Unsuspected aspect of immune regulation revealed
A discovery by Garvan immunologists, which uncovered an additional role for antibody-making ‘B cells’, is considered important enough by the American Association of Immunologists to rank it among the top 10% of articles in *The Journal of Immunology*. The finding by Senior Research Assistant Stacey Walters and Associate Professor Shane Grey, shows that B cells also participate in the development of ‘regulatory T cells’.

Early detection window when pancreatic cancer is in the family
It is likely that pancreatic cancer takes between 10 and 20 years to develop, providing a potentially very “broad window” of intervention, if detected early. This may be possible for people who inherit a predisposition. Garvan’s Dr Jeremy Humphris and Professor Andrew Biankin analysed medical histories and tumour samples taken from a cohort of 766 pancreatic cancer patients, operated on between 1994 and 2012. Based on their findings, the pair recently published a paper indicating that it should now be possible to identify novel susceptibility genes, and at the same time, design risk management and screening programs for the genetically susceptible group. “Our findings suggest that when we’re assessing someone, it’s important to understand the family history – not just of pancreatic cancer, but other malignancies too,” said Dr Jeremy Humphris.

Moving toward the creation of blood stem cells in the laboratory
A team of scientists from Garvan and Monash University have uncovered a mechanism essential for forming hematopoietic stem cells, a very special group of cells in the early embryo that ultimately generate all the blood and immune cells in our bodies. Published in the prestigious journal *Nature*, the finding moves us closer to one of the Holy Grails of modern medicine – being able to make hematopoietic stem cells in the laboratory.
From the CEO

As the year comes to its end, I would like to take a moment to thank all the wonderful volunteers who donate their time to support the work of the Garvan Institute of Medical Research.

Starting with my volunteer board - under the chairmanship of Geoff Dixon, the Garvan Research Foundation is fortunate to have such wonderful leadership. No doubt many of you will know and have met the board at various times. I would like to extend a warm thank you - especially in this year as we have been developing a five year strategic plan, ‘Garvan 2020’ - to the Hon. Bruce Baird, Jane Allen, Gabriele Fangio, Lyn Gearing, Wal King, Phillip Knox, John Landerer, Lindsay Leeson, Brad Rees, John Schubert, Melinda Conrad, Loftus Harris, Simon Mordant, Jeanne-Claude Strong and, of course, Sister Clare Nolan, from the Sisters of Charity.

Just as important are the fabulous volunteers who work with my team in the office on a daily basis. Some of these generous people have been volunteering for more than ten years at Garvan - which is a fantastic achievement. The value of this level of volunteering cannot be understated, as it directly saves Garvan tens of thousands of dollars in direct costs by providing support in areas such as opening the mail, processing donations, answering phones, helping out at seminars and, in the case of the ever smiling Bob and Joan, helping run our free public tours. Thanks must also be made to the many volunteers from National Australia Bank who help coordinate our free public seminars.

Then there are the many people who volunteer to fundraise for Garvan. These include people as diverse as the wonderful Samuel Johnson who took a year out of his life to ride a unicycle around Australia - and raised $1.8 million for Garvan; to the teams who recently ran the City2Surf as part of ‘Team Garvan’. I would like to extend a personal ‘thank you’ to all our valuable volunteers. As we end another successful year here at Garvan, I would also like to say a very warm ‘thank you’ to all our many donors and friends for your wonderful support.

Very best wishes for a wonderful Christmas and 2015.

Vale Deirdre Blakemore

The Garvan family is sad to report the passing of a much-loved and long-time volunteer and friend, Deirdre Blakemore. Deirdre passed away recently in Sydney, surrounded by her devoted family - her husband John, her sons, Scott and Nigel and her brother, Doug.

Deirdre was known for her caring and generous nature, and began volunteering with the Garvan Research Foundation in 2004. She was inspired to volunteer following treatment for breast cancer at St Vincent’s Hospital. It was during this time that she realised the importance of Garvan’s work, and wanted to contribute in some way.

