J, Goodwin S.
- Arthritis Australia National Research Program Australian Rheumatology Association Project Grant (\$62,266; 2026) Harnessing green space exposure to improve outcomes for people with arthritis. CI: Stanhope J, Hill C, Weinstein P.

Ongoing grants

- NHMRC Synergy Grant (\$5,000,000; 2024-2028) DISCERN - Disciplinary Integration to Solve the Enigma of Chronic Pain: Evaluating Personalised Care and its Impact with Innovative



RESEARCH HIGHLIGHT OF 2025

In 2025 five members of the Rheumatology Research Group (Catherine Hill, Alice Terrett, Simon Burnet, Susan Lester and Samuel Whittle) were part of a group led by Catherine Hill who authored a workforce survey of rheumatologists in Australia.

This study identified a current shortfall of 302 adult rheumatologists and 41 paediatric rheumatologists across Australia. With many rheumatologists working part time, a large number planning to reduce their hours within the next 2 years, and an aging workforce,

there is a critical need for action to be taken to increase capacity. The work also provided the first evidence-based national projection of the rheumatology workforce, finding that while the shortfall is expected to improve, a shortfall will still remain by 2038.

These findings provide strong evidence to inform urgent service-planning needs for rheumatology in Australia, to ensure Australians can access timely rheumatology care.¹

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Rheumatology Research Group cont.

Clinical Trials and Research in Neurobiology, Psychology and Society. CI: Hodges P, Foster N, Jaki T, Vetter I, Sterling M, Hutchinson M, Day M, Brierley S, Hill C, Moseley GL.

- NHMRC Centre for Research Excellence (\$2,500,000; 2021-2026). CRE for Better Outcomes in Inflammatory Arthritis. CI: March L, Thomas R, Lassere M, Buchbinder R, Hill CL, Keen H, Wechalekar M, Munro J, Figtree G, Schofield D
- The Hospital Research Foundation Group (\$20,500; 2024-2025). Research prioritisation in musculoskeletal health in South Australia. CI: Hill C, Stanton, T.
- The Hospital Research Foundation Group (\$125,000;; 2023-2025). Optimising transition care for adolescents with juvenile rheumatic disease in South Australia. CI: Hill C, Murray G, Friswell M, Crossley L. AI: Black R, Tan J, Rose T, Reynolds A, Goodwin S.
- MRFF Grant (\$2,496,875; 2022-2025). A3BC for Kids. CI: March L, Singh-Grewal D, Munro J, Buchbinder R, Thomas R, Saffery R, Lassere M, Hill CL, Whittle SL, Shrestha R, Keen HI.

Invited presentations

Catherine Hill

- Clinical year in review. Australian Rheumatology Association 2025 Annual Scientific Meeting
- Driving safe and effective rheumatology care through clinical care stands. 2025 Asia Pacific League Against Rheumatism Congress

Maureen Rischmueller

- Sjögren's genetics: insights to pathogenesis and treatmnets. Vumedi
- Sjögren's disease in 2025. Praxhub Webinar
- The Sjögren's challenge: modern approaches to a systemic disease. Australian Rheumatology Association Annual Scientific Meeting (Victoria/Tasmania Branch)
- Understanding genetics of Sjögren's disease. APLAR Congress 2025
- What does genetics tell us about the pathogenesis of Sjögren's disease? World Sjögren's Day. APLAR Academy Webinar
- Sjögren's disease Asia-Pacific webinar. Dr Debashish Danda Foundation
- Sjögren's disease workshop wrap-up. OMERACT

- Sjögren's disease preceptorship. Novartis
- Sjögren's: not just a dry topic. Breakfast symposium, Australian Rheumatology Association 2025 Annual Scientific Meeting
- Vasculitis and other things. Population & Primary Health Care Top End Region NT Health.

Carlee Ruediger

- A3BC SA Node update. A3BC-ARAD Annual Collaborators Meeting

Oscar Russell

- Impact of socioeconomic factors on rheumatoid arthritis outcomes. Australian Rheumatology Association 2025 Annual Scientific Meeting

Jessica Stanhope

- Bringing nature into physiotherapy. Environmental Physiotherapy Webinar, World Physiotherapy Asia Pacific Region
- Physiotherapy opportunities to improve planetary health. University College of Northern Denmark
- Nature-based physiotherapy. Ghana Physiotherapy Association's webinar, Environmental physiotherapy: a new direction
- Physiotherapy and climate change: current situation, health impacts, physiotherapy management, and the roles of physiotherapists. Naresuan University
- Environmental determinants of health and physiotherapy. The University of Auckland
- Position of experts on clinical outcomes and competencies (PEOCOC) group for musician's health advocacy. Occupational Health in Music Global Summit (along with other PEOCOC members)
- Environmental determinants of health and physiotherapy. University College of Northern Denmark
- Sustainability in your own backyard, Australian Physiotherapy Association Scientific Conference (along with A/Prof Filip Maric), Adelaide
- eDNA for environmental microbiomes and health. Introducing environmental DNA (eDNA) training day
- Green space and rheumatoid arthritis outcomes: preliminary analysis using the A3BC data. A3BC Collaborators Meeting



Sjögren's in Australia: why we need to pay attention to this systemic challenge and the modern approaches required to treat it.

