Nature versus nurture? Scientists have identified genes responsible for four mental illnesses

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Storing excess iron in our bodies points towards haemochromatosis

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The answer to triple-negative breast cancer treatment is in the blood

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Every day our scientists are striving to improve the future of health for all Australians, as they research and try to find cures for some of the most dangerous diseases of our time. In this edition, we explore triple-negative breast cancer, haemochromatosis, melanoma and the mosquito that spreads the Zika virus.

Our feature story delves further into research findings on the genetics of mental health on page 4. There are clear links appearing – certain genes are making people vulnerable to experiencing a mental illness during their lifetime. Professor Eske Derks is leading this research, and we also learn more about her in this month’s Q&A feature on page 16.

Winter has descended on Australians once more. Many of us know someone who has succumbed to the flu – or you may have been struck down with the flu yourself! In this edition of LIFELAB, we investigate the flu and its vaccine, including what the vaccine contains, what it protects us from and why we need to be immunised each year. See page 12 for the full rundown.
Since our last LIFELAB magazine, we held our first ever Giving Day. More than 80 of our scientists spent time away from the lab to speak with you on the phone – to talk about their research and ask for your support. It was an inspiring day in support of biomedical research, good health and the joy of giving. We thank you for making the day such a huge success, with a full report on page 15.

We are always happy to host you on a tour of the Institute, discuss your fundraising ideas and answer any questions you may have about supporting a particular area of research.

Professor Frank Gannon
Director and CEO

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Cover image:
Nature, nurture or both? Artist impression of gene variants highlighted in the DNA double helix.

Artist: Madeleine Flynn
The nature versus nurture debate is perhaps the oldest argument in the history of psychology. Nature is what we think of as genetic inheritance and other biological factors. Nurture is understood as the external environment and situations you are exposed to throughout your lifetime, such as stressful and traumatic life experiences.

At QIMR Berghofer, we study the effects of nature, nurture and the interaction between the two, on human health. But our most recent mental health study specifically looked at nature – identifying genes linked to four important mental conditions: schizophrenia, bipolar disorder, depression and attention deficit hyperactivity disorder (ADHD).

‘In this study we are really homing in on the biological or genetic causes of these four mental illnesses,’ Professor Eske Derks, Head of QIMR Berghofer’s Translational Neurogenomics Group, said.

Scientists already know that some people are more vulnerable to mental illnesses because of the genetic make-up they have inherited. The twin register and the QTwin Study, conducted by QIMR Berghofer’s Professor Nick Martin during the 1980s and 1990s, revealed this.

Now, in this study, Professor Derks set out to build on this foundation of research and find out which specific genes play a role.

‘We have been able to pinpoint a set of 311 genes – 70 were previously unknown – and looked at how much their level of activity contributed to mental health symptoms,’ she said.

‘Specifically, we identified 275 genes whose activity levels contribute to the risk of schizophrenia, 13 genes whose activity is associated with bipolar disorder, 31 genes involved in depression and 12 for ADHD. We can now conduct follow-up tests on those particular genes.’

This study has really narrowed in on the specific genes that contribute to these four mental disorders, and the behaviour of these genes.
‘It’s not enough that we know that “gene X” is involved in a disease, we need to know exactly what it is doing. Is it too active or not active enough? And then how do we change its level of activity to prevent or even stop the symptoms?’ she said.

‘From here, we were able to identify 275 genes whose activity levels contribute to the risk of schizophrenia,’ she said.

The next step in this research will involve exploring whether any existing drug compounds can effectively control the activity levels of these identified genes.

‘This study provides more evidence about the genetic basis of these diseases. By better understanding the biology of the genes, we can now turn our attention to finding the best medicines to manage them.

‘It’s why we continue to do what we do – discover why diseases behave the way they do, and learn what stops them in their tracks,’ she said.

Coming back to nature and nurture, Professor Derks conducts research into both principles, but this specific study focuses on nature and genetic inheritance.

‘This study has again confirmed that genetics influence the possibility of developing these mental health disorders.

