LifeLab

The latest news from QIMR Berghofer

ISSUE 130 | SPRING 2026



No such thing as a completely safe time in the sun?

– Professor Rachel Neale

A simple test with the potential to change cancer care

Fighting colon cancer through research and prevention

QIMR Berghofer

LifeLab

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Message from the Director and CEO

Over the past several weeks, since I joined the Institute on 7th September, I have had the pleasure of meeting many of QIMR Berghofer's researchers, corporate staff, and students. What has struck me most is the passion, expertise and shared commitment to improving human health that exists across the Institute. It has given me a deep appreciation for the extraordinary work being undertaken here every day.

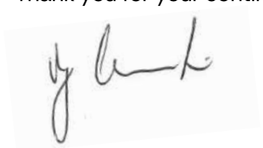
This edition of LifeLab showcases several exciting advances that are helping to improve outcomes for patients. Our lead stories highlight various aspects of cancer research. Professor Sudha Rao and her team are developing a liquid biopsy that could help clinicians detect and monitor aggressive cancers through a simple blood test, while Associate Professor Michelle Wykes is advancing new immunotherapy approaches for colon cancer and shares practical ways for people to reduce their cancer risk.

Prevention remains one of the most powerful tools. Research led by Professor Rachel Neale and Professor David Whiteman AM challenges long-held assumptions about sun exposure, demonstrating that even low-intensity ultraviolet radiation can damage skin cells, The findings reinforce an important message for all Australians: sun safety should be an everyday habit.

Beyond cancer, this issue also highlights the breadth of research underway across the Institute, from pioneering work in dementia risk, to mosquito-borne diseases surveillance. Together, these projects reflect our commitment to addressing some of the most significant health challenges facing Australians today.

As someone whose career has been driven by a belief in the power of research to change lives, I am excited about the opportunities ahead for QIMR Berghofer. I look forward to working with our talented people and valued supporters as we build on the Institute's proud history and continue to deliver research that makes a difference.

Thank you for your continued interest in and support of QIMR Berghofer.



Professor Brandon Wainwright AM
Director and CEO



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No such thing as a completely safe time in the sun?



"People potentially get lulled into a sense of security when the intensity of sunlight is weak and they spend too long outdoors without adequate protection."

– PROFESSOR RACHEL NEALE

For generations, Australians have thought that being outside in the harsh midday sun is the main danger, while the milder sun in the morning or late afternoon is essentially harmless. A landmark QIMR Berghofer study is challenging that long-held belief, raising important questions about how we protect ourselves in the world's skin cancer capital.

The findings suggest that even low-intensity ultraviolet (UV) radiation can damage skin cells, potentially contributing to skin cancer risk over time.

For people living in Queensland, where outdoor lifestyles are part of everyday culture, the research is particularly relevant. Whether it's a morning dog walk, watching weekend sport, gardening, or commuting to work, many of us spend time in the sun outside the traditional 10am–2pm 'danger hours'. The study suggests these seemingly harmless exposures may deserve more attention than previously thought.

The researchers wanted to understand what happens when skin is exposed to UV radiation at levels commonly experienced during periods of lower sunlight intensity. The Low-Dose UV Study invited 58 people with light-to-olive skin to take part. The researchers delivered low-intensity UV radiation (similar to early morning or late afternoon conditions) to protected areas of skin, and also delivered higher intensity radiation, similar to that experienced around midday. Researchers then examined the skin for signs of DNA damage and other biological changes.

What they found was surprising.

Looking at the total dose of UV exposure

"You can get the same dose of UV radiation in a short time in the middle of the day or a longer time earlier or later in the day. Our research has shown it is the total dose that is important – it doesn't matter how long it takes to get it," Professor Rachel Neale said.

Importantly, the UV doses used in the study were not strong enough to cause visible redness or sunburn. Yet researchers still detected DNA damage in skin cells.

"People potentially get lulled into a sense of security when the intensity of sunlight is weak and they spend too long outdoors without adequate protection. We have shown that is a problem for skin damage," Professor Neale said.

The findings highlight the difference between what we can see on our skin and what may be happening at a cellular level. Sunburn has long been viewed as a warning sign of damage, but this research shows skin cells can be affected even when there are no obvious visible changes.

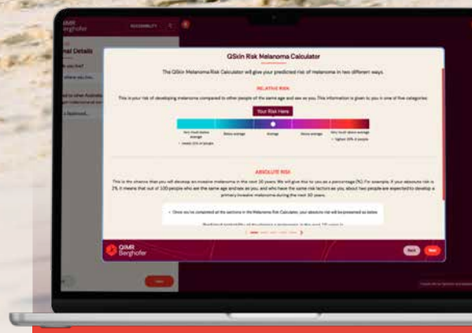
Study co-lead Professor David Whiteman AM says that damage does not mean cancer has formed, but it may be part of a cumulative process that unfolds over many years.

"Our lab results show these small, incremental doses of UV have caused some damage to the DNA in the skin cells, enough for the cells to then respond to the damage. Over months and years, these episodes of incremental, incidental UV exposure will have a cumulative impact on the skin and can lead to mutations that will initiate skin cancer," he said.

The researchers emphasise that avoiding sunlight altogether is not the answer. Sun exposure remains important for health and wellbeing, particularly the production of vitamin D, which helps with bone health, brain development and immune function. Instead, they hope the findings will help refine public health advice and encourage people to think about sun protection as an everyday habit (slip, slop, slap, seek, and slide), rather than something reserved for beach days or long hours outdoors. This emphasises the need to make sunscreen part of the normal daily routine.