Joanna Tieu

- ANCA-associated vasculitis. WA Australian Rheumatology Association State Meeting
- The impact of glucocorticoids. WA Australian Rheumatology Association State Meeting
- Vasculitis – a rheumatologist's perspective. SA Dermatology State Meeting

Jannatul Tuli

- Bridging the gap: comparing inflammatory arthritis patient outcomes with Australian national standards. A3BC-ARAD Annual Collaborators Meeting

Catherine Hill

- Doctor, Doctor segment, ABC Radio Adelaide

Chandra Kirana

- Hoi A, Lee AYS, Marshall G, Kirana C, Rischmueller M. Sjögren's in Australia: why we need to pay attention. InSight+

Maureen Rischmueller

- Mastering Sjögren's disease: from diagnosis to therapeutic frontiers. Online module for Rheumatologists and Immunologists. Sjögren's Disease For RheuNovartismatologists | Praxhub
▶ <https://on.praxhub.com/sjogrens-disease-for-rheumatologists>
- Hoi A, Lee AYS, Marshall G, Kirana C, Rischmueller M. Sjögren's in Australia: why we need to pay attention. InSight+ ➤

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Jessica Stanhope

- Radio interview, Nature-based allied health, ABC Radio Adelaide
- Podcast, Why doctors are giving their patients ‘nature prescriptions’, Research Pulse
- Panellist, Derek Frewin Early Career Researcher Award Panel, Northern Communities Health and Research Foundation
- Interviewed for the article ‘Go outside! Being in nature might boost your immune system’, CALHN
- Interviewed for the article ‘Allied health embraces nature-based therapy’, University of Adelaide Newsroom
- Interviewed for the article ‘How green spaces could impact joint health’, Environment Institute
- Interviewed for the article ‘Naturen dulmer gigtsmerter (Nature soothes arthritis pain)’, Gigtforeningen (Danish Rheumatism Association)

Prizes

Catherine Hill

- Field Leader for Rheumatology, The Australian’s 2025 Magazine
- Australia’s Top 250 researchers, The Australian’s 2025 Magazine

Jessica Stanhope

- NHMRC CRE Better Outcomes in Inflammatory Arthritis Best Ongoing Project Award

Promotion

Rachel Black

- Promotion to Clinical Associate Professor.

1. Terrett AM, Damodaran A, Burnet S, Singh-Grewal D, Buchbinder R, Glover J, Rudd T, Lester S, Whittle S, Barrett C, Keen HI, Hill CL. The rheumatology workforce in Australia: current and projected shortfalls. *Intern Med J.* 2025 Sep;55(9):1500-1507. doi: 10.1111/imj.70123. Epub 2025 Jun 21. PMID: 40543071.
▶ <https://pubmed.ncbi.nlm.nih.gov/40543071/>

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Maureen Rischmueller

Consultant Rheumatologists
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Sam Whittle

Consultant Rheumatologist,
PhD Candidate
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Masters of Philosophy
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Rheumatology Registrar,
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Rheumatology Registrars
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Andrea Lyon
Alice Terrett

Clinical Research Manager
Sarah Downie-Doyle

Senior Clinical Researcher
Carlee Ruediger

Clinical Trials Nurse
Sara White

Clinical Trials Co-ordinator
Janelle Harris

Clinical Trials Research
Assistants
Kate Dyer
Nerylee Watson

Clinical Trials Research
Officer
Jannatul Ferdoush Tuli

Chief Medical Scientists
Sue Lester
Jessica Stanhope

Senior Research Officer
Chandra Kirana

Health Psychologists
Sally Goodwin
Yeeling Kok

Advanced Scope
Physiotherapists
Sarah Schwetlik

Research Officer
John Taylor

Clinical Trials Research
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Laura Hutchison

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Richter Lab

Superbugs, or antibiotic-resistant bacteria, pose one of the greatest threats to human health worldwide, causing 1.3 million deaths every year, stressing the need for new treatments.

The Richter Lab is dedicated to improving medical therapies for superbug infections, such as surgical site infections, non-healing wounds, diabetes-related foot ulcers and implant infections.

We also collaborate with veterinary and food scientists to fight foodborne superbugs and innovate industry sanitisation for safer, more sustainable food production.

