

breakthrough

Trust your gut

How your bacteria
could save you from
type 2 diabetes

Meet Professor
Chris Goodnow,
Garvan's new
Executive Director

Living an
extraordinary
life with
rare cancer



GARVAN
INSTITUTE
OF MEDICAL RESEARCH



Welcome from our Executive Director

Dear Garvan family,

I'm so pleased to be able to introduce your August issue of *Breakthrough* and to have this opportunity to thank you for your support. Many of you know me from my three years as Deputy Director here at Garvan. I'm honoured to have been appointed as the Institute's fourth Executive Director and build on the legacy of the Institute's pre-eminent leaders.

I'd like to briefly share with you my vision for the future of Garvan, in which we continue our progress towards precision medicine based on each person's DNA.

With a fully integrated approach, our teams are making breakthroughs in treatment and prevention. We're determined to stop avoidable health issues in their tracks across more than 50 major diseases. And we are taking this broad picture of health all the way into the future. The groundbreaking work of our researchers and clinicians continues, as you'll read about on the following pages.

Our cover story is about our new prediabetes clinical trial underway in collaboration with the Weizmann Institute of Science in Israel. It's a new approach to helping people avoid type 2 diabetes. Read the full story on page 7.

As always, we thank you for everything you do to assist Garvan's work – our supporters are as integral to the Institute as our researchers. We love that you are our ambassadors in your communities, spreading the word about medical research. If you have a friend or family member who is interested in what we do, please encourage them to sign up to receive their own issue of *Breakthrough* at garvan.org.au/breakthrough-signup or by calling our Supporter Services team on 1300 73 66 77.

I hope you enjoy this edition of *Breakthrough*. We would very much appreciate if you would let us know what you enjoy most and would like to see more of by filling in and returning the enclosed survey.

Professor Chris Goodnow FAA FRS
Executive Director
The Bill and Patricia Ritchie Foundation Chair

NEW RESEARCH

It's DNA, but not as we know it

In a world first, our researchers Associate Professor Daniel Christ, Associate Professor Marcel Dinger and Dr Mahdi Zeraati found a new DNA structure – a twisted 'knot' they call the i-motif – inside cells. The iconic 'double helix' shape of DNA has captured the public imagination since 1953; however, it's now known that DNA can exist in a few other shapes – in a test tube, at least. Until now, the i-motif had never before been directly seen inside living cells. In fact, scientists had debated whether i-motif 'knots' would exist at all inside living things – a mystery that is now solved. Garvan researchers suspect i-motif DNA plays an important role in switching genes on or off.

➤ See the i-motif DNA at garvan.org.au/new-dna.

