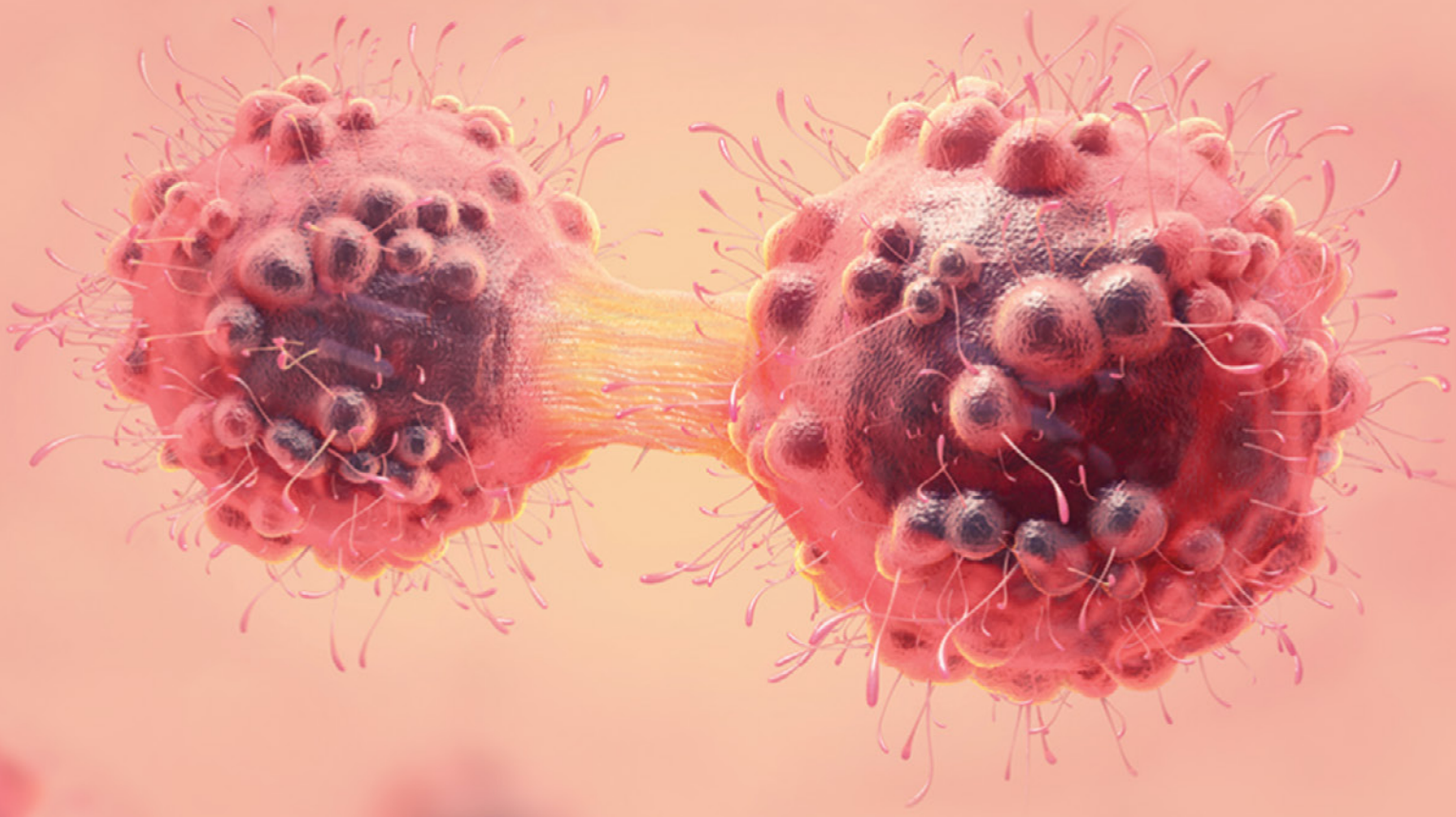
Issue 49

breakthrough

DISCOVERY

A mechanism that helps lung cancers resist standard chemotherapies



Also in this issue

Making visible the invisible: Animating autoimmune disease

Cognitive decline and fracture risk

The virus defence at the root of a spectrum of diseases

Garvan Institute of Medical Research

Welcome from our Executive Director

Dear Garvan family,

Reaching the 80 percent vaccination mark across much of the country has been a breath of fresh air in what has been a very long, often exhausting year for many of us. For those who are able, I hope you've all celebrated the joy of family and friends in person. For those with loved ones interstate or overseas, we are closer than ever to long-awaited reunions and being together once again. COVID-19 has challenged us in Australia, and around the world, in ways that we never could have anticipated, and while it often seemed like there was no end in sight, incredible medical research by scientists across the globe have made a new normal possible. It is truly astounding.