RESEARCH HIGHLIGHT OF 2025

Grants

HealthTech Innovation Challenge, Australian Centre for Accelerating Diabetes Innovations

CIA Katharina Richter | \$30,000 (2025-26)

Support for world-first clinical trial in diabetic foot wounds using plasma activated water – a new antibiotic-free wound cleanser – to defeat superbugs and accelerate wound healing.

Australia's Economic Accelerator – Ignite, Department of Education

CIA Katharina Richter | \$450,000 (2025-26)

Preventing food poisoning with plasma-activated water: lab studies and translation to first industry field trial (PAW as chemical-free egg wash).

Awards and Academic Achievements

Katharina Richter: 6 awards

- Winner HealthTech Innovation Challenge, Australian Centre for Accelerating Diabetes Innovations (ACADI)
- Women in Leadership award, Liquid Learning



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Richter Lab cont.

- Australia’s Top 250 Young Entrepreneurs, The Advertiser Australia’s top 250 young entrepreneurs revealed | The Advertiser
▶ bit.ly/3WxtuYL
- Top 40 Under 40, Discovery Award winner, InDaily & Solstice Media
- ECR Research Ambassador, German Embassy Australia
- International Research Travel Award, FHMS, The University of Adelaide

Staff/Students

- Dr Adrian Abdo:** Level B promotion
- Tania Veltman:** Community Achievement Awards finalist, Channel 7 Children’s Research Foundation Enriching Children’s Lives Award
- Dr Heema Vyas:** Jim Pittard Award (Early Career Researcher of the year)/Australian Society for Microbiology, Women of Colour in STEM finalist
- 4 Best Oral Presentations:** Georgina Neville, Harriet Cooling, Angela Boahen, Bjoern Kolbe
- 2 top up Scholarships:** Angela Boahen, Bjoern Kolbe
- 1 THRFG Honours Scholarship:** Wing Yan (Vivian) Yu

Publication

The study *Plasma-activated water accelerates wound healing and reduces Staphylococcus aureus infection in vivo* shows that a new antibacterial treatment, plasma-activated water (PAW), can help wounds heal faster and fight resistant Golden Staph infections. PAW reduced bacteria, lowered inflammation, and improved survival in mice. These results suggest it could become a safe, non-antibiotic option for future wound care.¹

Katharina Richter Presentations

- 7 conference papers as presenting author** at 3 international and 4 national conferences: 2 keynotes, 2 symposium speaker, 2 invited speaker, 1 poster
- 27 conference papers as senior author** at 1 international and 8 national conferences: 8 talks, 19 posters
- Bioflux webinar leader**, invited by Cell Microsystems, USA
- Chair, local organising committee**, Annual Meeting of the Australian Society for Microbiology (500 attendees).

1. Abdo AI, Nguyen HT, Kaul LD, Schmitt-John T, Kopecki Z, Oggunniyi AD, Richter K. Plasma-activated water accelerates wound healing and reduces Staphylococcus aureus infection in vivo. *Biofilm*. 2025 Aug 5;10:100308. doi: 10.1016/j.bioflm.2025.100308. PMID: 40823344; PMCID: PMC12356388.
▶ <https://pubmed.ncbi.nlm.nih.gov/40823344/>



GROUP MEMBERS

- Group Leader, Future Making Fellow**
Katharina Richter
- Postdoctoral, Grant-funded Researchers**
Adrian Abdo
Tania Veltman
Heema Vyas
- PhD Students**
Angela Boahen
Shizuku Inomata
Bjoern Kolbe
- PhD Student, Westpac Future Leader Fellow**
Harriet Cooling
- PhD Student, Elevate Boosting Diversity in STEM Fellow**
Georgina Neville

BHI COLLABORATORS

- Markus Trochsler**
Surgical Sciences
- Robert Fitridge**
Guilherme Pena
Vascular Surgery

EXTERNAL COLLABORATORS

- Bryan Coad
Heike Ebendorff-Heidepriem
Volker Hessel
Andrea McWhorter
David Oggunniyi
Anna Sheppard
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- Regine Süss
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- Michel Hoogenkamp
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Free University Amsterdam, Amsterdam, The Netherlands

- Tom Coenye
Aurelie Crabbe
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- Trine Rolighed Thomsen
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- Tiffany Sharp
Cambrian Defence & Space, Adelaide, Australia
- Catriona Byrne
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- Kirby Lattwein
Erasmus University, Rotterdam, The Netherlands
- Angelo Zanella
Laimburg Research Institute, Bolzano, Italy
- Karyn Jarvis
ANFF-Vic Biointerface Engineering Hub, Swinburne University of Technology, Melbourne, Australia

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Surgical Science Research Group

The Surgical Science Research Group is led by Professor Guy Maddern, the RP Jepson Professor of Surgery at the University of Adelaide and the Director of Research at the Basil Hetzel Institute for Translational Health Research (BHI), The Queen Elizabeth Hospital (TQEH). It is a large, multidisciplinary group focused on clinical research, health service innovation, and translational benchtop to bedside medicine in the surgical setting.

