Making News

Joint Sydney research centre in the works for Garvan and Weizmann Institutes

Garvan and Israel’s Weizmann Institute of Science are planning to establish a joint centre for research in cellular genomics. The centre, which will be known as the Garvan-Weizmann Centre for Cellular Genomics, will be housed in The Kinghorn Cancer Centre.

The centre will be Australia’s only multidisciplinary facility for cellular genomics, helping researchers develop a detailed study of the genomes of thousands of different cells, the RNA sequences transcribed from these genomes, and the way those genomes are chemically “decorated” (epigenetics).

The centre will increase our understanding of how the genomes of individual cells in the brain, immune system and other organs change over the course of a lifetime; how cancers, autoimmune diseases, dementia and other conditions develop; and how to design new strategies for prevention and treatment.

The partnership will also enable Garvan and the Weizmann Institute to collabo-rate on science education and biomedical visualisation, accelerating development of targeted programs to help teach genomics to school students.

Genomics yields a new understanding of pancreatic cancer

A breakthrough study of more than 450 pancreatic cancer genomes has shown that pancreatic cancer is, in fact, four distinct diseases which may be differentially susceptible to particular therapies. The research was published recently in Nature, and led by the Australian Pancreatic Cancer Genome Initiative and Garvan, along with the Universities of Melbourne and Queensland.

The study defines 10 genetic pathways that are key to the transformation of normal pancreatic tissue into cancer. These findings are critical to the development of precision medicine for pancreatic cancer as they make it possible to better customise treatment approaches for individual patients. The next step is to develop strategies to apply these findings in clinical settings.

Brown fat keeps blood sugar in check

Garvan scientists have shown that brown fat – a special type of fat that burns energy to produce heat – may also help to keep blood sugar steady in adults. The researchers measured brown fat activity and blood glucose continuously in real time in study participants, and found that individuals with more brown fat had smaller fluctuations in blood sugar. These findings open new avenues for diabetes therapies that target brown fat. If researchers can pinpoint what switches brown fat’s activity on and off during the day, they may identify new targets in drug design.

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From the CEO

Dear Friends,

The Kinghorn Cancer Centre is a joint operation between Garvan and St Vincent’s Hospital. This collaboration places the patient at the centre of all decisions, maximising the rapid translation of research findings into very personal approaches to cancer diagnosis, treatment and prevention.

Since its opening in 2012, you have heard a lot about the research advances made by Garvan’s scientists working within the centre. However, I would like to give you just a snapshot of what this very special centre has achieved in terms of patient care in just one year.

In 2016 alone:

- More than 2,200 new patients were referred for cancer care at The Kinghorn Cancer Centre.
- 30,580 people were cared for (both new and existing patients), either through consultations, investigations or treatment sessions in the centre’s various departments.
- The MOSAIC® electronic medical record system, with electronic prescribing of chemotherapy, reached its final stages of implementation.
- Several practitioners began consulting and treating in the Wellness Centre to deliver complementary medicine and allied health services for cancer patients. These include oncology massage therapists, exercise physiologists, dieticians and acupuncturists, with other specialists expected to join the team soon.

Associate Professor Anthony Joshua was recently appointed as Director of Oncology at St Vincent’s Hospital and The Kinghorn Cancer Centre. With a strong research background, Associate Professor Joshua is working closely with Garvan’s Professor David Thomas who is head of Garvan’s Cancer Division and also Director of The Kinghorn Cancer Centre. Professor Thomas is also a clinician. This unique leadership pairing has contributed to establishing an unprecedented level of collaboration within the centre.

By supporting Garvan’s research – whether it be in cancer, diabetes, bone health, diseases of the immune system, neurological disorders, genomics and epigenetics – you can be confident that you are supporting research with one common goal: to improve outcomes for the people affected by some of the most complex diseases impacting our community today.

Thank you for your support.

Andrew Giles, Chief Executive Officer, Garvan Research Foundation

Know Your Bones

Garvan and Osteoporosis Australia recently announced the launch of Know Your Bones, a free online tool that helps consumers to understand their own risk of bone fracture.