Your secret immunity weapon

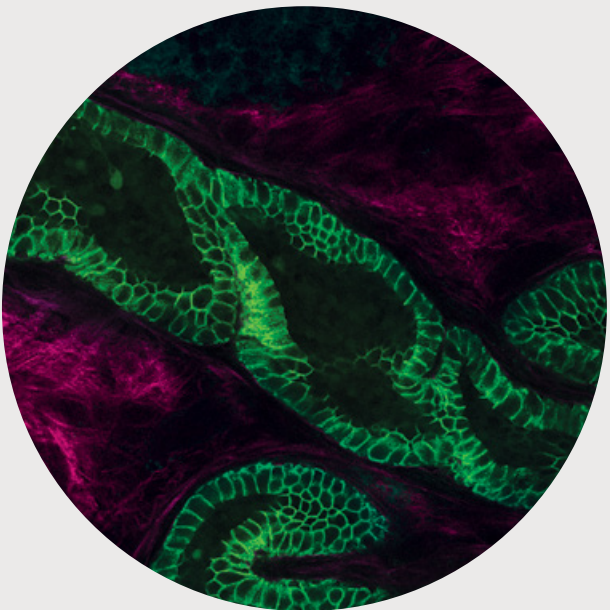
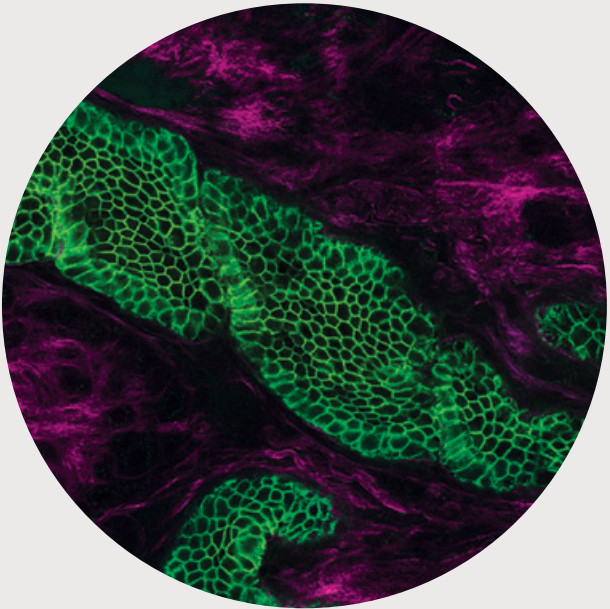
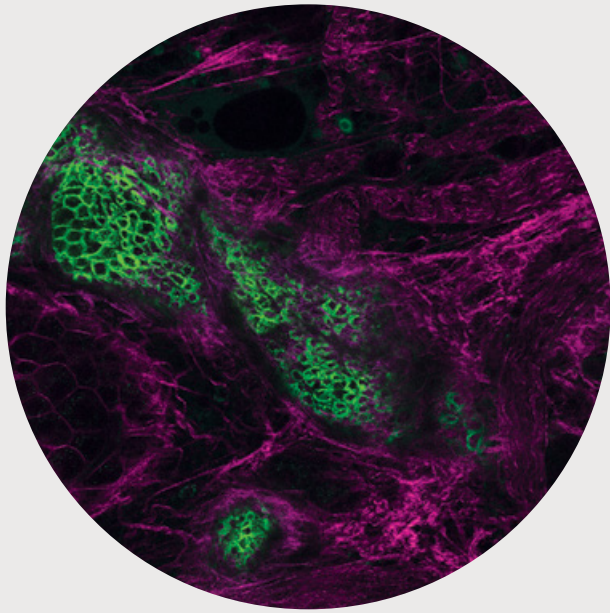
For years, they've had a bad rap – a mysterious population of cells in the immune system once thought to cause harm. But Professor Chris Goodnow, Associate Professor Daniel Christ, Dr Deborah Burnett and others from our Immunology Division have discovered that they could be a potent weapon against invading microbes. These cells produce antibodies that bind to the body's own tissues, meaning they could cause autoimmune disease. So why does the body keep them alive in the first place? The new findings reveal these cells may be crucial to fighting threats that try to trick our immune system by mimicking the body's own proteins. These immune cells can be activated to attack when required. Our researchers hope these cells will one day be the basis of vaccines for viruses that hide from the immune system, such as HIV.

➤ Read the full story at garvan.org.au/secret-weapon.

Turbocharging chemotherapy

Lung cancer, the leading cause of cancer death in Australia, is usually treated with platinum chemotherapy – a drug whose effectiveness is limited because many cancers are resistant to it, and because it causes kidney damage. Professor Neil Watkins, along with colleagues, has shown that the naturally occurring hormone follistatin makes platinum chemotherapy much more effective, while also preventing kidney injury. If successful in human trials, this hormone could dramatically improve outcomes for lung cancer patients treated with chemotherapy. The researchers now plan to study other tumours where platinum chemotherapy is commonly used, such as bladder and head and neck cancers.

➤ Find out more at garvan.org.au/lung-cancer-discovery.




THROUGH THE MICROSCOPE

This image sequence shows a biosensor made from the tiny fluorescent probes of jellyfish. By using this with two-photon fluorescent imaging microscopy, we can see cancer cells deep inside living tissue.

The spread of cancer is a major challenge, because cancers that have spread are much harder to treat. The more likely cancer cells are to separate from each other, the more likely they will spread to other organs. This biosensor shows us how likely it is a pancreatic cancer cell is going to spread beyond the primary tumour – we can then test drugs to see whether they can delay or prevent the spread.

