Making NEWS

Possibility of activating ‘brown fat’ as a therapy for obesity?
A new study suggests that shivering and bouts of moderate exercise are equally capable of stimulating the conversion of energy-storing ‘white fat’ into energy-burning ‘brown fat’. Brown fat’s energy burning nature makes it a potential therapeutic target against obesity and diabetes. Garvan endocrinologist Dr Paul Lee, recently undertook the study at the National Institutes of Health (NIH) in Washington, funded as an NHMRC Early Career Research Fellow. His work uncovered a way that fat and muscle communicate with each other through specific hormones – turning white fat cells into brown fat cells to protect us against cold. Around 50g of white fat stores more than 300 kilocalories of energy. The same amount of brown fat could burn up to 300 kilocalories a day.

Molecular interplay explains many immunodeficiencies
Garvan's Dr Lucinda Berglund and Associate Professor Stuart Tangye are the first to describe an exquisitely balanced interplay of four molecules that trigger and govern antibody production in immune cells. As well as being an important basic science discovery, it helps explain why people with mutations in any one of the associated genes cannot fight infection effectively, and develop rare and crippling immunodeficiency disorders. Immunodeficiencies arising from mutations in single genes give scientists a unique opportunity to understand B cell signaling, and reveal potential targets for modulating B cell responses in immunodeficiency and autoimmunity.

Muscle is three times better than fat for bones
Garvan researchers, in collaboration with Vietnamese colleagues, have now shown that the impact of ‘lean mass’ is three times higher than the impact of ‘fat mass’, finally concluding a debate that has lasted for more than 20 years. Garvan’s Professor Tuan Nguyen, in collaboration with Dr Lan Ho-Pham, Head of Rheumatology at People’s Hospital 115 in Ho Chi Minh City, undertook a ‘meta-analysis’ of 44 studies, concluding that 21% of differences in bone mineral density can be explained by lean mass, and 8% by fat mass. While it may seem as if researchers are splitting hairs by trying to determine which aspect of body weight plays the more influential role, the finding is actually very important for public health because it will guide osteoporosis prevention. If muscle mass is critical, it makes sense to recommend improvement in physical activity and muscle-building exercise.

For more information about these, and other recent Garvan announcements, visit http://www.garvan.org.au/news-events
Garvan is yet again at the forefront of genomics, with the purchase of technology that will allow us to sequence a whole human genome at a base cost less than $1AU$/500. The Illumina HiSeq X Ten Sequencing System is capable of sequencing around 350 genomes a week, or 18,000 a year.

This acquisition, made possible thanks to the generous support of The Kinghorn Foundation, will see Garvan serve as a genomics hub for Australia and possibly the region as we are one of only four sites in the world to have acquired this technology. It will allow massive increases in human genome sequencing capacity, accelerating medical research and ultimately providing widespread medical benefits, with significantly lower health costs, through early prevention and more targeted treatments.

I am delighted to announce some exciting new appointments in our Cancer division. Professor David Thomas has been appointed as Director of The Kinghorn Cancer Centre, as well as Head of Garvan’s Cancer division, from July 2014. Professor Thomas currently heads the medical oncology program within the Sarcoma Service at the Peter MacCallum Cancer Centre in Melbourne.

Professor Neil Watkins assumed the inaugural Petro Foundation Chair of Cancer Biology in January. Professor Watkins is a clinician-scientist and currently holds the positions of Director of the Centre for Cancer Research and Professor of Cancer Biology at Monash University.

Professor Vanessa Hayes has been appointed the inaugural Petro Foundation Chair of Prostate Cancer Research at the University of Sydney, with a joint appointment at Garvan. Professor Hayes heads the Laboratory for Human Comparative and Prostate Cancer Genomics at Garvan, and also holds a position as Professor of Genomic Medicine at the J. Craig Venter Institute in San Diego, California.

Change is also happening in another area of Garvan with the recent retirement – after almost 50 years – of Professor Ted Kraegen from our Diabetes and Obesity program. I am delighted that Dr Andrew Petrie has accepted a position on our Executive Committee and taken over as new role as Emeritus Professor. Also, Professor David James has accepted a position at the new Charles Perkins Centre at the University of Sydney and we all wish him well for this wonderful opportunity. Associate Professor Greg Cooney has agreed to accept the position of Acting Director of the division, and I am sure we will be introducing you to the new Division Head in a coming issue of Breakthrough.

A long association with medical research

Ms Roberta Withnall is a valued volunteer at Garvan however, this is not her first foray into the field of medical research. During her time in the UK, Ms Withnall witnessed some truly important developments in the field. Following a few years teaching Nature and Physics in the UK and Sydney, and obtaining a Certificate in Atomic Energy Commission, Roberta was offered a post at the headquarters of the UK’s Medical Research Council (MRC) in the Cancer Research Division, which she eagerly accepted.