In our last issue of Breakthrough for 2021, I'm delighted to be able to share with you just a handful of the exciting research updates and news stories coming out of the Institute. Even as COVID-19 has disrupted everyday life, I am proud that our researchers have adapted to working in new ways to ensure we can continue to find solutions to disease. You can read about how Garvan adapted to life with COVID-19 on page 5.

On page 6 you'll read about the discovery of a mechanism that helps lung cancers resist standard chemotherapies, which may be an important piece in the puzzle of designing better treatments. On page 8 you'll find out about the link discovered by Garvan researchers between cognitive decline and fracture risk.

Finally, on page 4 you'll hear from one of our *Partners for the Future* Isobel, in her own words, on why she is supporting Garvan by leaving a gift in her Will. I hope you enjoy reading about this, and all the exciting research and work we have underway.

Thank you for your unwavering support of our research. We could not do what we do without our Garvan family. I hope you have a happy, relaxing and safe holiday break.

Regards,

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

Front cover image:
3D illustration of a cancer cell in the process of mitosis

RESEARCH NEWS

Personalised medicine becomes more accessible for Australians with cancer

A new resource developed at the Garvan Institute of Medical Research and The Kinghorn Cancer Centre for oncologists could help make targeted cancer therapies more accessible for Australian patients.

The TOPOGRAPH (Therapy-Oriented Precision Oncology Guidelines for Recommending Anti-cancer Pharmaceuticals) database is an online tool that catalogues oncology research to streamline the process of recommending therapeutic treatments in precision cancer medicine.

Oncologists can use the platform to search for molecular biomarkers present in samples taken from patients to find whether any treatments are known to be effective against the patient's specific form of cancer, and whether these treatments are approved for use in Australia.

"TOPOGRAPH is uniquely useful in the Australian context because it combines up-to-date information on treatments approved for use in Australia in both clinical and trial settings," says Senior Research Officer Dr Frank Lin, who led the development of the platform.

"This tool was designed to systematically organise the vast amount of data from clinical trials and Australian regulatory authorities into an accessible, easy to use platform for oncologists to maximise the therapeutic benefit to patients."

Visit: **garvan.org.au/precision-medicine**

New resource to advance genomics-driven precision medicine

By analysing genomic data from more than 30,000 people, a team co-led by the Garvan Institute has revealed thousands of new regulatory regions that control disease-linked genes – a resource that is now available to researchers worldwide.

The findings are a significant step forward for genomics-driven precision medicine and could help identify markers that reveal which patients will benefit most from which treatment.

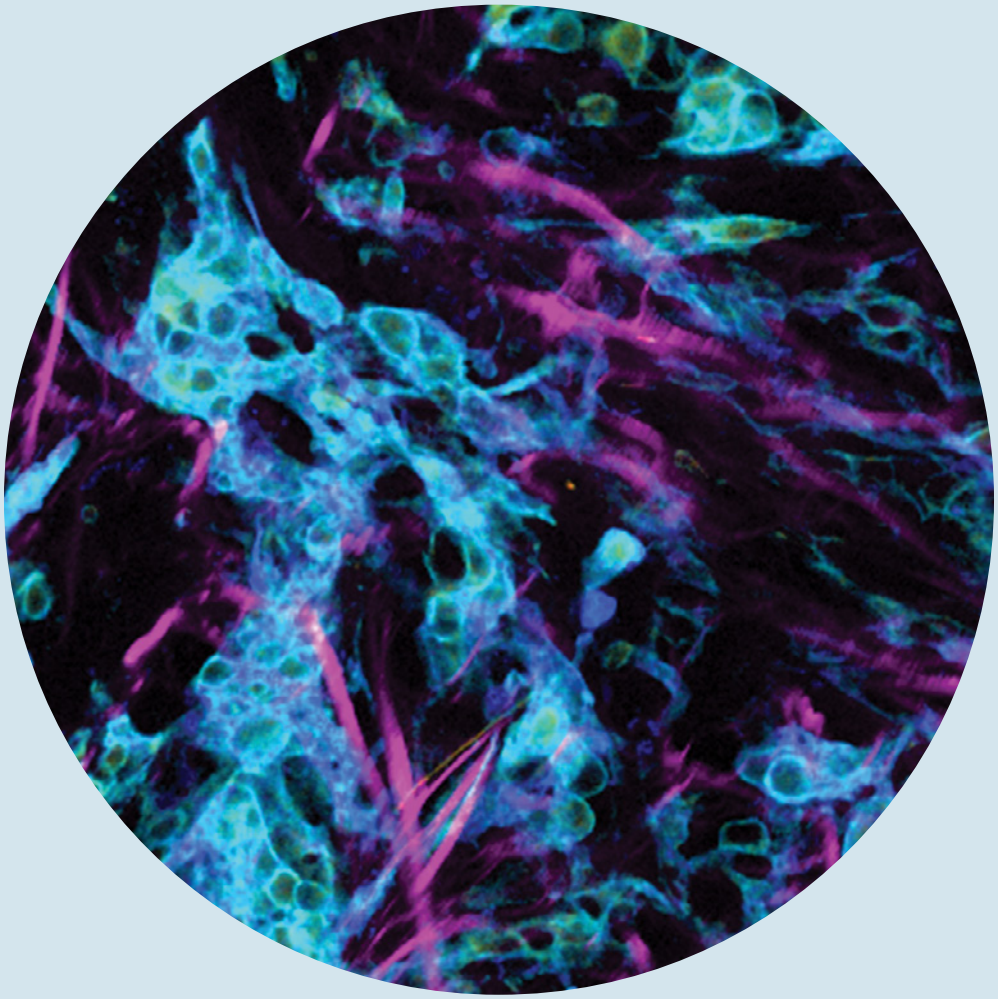
"In this study we have provided an entirely new view of genetic regulation by uncovering an in-depth picture of how genes and disease are linked. It is the most comprehensive analysis of how human genetic variation affects gene expression to date," says co-senior author Associate Professor Joseph Powell, Director of the Garvan-Weizmann Centre for Cellular Genomics and Deputy Director of the UNSW Cellular Genomics Futures Institute.