Dr David Herrmann
Senior Research Officer, Cancer Invasion and Metastasis

Left, from top: three views from the two-photon microscope as it moves from the outside of the tissue towards the inside. The glow-in-the-dark pancreatic tumour (green) is surrounded by the collagen matrix (purple).

 Watch an animation of this experiment at garvan.org.au/tumour-cells.

The ripple effect

A shared background in science and community work has taken Peter and Susanne de Beuzeville on a path to become Garvan Partners for the Future.



Left: With backgrounds in science, Peter and Susanne feel at home on a behind-the-scenes tour of the Garvan labs. Above: Susanne's 1967 graduation in Science from Sydney Uni.

"We also had a conversation with our daughter about wanting to leave a percentage of our Wills to a cause we believed in. Because she works in a research field herself she understands how difficult it is to fund work through grants alone, so she was very supportive of our decision to become Garvan Partners for the Future," says Susanne.

"I think everybody wants to leave the world a better place, and by supporting Garvan I know we are helping all of humanity. The research into disease and treatments will go all around the world, including developing countries. That's extremely important to us," she adds.

If you've been to a Garvan seminar recently, you've likely seen Peter and Susanne de Beuzeville. They've been regularly attending events since they heard about the public program four years ago.

Garvan is a natural place of interest for Susanne and Peter, who both studied science at the University of Sydney.

"We met through a student club called the University Settlement, which provided affordable housing to students near the campus in exchange for volunteer work in Redfern and Chippendale," explains Susanne.

"It was an opportunity to volunteer our time on meaningful projects for the community," says Peter.

Susanne adds, "We both went on to teach science. I was a teacher at a girls' school and it has been my great pleasure to see several of the girls I taught go on to science careers as well."

Peter and Susanne are active and still very much involved in their community. "We really like the way Garvan cares about people and the information we receive when we come here," says Peter, "so we decided to become donors."

"We believe that if we all tell other people, we create a ripple that can then affect a wider group of people. As the ripple grows, it can encourage other people to encourage other people to leave the world a better place."

If you would like information about leaving a gift to Garvan in your Will and becoming a Partner for the Future, please contact Donna Mason, Senior Bequest Officer, on (02) 9295 8559, or visit garvan.org.au/bequest.

Surfing is one of Professor Chris Goodnow's first passions. The map on the wall of his office shows Indonesia's remote Mentawai Islands where he and his mates discovered now-famous surf breaks.



MEET CHRIS GOODNOW

In May, we welcomed Professor Chris Goodnow FAA FRS as our new Executive Director.

As our past Deputy Director and Immunogenomics Lab Head, Professor Chris Goodnow is a familiar face to many. However, there are a few things you may not know about Chris: he lived in the United States until age 12, when his Aussie mum wanted to move back to be closer to her family; his first degree was in Veterinary Medicine; and he's been a keen surfer since he was a teenager – and still is.

One of Australia's most outstanding scientists, Chris is an internationally recognised immunology expert. Throughout his career he has pioneered the use of DNA technology and genome sequencing to reveal how the immune system distinguishes between our own tissues and invading foreign microbes, and how these processes go awry in autoimmune disease.

His extensive experience includes positions at Stanford and the Australian National University. He's received numerous awards and has been elected to the Australian Academy of Science, the Royal Society (UK) and the National Academy of Science (USA).

Chris explains what inspires him most about his new role: "It is Garvan's people – from researchers to support staff, management and our generous donors – who make the Institute the inspiring and outcome-focused place that it is.

"We now have some of the most powerful technologies on the planet to explore our cells and to understand how that shapes our health as individuals. We have terrific research programs across a wide range of disease areas and outstanding connections with St Vincent's Hospital, UNSW Sydney and hospitals around Sydney and Australia. These close relationships are essential to speed the translation of our research into real clinical impacts."

As well as becoming Garvan's Executive Director, Chris will continue to hold his current positions as Head of the Immunogenomics Laboratory in the Immunology Division, The Bill and Patricia Ritchie Foundation Chair and Conjoint Professor at UNSW Sydney in the St Vincent's Clinical School (Faculty of Medicine).