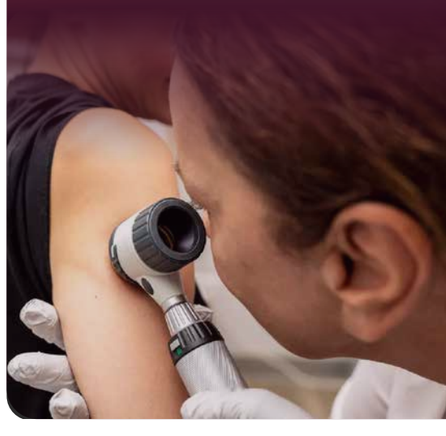
Watch a video about this research.





Melanoma risk calculator

Use QIMR Berghofer's melanoma risk calculator to find out more about your risk.





FEATURE

Simple test has the potential to change cancer care

"This is about giving patients more time. If we can harness the patient's own immune system to eliminate these aggressive cancer cells, we have the opportunity to change outcomes for people facing metastatic disease."

– PROFESSOR SUDHA RAO

BODY LAB

Listen to the podcast with Professor Sudha Rao and Dr John Friend from Kazia Therapeutics *(pictured below).*



If you have Stage IV Triple-Negative Breast Cancer, please speak with your treating clinician about the PaxPlus-ABC trial. Click here for more information.

When someone is diagnosed with an aggressive cancer, every day counts. A new blood test being developed by researchers at QIMR Berghofer could help doctors detect cancer earlier, monitor its progression and better understand how patients are responding to treatment, all without invasive procedures.

Led by Professor Sudha Rao, the team is developing a liquid biopsy test that identifies cancer markers in the blood. A key focus is detecting circulating tumour cell clusters, or 'cancer clusters', which are believed to drive metastasis, the spread of cancer to other organs in the body that's responsible for 90 per cent of cancer-related deaths.

Unlike traditional biopsies, which often require surgery, liquid biopsies offer a faster and less invasive way to track disease progression and treatment response.

"For patients, time is everything. The ability to track cancer progression and treatment response through a simple blood test could fundamentally change how we manage advanced cancers," Professor Rao said.

The technology is being evaluated through the Advanced Breast Cancer-Paxalisib (ABC Pax) clinical trial across Queensland for patients with advanced and triple-negative breast cancer.

Regular blood samples allow researchers to monitor how cancer and immune cells change over time and whether treatments are working.

The trial builds on a breakthrough discovery that revealed how dormant cancer cells evade the immune system before driving metastatic spread. Working with biotechnology company Kazia Therapeutics, researchers found the drug Paxalisib can awaken these hidden cancer cells, enabling the immune system to recognise and attack them. Preclinical studies have shown promising results, including preventing cancer spread.

"This is about giving patients more time. If we can harness the patient's own immune system to eliminate these aggressive cancer cells, we have the opportunity to change outcomes for people facing metastatic disease," Professor Rao said.

The research has been inspired by patients and families affected by cancer, including Daniela Dwyer, whose tissue donations and family, via the Daniela Dwyer Foundation, continue to support the work. Professor Rao's commitment to tackling metastatic cancer has also been shaped by the loss of a close friend and also her father to the disease.

With promising early results and a clinical trial underway, the research marks an important step towards detecting and stopping cancer spread sooner.

OUR PEOPLE

Meet our new Director and CEO: Professor Brandon Wainwright AM



"Together, we are helping drive discoveries that extend far beyond our laboratories, and I look forward to partnering with our donor community as we shape the future of health and medical research."

– PROFESSOR BRANDON WAINWRIGHT AM

Just over a month ago, QIMR Berghofer welcomed Professor Brandon Wainwright AM as its new Director and CEO. Since commencing the role on 7 September 2026, the internationally recognised scientist has begun leading the Institute into its next chapter, bringing with him decades of experience in medical research and a strong commitment to improving health through scientific discovery.

Professor Wainwright joins QIMR Berghofer with an outstanding track record in medical research, innovation and leadership. He is widely recognised for his groundbreaking contributions to genetics and cancer research, particularly in children's brain cancer, the number one cause of cancer deaths in children. His pioneering work on a key signalling pathway in brain tumours has led to new treatment options, including a world-first Phase I/II clinical trial called PaedNeoVax, which will test personalised mRNA vaccines for children with aggressive and treatment-resistant brain cancer. The trial, being rolled out across eight hospitals in five Australian states this year, is in collaboration with the South Australian Health and Medical Research Institute (SAHMRI), the University of Queensland (UQ) and the Waddell lab at QIMR Berghofer.

Before joining the Institute, Professor Wainwright held several senior leadership positions at UQ, including Director of the Institute for Molecular Bioscience and Co-Director of the Children's Brain Cancer Centre.

For Professor Wainwright, what makes QIMR Berghofer truly special is its people and its purpose.

"QIMR Berghofer has a remarkable history and reputation for research that improves human health. What attracted me most to the Institute is its unwavering commitment to changing lives through research," Professor Wainwright said.

"Medical research has the power to transform lives, and I believe some of the most exciting advances are still to come. By fostering collaboration, supporting innovation and investing in great people, we can continue to make a meaningful difference for patients, families and communities."

A key priority for Professor Wainwright is connecting with the many donors and supporters whose generosity helps power research at QIMR Berghofer.