This discovery provides researchers an entirely new perspective on their genes of interest, and will help prioritise genes that may be more relevant for therapeutic intervention. It could also lead to better markers for tracking disease progression and the efficacy of medicines.

Visit: **garvan.org.au/potential**

THROUGH THE MICROSCOPE

Reminiscent of the patterns seen through a kaleidoscope, the bursts of colours and shapes in this microscopy image reveals part of a bigger picture.



Using intravital imaging technology, this image – captured by Dr Kendelle Murphy – highlights the molecule FAK (blue/green) in pancreatic cancer cells and the tumour connective tissue known as the stroma (magenta).

Images such as these are helping our researchers understand how reducing the stiffness and density of the stroma by targeting FAK could enhance the tumour's response to therapy. Using this approach in a recent study, Garvan researchers could reduce the spread of pancreatic ductal adenocarcinoma by up to 50% in experimental models. With a five-year survival rate of less than one in ten, this cancer is one of the most lethal, with new treatment options desperately needed.

This project utilises novel microscopy technology developed by Garvan researchers to enable researchers to see immune cells and molecules at the cancer site move and interact in real time.

Projects like these will be advanced by the new ACRF INCITe Centre at Garvan, made possible thanks to the support of the Garvan family - thank you.

This image graces the cover of the 1 October 2021 issue of the prestigious scientific journal *Science Advances*, in which the research was published.

Read more at: **garvan.org.au/priming**

MY NAME IS ISOBEL

Put simply - medical research saved me

I am a regular person – just like you. I love reading, embroidery, paper crafts and book binding; I love my family and friends. And probably just like you, I've had the unfortunate experience of seeing family members diagnosed with devastating diseases and the tragedy that follows.

My son survived testicular cancer at 23 and my brother kidney cancer at 59. Sadly, my mother, grandmother and two uncles did not survive their various diagnoses of bladder and bowel cancer, pancreatic cancer and brain tumours.

I'm living with a range of medical conditions including Insulin Resistance, Polycystic Ovarian Syndrome, endometriosis, Obstructive Sleep Apnoea, Hypertension and chronic bladder issues. Medical research into these conditions translated into targeted treatments that have helped me to live and to manage my life around the impacts of these diseases.

Last year I also suffered a stroke, the result of an underlying heart condition, Atrial Fibrillation. I am very grateful to be able to report that my residual issues are minimal, but it is only due to breakthrough medical research developing a lifesaving protocol that I am living as well as I am today. The doctors told me the treatments I received have only been available in the last 5 years and without them, I could have been left with wide ranging disabilities affecting mobility and speech.

"Without medical research there is no progress in identifying, diagnosing and managing the myriad diseases which impact a wide range of people from the very young to the very old."

I believe one of the biggest difficulties facing medical researchers is access to reliable funding. The uncertainty of competing for annual or biannual applications for continued funding jeopardises many research projects.

For this reason, I made the decision to make a bequest to Garvan in my Will and I encourage others to do the same. The knowledge of a steady funding stream allows researchers to concentrate their efforts on their important research and not grant applications.