The Surgical Science Research Group continues to produce high-quality research and publishes widely in critically acclaimed journals; in 2025 the group published 70 peer review publications.

RESEARCH HIGHLIGHT OF 2025

2025 was a successful year for Dr Jesse Ey who completed his undergraduate medical degree and continued to excel in his PhD. He received multiple competitive awards recognising excellence in surgical education and research, including the Lister Prize (The University of Adelaide), the RP Jepson Medal (RACS SA Papers Day), the Roneal Naidu Memorial Prize, and the Jenefer Martin Surgical Education Research Award (RACS ASC).

His work was widely disseminated through invited and peer-reviewed presentations at local and national forums, including the RACS Annual Scientific Congress, ANZASM/SAASM/TAASM webinars, RACS Tristate ASM, RACS SA Papers Day, the Academy of Surgical Educators webinar series, the TQEH Research Expo, and the SAHMRI Registry Centre Research Symposium. His research outputs attracted local and national media attention (e.g., *Sunday Mail* and *Channel 7*). Dr Ey also chaired the Quarterly Departmental Research Meeting, *Future-Focussed Surgery*. He also co-supervised Honour's student Aisha Glazier (awarded First Class Honours).



2025 RESEARCH

- Elisa Calibrese, a surgery resident at the University of California San Francisco-East Bay, co-sponsored by SAGES and the Royal Australasian College of Surgeons (RACS), opted to extend her stay in Australia converting her Master of Philosophy (Surgery) to a PhD in Surgery, studying the development and evaluation of surgical clinical practice guidelines. In 2025 she published eight manuscripts in world renowned journal, *Surgical Endoscopy*.
- Ellie Treloar was an invited speaker at the Association of Internal Medicine (50+ attendees), Adelaide, Australia, and delivered a presentation titled: "Optimising ward rounds". Ellie also published five key manuscripts in high impact factor journals including *British Journal of Surgery*.¹
- Dr Kevin Fenix expanded his research investigating cytokine-induced killer (CIK) cell therapy for metastatic colorectal cancer, welcoming two Master of Biotechnology students, Mr Marzuq Alam and Ms Bixi Kang. The team now comprises Kevin, Celine, Elham, Marzuq, and Bixi.
- Kevin presented the team's work at the 2nd International CIK Cell Conference in Italy and at the 19th International Congress of Immunology in Vienna.
- Kevin, Celine, and Elham served on the organising committee for the ASI SA/NT Branch Meeting (20th Adelaide Immunology Retreat).
- Celine, Elham, Marzuq, and Bixi all presented at the Adelaide Immunology Retreat, with Marzuq receiving the award for Best Presentation by a Master's student.
- Elham also presented her research at the national 2025 ABACBS/COMBINE Conference. ➤



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- Tanja Klotz published her research on scar management, which was followed by a University of Adelaide media release that generated significant coverage. This led to interviews with *The Age* and *The Sydney Morning Herald*, widespread republication of the release, and radio interviews with 5AA and *ABC Sydney's Drive Time*. The paper was later presented by Dr Holly Moran at a conference, where it won the Best Paper award in its category.²
- Dr Virginie Gaget managed a Phase-I Clinical Trial “*Faecal Microbiota Transplantation to improve pain, symptom management and treatment efficacy in patients with pancreatic cancer*”, (MRFF project # 2024316). This first in-human trial investigates the safety and efficacy of faecal microbiota transplantation (FMT) for patients with non-resectable pancreatic cancer. The trial opened in February 2025 across The Queen Elizabeth Hospital (TQEH, SA), the Royal Adelaide Hospital (RAH, SA) and the Jreissati Pancreatic Centre (JPC, VIC) Epworth Healthcare. The research team is currently working towards opening more sites, including rural hospitals through the Australian Teletrial Program
- Dr Markus Trochsler and sub-investigators recruited the 30 participants in the Ferronova SMF-3 (MagMAP) trial at The Queen Elizabeth Hospital & Royal Adelaide Hospital. The MAGMAP trial (Clinicaltrials.gov ID: NCT05899985) is a multi-centre, partially blinded, side-by-side comparator study to assess the safety and tolerability, feasibility, and potential added diagnostic and clinical value of FerroTrace® for mapping high-risk lymph nodes in patients with Gastric and Oesophageal Cancers.