"Every breakthrough is made possible by people who believe in a better future. I am looking forward to meeting many of our donors and supporters, learning what inspires their support, and personally thanking them for the extraordinary contribution they make," Professor Wainwright said.

"Together, we are helping drive discoveries that extend far beyond our laboratories, and I look forward to partnering with our donor community as we shape the future of health and medical research."

FEATURE

Fighting colon cancer through research and prevention



> "This is one of the most exciting breakthroughs we have seen."
>
> **– ASSOCIATE PROFESSOR MICHELLE WYKES**

Listen to the podcast with Associate Professor Michelle Wykes

BODY LAB

Associate Professor Michelle Wykes did not set out to study colon cancer. An immunologist by training, she was originally focused on malaria. However, her research led to an unexpected discovery with potential to treat some of the most difficult cancers.

In 2016, Associate Professor Wykes and her team uncovered an immunological defect shared by quite different diseases: severe malaria, triple-negative breast cancer and micro satellite stable (MSS) colon cancers, which account for around 85 per cent of all colon cancers. The finding suggested that correcting this immune dysfunction could restore the body's ability to fight disease.

Today, Associate Professor Wykes leads the Molecular Immunology Group at QIMR Berghofer and founded biotechnology start-up Fovero Therapeutics to develop new immunotherapies targeting 'cold' cancers.

Scientists often classify cancers as either 'hot' or 'cold'. In 'hot' cancers, immune cells have infiltrated the tumour and are already attempting to attack it. Existing immunotherapies can strengthen that response. In 'cold' cancers, the immune cells capable of destroying cancer remain largely absent from the tumour, making these cancers much harder to treat.

Associate Professor Wykes believes her team's research has identified a way to overcome this challenge.

"Cancer cells are very good at hiding from the immune system but our 'masterswitch' antibodies make the cancers visible again, so the dendritic cells can go back to work and 'organise' multiple cells to kill the cancer."

"These antibodies have shown excellent control of MSS positive colon cancer in models as well as cells from patients," Associate Professor Wykes said.

"This is one of the most exciting breakthroughs we have seen," she said.

Colon cancer, a type of bowel cancer, develops when abnormal cells grow in the lining of the colon or rectum.

It is one of Australia's most common cancers. In 2025, an estimated 14,784 Australians were diagnosed with the disease, with around 72 per cent of people surviving at least five years after diagnosis*. While risk increases with age, rates are rising among younger adults.

In collaboration with Associate Professor Melissa Eastgate from the Royal Brisbane and Women's Hospital, Associate Professor Wykes' research has now reached a critical milestone. After years of preclinical development, the team is preparing for clinical trials.

Source: www.canceraustralia.gov.au/cancer-types/bowel-cancer/bowel-cancer-colorectal-cancer-australia-statistics

+Source: www.health.harvard.edu/diet-and-nutrition/foods-high-in-fiber-boost-your-health-with-fiber-rich-foods 'Eat more fiber-rich foods to foster heart health'

Reducing the risk of colon cancer

While advancing new treatments is a major focus, Associate Professor Wykes is equally passionate about helping people reduce their risk of colon cancer.

One area she believes deserves much greater attention is dietary fibre. Like many Australians, she once believed she was eating a healthy diet.

"It was only when I began to calculate my daily fibre intake, that I realised I was consuming far less than recommended. Women should aim for around 20 to 25 grams of fibre each day and men 30 to 35 grams, yet many people fall short without realising it."

Her family started tracking the fibre content of meals and discovered many healthy foods contain less fibre than expected.

Associate Professor Wykes describes insoluble fibre as a "scrubby brush" that helps move material through the digestive tract. Soluble fibre feeds beneficial bacteria in the gut. Together, they help support a healthy and diverse microbiome, the community of microorganisms that plays an important role in digestive health.

Her advice is simple:

> "List everything you ate yesterday and then work out how much fibre was in each food. It was a real wake-up call for me because I thought I was eating well."
>
> **– ASSOCIATE PROFESSOR MICHELLE WYKES**

As her team works toward first-in-human clinical trials, Associate Professor Wykes remains focused on both sides of the fight against colon cancer: developing better treatments while helping people reduce their risk through practical lifestyle changes.

Which foods are high in fibre?+

Legumes	Grams of fibre
Lima beans, cooked 1 cup	9.2
Green peas, cooked, 1 cup	8.8
French green beans, cooked ½ cup	8.3
Split peas, cooked ½ cup	8.2
Lentils, cooked ½ cup	7.8
Pinto beans, cooked ½ cup	7.7
Black beans, cooked ½ cup	7.5
Chickpeas, cooked ½ cup	6.3
Kidney/White beans, cooked ½ cup	5.7
Soybeans, cooked ½ cup	5.2

Fruit	Grams of fibre
Guava, 1 cup	8.9
Raspberries, 1 cup	8.0
Blackberries, 1 cup	7.6
Boysenberries, 1 cup	7.0
Passion fruit, ¼ cup	6.1
Pear, 1 medium	5.5
Kiwi, 1 cup	5.4
Grapefruit, 1 fruit	5.0
Apple, 1 medium with skin	4.8

Vegetables	Grams of fibre
Artichoke, cooked, 1 cup	9.6
Pumpkin, cooked,1 cup	7.1
Brussels sprouts, cooked, 1 cup	6.4
Sweet potato, cooked, 1 cup	6.3
Broccoli, cooked, 1 cup	5.2
Avocado, ½ cup	5.0
Cauliflower, cooked, 1 cup	4.9
Carrots, cooked, 1 cup	4.8
Kale, cooked, 1 cup	4.7
Spinach, cooked, 1 cup	4.3

Whole grains	Grams of fibre
Cereal, high fibre, unsweetened, ½ cup	14.0
Cereal, shredded wheat, 1 cup	6.2
Popcorn, 3 cups	5.8
Cereal, bran flakes, ¾ cup	5.5

Nuts and seeds	Grams of fibre
Pumpkin seeds, 1 ounce	5.2
Coconut, 1 ounce	4.6
Chia seeds, 1 tablespoon	4.1



Queensland firsts

Pioneering research from Queensland's own world-class medical research institute.