No one likes to contemplate their own passing, but there is comfort in knowing your future bequest to Garvan will allow their important research to forge ahead!

"My selfish wish is that by supporting Garvan in my Will I'm contributing to their certain longevity. And I will be part of that special leap into a brilliant discovery that will reduce the impact of devastating diseases for so many people." – Isobel

Would you consider this special way of giving to the future of medical research?

To request our Bequest Giving brochure or for a no obligation conversation, please contact our Bequest Manager, Donna Mason on **(02) 9295 8559** or **bequests@garvan.org.au** or visit **garvan.org.au/bequest**

THANK YOU TO KWM

This December we celebrate a corporate partnership that has spanned over two decades.

King & Wood Mallesons (KWM) are passionate about engaging, inspiring and empowering their employees to work together to make a positive impact in the community, to create a more just society and to address the structural and major justice challenges of our time.

Through DigDeep®, their workplace giving program, KWM employees have been generously donating to the Garvan Institute for the past 24 years; with every donation matched by the company. This long-term partnership, championed by the firm's Partners and executive leadership, has raised over $800,000 to support Garvan's innovative research into Alzheimer's and ovarian cancer.

"The Garvan Institute is one of Australia's premier medical research institutes, a place where some of the world's best scientific minds work together to undertake ground-breaking research that is changing people's lives. Supporting the Institute through DigDeep®, and providing pro bono legal advice are great ways that we, as a firm, can contribute to Garvan's important work," says Jane Timbs, Community Impact, National Advisor, KWM.

Thank you to KWM and its generous employees for their enduring support of Garvan's research. It is only with the support of the community that our researchers can undertake their vital work.

KING&WOOD MALLESONS

Swift response to **COVID-19**

Coronavirus has taken a significant toll on the Australian community and has impacted the way we live, work and function as a whole. Whilst it has forced us to change perspectives and presented us with challenges – Garvan has continued to evolve and adapt.

The COVID-19 pandemic initiated an unprecedented global research effort. At Garvan, we responded immediately by driving or collaborating on projects locally and globally to develop new ways to treat and prevent infection, to learn more about virus strains, and to inform global treatment strategies.

Our world-class team of researchers swiftly took up the challenges of COVID-19 and began working on projects that spanned across the landscape of the disease. We had teams engineering antibodies for protection therapy, tracking the evolution of coronavirus, developing tests to predict infection severity, and most recently have constructed a 3D analysis of the disease to reveal clues on the virus's tactics. By combining all available data on the coronavirus's 3D shape, our researchers have revealed new clues on how it evades human immune detection and replicates. This breakthrough resource may help researchers stay ahead of new variants.

The pandemic may have forced us to shift our non-essential work offsite, however, we have never wavered from our pursuit of new discoveries in all the diseases we research.

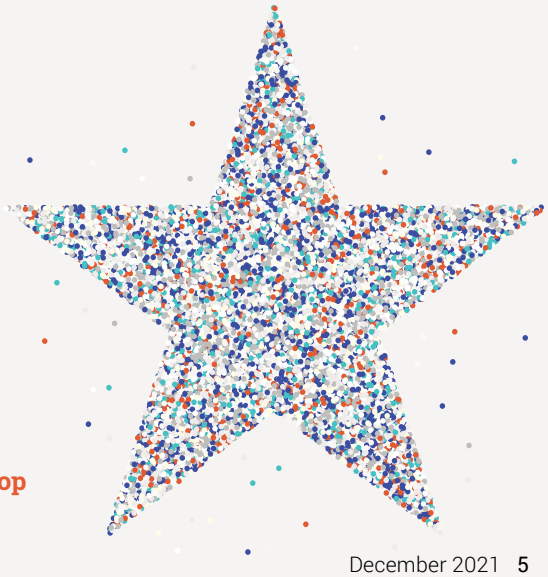
Working from home hasn't stopped us from conducting innovative research – it has only allowed us to create a stronger spirit of what it means to be a part of the Garvan family.

While we have been physically apart, we are still supporting each other through a number of health and wellbeing initiatives, regular check-ins, and designated days set aside to recharge. We are coming together as a community to support one another so that we can continue to revolutionise our understanding of disease and push the boundaries of medical research.

Seasons Greetings

This festive season, you can choose to give something with a little extra meaning. You can give the gift of a longer, healthier life for everyone by supporting life-changing medical research. Donate to Garvan's research on behalf of a friend or loved one and you'll help support scientists in discovering better treatments for some of the most devastating diseases affecting society today. We have a range of personalisable cards available for the festive season, birthdays, special occasions, and in sympathy including both print at home and virtual cards.

