LifeLab

The latest news from **QIMR Berghofer**

ISSUE 127 | SUMMER 2026

How are fast changes in AI and technology impacting medical research?

Try the new melanoma risk prediction calculator

Females carry a higher genetic risk of depression

QIMR Berghofer

LifeLab

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Message from the Director

As we launch this first edition of LifeLab for 2026, we pay tribute to Professor Fabienne Mackay, who concluded her term as Director and CEO of QIMR Berghofer at the end of last year. It has been a distinct privilege to work alongside Professor Mackay, in my role as Deputy Director and Chief Scientist.

Appointed in 2020, Professor Mackay helped steer QIMR Berghofer through the challenges of a global pandemic, while driving major advances in commercialisation, philanthropy and cell therapy. Under her leadership the Institute earned national recognition for excellence and integrity in research. You can read more about her remarkable tenure on page 15.

Looking ahead, the research landscape is evolving rapidly – driven by technology and artificial intelligence (AI). When I began my PhD in the 1990s, I could never have imagined the cutting-edge tools and AI capabilities our scientists now use daily.

As highlighted in our feature article, researchers are using technology and training AI to do what would be impossible for humans to do. This acceleration is not only transforming how we conduct research – it's speeding up the translation of discoveries into better health outcomes for Queenslanders and communities around the world.

Traditionally, research has been been a long journey, with benefits often years away. But today, in many fields, we are entering an exciting new frontier.

Our supporters are central to this transformation. It is through your continued investment and belief in our work that QIMR Berghofer remains at the forefront of research – changing the course of cancer, infectious disease and mental health diagnosis, prevention and treatment.

With another hot summer upon us, it's timely to explore our next-generation melanoma risk prediction calculator featured on page six. This free online tool helps you better understand and act on your own melanoma risk. Within the first 48 hours of its release more than 45,000 people had visited the webpage – a testament to how relevant this issue is for Australians.

Thank you, as always for your interest in medical research. I hope you enjoy this edition of LifeLab.

Professor Grant Ramm
Interim Director and CEO

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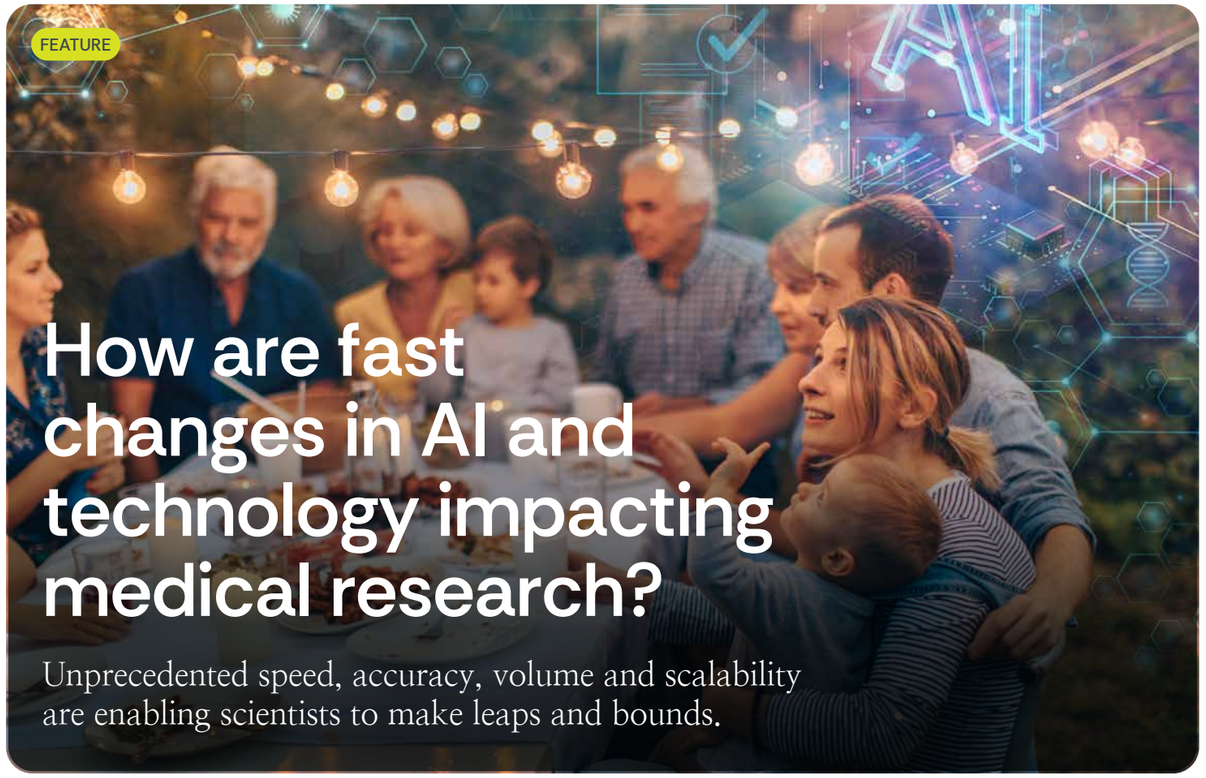


FEATURE

How are fast changes in AI and technology impacting medical research?

Unprecedented speed, accuracy, volume and scalability are enabling scientists to make leaps and bounds.

> "AI has been around for 50 years but things we've talked about for 40 years are now true... there is no technology without AI anymore."
>
> JOHN PEARSON

John Pearson, manager of the high-performance computing lab, in the server room.

Medical researchers live and breathe data. Over the decades, researchers have seen rapid advancements in data processing and storage – but the current speed of changes in technology and AI are unlike anything that seasoned researchers at QIMR Berghofer have experienced.

"The smart phone that many people use daily has more capability than the technology available to me when my career in medical research started," the manager of the high-performance computing lab at QIMR Berghofer, Mr John Pearson said.