Underpinned by key research findings from Garvan’s Dubbo Osteoporosis Epidemiology Study, Know Your Bones provides a personalised estimate of bone fracture risk. Evidence-based and consumer-friendly, it takes approximately five minutes to complete, and aims to empower consumers to initiate discussions about bone health and osteoporosis with their GP.

The tool collects information about the user’s age, gender, weight or bone mineral density, history of fracture, history of recent falls, and lifestyle factors. All users aged 18 and above receive a summary for further discussion with their GP and, for people aged 50 and above, the tool provides a personalised assessment of fracture risk over five and 10 years.

Osteoporosis, a disease of reduced bone strength and increased fracture risk, is a major national health issue for Australia, affecting more than one million Australians. Contrary to popular stereotypes, osteoporosis affects both men and women, and can affect individuals across a wide age range.

“IT affects virtually every bone in your body, not just your spine or your hip,” says Professor John Esmission, AO, of Garvan’s Bone Biology Division. “It’s associated with huge impacts in terms of quality of life, healthcare costs and even premature mortality.”

Important, proper management of osteoporosis could reduce the risk of a subsequent fracture by as much as 80 per cent. Yet only 20 per cent of women (and an even smaller percentage of men) who come to medical attention for a fracture are investigated and treated to prevent further fractures.

Know Your Bones is the inaugural project of the Bone Alliance, which was formed by Garvan and Osteoporosis Australia in October last year. The Alliance seeks to use innovation and education to address the major health issue of osteoporosis.

Garvan Partner for the Future turns 100

Members of the Garvan Research Foundation were recently privileged to join the birthday celebrations of much-loved donor and Partner for the Future, Mr William “Bill” Walker.

Mr Walker celebrated his 100th birthday at a party organised by his friend and fellow Garvan Partner for the Future (someone who has left a bequest to Garvan in their will), Mrs Helen “Vicki” Graham. He was joined by his dearest friends and neighbours, as well as Carol O’Carroll and Donna Mason from the Garvan Research Foundation.

Messages from a number of dignitaries were read, including from Her Majesty the Queen; His Excellency General the Hon. Sir Peter Cosgrove AK MC (Ret’d); Prime Minister, The Hon. Malcolm Turnbull; NSW Premier, The Hon. Mike Baird; and the Governor of NSW, His Excellency General The Hon. David Hurley AC DSC (Ret’d).

Mr Walker was an Industrial Arts teacher at Liverpool Boys High School for 35 years, and some of his former colleagues joined the celebration.

Giving is a family affair for the Mostyns

Three generations of the Mostyn family meet four times a year with the sole purpose of providing funding to charitable organisations around Australia and the globe.

Garvan is honoured that the Mostyn family has supported its work since 1993 through the family corporation Craig Mostyn Group, and more recently also through the Mostyn Family Foundation. Since 2012, the family has chosen to provide seed funding for innovative Garvan research projects.

In 2011, brothers Richard, Andrew and Robert Mostyn helped their father Bob Mostyn to establish the Foundation.

Chairman, Richard Mostyn says, “My father was on the board of the Medical Foundation at Sydney University for many years and we set up the Mostyn Family Foundation with the aim of supporting medical research, as well as providing grants to other charity organisations in Australia and internationally.”

Sadly, Richard, Andrew and Robert’s mother Joan passed away in 2009, so the Foundation initially provided seed funding to Garvan for research into the links between cancer and diabetes.

The Mostyn Family Foundation is truly a family affair. Three Mostyn brothers – Richard, Andrew and Robert – their wives, their father Bob, and all the grandchildren are involved in the Foundation.

Richard Mostyn says, “Four times a year we come together for a board meeting. This is when we discuss our involvement with the organisations supported by the Foundation, and we make decisions about grants.”

“The Foundation also established an Advisory Council, to help the younger generations of the Mostyn Family Foundation to recommend and facilitate grants to charities of their choice,” says Amanda Mostyn, Richard’s wife. “This has been very beneficial in developing their sense of giving and the responsibility that goes with that.”

According to Amanda, the Foundation relies heavily on its Responsible Person, Stephanie O’Connor, for her guidance and wisdom. “So much so that Stephanie and her children who are also members of the Advisory Council are also encouraged to suggest charities that are close to their hearts.”