‘This adds weight to the need for more genetic research to better understand why some people are more vulnerable to developing mental illness,’ she said.

Professor Derks led the study in collaboration with scientists from Vanderbilt University and the University of Amsterdam.

The researchers examined data from tens of thousands of people that were collected from four separate studies – for schizophrenia, bipolar disorder, depression and ADHD – and compared it to information from hundreds of thousands of controls who were classified as not having a mental illness.

‘For schizophrenia, for example, we looked at the genetic data from about 40 000 patients and compared it to data from about 65 000 control samples from people without the disorder.

‘We have been able to pinpoint a set of 311 genes – 70 were previously unknown – and looked at how much their level of activity contributed to mental health symptoms.’

- Professor Eske Derks

Professor Eske Derks
Head of the Translational Neurogenomics Group at QIMR Berghofer
Haemochromatosis affects around 1 in 200 Australians, making it our country’s most common genetic disorder. The problem is it causes a build-up of iron in the body and if left untreated will cause long-term toxic effects. Extreme cases cause liver disease, organ failure or cancer.

Dr David Frazer, Head of our new Molecular Nutrition laboratory, is passionate about iron and improving the health of people with iron-related chronic diseases.

‘So many people have haemochromatosis! The more you know about it, you mention it to people and they either have it or know someone who has it,’ Dr Frazer said.

Typically, males have higher levels of iron, because they generally eat more iron in their diet and don’t experience the periodic loss of blood that women do. Serum ferritin is a marker that indicates the amount of iron stores in the body. A serum ferritin measure of 25 to 320 is a normal range for an adult male.

One of the unexpected symptoms of haemochromatosis is early-onset arthritis. Dr Frazer recalls talking to another dad at the school gate as they waited to pick-up their children.

‘He was this fit active fellow in his 30s, and he had to go into surgery for a hip replacement. He’d developed arthritis in his pelvis, purely because of haemochromatosis. And his shoulder was starting to play up on him too.

‘He gives blood now, but the damage has been done. Once you’ve got that arthritis in place, you can’t reverse it,’ he said.

Haemochromatosis – storing excess iron in our bodies is a problem, but there’s an easy fix
Giving blood regularly is the best-known treatment for haemochromatosis.

‘About 65–70 per cent of the iron in your body is in the blood, in the red blood cells. If you have excess iron in your body, the quick and easy fix is to remove blood – by giving a regular blood donation. Your body will then produce more red blood cells, so making time to give blood will need to be part of your life.

‘The good thing about this is it’s very easy to treat haemochromatosis. You can integrate giving blood into your life, and also help save other people’s lives in the process,’ he said.

Dr Frazer’s team are conducting research to identify a better indicator for measuring the level of iron stored in the body to help when people give blood.

When you give blood, a pinprick of your blood is collected and haemoglobin level is checked.

The problem is that haemoglobin doesn’t measure your level of iron stores at all.

‘Haemoglobin won’t show any recognisable changes if you’re high in iron. But on the other hand, when your haemoglobin levels start to drop because of iron deficiency, your iron stores are already significantly depleted.

‘We’re looking at developing a better marker – one that can be measured and recorded at the point-of-care, and will instantly show the level of a person’s iron stores at the time of giving blood,’ he said.

In addition, Dr Frazer and his team are working to understand how iron levels are regulated in hemochromatosis.

‘There is a molecule called hepcidin and it regulates how much iron you absorb into your body.

‘About 16 years ago, I was part of the original QIMR Berghofer team who were the first in the world to show that people with haemochromatosis had low levels of hepcidin.

‘Now, we’re trying to understand this molecule better – we’re trying to figure out why hepcidin levels are low in patients with haemochromatosis. This will give us a better idea of how to increase the levels to where they need to be,’ he said.

Dr Frazer’s hope for the future is that all iron-related problems – haemochromatosis and excess iron, as well as iron deficiency – are taken more seriously.