Deirdre could regularly be found in the Garvan Research Foundation office, helping with public seminars and tours, and any office work. Having worked with Garvan for so many years, Deirdre knew most of the volunteers. For some time she was the volunteer co-ordinator, assessing people’s skills and allocating the right volunteer to the task at hand.

Once interviewed about her time as a Garvan volunteer, Deirdre said, “I’d recommend it to anyone. If you have the time to volunteer, you will find it very rewarding. You certainly get more out of it than you give.”

Andrew Giles, CEO of the Garvan Research Foundation, said, “It was always a pleasure to have Deirdre in the office – she was truly a part of the Garvan family. She had a smile for everyone, and took the time to speak with all the staff. She was a devoted grandmother, who always spoke with great pride about her family, especially her grandchildren, Lucinda, Angus and Max. We are extremely grateful for the many years of dedication and support she provided to us at the Garvan Research Foundation. We miss her terribly.”

Brian Watson was diagnosed with inoperable pancreatic cancer in September 2013. Until then, this much-loved husband, father, grandfather, brother and uncle had never been seriously ill. He was a fit and active person, drank very little alcohol, never smoked and maintained a healthy diet. Yet, remarkably, this insidious disease took Brian’s life. As his family soon discovered, little is known about treating pancreatic cancer, and survival rates are very poor. Yet, rather than feeling frustrated by this, Brian’s family chose to do something about it.

Daughter, Lucinda said, “As we engaged with dad’s specialist, we learned that there is no one solution to pancreatic cancer, and how much work is needed to be done in terms of community support and Government funding, in order to find more effective treatments.” She spoke about a ground-breaking genome study which, at first, we hoped our dad could be part of. Unfortunately, he was not able to participate. This brought home to us the need for greater support for more studies of this nature.

“As members of a local support group with a very small membership (reflective of the poor survival rates associated with this disease), we began to appreciate how higher survival rates in other forms of cancer translated to a louder voice, and therefore greater funding. Very few people we knew could name a pancreatic cancer survivor. This in itself told a story, and helped focus our efforts in a very specific area of Garvan’s research - the Australian Pancreatic Cancer Genome Initiative (APCiG).

Contributing to the welfare of communities at home and abroad, as well as the institutions that had shaped his life was of major importance to Brian. His family describe him as, “a force for good in communities from Cootamundra to Killara, and from Africa to South-East Asia and the Pacific.” This ethos obviously rubbed off on his family, who decided to complete the Sydney City2Surf, raising funds for APCiG in the process.

Naming their team ‘Dad’s PanCan Army’, the family set about raising funds, and the response was phenomenal! In the weeks leading up to the City2Surf, ‘Dad’s PanCan Army’ raised more than $500,000.

Thinking about why the team received such amazing support, Lucinda says, “Dad had such an impact on so many lives - not just those of his family. That in itself was a driver for people to dig deep. We actively supported the listing of a drug, Abraxane for pancreatic cancer patients on the PBS, so our family and friends were already aware of some of the issues. By choosing a cause that really mattered to our family, and an event that was a challenge (to say the least!), we reflected the strength, closeness and personality of our family, and I think that resonated with those who knew us.”

The four family members who ran the City2Surf finished together in one hour 36 minutes and 36 seconds, showing what you can do when you work as a team. In many respects, Lucinda says it was emotionally cathartic.

“We completed the City2Surf just two days before dad passed away. Leaving his bedside to run was probably one of the hardest things we had to do in this period, but we had made a commitment to those who had donated and we had always been taught by our father to uphold our commitments. We know he was very proud, not just of us, but that we were making a difference for others so that they might be more fortunate than him.

“Every fundraising story has its origin somewhere. This one was a personal journey that started with our dad who taught us all.

“Dad taught us a number of valuable lessons in life – above all, ‘Don’t give up the good fight.’ A lesson that has obviously been taken to heart. If you would like to find out more about raising funds for the work of the Garvan Institute of Medical Research, please visit www.garvan.org.au/fundraise or phone (02) 9295 8110.