1. Treloar EC, Ey JD, Herath M, Edwardes NPR, Edwards S, Bruening MH, Maddern GJ. Optimizing ward rounds: systematic review and meta-analysis of interventions to enhance patient safety. *Br J Surg.* 2025 Mar 28;112(4):znaf041. doi: 10.1093/bjs/znaf041. PMID: 40202092; PMCID: PMC11979594.
▶ <https://pubmed.ncbi.nlm.nih.gov/40202092/>

2. Klotz T, Moran H, Vu P, Maddern G, Wagstaff M. Commonly recommended moisturising products: effect on transepidermal water loss and hydration in a scar model. *Burns.* 2025 Nov;51(8):107629. doi: 10.1016/j.burns.2025.107629. Epub 2025 Jul 30. PMID: 40865492.
▶ <https://pubmed.ncbi.nlm.nih.gov/40865492/>

This first in-human trial investigates the safety and efficacy of faecal microbiota transplantation (FMT) for patients with non-resectable pancreatic cancer.

GROUP MEMBERS	Divyanshu Joshi (Div)	The University of Adelaide, School of Biological Sciences, Adelaide, Australia
Research Leader	Na Yeon Kim	
Guy Maddern	Octavia Lee	
Consultant Surgeons	Amy Martin	
Vijay Abraham	Aparajitha (Rajitha) Raamkumar	David Liu
Martin Bruening	Karan Sethi	Nico Voelker
Harsh Kanhere	Eden Smith	Monash University, Melbourne, Australia
Alex Karatassas	Anthony Vo	
Lauren Kennedy	Jiangyu (Jasmine) Zahou	Frederic Hollande
Lilian Kuan		Victorian Comprehensive Cancer Centre, Melbourne, Australia
Markus Trochsler		
Visiting Research Fellow	BHI COLLABORATORS	
Paul Drew	Peter Hewett	Hossein Afzali
Medical Scientist - Clinical Trial Research Manager	Colorectal Cancer Research Group	Muktar Ahmed
Emma Bradshaw	PJ Wormald	Jonathan Karnon
Clinical Trial Study Co-ordinators	ENT Surgery	Flinders University, Adelaide, Australia
Meryl Altree	Rob Bryant	Justin Brookes
Jessie Clarke	Sam Costello	Stephen Kidd
Sarah Jesse	Alice Day	The University of Adelaide, School of Biological Sciences, Adelaide, Australia
Deanna Mazzarolo	Inflammatory Bowel Disease Research Group	
Senior Researcher	Tim Price	Manuela Klinger Hoffman
Virginie Gaget	Solid Tumour Group	University of South Australia, Adelaide, Australia
THRF Early Career Research Fellow	EXTERNAL COLLABORATORS	
Kevin Fenix	Marcus Wagstaff	Mary Louise Hull
Research Officer/s	Adam Wells	Robinson's Research Institute, Adelaide, Australia
ManYing Li (Celine)	RAH; The University of Adelaide, Adelaide, Australia	
Administrative Support	Amanda LeCouteu	Matthias Wichmann
Sandra Ireland	The University of Adelaide, Adelaide, Australia	Mount Gambier Hospital; The University of Adelaide, Mount Gambier, Australia
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Jesse Ey	Andrew Metz	Sarah Ellis
Aashray Gupta	Ashleigh Poh	Olivia Newton John Cancer Centre, Melbourne, Australia
Matheesha Herath	JCPE, Epworth HealthCare, Melbourne, Victoria	
Joe Hewitt	Sarah Holdsworth-Carson	Sarah Robertson
Tanja Klotz	JAEC, Epworth HealthCare, Melbourne, Victoria	Robinson's Research Institute, Adelaide, Australia
Laurence (Jianliang) Liu		
Elham Shokati	Andrew Ruszkiewicz	Susan Woods
Brandon Stretton	SA Pathology, Adelaide, Australia	SAHMRI, Adelaide, Australia
Ying Yang Ting		
Ellie Treloar	Wen Chung	Tom Coenye
Arabella Wallet	Ashley Dennison	Ghent University, Ghent, Belgium
Edward Young	University Hospitals of Leicester, Leicester, UK	
Honours Student	Bernd Klosterhalfen	Wendy Babidge
Aisha Glazier	Hospital of Dueren, Dueren, Germany	ASERNIP-S, Royal Australasian College of Surgeons, Adelaide, Australia
Vacation Students		
Jessica Cooks		
Luke Green		
Kelly Hou		
	Christopher Keneally	



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Recent viral outbreaks have further highlighted the vulnerability of global health systems to emerging infectious diseases.

Advancing our understanding of immune responses to viral infections is essential for the development of effective vaccines, diagnostics and therapies.

Our research focuses on identifying protective immune mechanisms and translating this knowledge into next-generation vaccines, immunotherapies and biomarkers.