‘There was a cost analysis done quite recently that showed it would be economically viable to do a haemochromatosis gene test at birth. Hopefully it will one day be implemented into Australia’s health care system.’

Dr Frazer highly recommends visiting your GP and getting your iron levels checked, for both excess iron and iron deficiency.
The answer to triple-negative breast cancer treatment is in the blood

A simple blood test can now determine if a woman with triple-negative breast cancer will respond to the chemotherapy drug, doxorubicin.

QIMR Berghofer researchers conducted a study that found doxorubicin failed to kill breast cancer cells in women with high levels of a protein, known as prion, in their blood.

The Tumour Microenvironment laboratory discovered that prion binds to doxorubicin, which prevents the drug from invading and fighting cancer cells.

The lab’s Head, Associate Professor Andreas Möller, said drug resistance was a serious problem for cancer patients.

‘The ability to know if a patient will respond to a treatment is a huge advantage in fighting the disease,’ Associate Professor Möller said.

The study examined the analysis of blood samples of about 30 triple-negative breast cancer patients.

This comparison yielded interesting results as it determined that women with high levels of prion did better if they were prescribed the alternate chemotherapy, epirubicin.

Associate Professor Adrian Wiegmans, who also worked on the three-year study, explained the study outcomes.

‘We were able to correlate the patient history of what chemotherapy drug they were given with the prion levels in their blood,’ Associate Professor Wiegmans said.

‘If they were treated with doxorubicin and had high levels of prion, they didn’t do as well,’ he said.

Associate Professor Möller said the abundance of prion protein did not negate the effectiveness of epirubicin, so doctors could instead choose that as the first treatment option.

‘If you can prevent someone receiving therapy that won’t work, that’s a really good thing,’ Associate Professor Möller said.

The study, funded by the National Health and Medical Research Council and supported by the Brisbane Breast Bank, has wider implications for triple-negative breast cancer patients because chemotherapy resistance drives the recurrence and further spread of cancer.

‘We hope that in the future, triple-negative breast cancer patients will be screened for this protein when they are diagnosed to help guide what treatment should be offered,’ he said.

Triple-negative breast cancer is particularly aggressive and accounts for approximately 15 per cent of all cases of breast cancer.
QIMR Berghofer is honoured to have a special supporter and fundraiser in David Hassum.

Our regular readers may remember reading about David and his beloved partner Veronica ‘Vee’ Best in our last LIFELAB edition.

David tragically lost Vee to triple-negative breast cancer in January 2019.

Vee remained positive throughout her cancer battle and appeared to be winning the battle in September 2018. However the cancer metastasized and returned in late 2018.

Unfortunately, relapse is not uncommon.

‘Women who relapse with triple-negative breast cancer have a terrible prognosis of less than six months survival, so the ability to predict which patients will gain from treatment is the goal for all doctors,’ Associate Professor Wiegmans said.

In memory of Vee’s adventurous spirit, David has embarked on a solo ride to conquer a 1800 km northern stretch of the famous Great Divide Mountain Bike Route (GDMBR) in North America.

David is currently in the middle of his charity ride. The ride started in Banff, Canada and will finish in Jackson Hole, Wyoming, USA – the same distance as riding from Cairns to Byron Bay!

David’s goal is to raise $180 000 — $100 for every kilometre he rides. He is fundraising for triple-negative breast cancer research at QIMR Berghofer. Associate Professors Andreas Möller and Michele Teng will be the beneficiaries, and the support will allow them to continue their vital research on triple-negative breast cancer.
**RESEARCH HIGHLIGHT**

**Dengue mosquito is Queensland’s biggest Zika threat**

Researchers from QIMR Berghofer’s Mosquito Control Laboratory have made some startling new discoveries about the ability of the dengue mosquito *Aedes aegypti* to spread the deadly Zika virus and breed all year round. Now more than ever, everyone has an important part to play in helping to prevent the spread of mosquito-borne diseases and outsmart one of nature’s peskiest survivors.