The Watson family - fighting the good fight against pancreatic cancer

Fracture Risk Calculator is an online tool that asks five simple questions to work out your individual risk of osteoporotic (or fragility) fracture. If you are aged over 50, simply enter your age, gender, weight (or bone mineral density), the number of recent falls and the number of fractures you have had. The calculator will give you your risk of fracture as a percentage over the next five or 10 years. It is one of the few calculators that doesn’t require the results of a bone mineral density test to give you your individual risk of fracture. However, if you know your bone mineral density score, the calculator can use it to improve your estimated risk.

Developed by Garvan’s Bone Biology division using data collected in the internationally renowned Dubbo Osteoporotic Epidemiology Study, the calculator has been validated in international studies. You can use the calculator at any time at the Garvan website (www.garvan.org.au) or download it for free at the iTunes app store.
**Feature story: There is no cure for type 1 diabetes – not yet. However, a potential of transplantation as a treatment for all people with type 1 diabetes.**

In a step closer to understanding why we need to keep transplanting islets (or islet cells) from donors, we found that islets are easier to manipulate than the immune systems of patients, and this finding will help us establish targets for therapy. In other words, we have the potential to treat islets with immunosuppressive compounds prior to transplantation.

In my opinion, the secret to transplant success lies in the beta cells, with one option being gene therapy. We are trying out ways to modify the beta cells genetically so it will survive the transplant process and allow recipients to produce their own insulin. The major hurdle is the fact that 95% of beta cells don’t like being extracted from the pancreas. When you transplant into a recipient, it’s estimated that up to 15% of beta cells will die within the first 24 to 36 hours. They are very fragile – not like a heart muscle. You can put in a freezer box and ship across the country.

In very exciting and recent work in mice, my team has demonstrated that genetically engineering an islet graft with anti-inflammatory compounds is sufficient to allow permanent survival for the majority of the grafts. This was achieved in the face of a very strong immune attack in the recipient and in the absence of any immunosuppression. Some of this new data shows that the modified islet grafts engineered to regulate T cells that stop the attack of the ‘warrior’ T cells, resulting in long-term graft tolerance. Tolerance is a term used by immunologists to describe the situation where the immune system stops attacking a transplant and accepts it as a part of the normal body.

These exciting studies demonstrate a novel approach to immunosuppression in transplantation, whereby the islet graft can dictate T cell decisions. From this work, my team have developed the concept of the ‘death-defying islet’ which would be protected from immune attack and so, do away with the need to take immunosuppressive drugs.

The next stage of this work is advancing steadily and working toward testing this approach in people. If we succeed in this research, it will save a lot of suffering globally and save billions of dollars in health budgets.

The future of type 1 diabetes

The current strategies we are testing at Garvan include promoting a protocol to continue to look to the future and ask, “What else can we do?”

One way to make new discoveries is to examine experimental new technologies that can help us to examine familiar questions. In this way, we are very excited about the generation of new technologies for sequencing and investigating the human genome.

There is strong evidence that type 1 diabetes happens when a certain combination of genes comes into contact with a particular environmental influence. Past research has identified some good candidate genes, and raised suspicion on others. However, we know less about the nature of the particular changes in the involved genes, and how, as a result, their function may be different.

At Garvan, researchers are very interested in knowing more about the genes that contribute to type 1 diabetes at this functional level. We believe that identifying, not only the genes, but how their function may be changed or different in people with type 1 diabetes, will lead to major breakthroughs in understanding, and result in the discovery of new drug targets to treat type 1 diabetes.

To achieve this aim of functionally annotating the gene changes in type 1 diabetes, I have assembled an outstanding team of senior researchers from within Garvan and around the country, including clinical leaders from Westmead Millennium Institute and Royal Adelaide Hospital, experts from the Charles Perkins Centre, Sydney University, the Australian National University (ANU), as well as international leaders from New Zealand, USA and Canada.