Why skin cancer is costing Queensland more than ever

Queenslanders attend hundreds of thousands of skin cancer appointments and medical procedures each year, and a major new study now reveals the significant impact on individuals, the healthcare system and healthcare costs.

QIMR Berghofer's QSkin Study comprises the world's largest skin cancer cohort, following more than 40,000 Queenslanders to track skin cancer service use and costs.

During the eight-year study period, participants collectively received more than 245,000 skin cancer-related services. Researchers estimate this equates to around 1.49 million appointments and procedures for skin cancer every year across Queensland.

The study found 71 per cent of adults used a skin cancer service of some kind, half had at least one skin biopsy, more than a third had a non-melanoma skin cancer removed and five per cent underwent surgery for melanoma removal.

"Queensland is the skin cancer capital of the world, and this study shows we are paying a high price for the title, literally, with our personal and government spending," Dr Daniel Lindsay, lead author from Cancer Council Queensland said.

"The costs to the Government for skin cancer treatment were estimated to be over $50 million for this study population alone - suggesting the real cost across the Queensland population is well into the hundreds of millions," Dr Lindsay said.

Professor David Whiteman AM from QIMR Berghofer said the numbers represent real people facing diagnoses, treatment and uncertainty.

"The great tragedy is that skin cancer is largely a preventable disease. We know how to prevent these cancers from occurring and we also know that skin cancer prevention is highly cost effective."

For Australians who love the outdoors, the findings are a powerful reminder that sun safety remains one of the simplest and most effective investments we can make in our future health.

> "The great tragedy is that skin cancer is largely a preventable disease."
>
> – PROFESSOR DAVID WHITEMAN AM

Project NextGen

In July, the Queensland Government announced $3 million in funding for QIMR Berghofer through its flagship Sovereign Industry Development Fund.

This investment will support the Institute's work to make life-changing cell and gene therapies more accessible and affordable for patients.

QIMR Berghofer's Council Chair Professor Arun Sharma AM welcomed Deputy Premier and Minister for State Development, Infrastructure and Planning Jarrod Bleijie to the Institute for the announcement.

The funding will support stage one of QIMR Berghofer's Project NextGen, establishing a viral vector manufacturing suite and associated capability upgrades to modernise, futureproof and expand Q-Gen, the Institute's TGA-licensed advanced therapy manufacturing facility. As one of the largest and most advanced cell therapy manufacturing facilities in Australia, Q-Gen plays a critical role in translating cutting-edge research into life-changing treatments.

Viral vectors deliver genetic material into cells, enabling the development of new therapies and treatments. The project will strengthen Australia's capacity to develop and manufacture next-generation cell and gene therapies locally, reducing reliance on overseas supply chains for advanced therapies. It will also reinforce Queensland's and QIMR Berghofer's position as a leading hub for advanced therapeutics innovation and manufacturing.

For more information, contact: growpartnerships@qimrb.edu.au

Mozzie SHIELDS engages Queensland communities in mosquito surveillance

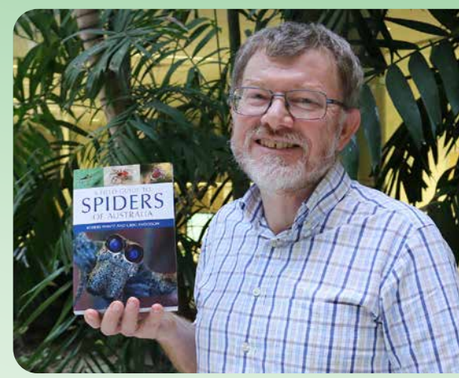
Mozzie SHIELDS is bringing communities together to help shape the future of mosquito and mosquito-borne virus surveillance across Queensland. Community co-design workshops held in Brisbane in May and Townsville in July brought together residents, researchers and public health partners to explore how citizen science can strengthen research into early detection of invasive dangerous mosquitoes and emerging viruses.

Sign-up to attend a future workshop.



Led by Associate Professor Gordana Rasic, who heads the Mosquito Genomics Laboratory at QIMR Berghofer, the project is using two community-powered surveillance tools: the Zika Mozzie Seeker egg trap network to track invasive mosquitoes, and the Mozzie Virus Trap network to trace viruses circulating in local mosquito populations.

Insights from both workshops will help inform the design of a new surveillance model, with backyards across Queensland playing a critical role in protecting communities from mosquito-borne diseases. Additional workshops are planned throughout 2026 and 2027.



Former Deputy Director discovers remarkable ballista spider in Far North Queensland

Professor Greg Anderson, former Deputy Director of QIMR Berghofer, was the first to make detailed observations on the highly unusual prey-capture strategy of the ballista spider, a little-known species from Far North Queensland.