"I'm very much looking forward to continuing to work with Garvan's driven and talented team as we strive, through our research and clinical endeavours, to make a meaningful difference to the health and wellbeing of Australians and people around the world."



To view a video of Chris outlining his vision for Garvan, visit garvan.org.au/chris-goodnow.

Trust your gut

Dr Dorit Samocha-Bonet is discovering how your microbiome could hold the key to blood sugar regulation.

It's a difficult topic, but one we can't ignore. Half of the world is overweight and this is causing serious health problems. Here in Australia, that percentage is even higher – 65%. And almost 30% of us are obese (a body mass index over 30 kg/m²). And it's about more than just extra weight. Obesity increases the risk of many other diseases – and this year, obesity was recognised as a disease itself.

"Our strength here at Garvan is understanding the metabolic consequences of being overweight in an individual," says Dr Dorit Samocha-Bonet, clinical scientist and dietitian with the Diabetes and Metabolism Division. "Obesity is very easily diagnosed, you do not need sophisticated equipment. But, the metabolic impairments are diverse. Each person is different."

Pre-diagnosis

One of the major conditions travelling hand-in-hand with obesity is prediabetes – the precursor to type 2 diabetes in which blood sugar is abnormally high, mostly after meals. "Prediabetes affects around 40% of American adults and here in Australia we are following the same trend," says Dorit.

Prediabetes can fly under the radar for years – until the symptoms crash down like Jenga blocks. Prediabetes on its own is a risk factor for everything that diabetes can herald – cardiovascular disease, certain types of cancer, fatty liver. "It's not just a marker of a disease to come, a person with prediabetes could already have many of those conditions that are affected by type 2 diabetes."

But if we do know about prediabetes (and being overweight is one of the warning signs) there's a lot we can do, explains Dorit. This is the focus of Garvan's new clinical trial PREDICT. "When you are already diagnosed with diabetes, it can be too late for your pancreas, because your body has been dealing with insulin resistance for many years. But during prediabetes it's possible to prevent the development of type 2 diabetes."

Here's the twist

It seems like the solution is straightforward – lose weight and prevent diabetes. But, as we all know, many people struggle to lose weight and sustain the reduction. "I acknowledge how hard it is for people to lose weight. The percentage of people who maintain weight loss after five years is less than 20%," says Dorit, who has practised as a dietitian for more than 20 years.

Some foods cause blood sugar to spike in some people and have no effect on others – and this can be predicted.

Also, weight loss does not reverse prediabetes in everybody. "On average, weight loss of about 5% of body weight, if maintained, is very beneficial for health. But we see in the clinic, and it has been documented in medical literature, that many individuals who lose a large amount of body weight and fat, do not reverse prediabetes.

"Glucose regulation remains impaired in these individuals. It's clear that weight loss as a blanket treatment for everybody isn't the whole story in battling the prediabetes epidemic."

Which leads us to the gut

Across the board, scientists, more than ever before, are investigating the role of the microorganisms living in our gut (our microbiome) in the current diabetes epidemic. "Our collaborators at the Weizmann Institute in Israel have shown that some foods can cause blood sugar to spike in some people, but have no effect on others – and that the sugar response to food can be predicted by the composition of the gut microorganisms and other clinical and blood parameters."

Prediabetes can fly under the radar for years – until the symptoms crash down like Jenga blocks.



Diabetes researchers also saw another signpost pointing towards the microbiome as a key contributor to response to diabetes therapy – a 60-year-old medication called metformin. It is a commonly prescribed drug for type 2 diabetes.

“We know that this drug makes people more sensitive to insulin – it fights insulin resistance – but we’re still figuring out the exact mechanism. From large clinical studies, we know that 20 to 40% of individuals with prediabetes or type 2 diabetes have a poor response to metformin. But it’s emerging that metformin affects the gut microorganisms in a positive way,” says Dorit.