Thank you to the Mostyn Family Foundation for recognising the importance of medical research, and for your ongoing support of Garvan’s dedicated and gifted researchers.
breakthrough cancer treatment involves creating drugs the immune system might be involved in approach. Current research is focused field is proving it to be a very powerful. While the concept of cancer immune system protective mechanisms? We all owe our survival to our immune is evolving. Focusing on the area of “cancer immunotherapy”, the teams aim to identify and develop new and more effective cancer therapies, prevention strategies, and perhaps even discover biomarkers that will pave the way for new diagnostic tests. Garvan researchers are collaborating to recruit the body’s own defence mechanism, the immune system, to improve outcomes for cancer patients. Focusing on the area of “cancer immunotherapy”, these altered proteins that the immune system identifies as foreign. The problem with cancer is that it is only partially foreign because it develops from our own tissues. An immune response is limited to the mutations in cancer cells that result in altered proteins, and it is these altered proteins that the immune system identifies as foreign. The more mutations a cancer has, the more likely it is to produce changes that can be “seen” by the immune system. This is why cancer immunotherapy has proven successful in some forms of melanoma. People diagnosed with melanoma have usually had a lifetime of exposure to UV light, meaning there has been plenty of time for many mutations to develop. Similarly, smoking-related lung cancer has been seen promoting results from immunotherapy because a lifetime of exposure to cigarettes produces a lot of mutations and, therefore, a lot of changes that the immune system can recognise.

Garvan’s research Garvan’s cancer immunotherapy work has been supported by research grants from Cancer Council NSW for a number of years, and this support was recently renewed when Professor Tangye received the Susan and John Freemann Cancer Research Grant. This grant allows Professor Tangye to study patients with primary immunodeficiencies, hoping to understand how errors in specific genes can cripple their immune system, and increase their susceptibility to cancer. This research aims to guide strategies to enhance anti-viral and anti-cancer immunity. Professor Tangye says, “I hope that this research will not only help people with immune deficiencies, but also those with an increased risk of developing cancer. My ultimate goal for this research is that it will help in the development of vaccines that can protect people with immune deficiencies from getting cancer.”

Another cancer immunotherapy project at Garvan is being led by Professor Jonathan Sprent, and aims to find ways to improve results of a treatment approach known as Dendritic Cell Therapy. Dendritic cells function by absorbing antigens from cancer cells and presenting small pieces of antigen in stimulatory form to the immune system. In this way, dendritic cells make cancer antigens visible to the immune system. However, cancer cells can make dendritic cells defective, compromising the immune system’s ability to see that there is something invading the body. Dendritic Cell Therapy is essentially a way of boosting the power of dendritic cells. It involves growing dendritic cells in tissue culture, then adding cancer antigens to these cells. These antigen-bearing cells are then injected into a patient. Trials of Dendritic Cell Therapy have been underway for 20 or 30 years but, while some patients do well, the majority see little benefit. Professor Sprent says, “There are a number of possibilities as to why success with Dendritic Cell Therapy has been limited. One possibility is that, when you grow dendritic cells and add cancer antigens, you have to do it in tissue culture in the lab. This may create problems because when removed from the tissue culture and injected into the body, the cells may die or become trapped in tissues like the lungs. They never make it to the lymphoid tissues and, as a result, the cellular immune response is never activated.”

The technique that Professor Sprent and his team are using involves taking dendritic cells and growing large quantities of dendritic cells in tissue culture. He explains, “Then we prepare tiny pieces, called nanoparticles, from the surface of these dendritic cells and load them with small bits of cancer antigen. We can also add other things to the surface of the nanoparticles in order to make the immune response to the cancer antigens more effective. “Next, we inject the nanoparticles carrying the cancer antigens into a mouse. This approach stimulates a good immune response and leads to effective rejection of tumours,” he says. “I think this approach is promising because, being so small, the nanoparticles we create can move throughout the body easily, whereas whole dendritic cells cannot. So, the nanoparticles are ideal for reaching the lymphoid tissues and inducing a good immune response to the tumour.”