"AI has been around for 50 years but things we've talked about for 40 years are now true... there is no technology without AI anymore," Mr Pearson said.

The types of data researchers collect ranges from information about cells, tissues, proteins, genes and genomics, to clinical records about lifestyle, disease progression, treatment targets and treatment effectiveness.

What were once very manual processes – data collection, analysis, integration and interpretation – are being revolutionised.

"Some technology that is now used routinely, didn't even exist five years ago," Mr Pearson said.

Associate Professor Nic Waddell, who leads QIMR Berghofer's Medical Genomics Laboratory, has been collaborating with Mr Pearson on cancer research for decades.

"Ultimately, we aim to enable personalised medicine for the diagnosis and treatment of cancer," Associate Professor Waddell said.

"We analyse a patient's cancer genome to understand how their tumour developed and to predict how they might respond to different treatments. Our advanced technology and computing power allow us to integrate this genomic data with other information about the person's cancer, research databases, and drug response data. By combining these insights, we can identify potential new treatments and improve outcomes for patients.

"The only data that goes into training our models is data that we are confident represents our best understanding of the truth. Of course, we check the predictions made by our models... The AI programs and models are incredibly sophisticated computer programs."

JOHN PEARSON

"In the past, research could take decades before findings were published or new treatments identified and people benefitted. The impact for patients is still in the future, but all these changes are speeding up drug development. The process of matching the right patient and right drug is getting much faster," Associate Professor Waddell said.

The high-performance computing at QIMR Berghofer, which is capable of storing and processing petabytes of data, combined with powerful machine-learning, enables researchers to work with enormous amounts of data – something that wasn't possible even a few years ago.

"We use AI like a super statistician, a tool that can tease out complicated patterns that are impossible for a human to recognise," Mr Pearson said.

"Our lab handles thousands of billions of data points in a genomics study. The bioinformaticians in our team are specialists in computer science and biology and we use machine learning to train models to make decisions. We train AI models to be the best predictor, better and faster than what any human is capable of."

Mr Pearson says when AI is trained, it just gets better with more information.

"It's not like using the Internet for training data with all sorts of misinformation being fed in and possibly biasing the model.

The only data that goes into training our models is data that we are confident represents our best understanding of the truth. And of course, we check the predictions made by our models and as new information becomes available, we retrain our models. The AI programs and models are incredibly sophisticated computer programs," Mr Pearson said.

Another team developing transformations in biotechnology and AI, is the Genomics and Machine Learning Lab.

AI scored a gold medal in the International Mathematics Olympiad organised at the Sunshine Coast in 2025. (Image generated by Associate Professor Quan Nguyen, using Gemini AI model).

"We have merged two big data fields – sequencing and imaging – to advance understanding of pathological processes, one cell at a time and across millions of cells within a diseased tissue," Group Leader, Associate Professor Quan Nguyen said.

"By mapping healthy and diseased cells at unprecedented resolution and the large signaling networks between these cells in tissues, we are discovering new patterns and disease mechanisms that are hidden from traditional research approaches. We develop AI to make clinical applications of these discoveries accessible to patients around Australia, including those from remote areas."

Lab Manager Dr Albert Xiong said QIMR Berghofer is really keeping pace with the evolution of cutting edge spatial-multiomics infrastructure.

"Advances in technology reshape how we study biology. Until recently, the technologies we have used, required very high quality fresh tissue samples, which limited their clinical applications," Dr Xiong said.

"It's been in the last few years that spatial transcriptomics have been extended to preserved samples. This has unlocked access to a huge amount of archives of patient samples stored in pathology labs and biobanks, making it possible to study disease at single cell resolution with spatial context.

"This means we can gain a deeper understanding of the complex biology behind challenging diseases."

OUR PEOPLE

Meet our Bioinformatics Manager, John Pearson

"The rate of technological change is faster than ever and in the field of medicine we'll see amazing capabilities in the next 10 years. Things that were not possible five years ago, are now routine."

JOHN PEARSON

Tell us about the research you are involved in.

My team apply computer science to large data sets, in particular for cancer research and largely in collaboration with Associate Professor Nic Waddell's Medical Genomics Laboratory. Over the last 10 years we have built a lab of very high-powered computers with data storage capacity at the Institute increasing two-hundred-fold.

What led you to the role you're in today?

I have a background in biology, but years ago while working in a lab, I was given the opportunity of working with a kit computer and writing software. I'd go home at night and manually plot data that had been generated that day. But then I moved the lab to automated plotting and it transformed the way we worked. I've loved doing that ever since, working with researchers on next-generation sequencing and analysing data.

What kind of impact do you hope your research will have?

This is something I think about a lot. Cancer is such a big field and it can often feel like you're not making headway – but even if we're not curing cancer, treatment has improved so much.

Beating cancer is like building a building. I may not see the building completed, but I've helped lay foundational bricks, as have researchers like Associate Professor Waddell and thousands of people around the world.

What is one of the most exciting projects your team is working on right now?

Associate Professor Waddell and I are working on a project where we're sharing data at a very large scale. Data is valuable in our hands, but it's even more valuable when shared with other researchers. Society will benefit if we share data, so it should be fundamental in our work.

What is a key challenge you face?

We have more ideas than we have people to chase ideas down. Getting the funding for people to do the work is the most difficult thing.

How is AI and technology changing medical research now?

The rate of technological change is faster than ever and in the field of medicine we'll see amazing capabilities in the next 10 years. Things that were not possible five years ago, are now routine.

Tomorrow's discoveries rely on your gift today

For 80 years, QIMR Berghofer has been at the forefront of medical research, delivering life-changing health outcomes for Queenslanders and communities beyond. This progress is only possible because people believe in our work and vision.

Our supporters – across industry, corporates, donors and friends – make breakthroughs a reality.