*Aedes aegypti*, first identified in 1757, has a long history of inflicting harm on human populations. Taking its generic name from the Ancient Greek aedes, meaning ‘unpleasant’, these annoying insects have been the culprit of outbreaks of yellow fever, chikungunya, the deadly Zika virus outbreak in Brazil in 2016 and dengue fever closer to home in Queensland.

A research collaboration between QIMR Berghofer and Queensland University of Technology, has found the *Aedes aegypti* mosquito is the species that poses the greatest danger of spreading the Zika virus in Australia.

The mosquito was highly susceptible to infection with Zika and the virus readily spread through the mosquitoes and infected their salivary glands and saliva. The researchers also found that the virus infects the ovaries of the female mosquito, which may lead to the virus being transmitted to the mosquitoes’ offspring.

The researchers looked at two mosquito species – the dengue mosquito (*Aedes aegypti*) and Asian Tiger mosquito (*Aedes albopictus*) – to test a strain of Zika that caused the 2016 epidemic in Brazil. The infection of pregnant women during that outbreak led to thousands of babies being born with microcephaly, a condition in which a baby’s head is significantly smaller than expected, often due to abnormal brain development.

Dr Leon Hugo, from QIMR Berghofer’s Mosquito Control Laboratory, said the mosquitoes used in the study were hatched from eggs collected from colonies in Innisfail and Hammond Island, in the Torres Strait, and reared at the Institute’s state-of-the-art mosquito and pathogen containment insectary in Brisbane.

‘Our high biosecurity insectary is unique in the southern hemisphere for its size, capacity and expertise, allowing us to work safely with dangerous pathogens like Zika,’ Dr Hugo said.
In an alarming finding, the study showed 50–60 per cent of the dengue mosquitoes could effectively transmit the Zika virus 14 days after becoming infected, compared with only 10 per cent of the Asian Tiger mosquitoes, confirming the potential threat of Zika is on our doorstep.

Another research collaboration by Associate Professor Greg Devine of QIMR Berghofer, and researchers at the CSIRO, has revealed unsealed and damaged water tanks could provide the perfect year-round breeding environment for *Aedes aegypti* mosquitoes and other exotic species. This study proves that mosquitoes could breed and expose millions of Australians to the risk of mosquito-borne infectious diseases, like dengue fever, all year round.

While previous studies have shown winter conditions in Brisbane were not conducive for mosquitoes to breed, researchers in this latest study measured mosquito survival and development during simulated Brisbane winter conditions (using rainwater tanks and buckets) and found 70 per cent of mosquito larvae survived to adulthood in water tanks, and 50 per cent in buckets.

This finding will become even more important as our winters become warmer due to climate change.

The key message from researchers is everyone has an important part to play in backyard biosecurity all year-round. Check water tanks are compliant, sealed and free from modifications that allow mosquitoes in and out, and remove buckets or water containers that provide perfect breeding environments.

### How to mosquito-proof your tank:
- Check there are sieves at the entrance and overflow and there are no gaps
- Check for cracks in plastic tanks
- Make sure the sieves aren’t rusting and there are no holes
- Mosquitoes feed on rotten leaves so keep gutters leaf free
- Check that first flush devices are draining

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**Dr Leon Hugo**  
Senior Research Officer of the Mosquito Control Laboratory at QIMR Berghofer

**Associate Professor Greg Devine**  
Head of the Mosquito Control Laboratory at QIMR Berghofer
What is the flu?
The flu is the common, household name for the influenza virus and is caused by three closely related viruses. The flu season extends through the autumn and winter periods.

How is the flu spread and what is the incubation period?
The influenza viruses are spread when an infected person coughs and sneezes, sending the particles into the environment. The viral particles are then inhaled by an uninfected person, which then starts the infection cycle. The incubation period for influenza is 1–4 days.

What are the symptoms?
The symptoms of the flu consist of high fever, severe fatigue, sore throat, headache, dry non-productive cough, body aches, rigors and nausea. Most people who are infected with influenza are generally bed-ridden for several days. Influenza commonly infects the lungs, however it can cause disease of the heart, brain and nervous system. Bacterial pneumonia can develop after influenza infection and can require antibiotics, often in hospital.