Know your microbiome

This led Dorit to want to find out more about the relationship between gut microorganisms and the way we respond to metformin. She has surmised, and will study in the PREDICT clinical trial, that the genetic makeup of the billions of microorganisms in your gut could be the differentiator in how well your body processes sugar after meals and how you respond to common treatments like weight loss and metformin.

“At the moment, our standard of care for a person with prediabetes is to advise a low fat, low sugar diet and try to be more active, to lose weight. But we’re looking for more precise ways to treat people.”

Going forward, Garvan’s aim is to translate findings from the PREDICT study to provide tools for clinicians to guide patients on medication, diet and lifestyle choices. This will hopefully help clinicians and their patients stop prediabetes from progressing to full-blown type 2 diabetes and to assist those living with diabetes to gain more tools to manage their health and achieve better quality of life.

The PREDICT Clinical Trial

During the six-month study, participants will wear a continuous glucose monitor for two weeks before and during treatment.

Participants will document all food intake in a specialised mobile phone app.

The PREDICT clinical trial is currently taking enrolments of men and women aged 20-70 years who have prediabetes (e.g. you have been told you are at risk of developing type 2 diabetes or you have had increased blood sugar in previous blood tests) or recently diagnosed type 2 diabetes, not yet treated with a sugar-lowering medication. Study visits are conducted at the Garvan Institute of Medical Research and St Vincent’s Hospital, Darlinghurst, Sydney.

Principal Investigators: Professor Jerry Greenfield and Dr Dorit Samocha-Bonet

Phone: (02) 9295 8215

Email: PREDICT@garvan.org.au.

ClinicalTrials.gov ID: NCT03558867

St Vincent’s HREC Ref: 17/SVH/080

POWERFUL PARTNERS

The Garvan-Weizmann partnership is bringing exceptional opportunities to the current and next generations of scientists.

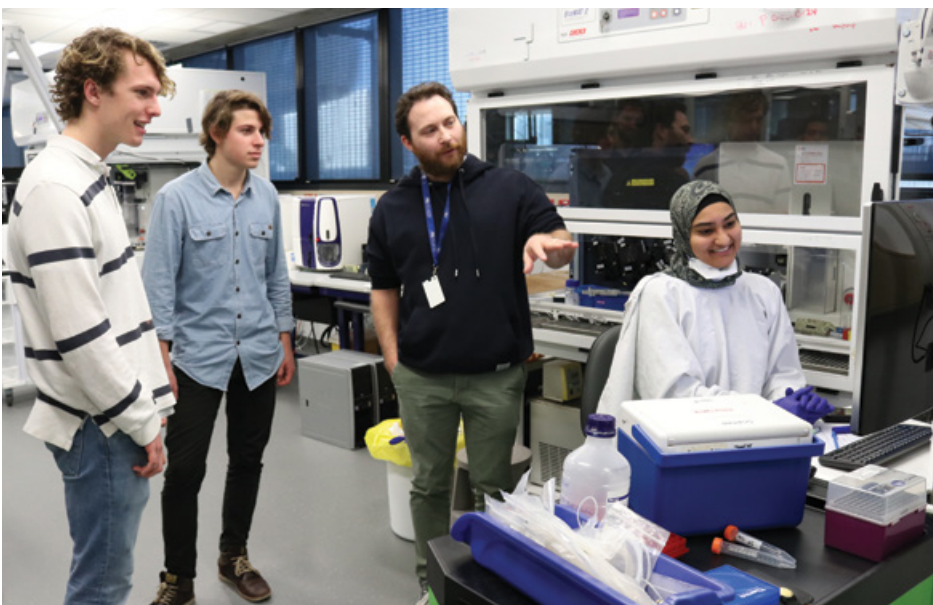
Imagine you've just graduated from high school with a keen interest in research and have started your undergraduate degree. Now imagine you have the opportunity to work with a team of like-minded scientists to create a new drug to help the body identify tumours sooner.

This is the reality for Milan Leonard and Dominic Agius, two first-year university students who've just spent a month at the Weizmann Institute of Science in Israel. Milan attended as the inaugural Garvan-Weizmann Young Scholar, enabled by a generous philanthropic gift.