Thanks to this support, our researchers are global leaders in understanding, preventing and treating conditions across our four key research programs:

- Brain and Mental Health
- Infection and Inflammation
- Cancer Research
- Population Health

Their work focuses on illnesses such as depression, brain cancer, malaria and melanoma, which represent a significant health burden for Queenslanders, Australians and around the world.

Our work is ambitious

Research takes time, sometimes it's years or even decades in the making. The transformation of medical research – driven by unprecedented advances in technology and AI – is opening new possibilities for health outcomes in the near future and for generations to come.

The dreams and determination of our scientists are powered by the hopes and support of inspiring humans; just like you.

Will you invest in our discoveries of the future?

Ways you can support:

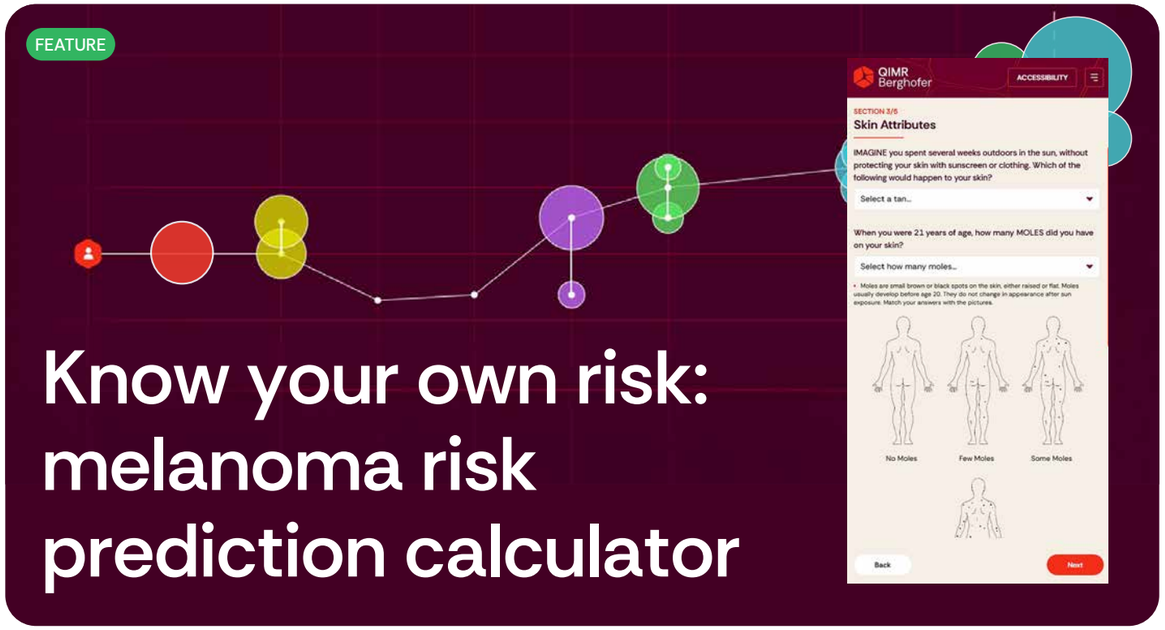
- Make a gift today
- Make a monthly gift
- Leave a gift in your Will
- Become a corporate partner
- Join *The Josephine Circle*
- Fundraise in your community, your way.
- If you already support us, thank you for your generosity.

"QIMR Berghofer's world-class scientists are charging into new frontiers such as cell therapy and precision medicine, and a new generation of diagnostics and treatments we hope will strengthen Queensland's biotechnology industry. But like all good things, this road ahead does not come easily."

QIMR BERGHOFER COUNCIL CHAIR, PROFESSOR ARUN SHARMA AM.

Click here to learn more or donate now.

FEATURE



Know your own risk: melanoma risk prediction calculator

The next-generation of the melanoma risk prediction calculator, designed to help Australians take action against one of the country's most deadly, costly, and common cancers, was unveiled by QIMR Berghofer in October.

Within the first 48 hours, there were over 45,000 visits to the calculator webpage.

Developed using a decade of data from more than 40,000 participants in the landmark QSkin Study, the online tool first launched seven years ago has undergone a major upgrade to now include 16 self-reported factors, such as age, skin type, hair colour and sunspot history.

The free calculator is available for use by the public as well as healthcare providers. Developed in collaboration with the QUT VISER team, it even accounts for regional differences in melanoma risk due to Australia's diverse UV exposure levels.

QIMR Berghofer Professor and lead researcher David Whiteman AM said the new calculator allows every one of us to better understand and act on melanoma risk – whether at home, in a doctor's office, or as part of community screening programs.

> "Improving how we target and treat melanoma isn't just critical for people with melanoma; it's also an important economic necessity by helping to triage patients more effectively."
>
> PROFESSOR DAVID WHITEMAN AM

"Early identification of people who are high-risk can prompt more regular skin checks and targeted follow-up, while sparing lower-risk people from unnecessary screening or procedures. This tool is our best approach yet to allow our medical teams to focus on the people and areas of greatest need."

Professor Whiteman says the risk calculator may help save lives, and potentially save money.

"Improving how we target and treat melanoma isn't just critical for people with melanoma; it's also an important economic necessity by helping to triage patients more effectively."

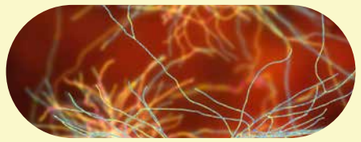
Nadine Wilson from the Sunshine Coast was diagnosed with an early stage melanoma, and is encouraging every Australian to hop online and assess their own risk. "It's a really easy way to know your personal risk and take easy steps to protect yourself, and potentially limit the chance of having surgery or undergoing treatment."

The Melanoma Risk Calculator is free and available at www.qimrb.edu.au/melanoma

Note: The risk calculator is not intended to replace medical advice, rather it is a guide to inform people about their individual risk so they can discuss this with their doctor.