RESEARCH HIGHLIGHT OF 2025

Recovery from COVID-19 can result in the development of persistent symptoms with multi-system organ involvement called post-acute sequelae of COVID-19 (PASC), or Long COVID. Because Long COVID can present with wide a range of symptoms, it remains challenging to diagnose and manage. It is currently difficult to predict which individuals will develop prolonged symptoms or new medical conditions. Following infection there are currently no validated treatments.

Identification of Long COVID-specific biomarkers is therefore critical for improving diagnosis and patient management. In collaboration with Prof Simon Barry and colleagues at the Adelaide University, we have generated data from Long COVID patients identifying a potential biomarker associated with disease.

In 2025, in partnership with A/Prof Mark Plummer from the Royal Adelaide Hospital (RAH), we were awarded funding from The Hospital Research Foundation Group to conduct a clinical study in South Australia to validate this biomarker and support development of a new diagnostic tool.



Vaccine Development

Our group continues to develop novel vaccines against important viral pathogens such as Zika virus, hepatitis C virus, Japanese encephalitis virus and SARS-CoV-2.

Recent work demonstrated that a multi-antigen DNA vaccine targeting non-structural proteins of Zika virus induces strong T cell-mediated immunity and provides protective efficacy in preclinical models. This work supports our broader strategy of designing vaccines that target cellular immune responses to achieve safer and more durable protection against flaviviruses.

In parallel, we continue to advance multivalent T cell vaccine approaches designed to improve protective immunity against genetically diverse viral pathogens.

Alongside antigen design, our team is developing advanced delivery technologies to improve nucleic acid vaccine performance. In collaboration with colleagues at the Adelaide University, we are engineering novel lipid and polymer nanoparticle systems for efficient DNA and RNA delivery.

Recent studies have developed thermostable solid-dose formulations for DNA vaccines, high-throughput screening approaches using DNA barcoding to evaluate lipid nanoparticle formulations, and microfluidic optimisation strategies to improve hybrid nanoparticle delivery systems. These advances contribute to the development of more stable, scalable and efficient nucleic acid therapeutics. »

Advancing our understanding of immune responses to viral infections is essential for the development of effective vaccines, diagnostics and therapies.

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Host Immune Responses

Our research also continues to investigate host immune responses during viral infection and vaccination.

Collaborative studies examining SARS-CoV-2 infection demonstrated that emerging Omicron sublineages maintain a strong tropism for nasopharyngeal ciliated epithelial cells, providing insight into viral transmission and tissue targeting.

Additional work examined immune responses to vaccination in immunocompromised populations, identifying associations between CD56bright NK cells and reduced vaccine antibody responses in individuals receiving B cell-depleting therapies. These findings provide important insights into immune regulation of vaccine responses and may inform future vaccination strategies in vulnerable populations.

Additional collaborative work investigated how prior Bacille Calmette–Guérin (BCG) vaccination influences immune responses to SARS-CoV-2 infection and COVID-19 vaccination, contributing to understanding of heterologous vaccine effects on antiviral immunity.

2025 RESEARCH

- A/Prof Branka Grubor-Bauk was elected to the Board of the International Society for Vaccines
- A/Prof Branka Grubor-Bauk was re-elected Vice-President of the Australian Centre for Hepatitis Virology (ACHV)
- Mr Ryan Santos gave an oral presentation at the prestigious international HCV Flavi Congress in Singapore highlighting findings from his PhD
- Ms Zahraa Al-Delfi was a Ross Wishart Memorial Award finalist
- Mr Henrik Johansson won best BHI Student Presentation award at the Adelaide Immunology retreat.

These findings provide important insights into immune regulation of vaccine responses and may inform future vaccination strategies in vulnerable populations.

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GROUP MEMBERS

Research Leader

Branka Grubor-Bauk

Postdoctoral Researcher

Makutiro Masavuli

Research Assistant

Dawn Whelan

Postgraduate Students

Zahraa Al-Delfi

Henrik Johansson

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Alkis Psaltis

ENT Surgery

John Licari

Breast Cancer Research Unit

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Nicholas Eyre

Flinders University, Adelaide, Australia

Simon Barry

Michael Beard

Chunxia Zhao

The University of Adelaide, Adelaide, Australia

Toby Coates

RAH/The University of Adelaide, Adelaide, Australia

Steven J Chadban

Julian Singer

Department of Renal Medicine, Royal Prince Alfred Hospital, NSW, Australia

Heidi Drummer

Burnet Institute, Melbourne, Australia

Rowena Bull

Andrew Lloyd

Stuart Turville

University of NSW, Sydney, Australia

David Bowen

Centenary Institute, Sydney, Australia

Keith Howard

Avaxzipen, Abingdon, UK

Marilyn Dysart

Pharma Jet, Golden, USA

Ashley St John

Duke-NUS, Singapore, Singapore

Dave O'Connor

University of Wisconsin, Madison, USA

David Lynn

SAHMRI, Adelaide, Australia

Pravin Hissaria

Renjy Nelson

Eamon Raith

Matthew Roberts

Jane Rose

RAH, Adelaide, Australia

Mark Plummer

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Katherine Kedzierska

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University of Melbourne, Melbourne, Australia