The prestigious International Summer Science Institute sees undergrads from around the world work on research projects under the supervision of Weizmann Institute scientists. It's just one of the many ways our partnership with the Weizmann Institute is creating opportunities for both student and staff exchange programs and cross-pollination of ideas and research.

At the Garvan-Weizmann Centre for Cellular Genomics, many of our researchers work with counterparts in Israel to explore discoveries in single cell sequencing. For example, Weng Hua Khoo, a PhD student in the Bone Biology Division, works closely with Dr Guy Ledergor and Dr Assaf Weiner at Weizmann. "We are identifying the single cell transcriptome of dormant cells residing in the bone from patients with myeloma," Weng Hua explains. This approach to understanding how cancer hides in bone could have far-reaching outcomes for all recurring cancers.

Why is this important? Because sharing expertise, exchanging ideas and developing new technological applications will accelerate the process of biomedical discovery. The Garvan-Weizmann collaboration not only supports our greatest assets – our researchers – it will also develop our next generation. As Milan describes, we're well on the way: "I delight in exchanging ideas and information with others who are passionate about science and knowledge and the unknown."



➔ Find out more about the research partnership at garvan.org.au/gw.

During a tour of the Garvan-Weizmann Centre for Cellular Genomics at Garvan, International Summer Science Institute exchange students Milan Leonard and Dominic Agius learned about single cell genomic sequencing from Rob Salomon, the Centre's Technical Director, and Hira Saeed, a specialist in flow cytometry.



Sarah's Story

Living with a rare cancer that only has experimental treatments has framed Sarah McGoram's life – but she has never let it dictate her limits.

"At 18, I was diagnosed with a rare cancer – gastrointestinal stromal tumours – and given 12 months to live," says 40-year-old Sarah McGoram, who is now enrolled in Garvan's Molecular Screening and Therapeutics clinical trial. "I decided to fight and was determined to stay alive for as long as possible. I have lived and battled cancer for the majority of my life. In that time I have graduated from university, had a teaching career, married my husband Tom and had a beautiful baby boy, George – all while juggling the disease."

Despite the news being devastating, Sarah was very fortunate to have the correct diagnosis made. Her cancer is so rare that there were only 15 known cases in Australia at the time. Fortunately, research had been published only six months earlier that provided the pathologist with the information he needed to avoid the traditional diagnosis that would have led to ineffective – and possibly deadly – chemotherapy.


Since then, she has transitioned from one drug to another in order to manage her disease. "With every progression of my disease, a new drug therapy has been developed, or surgical technique evolved, giving me the chance to live a little bit longer. I am riding the wave of medical research, and winning."

Transforming lives through research

"What is clear from Sarah's story is that science has the power to completely transform lives, turning a death sentence into a rich, productive life by any measure," says Professor David Thomas, head of Garvan's Cancer Division. "The challenge is to bring science into medicine in time frames that are meaningful to families like George, Tom and Sarah. That is what we are working to do."

While Sarah has plenty to do in surviving with her disease every day, she doesn't stop there. "Medical research and clinical trials in areas like genomic medicine and immunotherapy could hold the key to finding personalised treatments and ultimately a cure to our diseases," she says. "I so appreciate the support that companies like Paspaley, AccorHotels and Vodafone give to clinical trials. It means people like me can contribute to medical research and access the latest treatments."

Sarah fundraised to help others when she climbed Mount Kosciuszko this year. "I've now lived with cancer for 22 years. In that time I have had dozens of months when I have been extremely sick and four moments when I came terrifyingly close to dying – but I didn't. I am still here fighting for a cure, fighting for more funding for research, fighting for equitable treatment for all cancer patients, fighting for more time with Tom and our son George and fighting for time to return to teaching and contribute to our community. Watch out world: I've got a whole lot of living left to do."

 Find out how you can help fund projects to support people like Sarah at garvan.org.au/donate.

Above: Sarah and son George.
Right: Atop Mt Kosciuszko with Professor David Thomas (left) and fellow rare cancer sufferer Matt Owen.