Influenza is most dangerous for the young, pregnant women, the elderly, and those with co-existing medical conditions, such as lung diseases, diabetes and cancer. In 2017, 1255 people died of influenza in Australia – most of these people were either elderly or had co-existing medical problems.

What is the flu vaccine and what are the side effects?
Influenza viruses have several proteins on their outside coat, which they subtly change every year. This makes the previous year’s vaccines ineffective at preventing infection. Also, the effectiveness of the previous vaccine diminishes over time, so it is important to be revaccinated every year.

The influenza vaccine being administered in Australia in 2019 is a quadrivalent vaccine, meaning the four influenza strains that are most likely to cause disease this year are in the vaccine. This is an increase from three strains in 2018. Most people develop immunity within two weeks of the vaccination. The vaccine contains dead or chemically altered viruses so you do not receive any live viruses. The vaccine reduces the risk of influenza by up to 60 per cent.

People can experience mild symptoms around the injection site following a flu vaccination, such as soreness and redness. Patients with an egg allergy or other co-existing medical conditions should consult their local doctor before getting the vaccine.

Why should I get the flu vaccine?
Influenza is a horrible disease. It affects millions of people globally and is easily preventable with a vaccination. Having seen several deaths related to the flu in my clinical practice, I would recommend getting the flu vaccine – many of these deaths would have been prevented if they had received the vaccination.

I have the flu vaccine to protect myself and more importantly my family and patients. It is a cost-effective and safe procedure. The consequences of getting influenza far outweigh the side effects of receiving the vaccination. So protect your family, friends and yourselves and get the flu shot.
Australian pilots not at greater melanoma risk

When thinking about melanoma risk – sun beds, tanning and other recreational pursuits immediately come to mind. But what about melanoma risk in an occupational setting? Researchers at QIMR Berghofer are at the forefront of research into melanoma incidence among Australian registered commercial pilots and the findings are quite surprising.

The life of a commercial pilot is not exactly routine. Occupational hazards from ongoing exposure to ultraviolet and cosmic radiation are an everyday occurrence and previous studies have consistently reported commercial pilots from northern Europe and the United States were at increased risk of developing and dying from melanoma.

A new landmark study, led by QIMR Berghofer’s Associate Professor Catherine Olsen, has updated findings from previous studies, which indicated commercial pilots were at higher risk of invasive melanoma than the general population.

The collaborative study between QIMR Berghofer and the Australian Civil Aviation Safety Authority was built on a previous review, led by QIMR Berghofer’s Dr Kyoko Miura. It analysed all of the relevant international research conducted into melanoma rates among airline pilots previously available. Most of the data were collected from pilots operating in the northern hemisphere from the 1940s up to the early 2000s. This previous review found pilots had double the rate of melanoma compared to the general population and were at greater risk of death from the disease.

For the recent Australian study, Associate Professor Olsen examined health information from more than 20 000 Australian licensed pilots and found a significant change to historical research findings.

‘We looked at de-identified medical records from 2011 to 2016 held by the Australian Civil Aviation Safety Authority (CASA), and found pilots in Australia were not at a higher risk of developing invasive melanoma than the general population,’ Associate Professor Olsen said.

She said the new Australian study findings were important to address concerns about melanoma risk that have been worrying many in the aviation industry.

This new research shows there is less risk of Australian commercial pilots developing melanoma in the 21st century.

‘Conditions in aeroplanes have changed. Levels of short-wave solar ultraviolet radiation, the kind associated with melanoma, are mostly extremely low on today’s aeroplane flight decks.

‘We believe our research should now be expanded, using contemporary data gathered from around the world, in order to confirm whether commercial pilots in other countries are also no longer at increased melanoma risk.’

Associate Professor Catherine Olsen Senior Research Officer of the Cancer Control Group at QIMR Berghofer
Kelly Magin and Hardi Schwarting founded BioTools more than 11 years ago, and the two business partners agreed they would donate 10 per cent of their net profits every financial year to not-for-profit organisations.