Using very new genome technologies and cutting edge scientific methods, my team is embarking on a new program with the aim of functionally annotating the gene changes in type 1 diabetes. To start, we have sequenced the genomes of 50 individuals with type 1 diabetes. Already, even at this early stage of this newest program, we have made an exciting discovery. We have shown how single-nucleotide polymorphism (SNP) changes in one particular gene – called A20 (suspected to be a player in type 1 diabetes) – not only contribute to diabetes susceptibility, but also enhance rejection in islet transplantation.

This exciting data provides tantalising new information that will help to bring us closer to a better understanding of type 1 diabetes and hopefully, to a cure.
Dr. Marie Dziadek
Professor John Mattick. My role is executive searches for universities. I use my hand at recruitment, conducting interviews, and facilitating the whole process of hiring new talent. Sometimes I am also a mentor, guiding younger researchers to achieve their goals.

What is the biggest challenge in your area of research?
Finding and bringing out the best in people. Research is a tough gig. The success rate at the National Health and Medical Research Council for project grants this year fell below 15% for the first time in the past decade. As a major funding source for cancer research in Australia, this pass rate is so severe that even good ideas struggle to get funded. On the other hand, science is more like an elite sport than a job: it should aspire to excellence. Public investment in science is a statement of hope – that the ideas and hard work of Australian researchers will reduce the suffering due to diseases like cancer in our community.

Great researchers relish the challenge of excellence. This is what places like the Garvan Institute are all about. I’m optimistic that genuinely excellent work, over time, will be funded. The other part of my job is to bring out the best in people, so they can achieve the excellence that we stand for. Sometimes this means supporting people when the system won’t because we know what the system may not: that this person has within them the potential to do something remarkable in their science. At other times, it means guided action – to ensure that, at first glance, appear promising – get the right strategy.

What inspires you about Garvan’s work?
There are many things I’m passionate about Garvan. Perhaps the most remarkable is the deep support from the Garvan community. The ability to generate and then understand ideas that are before our time is the best thing about this organisation. Science is like a marathon – it requires courage, stamina, and determination. The support of an organisation that backs its best people and ideas is essential. More particularly, in the Kinghorn Cancer Centre, Garvan has made a commitment to something that is important to me: making our patients the centrepiece of our research.

What do you enjoy doing away from the lab?
I would like more time to play the guitar. As a self-taught classical guitarist, I have been playing now for almost 30 years, and I almost always get it right! I particularly love Bach. I am a cricket tragic, I love fine food, and I am a little bit of a wineogeek. I enjoy spending time with my family. My younger siblings are a part of it, that drew me back.

What does your role at Garvan involve?
Effectively, my job is to operationalise Professor Mattick’s vision for the Institute. I work closely with him to develop strategies and policies. Generally, I work to ensure that Garvan continues to strive for research excellence. I also support research staff, especially the younger researchers who will be our future leaders. I help them with skills and leadership training programs, as well as mentoring them in writing grant and fellowship applications. I’ve also set up Women in Leadership lunches to help support female scientists in their career progression. Other aspects of my role are to support the Garvan Research Foundation by providing scientific input for its activities, and to co-ordinate communications across the Institute. I also assist with strategic recruitment.

What inspires you about Garvan’s work?
We have some really great scientists at Garvan. In fact, it was Garvan’s potential to make a significant difference in medical research, and opportunity to be part of it that drew me back. As I see it, one of the biggest challenges we face is to effectively translate research findings into clinical practice. Garvan’s links with St Vincent’s Hospital means the potential exists and is exciting. I’m keen to help build on that potential in order to achieve significant clinical outcomes from our research.

I am currently in the process of cancer treatment, and as a result of this experience, I recognise even more acutely the need for research and the need to have clinicians engaged in research.