THE BONE-BRAIN-HORMONE CONNECTION



Professor Jacqueline Center and Associate Professor Paul Baldock

By combining their areas of expertise, two of our researchers made a breakthrough discovery about the risk of devastating bone decline from invasive gastric surgery.

Professor Jacqueline Center and Associate Professor Paul Baldock have both worked at Garvan for more than two decades. Jackie treats people at St Vincent's Hospital Sydney with bone and endocrine (hormone) disease, which are often seen together, such as post-menopausal osteoporosis.

Paul has worked in both the Bone Biology and Neuroscience Divisions of Garvan. Their work together came about as many of the best collaborations do – through a chance observation and a conversation. That turned into a three-year clinical trial and then a new finding of enormous significance.

How did you meet?

Jackie: I became aware of Paul's work in the Neuroscience Division. I thought his research in the way hormonal feedback from the brain can impact bone mass, especially in relation to weight loss, was very interesting.

Paul: I remember meeting Jackie in my first week at Garvan. I started in the Bone Division then moved to Neuroscience, but I was still studying bone – how the brain and hormones can control bone mass.

What led you to working together?

Jackie: I was very interested in the impact of weight loss on bone strength. I attended a conference where a gastric surgeon spoke about rapid weight loss through surgical procedures and I thought this would be an effective way to focus my question. From what I knew about Paul's research I thought he could help me investigate.

Paul: When Jackie approached me with her idea of studying how rapid weight loss affected bone mass I liked the idea that we could do a clinical trial of only three years – that's a lot faster than most studies of bone.

What's been the outcome?

Jackie: We saw dramatic impacts on the bone mass of patients based on surgery type. This wasn't bone loss due to bearing less weight – it was clear there was a systemic effect. People who have gastric bypass surgery lose bone mass year after year. This is especially concerning because more and more people are getting this surgery younger.

Paul: Doctors considering prescribing the procedure need to take long-term bone decline and disease into account. Over 20 or 30 years, especially for people who have a family history, this could significantly affect quality of life.

From strength to strength

The fundraising powerhouse of Australia's Lions Clubs continues to support Garvan in uncovering what drives cancer in children.

"One of the attractions of Lions Projects is that ... every dollar donated goes directly to the charity," says St George Lions president, John Craig. Lions Club members all pay membership fees, which fund the administration of these projects. As just one example of the dedication of Lions Clubs, the St George Lions annual golf fundraiser saw \$4,000 go to the Lions Kids Cancer Genome Project (Genome Power). "We've had wonderful support from businesses and people in our community to make our charity golf day so successful."

Meanwhile, the NSW Parliamentary Lions brought their influence to bear to contribute close to \$50,000 to Genome Power along with securing a matching commitment from NSW Health.

"With the incredible ongoing support from Lions Clubs around the country,

we will identify and monitor kids who have a high risk of cancer," says Garvan's Professor David Thomas, who co-leads Genome Power.

"But there is still a long way to go, and a lot more fundraising required before we can find out all of the vast amount of information hidden in the DNA sequences of these young people. That information is vital to point us to new ways to treat cancer through personalised medicine," he says. "Luckily, Lions Clubs of Australia are tireless in their dedication to supporting this project."



The Lions Club of St George raised funds for Genome Power through a charity golf day.

This June, more than 100 Vodafone stores across Australia stocked the limited edition Genome Power Pack, released by the Vodafone Foundation. All proceeds from sales of the handy power pack will go to Genome Power. Watch a video about the potential of Genome Power at garvan.org.au/genome-power.



Life-saving high tea

This year, Pretty in Pink Townsville raised almost \$12,000 in support of cancer research at Garvan.

"Our friend Caroline was diagnosed with breast cancer in 2014," says Tania Townson. "I taught Caroline's daughter – five of us whose kids were in year 12 at high school decided we wanted to raise money to promote research into cancer – because it affects everyone."

And so Pretty in Pink Townsville was born. Since then, they've hosted high tea

every Mother's Day. This year's guest list was at capacity with 150 people. "We started with the philosophy of trying to get everything via donation, which we achieved, even the venue." Raffle prizes come from an enormous number of local businesses. "We love that it promotes community in a small town as well helping the researchers." Even better – Caroline is well, and still on the organising committee.