Nigel Curtis

Nicole Messina

MCRI, Melbourne, Australia

Danushka Wijesundara

Vaxxas, Brisbane, Australia

David Miller

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Adriana Tomic

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Stefaan de Kokker

Etherna, Niel, Belgium

Laurent Dapremont

Technovalia, Melbourne, Australia

Joy Rathjen

SA Pathology, Adelaide, Australia

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ENT Surgery

Our research team of clinical academic surgeons, research scientists, bio-informaticians and engineers is focused on improving treatment outcomes for patients suffering from chronic relapsing infections of the nose and sinuses (Chronic Rhinosinusitis, CRS) and wound-healing after surgery.

We have a translational medicine approach where novel therapeutic candidates discovered in our laboratory undergo extensive testing before treatment of patients. In addition, novel research nodes have started investigating bacteriophage biology and therapy, acoustic drug delivery, and genomic analysis of the sino-nasal microbiota.

Lastly, we implement a surgical training program aimed at educating the next generation of surgeons and surgeon scientists in advanced surgical techniques of the sinuses and skull base with the Department of Otolaryngology Head and Neck Surgery at The Queen Elizabeth Hospital.

2025 RESEARCH

Publication

- Prof Peter-John Wormald published a comment in the prestigious medical journal *The Lancet*, co-authored with a previous trainee/ PhD student with the department of ENT surgery.¹

Presentations

- Prof Sarah Vreugde and PhD student Isabella Burdon were invited speakers at Frontiers 2025 Otolaryngology, Head and Neck surgery conference in Hobart, Tasmania
- Dr Oveis Pourmehran was an invited keynote speaker at Society for Computational Fluid Dynamics in Nose and Airways (SCONA) webinar archived on the SCONA YouTube channel as well as was an invited speaker at 7th Australasian Conference on Computational Mechanics (APCOM 2025) in Brisbane.
- George Bouras was on the organising committee of the Australian Bioinformatics and Computational Biology Society conference held in Adelaide in November 2025 with more than 500 delegates attending the conference. ➤



RESEARCH HIGHLIGHT OF 2025

In April 2025, we saw the official opening of the AusHealth Phage Therapy Centre at BHI. This centre is directed by the leadership of BHI's ENT Surgery Research Group (Professors PJ Wormald, Sarah Vreugde, and Alkis Psaltis) who oversee multiple research projects using phages (naturally occurring viruses that target bacteria) to destroy drug resistant bacteria.

Phage therapy targets only the bacteria causing the disease and leaves 'good' bacteria in the microbiome unharmed, which is very important in the sinonasal tract. We are grateful for the support of AusHealth, a medical research charity, who have been supporting the phage therapy work at BHI since 2021, a contribution that is now recognised in the new name.

"We are thrilled to officially open the AusHealth Phage Therapy Centre. AusHealth has committed close to \$640,000 over two years to investigate the use of

phage in a diverse range of indications. This discovery and development platform is fundamental to building a 'bench to bedside' capability in Australia and realising the benefits of phage-based therapies," says Belinda Wade, AusHealth Operations Manager.

This support allowed the provision of new laboratory space and equipment to aid progress with our phage therapy research and clinical projects. In 2025, we continued recruitment for a pioneering clinical trial evaluating safety and effectiveness of our phage cocktail specific to *S. aureus* in chronic rhinosinusitis patients. Recruitment is ongoing and we have so far observed the cocktail to be well tolerated with no adverse events. We also continue work on personalised phage treatment for patients with chronic sinus infections, under the TGA special access scheme. Phage therapy for chronic skin infections, stomach ulcers and chronic otitis media is also being developed in the AusHealth Phage Therapy Centre.

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Stroke Research Programme

CLINICAL SCIENCES, HEALTH SERVICES AND POPULATION HEALTH

Anaesthesia Research Group

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Respiratory Research Group

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Richter Lab

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INFLAMMATORY DISEASE

→ ENT Surgery

Inflammatory Bowel Disease Research Group

ENT Surgery cont.

Microbiome & Genomic Innovation

- We continued investigation of the complex interplay between bacterial species in the sinonasal tract, particularly the interaction between staphylococcus and pseudomonas spp. using isolates collected from the sinuses of CRS patients. Assessment of virulence, epithelial disruption and exoprotein production helped further understanding of how this complex community thrives.
- Our best practice methods for sinus microbiome sequencing have helped further understanding of the microbiome composition. We have investigated a domesticated prophage in *S aureus* with increased virulence through human immune evasion, and examined genomic variation in *P aeruginosa* clinical respiratory isolates with de novo resistance to bacteriophage.