Clinical trials and research studies

Clinical trials and research studies play an integral role in medical research and the impact it can have on the lives of people around the world. Here are some of the studies currently underway and recruiting at QIMR Berghofer.



Genetics of Epilepsy Study

The purpose of the GenEp Study is to improve our understanding of why a person may fail to become (and stay) seizure-free with initial trials of anti-seizure medications.

The GenEp study aims to identify the genetic basis of why medications work for some people but not others, and why some medications cause side effects and others do not.

To do this, researchers are seeking adults who have a diagnosis of epilepsy or recurrent seizures to participate in our study.

www.geneticsofepilepsy.org.au

Living with Anxiety Study

The purpose of the Living with Anxiety Study (LwA Study) is to try and improve our understanding of the genetic and environmental factors that increase a person's risk of developing an anxiety disorder and also the genetic factors that influence how well, or poorly, a person responds to treatment.

www.livingwithanxiety.org.au

Genetics of Glaucoma Study

If you're aged 50-70 years and have a family history of glaucoma (affected parent and/or sibling) but no personal history of the disease, we invite you to be part of our study.

Focused Ultrasound Study

QIMR Berghofer is recruiting participants for a new study aiming to improve our understanding of the brain in healthy individuals and contribute toward the development of new treatments for disorders like obsessive-compulsive disorder (OCD) and addiction.

Using a non-invasive, safe brain stimulation technique called Focused Ultrasound (FUS), our researchers will examine your risk-reward decision making behaviour through a variety of computer-based tasks.

For more information about participating, please email Alex Wilson at alex.wilson@qimrb.edu.au.

EDGI2 Study

The Eating Disorders Genetics Initiative 2 (EDGI2) aims to identify the hundreds of genes that influence a person's risk of developing the complex, devastating illnesses of anorexia nervosa, bulimia nervosa, binge-eating disorder, and Avoidant Restrictive Food Intake Disorder (ARFID).

QIMR Berghofer's Professor Nick Martin and his team are aiming to recruit more than 4,000 Australians into the study, which involves analysing DNA from saliva samples.

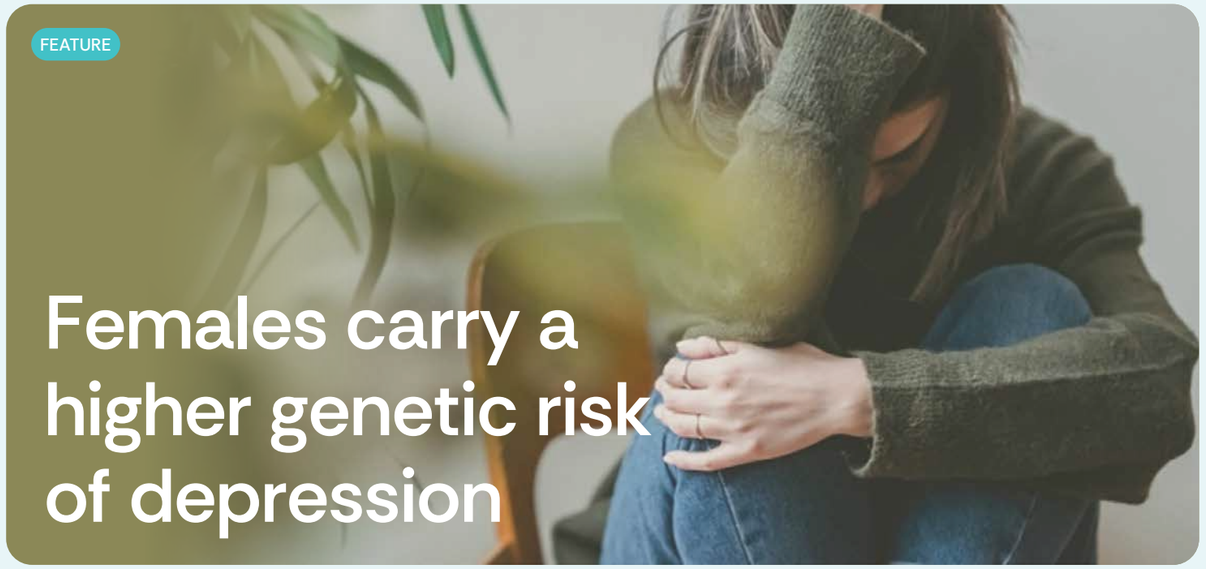
Triple Olympian Lisa Curry is lending her voice to the study, after her beloved daughter Jaimi tragically passed away from an eating disorder in 2020.

"There's no quick fix for eating disorders. So if you are aged over 18 years and have experience with an eating disorder, past or present, I urge you to volunteer for EDGI2 and be part of the solution," said Ms Curry.

www.edgi2.org.au

For more information about all current trials and studies, please visit www.qimrb.edu.au/studies or scan the QR code.

FEATURE



Females carry a higher genetic risk of depression

> "Until now, there hasn't been much consistent research to explain why depression affects females and males differently, including the possible role of genetics."
>
> DR BRITTANY MITCHELL

Watch a video about this research.

Significant genetic differences in how females and males experience depression have been revealed for the first time, with scientists discovering about twice as many genetic 'flags' for depression in the DNA of females compared with males.

The knowledge that genetic factors contribute more to depression risk in females than in males could pave the way for intervention and treatments that is more personalised to individuals.

"We already know females are twice as likely to suffer from depression in their lifetime than males. And we also know depression looks very different from one person to another," said Dr Brittany Mitchell, Senior Researcher at QIMR Berghofer's Genetic Epidemiology Lab.

"Until now, there hasn't been much consistent research to explain why depression affects females and males differently, including the possible role of genetics," Dr Mitchell said.