Give the gift that keeps on giving.
Visit: fundraise.garvan.org.au/shop



Lung cancer's resistance to chemotherapy reveals new treatment approach

Garvan researchers uncover a mechanism behind lung cancer's block to effective treatment.

New research at the Garvan Institute of Medical Research and ANZAC Research Institute has uncovered a mechanism that helps lung cancer cells resist standard chemotherapies.

A team led by Associate Professor David Croucher and Associate Professor Andrew Burgess found that individual lung adenocarcinoma cells, the most common form of lung cancer, were more likely to be resistant to platinum-based therapies when the treatment was administered during a certain stage of the cell life cycle.

The findings of the proof-of-principle study, recently published in the journal *eLife*, help explain why survival rates for lung cancer are so low and could prove to be an important piece in the puzzle of designing more effective treatments that improve patient outcomes, says co-senior author Associate Professor Croucher, who heads the Network Biology Lab at the Garvan Institute.

"Understanding the genetic factors that influence resistance to chemotherapy is hugely important to improving patient outcomes."
– Associate Professor David Croucher

This study has shown a non-genetic mechanism – essentially the replication of DNA which occurs as cancer cells rapidly grow and divide – that allows the cancer cells to be resistant to treatment. Now that this mechanism of resistance has been uncovered, researchers can begin to take it into account when developing new therapies.

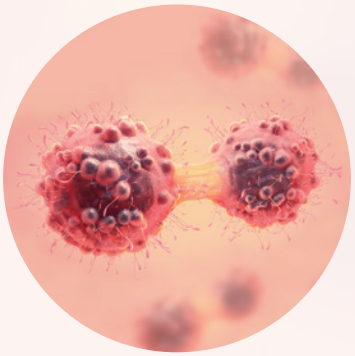
Current therapies fall short

Lung cancer is the leading cause of cancer-related deaths, claiming more than 1.5 million lives around the world each year. Better therapies for treating advanced stages of the disease are urgently needed as tumours are often diagnosed only once they have progressed to late stages of disease.

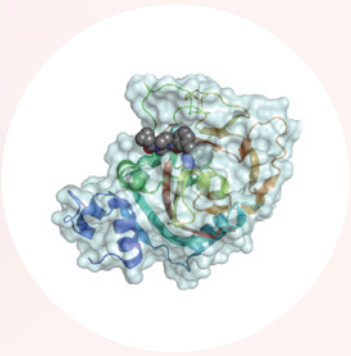
Platinum-based chemotherapies, such as the drug cisplatin, have been used to treat lung cancer for more than 40 years despite only a small portion of patients responding positively to the treatment. The vast majority (70%) are resistant to these common therapies.

Associate Professor David Croucher

Tissue culture



3D illustration of a cancer cell in the process of mitosis



PARP inhibitor

To better understand what underpins adenocarcinoma drug resistance, the researchers investigated how adenocarcinoma cells responded to treatment during different stages of their life cycle, which all cells go through as they grow and divide to produce new cells. Using RNA sequencing and fluorescent biosensors to track how the cells survived over time, the team administered cisplatin to the cancer cells in tissue culture using a method that closely simulates drug metabolism in patients.

"We identified that adenocarcinoma cells that were in the early S phase of their life cycle were better able to grow and divide after treatment than cells at other stages of growth."
– Dr Alvaro Gonzalez Rajal

Dr Alvaro Gonzalez Rajal

"These findings correlated with reduced DNA damage over multiple generations of these cells, where cells that had been in other stages of growth when cisplatin was administered maintained higher levels of DNA damage."

Encouragingly, further experiments have demonstrated that cells treated with PARP/RAD51 inhibitors, which prevent cancer cells from repairing themselves, also maintained damage similar to cells at other stages of the cell cycle.

"This research demonstrates a path forward in developing treatments that improve on current standard therapies, by preventing resistance to treatment. If we can find a way to target this mechanism for resistance in patients, then we could hopefully increase the effectiveness of platinum-based therapies and drastically improve the outcomes for lung cancer patients," says Associate Professor Croucher.

This research was supported by the Helen Guest Fellowship, the Cancer Institute NSW, National Breast Cancer Foundation, and Tour de Cure, with thanks to the ANZAC Microscopy and Flow Facility, the Sydney Informatics Hub, and the University of Sydney.

The impact

The discovery may underpin the design of more effective therapy for lung cancer, which claims more than 1.5 million lives each year.

To find out more visit garvan.org.au/new-treatment

Cognitive decline and fracture risk

Cognitive decline may help predict future fracture risk in women.