Engineering & Clinical Progress

- Our team of engineers have continued evaluating sinonasal drug delivery techniques, including comparison of nebulisation and nasal irrigation efficiency in post-operative chronic rhinosinusitis patients through computational fluid dynamics simulation.
- We have developed a preclinical model of progressive granulomatous lung Mycobacterium abscessus infection. This model accurately represents the infection in humans and can be used to test new drugs targeting such infections.
- We have completed a world-first Phase I trial to evaluate the safety of Deferiprone-Chitogel to prevent epidural fibrosis in lumbar spine surgery.

1. Paramasivan S, Wormald PJ. Ultra-long-acting biological therapy for chronic rhinosinusitis with nasal polyps. *Lancet*. 2025 Mar 15;405(10482):870-871. doi: 10.1016/S0140-6736(25)00367-8. Epub 2025 Mar 1. PMID: 40037389.
► <https://pubmed.ncbi.nlm.nih.gov/40037389/>

 We have completed a world-first Phase I trial to evaluate the safety of Deferiprone-Chitogel to prevent epidural fibrosis in lumbar spine surgery.

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Inflammatory Bowel Disease Research Group

Our research focuses on the role of the gut microbiome and diet in inflammatory bowel disease (IBD) with the overarching aim of improving patient outcomes and quality of life.

We are investigating interventional approaches to manipulate the gut microbiome for therapeutic effect, in particular using dietary therapies and faecal microbiota transplantation (FMT).

We are also undertaking clinical research in the area of IBD and gastrointestinal ultrasound. Our group is linked with the Inflammatory Bowel Disease Service at TQEH.

2025 RESEARCH

- Evaluation of how to assess diet quality in inflammatory bowel disease, which is critical in interpreting emerging dietary strategies¹
- Pilot study of FMT enemas in patients with Parkinson's, which revealed a sustained improvement in non-motor symptoms over six months²
- Reliability of intestinal ultrasound for evaluating Crohn's disease activity using point of care and central reading. This seminal paper included robust methodology to measure the reproducibility and validity of metrics of intestinal ultrasound to measure inflammation in Crohn's disease³
- Review on the process of assessment for funding of novel therapies for immune-mediated inflammatory diseases in Australia, providing a thought-provoking insight into the balance between cost and care in healthcare⁴
- Translational strategies for oral delivery of faecal microbiota transplantation, high impact review examining strategies to optimise the next frontier of oral delivery of faecal microbiota transplant undertaken by members of our collaborative group⁵

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RESEARCH HIGHLIGHT OF 2025

This year has seen our IBD research group achieve milestones with dissemination of research findings in key areas:

- Exploration of exclusive enteral nutrition (EEN) as a therapy in inflammatory bowel disease (IBD) through a meta-analysis of EEN in ulcerative colitis as well as an evaluation of outcomes of EEN in IBD across a multicentre real-world cohort.^{6,7}
- Exploration of use of intestinal ultrasound to evaluate bowel luminal contents through a seminal expert position statement including global collaborators.⁸
- Deep microbial and functional analysis of a sulphide-reducing diet in ulcerative colitis (UC). This analysis provided in depth mechanistic analysis of a defined

therapeutic diet delivered in a pilot study for patients with active UC, informing ongoing analysis for the larger randomised controlled EAT-UC study.⁹

- Examining the role of faecal microbiota transplantation (FMT) for inducing remission in resitant ulcerative proctitis. This pilot study evaluated the role of serial FMT enemas in resitant proctitis, which was shown to induce remission in around 1/3 of patients, paving the way for a randomised controlled trial.¹⁰
- European Crohn's and Colitis Organisation consensus on dietary management of inflammatory bowel disease. Contribution to the first ever international consensus on positioning diet within IBD care with reference to our pilot diet trial.¹¹

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3. Goodsall TM, An YK, Andrews JM, Begun J, Friedman AB, Lee A, Lewindon PJ, Spizzo P, Rodgers N, Taylor KM, White LS, Wilkens R, Wright EK, Zou L, Maguire BR, Parker CE, Rémillard J, Novak KL, Panaccione R, Feagan BG, Jairath V, Ma C, Bryant RV. Reliability of Intestinal Ultrasound for Evaluating Crohn's Disease Activity Using Point-of-care and Central Reading. *Clin Gastroenterol Hepatol.* 2025 Aug;23(9):1600-1611.e9. doi: 10.1016/j.cgh.2024.08.007. Epub 2024 Aug 28. PMID: 39209200.
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