Named after the ancient Roman siege weapon, the small spider uses an ingenious cone-shaped web trap to capture its only known prey: the aggressive green tree ant. When an ant bites the cone, the web's trigger mechanism is activated, launching the ant up to 30 centimetres into the spider's main web where the prey is captured and consumed.

In addition to medical research, Professor Anderson is a respected spider taxonomist and photographer, whose expertise contributed to the discovery and documentation of this extraordinary species.

Click here for more information.





Decoding blood cancer, one cell at a time

Blood cancers can evolve unpredictably, with cancer cells often behaving differently from one another. This is particularly true for myeloproliferative neoplasms (MPNs), a group of rare, incurable blood cancers caused by mutations in blood-forming stem cells.

While many patients live with these chronic diseases for years, unfortunately some people develop more aggressive conditions such as myelofibrosis or acute myeloid leukaemia (AML).

Understanding how these cancers develop and change over time is critical to improving outcomes. Dr Jasmin Straube, a bioinformatician at QIMR Berghofer, is tackling this challenge by studying blood cancer at its most fundamental level: one cell at a time.

"Not all cancer cells are the same. Even within a single patient, cancer cells can carry different combinations of mutations and behave very differently," Dr Straube said.

Blood formation is normally regulated by haematopoietic stem cells in the bone marrow, which continuously produce new blood cells while self-renewing. In MPNs, mutations disrupt this balance, causing excessive blood cell production. As additional mutations accumulate, cancer cell populations become more complex. Understanding how these mutations influence cell behaviour is key to developing more effective, personalised treatments.

To address this, QIMR Berghofer researchers, and collaborators from the Royal Brisbane and Women's Hospital, Royal Adelaide Hospital and Monash University/Alfred Health, developed LOTR-Seq, a technology that combines single-cell gene expression analysis with detailed genetic profiling.

LOTR-Seq can simultaneously examine 30 genes linked to MPN and AML, helping researchers distinguish healthy cells from cancer cells and determine why some mutated cells drive disease progression while others do not.

"LOTR-Seq gives us an unprecedented view of how blood cancers develop, respond to treatment and evolve over time," Dr Straube said.

"Being able to track cancer-driving mutations over time helps us understand how blood cancers change during treatment, why resistance emerges, and where new opportunities for personalised therapies may lie."

The team is also investigating the importance of a cancer cell's 'neighbourhood'. Cancer cells can reshape the bone marrow environment, creating niches that help them survive and drive treatment resistance and disease progression.



> "Being able to track cancer-driving mutations over time helps us understand how blood cancers change during treatment, why resistance emerges, and where new opportunities for personalised therapies may lie."
>
> – DR JASMIN STRAUBE

By revealing both the genetic complexity of blood cancer and how cancer cells interact with their environment, this research could identify new treatment targets, improve disease monitoring and deliver better outcomes for people with MPNs and related blood cancers.

OUR PEOPLE Q&A

Introducing General Manager, Scientific Services: Dr Nigel Waterhouse

From cancer researcher to Scientific Services leader, Dr Nigel Waterhouse has spent his career advancing medical research from different angles. Today, he helps researchers access the technology, expertise and infrastructure essential for turning discoveries into breakthroughs.

Q You began your career as a cancer researcher. What inspired you to move into Scientific Services?

A It was less about inspiration and more about opportunity. During my postdoctoral research in San Diego, I developed a passion for microscopy. We pioneered techniques that allowed us to watch proteins move around cells in real time, helping us better understand how cancer cells die. Back in Australia, we used the same technology to uncover how immune cells kill cancer cells, and I became a go-to person for time-lapse microscopy.

When research funding became increasingly uncertain and an opportunity arose to lead the microscopy facility at QIMR Berghofer, I took a difficult but rewarding step. It allowed me to use my skills to support many researchers instead of focusing on a single research program.

Q What skills from your research career have proven most valuable?

A Empathy. I understand how challenging it is to secure funding while delivering innovative results. My experience motivates me to reduce barriers for researchers and provide the services they need to make discoveries.

Q What does excellent scientific support look like?

A Excellence means constantly adapting to new technology while making that change feel seamless. Facilities must evolve, embrace innovation and collaborate across disciplines so researchers can focus on answering important scientific questions.

Q How does Scientific Services contribute to research that benefits people?

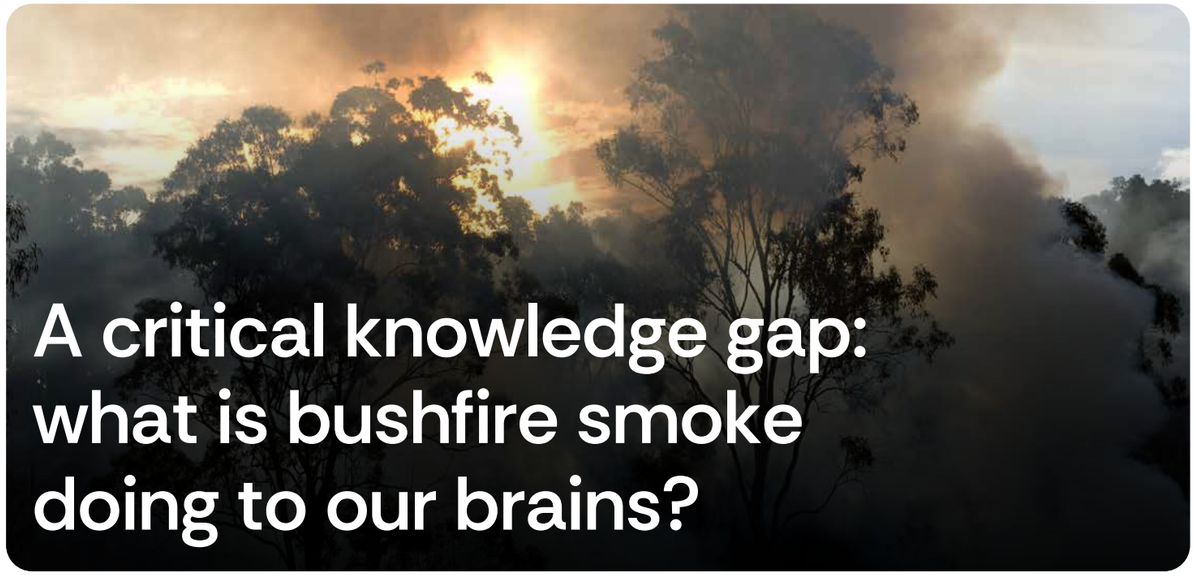
A I believe all research is translational. Major breakthroughs such as insulin therapies, HPV vaccines and targeted cancer treatments were built on decades of foundational discovery. Scientific Services supports every stage of that journey, from basic laboratory science through to advanced technologies and analytical capabilities that ultimately help improve patient outcomes. Every piece of the research pipeline plays a role in turning discoveries into real-world impact.