They have honoured this agreement every year.

‘In the corporate world of small-to-medium enterprise, I believe all business owners should give back through their companies’ success,’ Mr Magin said.

‘We are fortunate to succeed in business and therefore, we believe we have a responsibility to give back to the community.

‘I really like that we can help others and contribute to making a difference’ he said.

BioTools sells scientific equipment and consumables, so the company already had an understanding and link with biomedical research.

‘We sell scientific solutions to our customers, and then we get to give back to our community. We give to several charities that operate in the scientific community.

‘We care. We never drop one of the organisations that we give to – we just keep adding more charities to our books and adjusting the values given each year,’ he said.

In total, BioTools currently donates to more than 15 not-for-profit charitable organisations and institutes that have an affinity with the business and staff.

Mr Schwarting and Mr Magin have also started to involve each of their staff in the act of giving, where they choose to donate to charities they have a personal connection with.

‘We want to involve and empower our staff, and show that if they put in the hard work, that as a team they will be able to contribute a higher value donation to a charity in their community.

Mr Magin has a strong belief that charity begins at home.

Mr Magin and Mr Schwarting’s advice to other small-to-medium business owners is to decide on a number, make sure it’s a percentage, and stick with it.

‘Anyone can come up with a dollar value, but it takes discipline to decide on a percentage and make it happen every year.

‘This way, if the business does well, then we give more. If we experience a lean year, then that year we give a little less. Regardless of our sales, the act of giving continues to happen every year,’ he said.

QIMR Berghofer is thankful for BioTools’ generosity – their donation has steadily increased over the past three years, to $4000 in 2019.

‘I understand charities need smaller donations like mine because there are lots of incidental consumables, especially in the daily life of a biomedical researcher,’ he said.
A warm thank you for our Giving Day success

Medical research can be a lonely business. Long hours, sometimes with just an idea or hypothesis. Fighting for funding to investigate a concept that you believe to your core will make a difference to the health of others.

On 20 June, our community stood together to show the scientists and researchers here at QIMR Berghofer that we believe in their work. We share their vision of a healthier future for Australia, and the world.

Through a 12 hour Giving Day campaign, donors, supporters, students and staff celebrated research, life and the joy of giving. More than 80 of our scientists took time out of the lab to speak to supporters on the phone, throughout the Institute and externally at Giving Day events.

Together, with the help of our generous matching donors, we raised more than $812 000 – with donations ranging from $5 to $100 000.

Every gift makes a difference and will have a far reaching impact. Thank you!

‘Hearing our donor’s personal stories and their motivations to donate was very inspirational for me. I feel very fortunate to be able to do what I love each day, and speaking with our donors helps put my research into perspective.’

– Rebecca Johnston
Bioinformatician
Medical Genomics Group
Was there a pivotal moment in your life that influenced your decision to work in the field of genetics of mental health?

I have always been intrigued by how DNA (genetic code) influences so many aspects of life on planet earth. How can something be so very small, yet so complex?

Just imagine that every cell in your body contains a full copy of your DNA – and that human DNA consists of 3.2 billion ‘letters’ or nucleotides. If you could roll out your DNA from a single cell, it would be two metres long! It is very hard to see how two meters of DNA would fit into a single cell.

Then, if you could roll out the DNA of all your cells, of which you have around 37.2 trillion, it would stretch to the sun and back four times! It’s only possible because the DNA is rolled up very tightly.

But what is even more amazing is that it doesn’t just fit into the cell, but it is also capable of influencing almost all aspects of an individual’s characteristics, such as eye colour, height, cancer risk, and so forth. And yes, it also influences brain development and mental health. This just seems like magic to me.

What is your hope for the future of research in mental health? What do you wish to achieve during your scientific career?