The road ahead Immunotherapy has galvanised interest around the world, primarily in the treatment of cancer, and there are so many possibilities to explore. Professor Sprent says one major challenge is how to make immunotherapy effective in the treatment of other cancers. “While immunotherapy is proving useful in the treatment of diseases like melanoma and smoking-related lung cancer, where the mutations develop over time, other cancers with less mutations do not respond. For example, cancer of the colon tends to have less mutations, so the immune system can’t see the cancer as easily. “So the big challenge is, how can we stimulate the immune system to attack tumours like colon cancer? I think this will preoccupy us for some time to come.”

Ask Garvan How does the Garvan Institute use my donation? Community support is vital to making Garvan’s research a reality. While Garvan’s researchers are highly successful in terms of being awarded peer-reviewed government funding, there is still a significant funding gap. For every dollar received in government funding, our researchers must find another 70 cents in order to continue their important work. In this funding environment, community support has never been more vital. Garvan’s researchers are highly aware of this, and the responsibility of using your donations wisely is always top of mind. Donations help with the costs of many things – from employing the best and brightest staff from around the globe, to purchasing and maintaining the technology required to carry out world-class medical research, and even the seemingly mundane, but essential items like petri dishes, test tubes and rubber gloves.

I can only afford to donate a small amount. Will that really make a difference? In short, yes. It may sound like a cliché, but every dollar counts. Below is a diagram that indicates what some of the important, everyday equipment costs.

In celebration Happy 50th birthdays to Tony Decaria and to Sue and Kieran. Your birthday donations will help Garvan achieve breakthroughs in medical research. Thank you for your support!
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**Can you give us a brief outline of your recent work history?**

Previously, I was working as a geophysicist. I was traveling the world doing seismic reflection and underwater reflections. However, when I had kids, I didn’t want to be travelling that much. How I came to Garvan is interesting. I saw a full page advertisement in a newspaper for CEO of a major bank. As a bit of fun, I applied and, predictably, I received a reply saying that I didn’t meet the unique criteria for the role. They did, however, forward my resume to their maintenance department, who introduced me to a company that was contracting services to Garvan. That is how, in 2010, I started working at Garvan as an Electrical Technician. I then became Engineering Manager, and I am now the Operations Manager.

**What does your role at Garvan involve?**

I am responsible for the majority of services in the building. That means everything from overseeing all engineering and building services. It includes maintaining scientific services, which involves ensuring all the equipment is maintained and running correctly. I must also ensure that the building is safe for the scientists. That means everything from servicing all the equipment, to ensuring the safety systems are working correctly.

**What are some of the recent findings from your work?**

Using preclinical mouse models developed in the laboratory, we have identified genes that may predispose to osteosarcoma. We have also investigated the role of the immune system in osteosarcoma. Our work has identified that the immune system plays a role in the development of osteosarcoma.

**What do you enjoy doing in your spare time?**

In my spare time, I love reading, watching movies, and spending time with my family. I am currently exploring Sydney. I enjoy spending time with family and friends. In my spare time, I love reading, watching movies, and cooking.

Left to right: Dr Danyal Butt, Associate Professor Daniel Christ, Dr Joanna Achinginer-Kavecka and Dr Renad Bartonicek

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**Staff profile: Michael Emerson Operations Manager**

**Researcher profile: Dr Maya Kansara**

**Group Leader, Immunobiology of Cancer Laboratory**

Can you give us a brief outline of your recent work history?

I completed my PhD in New Zealand, investigating the regulation of glucose transporters in cancer. I then moved to Melbourne to work at the Peter MacCallum Cancer Centre. I moved to Sydney in June 2015 to work in The Kingston Cancer Centre.

What is the current focus of your work?

The focus of my work is to identify new targets to treat osteosarcoma, a cancer of the bone. The tumour type predominantly affects children and young adults (10–25 years of age) and has a second peak incidence in older adults (85 years or older).

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**Garvan researchers awarded at AGM**

**The winners of the Heliflite Young Explorer Award, CHAMP Private Equity Young Pioneer Award and Joseph Palmer Innovation Prize were announced at Garvan’s Annual General Meeting in May.**

**Heliflite Young Explorer Awards**

Doctors Joanna Achinginer-Kavecka and Danyal Butt from Garvan’s Genomics and Epigenetics and Immunology Divisions respectively were awarded the 2016 Heliflite Young Explorer Awards. Each year, the awards support two of the most outstanding early career researchers at Garvan by facilitating international travel to conferences and laboratories to foster career development.