Q What excites you most about the future of QIMR Berghofer?

A The people. Every researcher, scientist and support professional brings enormous passion and expertise. Their commitment to improving health outcomes is what makes this institute exceptional.

Q What is the key to accelerating research impact?

A Sustainable funding. We already have world-class researchers, ideas and technology. Long-term investment would give scientists the stability to focus on discovery, innovation and delivering the next generation of treatments for patients.



A critical knowledge gap: what is bushfire smoke doing to our brains?

Every year, firefighters and volunteers spend days, and sometimes weeks on the frontline, working in extreme conditions and exposed to bushfire smoke in order to protect lives and property.

We know bushfire smoke can affect the lungs and heart, but what if it is also impacting the brain?

That is the question at the centre of a new Australian-first study being led by QIMR Berghofer. The Rural Firefighter Investigation of Risk and Exposure (R-FIRE): Brain Health study will investigate whether repeated exposure to bushfire smoke and frontline firefighting conditions could have long-term consequences for brain health, including dementia risk.

Study lead and head of QIMR Berghofer's Neurogenetics and Dementia Research Group, Associate Professor Michelle Lupton, says scientists still have much to learn about the effects of bushfire smoke on the brain.

"We know that people with high exposure to bushfire smoke can experience impacts on their lungs and general health, but we really don't yet understand the long-term effects on the brain," Associate Professor Lupton said.



> "There hasn't been much research on how bushfire smoke affects brain health, and we need to understand that to better protect people in the future,"
>
> – DR JODI THOMAS

Bushfire smoke is largely made up of tiny particles of ash and other toxic materials. The tiniest of these particles are referred to as PM2.5, too small to see without a powerful microscope.

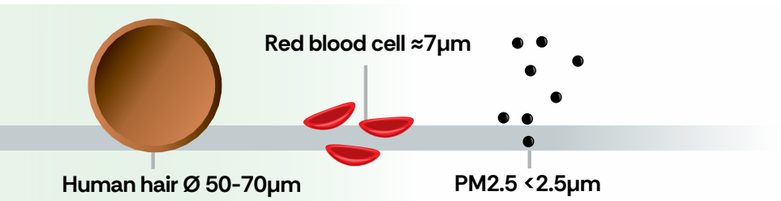
"PM2.5 can enter our bloodstream and even the brain, and we want to investigate if this could increase inflammation and our future risk of dementia."

To help answer these questions, researchers are calling on firefighters to take part in a confidential online survey about their firefighting experiences, smoke exposure, use of protective equipment and overall health. The information will provide researchers with a detailed picture of what firefighters have encountered over the course of their service.

Study co-lead Dr Jodi Thomas says the project aims to address a significant gap in current knowledge.

"We're asking firefighters to share information about their exposure and health so we can explore whether bushfire smoke has any impact on their risk of dementia," Dr Thomas said.

While the study focuses on firefighters, its findings could have broader significance for all Australians to protect their brain health and by building a better understanding of how smoke exposure affects long-term brain health. Researchers hope to inform prevention strategies, health advice and support services for firefighters.



For more information, visit www.qimrb.edu.au/studies/r-fire

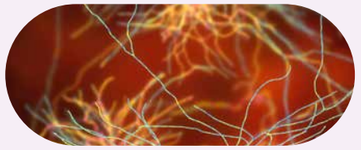
Clinical trials and research studies

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.

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 Epilepsy Study

The Genetics of Epilepsy (GenEp) study seeks to uncover the genetic reasons why anti-seizure medications help some people, why others continue to have seizures, and why certain individuals experience side effects such as fatigue or brain fog. Understanding these differences will guide improved, more personalised epilepsy treatment.

Adults with epilepsy or recurrent seizures are invited to participate.

www.geneticsofepilepsy.org.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).

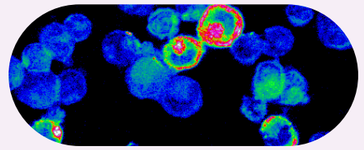
QIMR Berghofer's Professor Nick Martin and his team are aiming to recruit more than 4,000 Australians into the study, which involves analysing DNA from saliva samples.