Garvan researchers have discovered a link between cognitive decline and a faster rate of bone loss, and found that cognitive decline over five years increased future fracture risk in women.

The study of individuals aged 65 and older was carried out over 16 years and has revealed a potential new approach to help identify older people who may be at risk of fracture.

"Bone loss and cognitive decline are major public health issues, but both are 'silent diseases' that can go undetected and untreated for long periods, often until the conditions are severely progressed," says Professor Jacqueline Center, Head of the Clinical Studies and Epidemiology lab at Garvan, endocrinologist at St Vincent's Hospital and senior author of the findings published in the *Journal of Bone and Mineral Research.*

"Our study has revealed a link between the two in women, which suggests that cognition should be monitored together with bone health, as a decline in one could mean a decline in the other. These findings may help refine best practice guidelines of how cognition and bone health are monitored in older age, to ensure appropriate treatment can be more effectively administered."

New insights on major public health issues

Around the world, 200 million people are affected by osteoporosis and more than 35 million by dementia – numbers which are expected to double over the next two decades due to a global increase in life expectancy.

"Cognitive decline and bone loss both result in increased disability, loss of independence and an increased risk of mortality. There is some evidence that older individuals with dementia have a higher risk of hip fractures, but whether the decline of both bone and cognitive health are linked over time has not been studied," says Dr Dana Bliuc from the Garvan Institute, who is first author of the paper.

Professor Jacqueline Center and Dr Dana Bliuc

"We set out to understand the long-term association, with our study the first to investigate both cognitive and bone health data over more than 15 years."

Linking cognition and bone health

"After adjusting for all other variables, we observed a significant link between a decline in cognitive health and bone loss in women. This association was weaker and not statistically significant in men," says Dr Bliuc.

"Interestingly, we also saw that cognitive decline over the first five years was associated with a 1.7-fold increase in future fracture risk in women in the subsequent 10 years. This was independent of the level of bone loss," adds Dr Bliuc.

"While this study could not identify a causal link – whether a decline in cognitive function leads to a decline in bone loss, or vice versa – it suggests that cognitive decline should be monitored along with bone health, as a decline in one may signal the need for increased vigilance in the other," says Professor Center.

This research was supported by Australia's National Health and Medical Research Council, Osteoporosis Australia, the Bupa Health Foundation and the Mrs Gibson and Ernst Heine Family Foundation.

Find out more at: **garvan.org.au/fracture-risk**

IMMUNE **DEFENCE**

The unleashed virus defence at the root of a spectrum of diseases.

Researchers have identified a new immune defence mechanism as the cause of a severe inflammatory disease affecting two unrelated children, explaining a mysterious set of skin, brain and blood diseases that arise when this defence system fails to be kept on a tight leash.

Led by the Garvan Institute, the team discovered that specific changes in a gene called *SAMD9L* unleashed an immune response that normally activates in our body's cells only after they are infected by a virus.

The *SAMD9L* gene changes in the two children revealed how the leash works, which the researchers have published in the journal *Proceedings of the National Academy of Sciences USA*.

"This research reveals a new immune defence mechanism that explains a string of inherited diseases that have been confounding doctors around the world: sometimes presenting as brain disease affecting balance and coordination, sometimes as a dangerous lack of blood cells, and sometimes as life-threatening inflammation of the skin and other vital organs," says Professor Chris Goodnow, Executive Director of the Garvan Institute, Head of the Immunogenomics Lab and senior author of the paper.

"Our findings will help identify future cases of these rare conditions, which will help clinicians make decisions more quickly regarding the patient's treatment."
– Professor Chris Goodnow

Professor Chris Goodnow

Solving mysterious symptoms

The study involved two unrelated children, who presented with undiagnosed conditions to Sydney's Children's Hospital Randwick in their first weeks of life. The two children suffered from similar symptoms – fevers, a severe inflammatory skin condition leading to extensive scarring, enlarged spleen and liver, platelet deficiencies and anaemia, and abnormal deposition of calcium in the brain.

Their case was investigated by Dr Paul Gray, Senior Staff Specialist Immunologist at The Children's Hospital Randwick and Visiting Scientist at Garvan, as part of the Clinical Immunogenomics Research Consortium Australasia (CIRCA), a Garvan-led multidisciplinary team of researchers and clinicians investigating the causes of rare immune diseases.

"We sequenced the children's and their parents' genomes, but at first there were no obvious clues in the DNA that would have pointed to a genetic cause of their symptoms," says Amanda Russell, Senior Research Assistant in Garvan's Immunogenomics Lab and first author of the paper.

"However, because the two patients had such similar symptoms, we compared the variations in their genomes and discovered both children had near identical genetic changes in their SAMD9L gene, which neither of their parents had."