Mental health disorders have a devastating impact on the lives of many Australians. People may themselves suffer from a disorder, or a loved one may be affected. Suicide rates, which are linked to mental illness, are alarmingly high. Suicide is a more common cause of death than road accidents, and it tears so many families apart.

I hope that through an improved understanding of the risk factors for mental illnesses, it will lead us to better preventions and treatments. In my research, I aim to identify genes that play a role in the risk of mental health disorders and to have a better understanding of the specific biological function of these genes. In the future, I hope my research will lead to more effective medicines and treatments for mental health disorders.

I also consider it very important to spread the message that mental health disorders can affect everyone. In that respect, these disorders are not very different to other medical conditions, such as diabetes or cardiovascular disease. Unfortunately, since it may be more difficult to understand what people with a mental health disorder are going through, there is often less support from the community. I believe that needs to change, because being connected to society is important for everyone – and it’s therefore important to fight the stigma that still exists.

What is your career highlight to date?

I was thrilled when one of my recent studies on schizophrenia, depression, bipolar disorder, and attention deficit hyperactivity disorder (ADHD) was published in one of the most influential journals in genetics, called *Nature Genetics*. We worked on this study for over three years and eventually found 331 genes that are linked to these significant mental health disorders. This was an important breakthrough as we now have a much better
understanding of which genes play a role and also the function of these genes. This is an important step towards the development of more effective medicines and treatments.

In addition to the scientific breakthrough, I was also very excited that this study received a lot of attention from the media. This is very important for generating more public awareness about the importance of mental health research. Channel 10 featured this study and showed an interview with Dylan Reid, who lost his sister Heidi to suicide when she was only 27 years old (read more at https://brothersreid.com). After watching the news bulletin with my 12-year-old daughter, she commented, ‘He’s really glad that you’re doing what you do’, and that was amazing for me because I could never have explained this to her in a better way.

What was one of the biggest obstacles you faced with your research, and how did you overcome it?

That’s a tough one. One of the challenges for every researcher is access to funding, which is currently highly competitive in Australia. Fortunately, due to generous donations made to QIMR Berghofer, I have had sufficient resources to start and grow my research group. I began my research group in 2017 and we have made important scientific breakthroughs since then. I hope this will lead to more research funds in the future, as this will be essential for improving mental health knowledge and medicines in Australia.

How has your scientific career evolved over the years? How long have you been working as a scientist?

I obtained my PhD degree in the Netherlands in 2006 and since then have worked as a scientist. Immediately after completing my PhD, I received a fellowship to work at Oxford University in the United Kingdom. That was a very exciting time, also because I was pregnant with my daughter. I spent most of my pregnancy in Oxford, while my husband still lived and worked in Amsterdam. Not ideal, but I imagined that I wouldn’t have much of an opportunity to travel once she was born – although that turned out otherwise…

In 2007, I moved back to Amsterdam and shortly after my maternity leave, I accepted a position as an Assistant Professor in Utrecht. During this tenure in 2011, I worked as a visiting scientist at QIMR Berghofer – when we experienced the 2011 floods. In 2012, I was appointed as a full Professor in Psychiatric Genetics at the University of Amsterdam, where I continued to work for five years. Then, because my husband and I had fallen in love with the beautiful nature and friendly people in Australia (and because of the excellent research opportunities at QIMR Berghofer), I accepted a new challenge as group leader at QIMR Berghofer in 2017. I have now been here for two-and-a-half years and we still love the country, and especially Brisbane. My daughter, who spoke very little English when we moved, now has quite a strong Aussie accent and she has made many new friends.

What do you enjoy doing in your spare time?

Although there is never much time outside of work, there are many things that I love doing. I spend most of my spare time with my family. We have embraced the Australian outdoor lifestyle, and love making trips with our 4WD and camper trailer. North Stradbrooke Island (‘Straddie’) is one of my favourite places because of the abundant wildlife.

Also, I hold a motor cycle licence and have just booked a lesson to update my skills because it’s now been more than 10 years since I rode a motorbike. I currently cycle to work (14 km), but may occasionally change my pushbike for one with a motor. Not too often though, since the cycling keeps me fit and healthy!