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



Immunotherapy for South-Asian Individuals

Viruses such as Epstein–Barr virus are extremely common and generally don't cause illness; however, in immune-suppressed patients (e.g. transplant recipients), they can cause significant health problems.

Much of our understanding of immune responses against these viruses comes from studies involving people of European ancestry. People of South-Asian ancestry remain under-represented in immunological research, so important information needed to develop immunotherapies with broad effectiveness may be missing. If you are of South-Asian descent, based in Brisbane and willing to donate blood for a study led by Professor Rajiv Khanna, find out more details via:

www.qimrb.edu.au/studies/immunotherapy-south-asian

For more information about all current trials and studies, please visit www.qimrb.edu.au/studies

SUPPORTING RESEARCH

Three researchers, three critical health challenges, one foundation making a difference

The Donald and Joan Wilson Foundation has proudly supported QIMR Berghofer since 2016, contributing more than $420,000 to advance the work of emerging and established researchers across the Institute.

This year marks a significant milestone in the Foundation's longstanding partnership with QIMR Berghofer, with its largest gift to date, a generous $120,000 donation to support three outstanding research projects tackling some of today's most pressing health challenges from cancer to brain health.

Congratulations to this year's funding recipients:



Children's brain development

Dr Kartik Iyer *(pictured above)* is developing innovative tools to better understand children's brain development and mental health. His research uses sleep-based brain activity to identify early signs of developmental challenges, with the long-term goal of enabling earlier intervention and more personalised care. The Foundation's support is also helping to grow the next generation of researchers while expanding international collaborations that are bringing this technology closer to clinical use.

Parkinson's disease

Dr Santiago Diaz Torres *(pictured below)* is investigating how inherited genetic factors contribute to Parkinson's disease. By combining cutting-edge genetic technologies with detailed mapping of brain tissue, his team hopes to uncover why damaging inflammation develops in vulnerable parts of the brain. The findings could identify new targets for treatments designed to slow or even prevent the progression of this devastating neurological condition.



Ovarian cancer

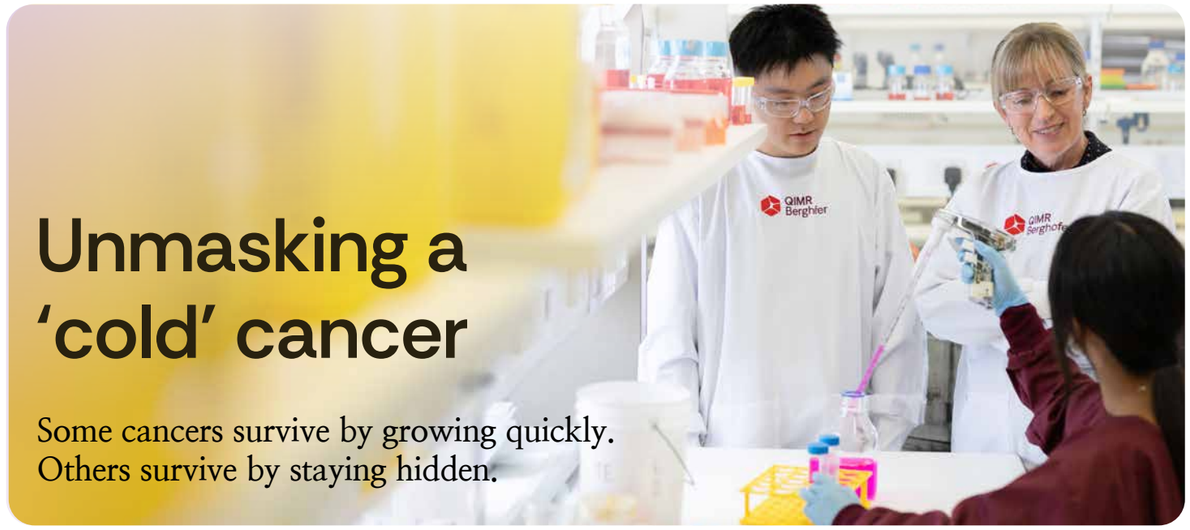
Dr Olga Kondrashova *(pictured below)* is leading research to improve outcomes for women with high-grade serous ovarian cancer. Her project will explore why some patients experience long-lasting benefits from targeted PARP inhibitor therapies (targeted cancer therapies) while others quickly develop treatment resistance. Using an innovative new research platform and advanced proteomics technology, her team aims to identify biomarkers that could help doctors personalise treatment and improve survival.

These three projects exemplify the pioneering research taking place at QIMR Berghofer and demonstrate how philanthropy fuels discoveries with the potential to change lives.

We are deeply grateful to the Donald and Joan Wilson Foundation for its enduring commitment to medical research and continued investment in talented researchers working to deliver better health outcomes for future generations.



With thanks to the The Donald and Joan Wilson Foundation



Unmasking a 'cold' cancer

Some cancers survive by growing quickly. Others survive by staying hidden.

> "If we have something that we think is going to be a therapeutic that's going to help women, that's what we all work for."
>
> – PROFESSOR STACEY EDWARDS

Your gift today can help support groundbreaking research, like the work featured in this article, and bring us closer to better treatments for people facing drug-resistant cancer.

- Donate using the enclosed form
- Visit donate.qimrb.edu.au
- Or call our Supporter Line: 1800 993 000

Watch a video about this research.



Hormone receptor-positive (HR+) breast cancer, the most common form of the disease, accounts for around 70 per cent of breast cancer diagnoses. While many patients respond well to treatment initially, the cancer can sometimes return years later, resistant to the therapies that once kept it under control.