The team's analysis revealed that *SAMD9L* is a sensor protein usually produced by the body in response to virus infection.

"The change in the *SAMD9L* gene of the two patients removed part of the sensor protein that keeps it inactive under normal conditions. Without this second layer of control, the anti-virus defence was switched on even when SAMD9L was present at low concentrations and the body's cells acted as though they are under direct attack, even without an infection present," says Ms Russell.

This research was supported by the NHMRC and the Bill and Patricia Ritchie Foundation.

Find out more at: **garvan.org.au/virus-defence**

Breast cancer 'ecotypes' present new path to personalised treatment

A new approach for classifying breast cancer subtypes.

A team led by the Garvan Institute has revealed a new approach for classifying breast cancer subtypes based on their cell profile, which could help personalise treatments for patients.

By analysing breast cancer biopsies from patients at Sydney hospitals, the researchers revealed more than 50 distinct cancer, immune and connective cell types and states, which could assign breast cancers to one of nine cancer 'ecotypes', each of which was associated with a different cancer prognosis.

The team is now aiming to develop a clinical test that will 'ecotype' cancers to determine which treatment is best suited to which patient.

"Tumours are not made up of a single cell type, but rather a complex mix of cancer, immune and connective tissue cells, that all play a role in tumour progression and prognosis. "Our new ecotyping approach for stratifying breast cancers based on all the individual cells they contain may inform therapy strategies that improve outcomes for patients," says Associate Professor Alex Swarbrick, Head of the Tumour Progression Lab at Garvan and senior author of the paper published in Nature Genetics.

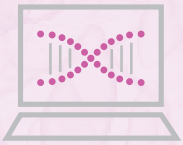
Developing a new diagnostic approach

Breast cancers are currently classified into three clinical subtypes (luminal, HER+ and triple negative) based on specific receptors they do or do not produce. These three subtypes are used to estimate prognosis and guide treatments.

However, not all breast cancers respond to this strategy, with the disease still claiming 3,000 lives in Australia each year. The nine newly discovered ecotypes will allow researchers to analyse breast cancer with unprecedented nuance and detail to ultimately develop new strategies addressing each unique ecotype.

Associate Professor Alex Swarbrick

One thing that is characteristic about each ecotype is their profile of immune cells. For instance, we found one breast cancer ecotype that uniquely has a high number of infiltrating lymphocytes, which are the target of current immunotherapies, and low levels of cells that we know to suppress lymphocytes. We would predict that those patients would respond well to immunotherapy, which is highly effective in some cancers, such as melanoma or lung cancer, but has a response of less than 10% in breast cancer patients," says Associate Professor Swarbrick.



The data generated during this study forms part of the Breast Cancer Cell Atlas, an ambitious project to catalogue a million individual cells from 200 patient breast tumours and provide the most comprehensive cellular view of breast cancer yet.

This research was supported by the National Breast Cancer Foundation (NBCF), Mr John McMurtrie AM and Mrs Deborah McMurtrie, the White Butterfly Foundation, the Sydney Breast Cancer Foundation and the NHMRC-funded Centre for Translational Breast Cancer Research.

Find out more at: **garvan.org.au/ecotypes**

Making visible the invisible: animating autoimmune disease

Scientific animation helps illustrate how the immune system turns from helper to adversary.

If a picture is worth a thousand words, moving pictures are worth millions. This is the case for scientific animations, where visual representations of processes and principles help students, researchers, and the general community understand and communicate complex ideas. But such visual stories don't just appear overnight.

Creating these artworks is a complicated process that requires animators like Dr Ofir Shein-Lumbroso to balance scientific accuracy with artistry and a narrative that resonates with scientists and non-expert audiences alike.

Dr Shein-Lumbroso, from Israel's Weizmann Institute of Science, recently completed a professional development program at the Garvan Institute of Medical Research where she worked with Dr Kate Patterson, Garvan's Senior Visual Science Communications Officer. Building on the long-standing relationship between the two institutes, Dr Shein-Lumbroso honed her skills by animating some of the processes studied by Garvan's autoimmunity researchers.

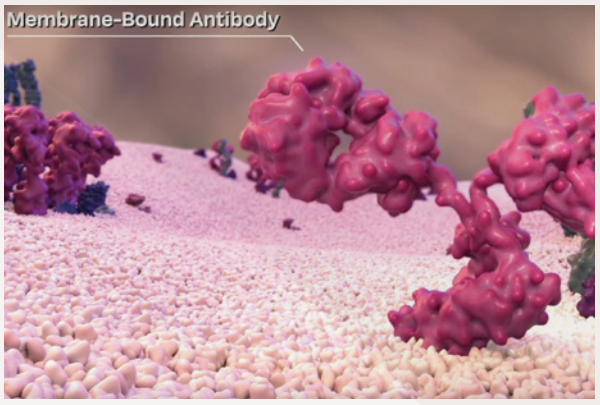
"Scientific concepts can appear abstract and molecules are so tiny, some are smaller than the wavelength of visible light. Visualisation helps to make research less opaque for non-expert audiences but also for scientists," Dr Patterson explains.