The Pretty in Pink Townsville organisers from left: Lisa Wong-Chang, Caroline Terz, Tania Townson, Lindy Pienaar, Karen McGovern.

➤ Start your own event or celebration, or fundraise at work or school. Find out more at garvan.org.au/fundraise.

ASK GARVAN

Recently, a *Breakthrough* reader asked us:

"How far off is a genomic test for prostate cancer and how will it change my treatment options?"

This answer comes from Professor Vanessa Hayes, Head of Garvan's Human Comparative and Prostate Cancer Genomics Laboratory.

A diagnosis of prostate cancer can be very distressing for men and their families. The good news is that the chance of surviving for five years is 95%. Garvan is leading the charge to completely overhaul testing for prostate cancer. We are developing the next generation of DNA-based testing, which will provide accurate diagnosis and have an enormous impact on treatment plans for men in Australia.

The current early testing method (prostate-specific antigen) commonly leads to the diagnosis of some cancers that might never have caused symptoms. This can have overall detrimental effects on life span and quality of life through unnecessary treatment.

One of the biggest clinical challenges is distinguishing which cancers are going to spread and become life-threatening, and which patients could be spared harsh treatment they might not need. To have any hope of targeting treatment in this way, we first need to understand the genetic drivers of each individual tumour.

From previous studies, we know that prostate cancer has only small genetic changes and is more likely driven by large complex rearrangements of DNA. This is different to most cancers, which are driven by small DNA mutations in a number of key genes. Previously, we had no way of observing these DNA rearrangements or structural variants in prostate cancer.

Last year, we completed a world first in comprehensive next-generation mapping of an entire prostate cancer genome and this uncovered 10 times more large-scale DNA rearrangements than have previously been detected in prostate cancer.

We know that next-generation DNA-based research can provide insights into prostate cancer and enable accurate diagnosis and treatments specific to the individual.

We are working toward this goal of making a genomic test the 'norm' for those affected by this cancer, and when it is available it will drive world-best treatments.

➤ Find out more and support our prostate cancer research at garvan.org.au/support-prostate-research.

Be part of progress

 Click here to make a donation to Garvan's medical research.

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Donations to celebrate a special occasion

Herman Melkman's birthday
Des Miller's 70th birthday
William Walker's 102nd birthday



Please join us

Meet Garvan scientists and hear about their life-changing research at these two upcoming seminars.

BONE BIOLOGY SEMINAR

Wednesday 15 August, 10am – midday


NEUROSCIENCE SEMINAR

Wednesday 24 October, 10am – midday

LOCATION

Garvan Institute of Medical Research
Garvan Auditorium
Enter via Burton Street, Darlinghurst, Sydney and live on Facebook.

Seminars are free of charge, but space is limited so bookings are essential.

 To find out more about this and future seminars, and book your place, visit garvan.org.au/public-seminars or call 1300 73 66 77.

 To watch videos of our past seminars, please visit garvan.org.au/previous-seminars.

CLINICAL STUDIES

We offer a range of clinical trials at The Kinghorn Cancer Centre for the treatment of patients with breast cancer. Find the full list at garvan.org.au/breast-cancer-clinical-trials.

Exercise and chemotherapy

We are seeking female volunteers undergoing preoperative chemotherapy for early stage breast cancer. This study will investigate the effects of exercise and its role as an adjunct therapy to breast cancer treatments. The women in the intervention group will undergo a supervised exercise session directly after chemotherapy with the aim to improve blood flow to the tumour and the re-distribution of tumour-killing immune cell to infiltrate the tumour. St Vincent's HREC Ref: 16/SVH/334

Progesterone therapy (WinPro)

We are looking for volunteers who are post-menopausal women with early-stage hormone receptor positive breast cancer, prior to breast surgery. This project aims to study endocrine therapy with progesterone. St Vincent's HREC Ref: 17/SVH/255

For further information, please contact:
Claire Gray, Breast Cancer Clinical Research Nurse
Email: claire.gray@svha.org.au. Phone: (02) 9355 5708.