The team identified about 7,000 changes in the DNA that could cause depression in both sexes, and about a further 6,000 DNA changes (a total of 13,000) that could cause depression in females only.

Researcher Dr Jodi Thomas said the study also pinpointed how depression could show up differently

Dr Brittany Mitchell (left) and Dr Jodi Thomas

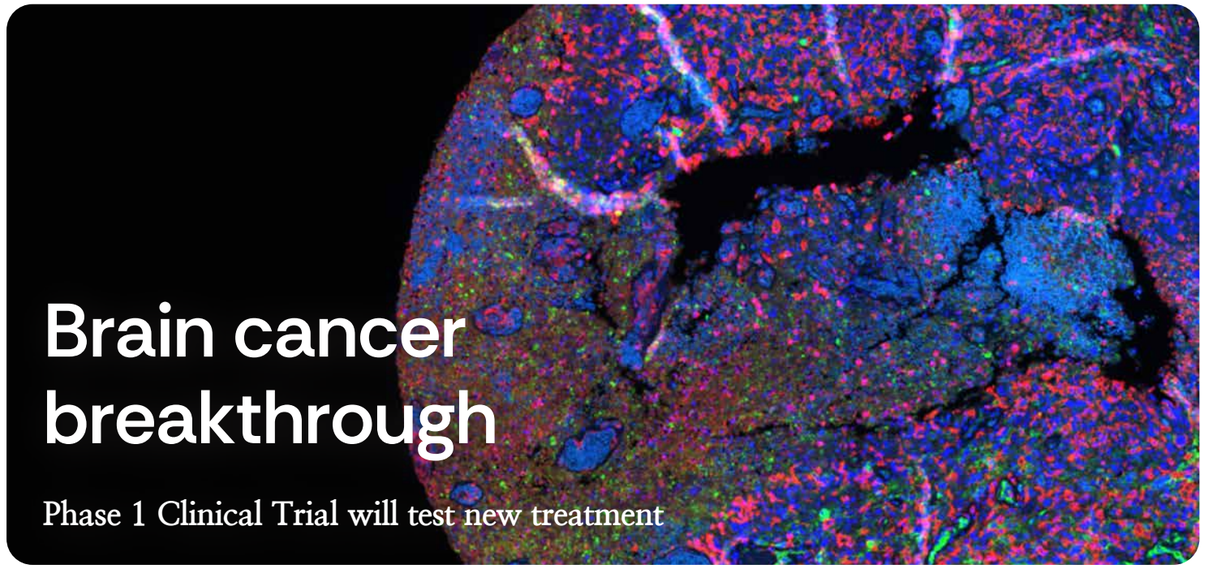
for females and males. Genetic factors linked to depression overlap more with those associated with metabolic traits in females.

"Some genetic differences may help explain why females with depression experience metabolic symptoms, such as weight changes or altered energy levels more often," Dr Thomas said.

The global study is the largest of its kind. Scientists analysed DNA from hundreds of thousands of people with and without depression, including around 130,000 females and 65,000 males with depression.

The changes in DNA the scientists have identified are genetic differences people are born with, not changes that happen because of life experiences.

"Unpacking the shared and unique genetic factors in males and females gives us a clearer picture of what causes depression – and opens the door to more personalised treatments," Dr Thomas said.



Brain cancer breakthrough

Phase 1 Clinical Trial will test new treatment

Research co-led by QIMR Berghofer has now progressed to a first-in-human Phase 1 clinical trial, termed the OPAL trial, that will test a new targeted therapy for brain cancer.

This trial is a national collaboration between the Australian Brain Cancer Research Alliance (ABCARA), Cooperative Trials Group for Neuro-Oncology (COGNO), Curtana Pharmaceuticals, and the Olivia Newton-John Cancer Research Institute and builds on years of foundational research led by Professor Bryan Day, ABCARA Co-Founder and Co-Director and Head of the Sid Faithfull Brain Cancer Laboratory at QIMR Berghofer.

This innovative clinical trial will focus on CT-179, a new oral treatment targeting the protein OLIG2, which is a known stem cell marker crucial in the initiation and recurrence of brain cancers.

It follows Professor Day and QIMR Berghofer researcher Dr Yuchen (Michelle) Li publishing a long-running international collaborative study in *Nature Communications*, which showed the therapy was effective in infiltrating and killing tumour cells in preclinical models.

This research, published in February 2025, was conducted in collaboration with Professor Timothy Gershon at the Emory University in the United States.

Professor Day described the preclinical findings as a breakthrough for brain cancer research.

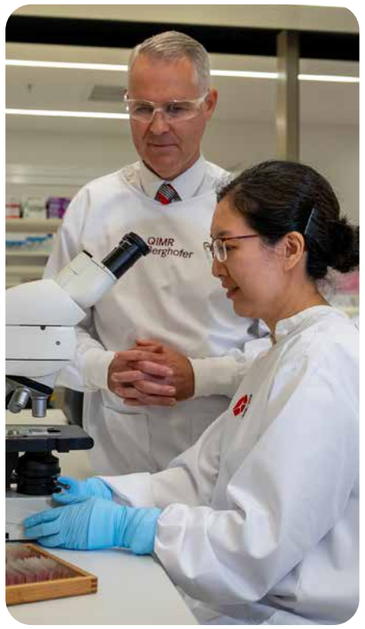
"Many drugs that have been designed to treat brain cancer or which have been repurposed drugs taken from other cancers, weren't designed to cross the blood-brain barrier, so not enough of the drugs have been getting into these patients tumours to actually work," he said.

"We know the CT-179 molecule is the right size, and we know it's able to cross the blood-brain barrier and get into these brain tumours and actually persist for quite a long time in the brain."

With 90 per cent of aggressive brain cancers recurring, researchers at QIMR Berghofer are excited about the CT-179 treatment targeting the cells they believe are responsible for the development of brain tumours and recurrence of the disease.