**CHAMP Private Equity Young Pioneer Award**

Dr Renad Bartonicek from Garvan’s Genomics and Epigenetics Division was awarded the 2016 CHAMP Private Equity Young Pioneer Award. The award, presented annually by CHAMP Private Equity, aims to assist an early to mid career researcher to test an innovative research idea.

**Joseph Palmer Innovation Prize**

Associate Professor Daniel Christ, head of the Antibody Therapeutics Laboratory in Garvan’s Immunology Division, was presented with the inaugural Joseph Palmer Innovation Prize. Joseph Palmer & Sons is Australia’s oldest brokerage firm. The prize aims to encourage and support translational innovation arising from research at Garvan.

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**Thank you to Garvan’s amazing community fundraisers**

Garvan is fortunate, and very grateful, to have many individuals, community groups, organisations and companies that host events or activities to raise funds for medical research. We’re privileged to have recently received support from a number of community fundraisers whose exceptions efforts have provided vital support for Garvan’s research.

One example is Dee and Rob Napier who held an open garden on their property, Kyalla Park, during Food of Orange District Week. For the first time in 10 years, visitors had the chance to visit Kyalla Park and enjoy its 10 acres of rolling lawns, mature trees, rare shrub and perennials, dry stone walls and historic garden. Over three days more than 1,200 people visited the garden from far and wide. Dee and Rob raised more than $4,000, as well as raising awareness about the work of the Garvan Institute.

We extend our sincere thanks to Dee and Rob, and all those who have raised funds in support of Garvan. We also sincerely thank everyone who supported these fundraisers. Your dedication to Garvan’s important research is greatly appreciated.
In Memoriam February to June 2016
Donations have been made in memory of:

KiraLee
David Abbott
Gordon Adamson
Mary Andrew
Humphrey Arundel
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Deceased members of the Qantas Retired Staff Club Inc.
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Dorothy Pye
Monty Rana weave
Myra Read
Robert J Rice
Sydney Roberts
Paul Roll
Ian Rowland
Anna Rudas
Kerryn Rufus
Phil Salter
Gina Satovris
Jacqueline Saunders
Muriel Scandrett
Mary Scanlon
Emilia R Schaeffer
Graeme W
Shakespeare
Stephanie Sherwood
George Sleet
Raymond Sly
Rita Sly
Marjory Smith
(Hannebery)
Shaun Smyth
Sue Sokolow
Greg Solomon
Frederick Sommerfield
Graham Starmer
Gay Stevens
Maria Stojcevski
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Margaret Mary Torpey
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Donations of $2 and above are tax deductible.

Please use this coupon if you would like to make a donation to Garvan’s breakthrough medical research, or if you would like further information. We would love to hear from you.

Coming Up

2016 free public seminars

Wednesday 14 September – 6pm – Genomics and the revolution in medical research
Friday 28 October – 10am – Immune disorders

Space at these free public seminars is limited, so bookings are essential. To book, phone 1300 73 66 77 or (02) 9295 8110 during business hours, or visit www.garvan.org.au

Clinical Studies

Ovarian Cancer Study
We are looking for volunteers with NO personal history of cancer to donate approximately 50-80 mL of blood to be used to optimise experimental protocols and/or biobanked for future use in cancer versus controls comparisons. This work is part of a project aimed at developing a blood-based test for early ovarian cancer.

To volunteer, or for more information, contact Dr Kristina Warton on 0438 649 073 or email k.warton@garvan.org.au (St Vincent’s HREC Ref SVH14/257).

Brown fat and blood pressure study

Brown fat is a special kind of fat which burns fat in the body. We are looking for volunteers who have high blood pressure to participate in a trial investigating the effect of a medication on brown fat. Participants must be aged 18 to 45 years and currently on one blood pressure medication.

For further information please contact Dr Paul Lee on (02) 9295 8416 or email p.lee@garvan.org.au (St Vincent’s HREC Ref 14/SVH/105).

Please use this coupon if you would like to make a donation to Garvan’s breakthrough medical research, or if you would like further information. We would love to hear from you.

Garvan INSTITUTE OF MEDICAL RESEARCH

Call: 1300 73 66 77 (9am to 5pm)
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