If this article has raised concerns for you, you can contact Lifeline on 13 11 14 or Beyond Blue on 1300 22 4636 and https://www.beyondblue.org.au/.
Public Forum on Cancer and the Immune System

On Thursday 23 May, more than 200 people attended a free public forum to learn about new and emerging cancer immunotherapy treatments. The forum was held at the Brisbane Exhibition and Convention Centre as part of the 3-day Brisbane Immunotherapy Conference.

The event attracted an expert panel of local, national and international researchers; clinicians working in the field; and melanoma survivor and health advocate, Kathy Gardiner. The question and answer session was very popular and provided a valuable opportunity for audience members to ask specific questions of the expert panel.

We are very grateful to event sponsor, Icon Cancer Centre, and event co-host, the Translational Research Institute, for their support of this successful public forum.

The conference has further positioned Brisbane and Queensland on the world stage as a global innovator and leader in immunotherapy, which has emerged as the fourth pillar of cancer treatment, along with surgery, chemotherapy and radiotherapy.

Aboriginal and Torres Strait Islander health initiative

Closing the gap on Aboriginal and Torres Strait Islander health requires giving young people the resources to shape a healthy future. That is one of the aims of QIMR Berghofer’s Regional High School Lecture Series.

The outreach program sees some of QIMR Berghofer’s senior researchers travelling to regional and remote Queensland locations – particularly those with a higher proportion of Indigenous students – and speaking about their research and careers in medical science.

In May, several QIMR Berghofer scientists joined Indigenous Health Research Manager Gregory Pratt, visiting a number of schools in Rockhampton, Gladstone and Tannum Sands. Associate Professor Severine Navarro, Dr Liam Town, Grace Chojnowski and Lochlan Fennell (pictured above) spoke to the students about their work. Students also had the opportunity to speak with the researchers and ask questions about their career paths.

Corporate breakfast

QIMR Berghofer held a free corporate breakfast – hosted and sponsored by Brisbane law firm Corrs Chambers Westgarth – on Wednesday 29 May.

Dr Justin Chapman (pictured), was the guest speaker and provided some interesting insights about strong community partnerships being the key to improving health and wellbeing for people with mental illnesses.

He specifically spoke about the partnership between QIMR Berghofer and PCYC Queensland and his role in developing and implementing ‘Healthy Bodies, Healthy Minds’, a community-based fitness program designed for people experiencing long-term mental illness.
Thankyou event and The Bancroft Society celebration

We have held some wonderful events at the Institute in the last few months, opening our doors to our most loyal supporters – people who have contributed significant donations to our biomedical researchers.

We celebrated the generosity of those people in our community who made their first ever donation or who are regular givers to our researchers at a Thankyou event.

And The Bancroft Society, our extraordinarily generous supporters who have decided to leave a gift to QIMR Berghofer in their will, came together and celebrated with some of our leading and emerging scientists at the Institute.

Do you see your face in the crowd?
JOIN OUR TEAM

Run in this year’s Bridge to Brisbane on Sunday 25 August as part of the QIMR Berghofer team and help support life-changing medical research.

Get fit and support our researchers in their quest to better diagnose, prevent and treat diseases such as cancer, depression, malaria and asthma.

Register at www.qimrberghofer.qld.edu.au/b2b

We can’t wait to cheer you on!

Crossword Challenge

ACROSS
1. Type of aggressive cancer, triple-________ breast cancer
2. Three letter acronym for genetic code present in all living organisms
3. One of the four mental illnesses Professor Eske Derks is researching
4. Protect your family, friends and yourself by getting the flu _______
5. Zika is a type of what?

DOWN
6. Inherited condition that causes a build-up of iron in the body
7. Deadly virus transmitted by the dengue mosquito
8. Mosquito vector that transmits dengue and Zika viruses (________ aegyp6)

Other ways to donate

QIMR Berghofer
Medical Research Institute

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Visit qimrberghofer.edu.au/donatenow

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