"The point of CT-179 is to inhibit OLIG2 which is detected in 100 per cent of adult brain cancer specimens and also highly expressed in brain cancers of young children," Professor Day said.

"It's very rewarding personally for us as scientists to bring these long running studies together and to see the launch of this innovative Phase 1 clinical trial for Australian patients. This new treatment could really improve the lives of people with brain cancer."



Professor Bryan Day and Dr Yuchen (Michelle) Li

> "This new treatment could really improve the lives of people with brain cancer."
>
> – PROFESSOR BRYAN DAY

SUPPORTING RESEARCH

Visionary leaders help close the gender funding gap in medical research

> "As an early-career researcher, this grant has enabled me to remain in the field and continue working toward improving brain cancer patient survival."
>
> DR CHANDRA CHOUDHURY

The Josephine Circle is growing, and you can become a member too.

To help provide crucial funding for more deserving women like Suzy and Chandra. To learn how, click here or visit: www.qimrb.edu.au/support-us/the-josephine-circle.

What happens when you gather a small group of visionary women leaders determined to close the gender funding gap that persists in medical research?

You get something truly powerful; The Josephine Circle, a 'sisterhood of purpose.'

The Josephine Circle is committed to advancing women researchers in their early and mid-careers to help level gender inequities that persist within the field.

The generosity and vision of the founding members is not only changing the funding landscape - it's changing lives.

In October, the founding members joined together at the inaugural 'Pitch Event', where seven remarkable researchers presented their bold ideas to members. The Josephine Circle members then had the difficult task of selecting the final grant recipients.

(L-R) Dr Chandra Choudhury and Dr Suzy Ossipow, the 2025 recipients of the Josephine Circle funds.

After a rigorous selection process, the projects chosen were Dr Chandra Choudhury's research into 'sleeping' glioblastoma brain cancer stem cells, awarded the $50,000 Early Career Grant and Dr Suzy Ossipow's innovative AI approach to diagnosing and treating preventable parasitic worm infections, awarded the $150,000 Mid-Career Grant.

Dr Ossipow was moved to tears when she heard the news, a reminder of just how deeply this support matters.

Congratulations to the 2025 inaugural grant recipients and our heartfelt thanks to the members of The Josephine Circle for their generosity.

This is what happens when generosity meets vision - and women come together to spark lasting change. Together, we are paving the way for future generations of women in research.

Founding members—Barbara, Maureen, Robyn, Jane and Gwen (absent)—come from diverse backgrounds but are united in their commitment to supporting women in research.

Standing up for mental health research together

Your support is strengthening breakthrough research across QIMR Berghofer — including new possibilities for those living with severe depression.

> "The fact that they're using the most current technology to deliver it in a way that is far more precise and effective is incredibly inspiring."
>
> BEAU

Over Christmas, many of you reached out to tell us how powerfully Beau's story resonated, and we're delighted to share what your generosity helped make possible.

Thanks to supporters like you, $135,935 was raised in the lead-up to Christmas, and more people will benefit from research that pushes boundaries and opens new possibilities.

For people living with severe, treatment-resistant depression, the journey can be incredibly lonely. Beau shared his experience of the years he spent searching for something that might finally help, and how a personalised approach to TMS (transcranial magnetic stimulation), guided by researcher Professor Luca Cocchi, gave him a renewed sense of hope.

"The fact that they're using the most current technology to deliver it in a way that is far more precise and effective is incredibly inspiring," Beau said.

"If you were having your gallbladder removed, you wouldn't want doctors to guess where it was. You'd want scans beforehand."

"In the same way, the QIMR Berghofer research team are mapping individual patients' brains, and then precision targeting for the TMS treatment with a robotic arm," Beau said.

Your generosity strengthens work across the Institute — including in brain and mental health – offering real hope for people like Beau and their families who have run out of options.

Beau's story was just one example of what research can make possible. Your kindness over the festive season means that scientists across QIMR Berghofer can keep asking the big questions, exploring promising ideas, and working towards better treatments for people who urgently need them.

Thank you for standing up for mental health research when it matters most.

Supercharging vinegar's old-fashioned wound healing power

"Combination treatments such as the ones highlighted in this study may help to curb antimicrobial resistance."

– PROFESSOR NILS HALBERG

Wounds that do not heal are often caused by bacterial infections and are particularly dangerous for the elderly and people with diabetes, cancer and other conditions.

Acetic acid (more commonly known as vinegar) has been used for centuries as a disinfectant, but it is only effective against a small number of bacteria, and it does not kill the most dangerous types.

New research led by researchers at QIMR Berghofer, Flinders University and the University of Bergen in Norway has resulted in the ability to boost the natural bacterial killing qualities of vinegar by adding antimicrobial nanoparticles made from carbon and cobalt.

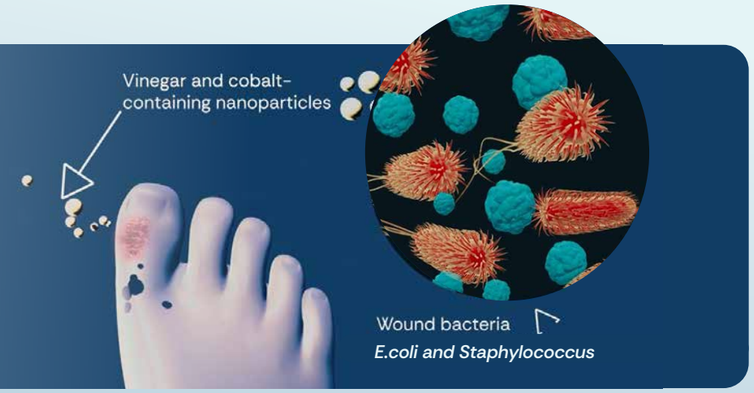
Molecular biologists Dr Adam Truskewycz and Professor Nils Halberg found these particles could kill several dangerous bacterial species, and their activity was enhanced when added to a weak vinegar solution.