One reason is that HR+ breast cancer is what scientists call an 'immune cold' cancer.

"It means that it's hidden from the immune system," QIMR Berghofer Professor Stacey Edwards said.

"Our immune system is our best protection against cancer, but cancers are smart and they find ways to hide themselves so they can keep growing."

When hidden cancer cells escape detection, they can survive treatment and remain dormant for years. In some patients, these cells later re-emerge as drug-resistant tumours.

"When the cancer comes back, they're now resistant to all those treatments that were working before and there's no current treatments that work for them. That's where RNA comes in," Professor Edwards said.

Together, Professors Stacey Edwards and Juliet French and their research teams are investigating how RNA could help reveal these hidden cancers.

While DNA is often described as the body's instruction manual, RNA acts more like a working copy.

"When the cell needs to get a job done, the DNA unwinds. It makes a small RNA copy of those instructions," Professor Edwards explained.

The RNA then carries those instructions throughout the cell, helping control which genes are switched on and off.

After years of collaborative research, the teams identified a previously unknown RNA molecule found only in HR+ breast cancer cells. Their studies suggest the molecule does more than attack cancer cells directly. It may also help expose tumours to the immune system by switching on pathways that cancer has silenced to remain hidden.

In effect, the research could help turn a 'cold' cancer into one the immune system can finally recognise and fight.

The discovery remains in the laboratory stage, but researchers are hopeful it could one day lead to new treatment options for women facing recurrent, drug-resistant breast cancer. However, continued progress depends on funding.

"The reality is at the moment, this work is not funded to take it to the next level. If we have something that we think is going to be a therapeutic that's going to help women, that's what we all work for," Professor Edwards said.

Thank you

Thank you to the incredible community of supporters who power life-saving research at QIMR Berghofer. Your generosity makes discoveries possible.



Tiny creatures draw big interest during National Science Week

More than 120 community members, science enthusiasts and researchers came together at QIMR Berghofer on 20 August for Tiny Creatures, Global Impact., a National Science Week public lecture highlighting how some of the world's smallest organisms can have far-reaching effects on human health.

Guests heard from leading tropical health researchers who develop mosquito control strategies, and research emerging infectious diseases, neglected tropical diseases and new approaches to combating scabies and drug resistance.

The event also featured an interactive foyer display, including a parasite exhibition, giant 3D mosquito and hanging schistosome worm, giving visitors a closer look at the organisms at the centre of groundbreaking research.

The evening concluded with lively discussions over drinks and canapes, strengthening connections between researchers and the community.



Professor Grant A. Ramm leading a panel discussion with (left to right) Dr Brian Johnson, Dr Deepani Fernando and Dr Suzy Ossipow at the National Science Week public lecture.

Australians answer the call on National Medical Research Giving Day



On 9 September, Australians united in support of the inaugural national Medical Research Giving Day, highlighting the powerful role communities play in advancing medical research.

Together, we raised an incredible $191,963, which QIMR Berghofer has increased to $200,000 to fund four research grants for early- and mid-career researchers.

QIMR Berghofer joined more than 30 of the country's leading medical research institutes in a national effort to drive discoveries that will improve future health outcomes.

The day also highlighted the challenges facing the sector as researchers work to tackle some of the world's biggest health issues. It served as a reminder that not all heroes wear lab coats, with supporters across the country helping fund the research that could lead to the next breakthrough in prevention, diagnosis and treatment.

Every gift made will help researchers pursue new ideas, deepen our understanding of disease and accelerate progress towards better health outcomes for all Australians. As all discoveries begin with research, donors are helping turn promising ideas into lifesaving discoveries.

A big thank you to Team QIMR Berghofer

A huge thank you to everyone who joined Team QIMR Berghofer for the 2026 Bridge to Brisbane on Sunday 13 September. Staff, researchers, friends and supporters walked, wheeled and ran to raise funds for life-saving medical research. Your enthusiasm, generosity and thousands of collective steps will help drive the discoveries that improve health and change lives.







Team QIMR Berghofer were invited to the Institute for refreshments and a chance to celebrate together.

Fundraise for medical research

Click here 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



Tropical Shirt Day brings colour and support for tropical health research

QIMR Berghofer came alive with colour and creativity as staff, supporters and friends embraced Tropical Shirt Day on 21 August.

From bold hibiscus prints to eye-catching palm leaf patterns, the Institute was transformed into a sea of bright colours, all in support of tropical health research.

Alongside the vibrant shirts, participants took part in fundraising activities that brought the QIMR Berghofer community together in support of the Centre for Tropical Health and Emerging Diseases.

While the day was filled with fun, it also highlighted the impact of diseases that disproportionately affect people living in tropical and vulnerable communities. Funds raised will help support researchers tackle these significant global health challenges.

Every shirt worn, donation made and fundraising page shared contributed to research with the potential to improve and save lives.

A heartfelt thank you to everyone who got involved and helped make Tropical Shirt Day such a colourful success.



QIMR Berghofer

Breakthroughs happen when passionate researchers, partners, and supporters unite behind a shared purpose.

By backing QIMR Berghofer, you help drive the discoveries that change lives and bring us closer to a future where devastating diseases have better answers.

Please support life-saving research today

- Donate using the enclosed form
- Visit donate.qimrb.edu.au
- Scan the QR code
- Call our Supporter Line on 1800 993 000

www.qimrb.edu.au



Click here to help fund the next breakthrough