Dr Shein-Lumbroso agrees. "In reality, every biological process is crowded and messy, especially when you get to the microscopic processes happening within the human body. But with animations you can highlight and emphasise the important parts you want to talk about which really helps them stand out in people's memory. This is the power of animation."

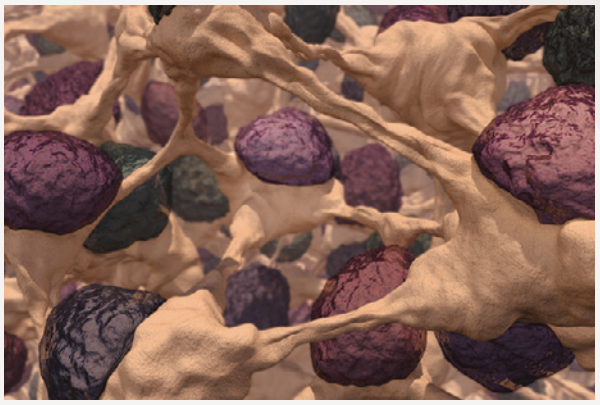
Dr Shein-Lumbroso's secondment to Garvan has been generously funded by Mr Bob Magid OAM and Mrs Ruth Magid.

Watch Dr Shein-Lumbroso's animation at: **garvan.org.au/visualisation**

Dr Ofir Shein-Lumbroso



Membrane-bound antibody



Germinal centre with B cells

Clinical Trial **Spotlight**

Autoimmunity and health: quantifying diagnosis.

Did you know

Around 12% of Australians suffer from an autoimmune disease and over 80% of them are women.

Symptoms are often broad and overlapping with other disorders, which makes diagnoses tough. As a direct result, diagnostic journeys can be long and frustrating. Anecdotally, there is evidence that self-medication and self-diagnosis are rife in the autoimmune community, and that this journey can impact (or be impacted by) mental health.

Regrettably, this information has not reached the research community. This presents a real problem, as some of these factors can change the results of studies, which can make interpretation confusing, or even worse, wrong.

To change this, Dr Sara Ballouz and her team have designed a survey to capture the experiences of the Australian chronically ill community. The more information they can collate, the clearer any trends around medication, mental health and diagnosis will be. This study will document the collective life stories of people with autoimmune diseases and write them into the scientific literature with the end goal of improving diagnostic and treatment outcomes.

The survey is aimed at people aged 18 years or older who are currently residing in Australia and have any autoimmune or chronic illness such as myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS), multiple sclerosis (MS), coeliac disease, Ehlers-Danlos syndrome (EDS) postural tachycardia syndrome (POTS). Even if you do not think you fit into these criteria, you can also participate to act as a control for comparison.

To access the survey or for more information on the project, researchers and ethics:
spoonie-community.netlify.app/

For further queries about this research project please email s.ballouz@garvan.org.au

CLINICAL TRIALS

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.

Personalised therapy for rare and uncommon cancers

We offer the Molecular Screening and Therapeutics (MoST) clinical trials which personalise experimental treatment for patients with rare cancers based on an individual's unique personal and cancer genetic profile.

Find more information at
garvan.org.au/genomic-cancer-medicine-program

PREDICT prediabetes clinical trial

We are seeking men and women aged 20-70 years who have pre-diabetes or who have been recently diagnosed with type 2 diabetes and have not yet been treated with a sugar-lowering medication. This study investigates blood sugar response to personalised diet and diabetes medication. HREC Approval: SVH 17/080.

For further information, please contact
Dr Dorit Samocha-Bonet (02) 9295 8309
predict@garvan.org.au

Jewellery with Purpose

The Kimberley Bracelet reflects the raw beauty of Australia's North-West coast, through a striking combination of hand-selected Paspaley pearls and renewable sandalwood.

With the help of Paspaley's generous support, the MoST program has recruited over 2,200 patients, with 10 major centres now involved in the program across the country.

We thank Paspaley for their continued generosity and visionary commitment to breakthrough medical research.

To give a gift that means more this holiday, please visit garvan.org.au/paspaley today.

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In Celebration of Mrs Anne Shoemark's birthday

Donations made in memory of loved ones

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