As part of the study, Dr Truskewycz and Professor Halberg added cobalt-containing carbon quantum dot nanoparticles to weak acetic acid (vinegar) to create a potent antimicrobial treatment. They used this mixture against several pathogenic species, including the drug resistant *Staphylococcus aureus, Escherichia coli (E. coli) and Enterococcus faecalis*.

"Once exposed, the nanoparticles appear to attack dangerous bacteria from both inside the bacterial cell and also on its surface, causing them to burst. Importantly, this approach is non-toxic to human cells and was shown to remove bacterial infections from mice wounds without affecting healing," Dr Truskewycz said.

The anti-bacterial boost in vinegar found in the study could potentially be an important contribution towards the ongoing battle against the rising antimicrobial resistance levels worldwide.

"Combination treatments such as the ones highlighted in this study may help to curb antimicrobial resistance. Given this issue can kill up to five million people each year, it's vital we look to find new ways of killing pathogens like viruses, bacteria and fungi or parasites," Professor Halberg said.



Click here to watch an animated explainer of this treatment.

Recognising chronic pain as a symptom of Parkinson's disease

"Chronic pain is a symptom that is often underrecognised, underdiagnosed and undertreated, and it really impacts the quality of life of people living with Parkinson's disease."

ASSOCIATE PROFESSOR MIGUEL RENTERIA

A major QIMR Berghofer-led study has found that people living with Parkinson's disease are nearly three times more likely to suffer from chronic pain compared to the general community, with two thirds of people living with Parkinson's disease experiencing the symptom.

It is the first time the extent and severity of chronic pain have been measured on such a large scale in Parkinson's disease, highlighting the urgent need to treat this issue alongside motor symptoms such as tremors to improve the quality of life of patients.

Watch a video about this research.

Associate Professor Miguel Renteria who led the study said it was common for patients with Parkinson's to report pain but there was a lack of data about the issue.

"Chronic pain is a symptom that is often underrecognised, underdiagnosed and undertreated, and it really impacts the quality of life of people living with Parkinson's disease," Associate Professor Renteria said.

Researchers analysed data from 10,631 participants in the Australian Parkinson's Genetics Study (APGS) which is led by QIMR Berghofer and funded by the Shake It Up Australia Foundation and the Michael J. Fox Foundation for Parkinson's Research.

Two-thirds of study participants (66.2 per cent) reported chronic pain, which is significantly higher than the general population of a similar age where the prevalence of pain is estimated at 23 per cent in men and 30 per cent in women.

The most common body sites affected were the buttocks, lower back, neck and knees.

What is chronic pain?

Chronic pain is defined as pain that persists for **more than three months** and occurs **every day or most days.**

Source: www.healthdirect.gov.au/chronic-pain

"Our hope is that these findings will mean that chronic pain becomes a symptom that is appropriately recognised, monitored and managed in Parkinson's disease, to improve the quality of life of people experiencing pain," Associate Professor Renteria said.

Neurologist Dr Kishore Kumar, a co-author on the paper and researcher at the Garvan Institute of Medical Research said, "As clinicians, we are often focused on the motor symptoms of Parkinson's but we need to make sure we are not neglecting the non-motor symptoms like pain so we can treat that aspect of the disease and improve the lives of patients with Parkinson's."

FEATURE

Recent achievements driving patient progress

In 2025, we made significant strides across our four research programs to advance breakthrough therapies and partner with industry to improve patient outcomes.

Clinical and commercial achievements

- Completed Phase 1 trial recruitment for Cyteph's off-the-shelf T cell therapy for aggressive brain cancer, developed by Professor Rajiv Khanna AO, with no adverse reactions reported in patients to date.
- A new immunotherapy targeting aggressive bowel and breast cancers from Associate Professor Michelle Wykes's spin-out, Fovero Therapeutics, is with CSIRO for independent verification. She seeks $20 million to move this promising treatment into clinical trials.
- A world-first Phase I trial combining a new immunotherapy with brain cancer drug Paxalisib launched in January, led by Professor Sudha Rao and Kazia Therapeutics. By October, Kazia Therapeutics secured the license and committed to funding further trials. This breakthrough therapy will be used to treat patients with metastatic breast cancer that has spread to the brain.
- NeuroScientific Biopharmaceuticals licensed Q-Gen Cell Therapeutics' StemSmart process to develop mesenchymal stromal stem cells for clinical trials. The cells are used to treat severe immune complications from bone marrow transplants, kidney and lung transplant rejection, and inflammatory Crohn's disease.
- Our research helped develop a world-first blood test called PromarkerEso, which enables earlier detection of oesophageal cancer, easing invasive diagnosis for thousands.
- Professor Stuart MacGregor's glaucoma genetic test, already in use across Australia, was successfully launched in the US market.

588
SCIENTIFIC PUBLICATIONS

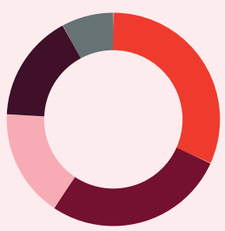
>50K
CITATIONS

NATURE INDEX
#2 AUS | **#55** GLOBAL

103
PHD STUDENTS
FROM
23
COUNTRIES

>60
RESEARCH LABS
ACROSS 4 RESEARCH PROGRAMS:
- CANCER RESEARCH
- INFECTION AND INFLAMMATION
- BRAIN AND MENTAL HEALTH
- POPULATION HEALTH

Funding sources



End of an era

We say farewell to Professor Fabienne Mackay

On 18 December 2025, QIMR Berghofer farewelled our eighth Director and CEO, Professor Fabienne Mackay who led the Institute for five and a half years, having stepped into the role in May 2020 under the challenging early days of the COVID-19 pandemic.