What do you enjoy doing in your spare time?
I love bushwalking and scuba diving with my partner, which is looking forward to getting back into when I have finished my treatment. I really enjoy being in a natural environment, especially in the reefs amongst mantas rays, turtles and thousands of tropical fish. The next best thing is international travel. I’ve lived in and visited many countries around the world, but I’m now drawn to those with ancient histories. Visiting places like Iran and Egypt makes you realise that, 5,000 years ago, people were incredibly ingenious and creative. We think we’re clever with our scientific discoveries, but to think of the intelligence and ingenuity behind these ancient civilisations certainly puts things into perspective about the capabilities of the human mind.

Love Your Sister – the book

Love Your Sister: how far one man will go for his sister. Samuel and Connie Johnson’s remarkable story is available now from Booktopia, Book World and iTunes.

December 2014 | Issue 27

Ros Carberry’s 50th Birthday
Dorothy Elliott’s 70th Birthday
John Friend’s 70th Birthday
Nina Leibovitch’s Birthday
Grace Lubrano’s 50th Birthday
Neville Mootie & Kim Yeni’s Wedding
Pam Petherbridge’s Birthday
Jock Montgomery’s 90th Birthday

If you would like to celebrate a special event with Garvan, contact the Supporter Care team on (02) 9295 8110.
Clinical Studies

Pre-diabetes study
We are looking for healthy male volunteers who have close relatives with type 2 diabetes for a study investigating the role of the autonomic nervous system activity in the development of the disease. The study involves visiting the Garvan Institute in Darlinghurst for one morning during working hours. If you are willing, aged 50 to 60 years and healthy, please contact Lynne (02) 9295 8231 or Dorit (02) 9295 8309 or email crf@garvan.org.au (St Vincent’s HREC Ref 12/102).

Osteoporosis study
Are you female and over 55? Have you had a vertebral (spinal) fracture due to osteoporosis? We are looking for volunteers to be part of a clinical trial that compares a new osteoporosis treatment to a current medication. Both are designed to stop further fractures. For further information please contact Dr Yvonne Selecki on (02) 9295 8276 or y.selecki@garvan.org.au, or Vanessa Travers on (02) 9295 8269 or email v.travers@garvan.org.au (Southern Health HREC Ref HREC/12/SHA/6).

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 (02) 9295 8416 or email p.lee@garvan.org.au (St Vincent’s HREC Ref 14/SVH/105).

Parkinson’s Disease study
We are looking for healthy volunteers to act as reference points in our Parkinson's Disease study. We are 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 Associate Professor Antony Cooper (02) 9295 8238 or email a.cooper@garvan.org.au (St Vincent’s HREC Ref 14/SVH/105).

In Memoriam July to October 2014. Donations have been made in memory of:

- Phil Archer
- Mark Beresford
- Kerrie Biddell
- Deirdre Blakemore
- Nigel Blyth
- Tom Bowes
- John H Buckerfield
- John J Burleigh
- Maria Cassimatis
- Denyse Castray
- Suzanne Cates
- Peter Catt
- Thomas Chung/Lin Chan
- Fred Clinton
- Pat Cooley
- Dennis Cooper
- Diane Cox
- Alan W Crawford
- Suann Croker
- Olive Cunningham
- Janelle K Davis
- Shirley Diepeveen
- Sue Dowlan
- Jennifer E Dowling
- Frank Edwards
- Heather Evelyn
- Ronald K Farmer
- Talanoa & Tupou Finau & Tuinukuafe
- David J Foster
- James Gaffney
- Susan Gambling
- Josephine Gaylor
- Jean Ginsburg
- Rochelle Goulburn & Michael Pager
- Barry T Graham
- Stewart J Graham
- Betty Grant
- Charmaine Grant
- Bob Green
- Gordon T Hadley
- Susan Hanchard
- Susan Hannah
- Mark C Hardacre
- Pam Hewitt
- Julie A Holliday
- David Hollier
- Elizabeth Holt
- Kerry Hosking
- Graham Howarth
- Thomas Hunter
- Harry Hutchings
- Michael Ingamells
- Rosie Jimerson
- Dennis Jeans
- Annette Jedovnicky
- Evi Joannou
- Lori Johns
- Neville Johnson
- Peter C Jones
- Vera Jones
- Heather King
- Gordana Kozan
- Engelbert M Kromwyn
- Brian Laine
- Katie Lawson
- Fay Leslie
- Ellen Liddon
- Mary Ma Soo L Ling
- Colleen Lorimer
- Moira K Ly
- Tim & Andrew Lynch
- Susan P Mahon
- Indira Malik
- Bryan Manifold
- Nonna Maria
- Sebastiano Marino
- Frances Edna Matthews
- Patrice Maude
- Jake McQuillan
- Gordon R Merret
- Patricia Morath
- Elizabeth Morris
- Susan Moses
- Amanda’s Mother
- Adrian Notley
- Susan O’Brien
- Ian J Oswald
- Catharine Parsons
- John Patterson
- Penelope Paul
- Janine Pearson
- Stanley Penfold
- Brian Peterson
- Bruna Petrich
- Clare Pfeiffer
- Bob Pitcher
- Donna M Pouleur
- Nicholas Raftos
- Madan Pal Singh Rana
- Jane Rapp
- Robert J Rice
- Doreen M Rinaldi
- Bryan Robertson
- Brenda Rodgers
- Mike Roffe
- Kathy Roupas
- Victor Shahin
- Ian D Shailer
- John Shannon
- John Sharmar
- Dorothy Simmons
- Diana Sinclair
- John Siney
- Raymond Sly
- Cleone Smith
- William Marcus Benjamin Smith
- Helen Smolik
- Tom Stamenkovic
- Patricia Stevenson
- Arthur Strachan
- Elisa Tapia
- Daniele L Tourma
- Tu Tuliona
- Mark Venables
- Robyn Walpole
- Brian Harvey Watson
- Tracey Weir
- Lion Neil Williams
- Joan Wilson
- Peter Charles M Wilson
- Ray Wisbey
- Milton Charles Wittig
- Wolf Zinn
- Heather
- Opa
- Rochelle
- Ronwynne

Coming Up
Garvan Public Seminars
Thursday 19 March - Diseases that affect us as we age: Neurodegenerative disorders and osteoporosis
Friday 17 July - Type 1 and type 2 diabetes
Wednesday 9 September - Genomics and the revolution in medical research
Registration for these seminars is now open. To register, visit www.giving.garvan.org.au/register-now or phone (02) 9295 8110.

BE PART OF PROGRESS

My Contact Details

Title       First Name
Surname
Address
Suburb State Postcode
Daytime Phone Email
Garvan Supporter Number (if known)

Please Send Me Further Information About:
- Giving to Garvan in my will (strictly confidential)
- Volunteering with Garvan
- Giving regularly to Garvan through my bank account

Please Change My Communications:
- I no longer wish to receive this breakthrough newsletter
- I only wish to receive breakthrough by email
- I only wish to receive appeal mailings in May/June
- I do not wish to receive any appeal mailings

My Gift Details

Yes! I want to help Garvan make progress with a gift of:

☒ $50 ☐ $100 ☐ $250 ☐ $500 ☐ $1000 ☐ Gift of choice $_____

☒ My cheque/money order made payable to Garvan Research Foundation is enclosed

OR Please deduct the above amount once monthly annually from my ☐ Visa ☐ MasterCard ☐ Amex ☐ Diners

Card Number ___________________________ Expiry Date ______/______ 20____BT03

Cardholder’s Name
Signature

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.

Garvan Supporter Number (if known)
Volunteering with Garvan
Giving to Garvan in my will (strictly confidential)
Giving regularly to Garvan through my bank account

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 Research Foundation
Reply Paid 68593, Darlinghurst NSW 2010

Call: 1300 73 66 77 (9am to 5pm)
Fax: (02) 9295 8507 (you can use this coupon)
Online: www.garvan.org.au/support