A renowned immunologist, Professor Mackay was previously the Head of the School of Biomedical Sciences at the University of Melbourne. She became QIMR Berghofer's first female Director and CEO following an international search conducted by the Institute's Council.

Her scientific discoveries have led to clinical trials of new treatments, including the successful development of a monoclonal antibody for lupus, an autoimmune disease. With an exceptional track record in medical research, strong management expertise and deep experience in biotechnology and research commercialisation, Professor Mackay built upon the Institute's legacy of scientific excellence. She led the development of a robust biomedical innovation ecosystem that accelerates the translation of research breakthroughs into tangible health outcomes for Queenslanders.

"Fabienne has led the establishment of a Clinician Researcher Academy which will be a lasting legacy for the State," said QIMR Berghofer Council Chair, Professor Arun Sharma AM. "Under her leadership, we've seen increases in commercialisation and philanthropic income, and the expansion of the Special Access Scheme Cell Therapy Program which provides vital access to this therapy for patients in Australia and overseas."

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>
> PROFESSOR ARUN SHARMA AM, QIMR BERGHOFER COUNCIL CHAIR

During Professor Mackay's tenure, the Institute broadened its outreach to regional Queensland and Indigenous health services and forged new partnerships to drive innovation. "Fabienne's leadership saw the development of a clear and ambitious research plan that positions us strongly for the future. This is reflected in QIMR Berghofer's consistent ranking as one of the top two Australian medical research institutes in the Nature Index," Professor Sharma said.

Her unwavering ethical standards were recognised with the 2025 NHMRC Ethics and Integrity Award - a testament to the values she brought to the role.

Professor Mackay will still be part of the Institute as her lab, the B-lymphocytes in Autoimmunity and Malignancies Laboratory will continue at QIMR Berghofer.

The Council has started a global recruitment process to appoint a new Director and CEO. In the meantime, Professor Grant Ramm will serve as Interim Director and CEO.

Top-bottom: Thanking supporters during Thankuary 2025, QIMR Berghofer Ekka display 2023, Queensland Great Awards 2021, Government House event 2024 L-R Professor Fabienne Mackay, Her Excellency, the Honourable Dr Jeannette Young AC PSM, Governor of Queensland and Professor Arun Sharma AM, QIMR Berghofer Council Chair.

Celebrating 80 years of medical research excellence

On 1 November 2025 — exactly 80 years since the Queensland Institute of Medical Research Act came into effect — supporters gathered in style to celebrate our extraordinary legacy and the future of medical innovation.

Held at the Royal International Convention Centre, the sold-out black-tie gala dinner welcomed more than 450 guests to mark eight decades of life-changing research that has improved the health and wellbeing of millions across Australia and the world.

Hosted by award-winning science communicator Bernie Hobbs, the evening featured keynote addresses from the Honourable Dr Jeannette Young AC PSM, Governor of Queensland and the Honourable Tim Nicholls MP, Minister for Health and Ambulance Services, and vibrant entertainment from The Little Red Company, led by Naomi Price.

It was a night of reflection, inspiration and generosity – raising $1million to advance QIMR Berghofer's research in cancer, infectious diseases, population health, and brain and mental health, ensuring a healthier future for generations to come.

Thank you to all of our sponsors who made our Gala Dinner possible.

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The Little Red Company

Right, top to bottom: *Her Excellency, the Honourable Dr Jeannette Young AC PSM, Governor of Queensland, QIMR Berghofer Council Chair, Professor Arun Sharma AM, Queensland Minister for Health and Ambulance Services, the Honourable Tim Nicholls MP, The Little Red Company performing, Clive Berghofer AO and Naomi Price.*

Thank you

We are grateful to those in the community who support and fundraise for us. We couldn't do it without you.

Thanks for Giving

Our annual Thanks for Giving event in November brought together some of our generous supporters in recognition of their vital contributions to medical research.

Guests heard from then-Director and CEO Professor Fabienne Mackay, alongside a panel of leading scientists who shared insights and answered questions about current research initiatives. It was a meaningful opportunity for attendees to gain a deeper understanding of the real-world impact their generosity enables—advancing discoveries that improve lives.

All gifts make a difference. Find out how you can support us today.

Free Call: 1800 993 000
or email: supportus@qimrb.edu.au

2026 in-person events

In 2026, we are travelling to Toowoomba, Cairns, the Gold Coast, Sunshine Coast, Townsville and Rockhampton for events with our QIMR Berghofer community.

Keep an eye on the events page for details.
Click here or visit: qimrb.edu.au/whats-on/events

Honouring The Bancroft Society

We were delighted to host members of The Bancroft Society recently for a special 80th Anniversary lunch at Victoria Park and an opportunity to share our latest research breakthroughs.

The Bancroft Society is a community made up of individuals who have chosen to leave a gift in their Will to support the Institute's work. Named after the pioneering Bancroft family, who advanced medical research in Queensland from the 1860s, these gifts—large and small—play a vital role in funding research that shapes the future of health.

Our guests heard from Program Director of Infection and Inflammation, Professor Christian Engwerda who shared about cutting-edge technology and also current and emerging threats posed by infectious diseases. Program Director of Cancer Research, Professor Juliet French, spoke about AI-driven cancer research and improved capabilities to predict people's responses to treatment.

We are deeply grateful to the members of The Bancroft Society for their vision and support in helping us drive discoveries that save lives.

For more information please contact Lorraine Fraser, our Gift in Wills specialist, for a friendly and confidential conversation.

Free Call: 1800 993 000
or email: giftsinwills@qimrb.edu.au

Fundraise for medical research

Visit our website to discover more and start your own fundraiser, or contact our Community Fundraising Officer, Isla Paul. Phone: 0407 245 809 Email: Isla.Paul@qimrb.edu.au