“During this time, I had the chance to visit UK research establishments, and it was then that I realized that my interest in medical research was stimulated,” explains Ms Withnall.

A transfer to the MRC Clinical Trials Unit saw Roberta working with esteemed epidemiologist Professor Janet Darbyshire, CBE who lead the push to centralise clinical trials at the UK. Then, when the HIV/AIDS epidemic took hold, a committee made up of representatives from the UK, France and USA was established. Roberta was tasked with organising a meeting that had been convened in Sydney, co-chaired by the UK and France.

She says, “I particularly recall all of us being squashed up in a tiny office, in the building that was later demolished to make way for The Kinghorn Cancer Centre.”

Roberta is delighted to have retired to Sydney, and is now located only a short distance from Garvan.

She says, “The closeness of Garvan and The Kinghorn Cancer Centre has provided me with the opportunity to attend seminars, obtain literature, and keep up with the latest research developments – particularly in relation to cancer.” She is also delighted to be volunteering with Garvan’s lively and hard working finance and accounts team, where she feels very much at home.

Ms Withnall is a Garvan Partner for the Future, which means Garvan’s gifted researchers has confirmed to me that including a bequest to Garvan in my will was a sound decision.

If you would like more information about volunteering for Garvan or leaving a bequest to Garvan in your will, please contact Carol O’Carroll on 02 9295 8175, or email c.ocarroll@garvan.org.au

Update

On 15 February at Federation Square, Melbourne, Samuel Johnson was met by hundreds of supporters as he crossed the finish line of his epic, year-long Love Your Sister unicycle trek. A year on the road saw Samuel raise more than $15 million for breast cancer research and awareness, as well as breaking the World Record for Longest Unicycle Journey. However, as he rode into Federation Square, Samuel was looking out for one supporter in particular – the inspiration for this remarkable journey – his beloved sister, Connie.

At the finish line, Samuel said, “Overwhelming seems like a small word today. I am very emotional.”

When asked what the future holds, Samuel was adamant. “We haven’t found a cure yet, and Garvan’s researchers are working as hard as they can to find one. I just want to keep raising money for them so they can stop our mothers and sisters from getting sick.”

“So now, instead of spending 8 to 10 hours a day on a unicycle, I can spend 8 to 10 hours a day advocating for increased awareness and support for breast cancer research.”

Funds raised during the Love Your Sister unicycle trek will help establish The Connie Johnson Fellowship in Breast Cancer Research’ at the Garvan Institute of Medical Research. This fellowship will ensure that Samuel and Connie’s efforts have a long-term and meaningful impact on breast cancer research in Australia.

Congratulations Samuel and Connie! Your dedication and determination are truly inspirational, and you have made a real difference to the future of breast cancer research.

It’s not too late to donate! For details, visit www.loveyoursister.org
Obesity is, arguably, the silent elephant in the room. Many of the diseases afflicting modern society today are rooted in the consequences of excess nutrition, excess body fat or obesity: diabetes, heart disease, stroke, even some cancers.

One area of research undertaken by obesity and diabetes researchers at Garvan is understanding how weight loss improves human health and improves diabetes and related diseases. Professor Katherine Samaras, working within a collaborative team that includes basic scientists, cardiologists and surgeons, has been examining the impact of bariatric surgery on health at Garvan for the last five years.

Modest weight loss, even five kilograms, improves many health problems. It improves diabetes control, blood pressure, cholesterol and systemic inflammation. It prevents the development of diabetes in those with a high risk. It improves outcomes in women who have had breast cancer. It restores fertility in polycystic ovary syndrome. Yet many people who have ever tried to lose weight find it exceedingly difficult to achieve and maintain even a modest loss.

Bariatric procedures, such as gastric banding, sleeve gastrectomy and gastric bypass are proven, effective treatments for obesity, particularly where diabetes co-exists. Data at 10 years show reversal of the majority of diabetes cases, 95% reduction in new diabetes cases, 50% reduction in new heart disease and 60% reduction of new cancers. The evidence for the benefits of bariatric surgery is compelling, yet little is known about how the surgery and its effects on weight mediate these health improvements. Some of the research conducted at Garvan has been examining these mechanisms, particularly the way metabolism and the immune system interact.

Our research team, led by Professor Samaras, recently showed that bariatric surgery reversed all cases of pre-diabetes and 70% of Type 2 diabetes within two weeks of gastric banding surgery. These findings were published in the prestigious international journal Diabetologia.

The improvements were associated with a massive reduction in a type of white blood cell (T-lymphocyte) which act aggressively to promote systemic inflammation and tissue destruction. The reduction of these pro-inflammatory T-lymphocytes also predicted improved flexibility in the usually stiff arteries of people with diabetes, important since cardiovascular disease is the main cause of death in diabetes. Reducing heart risk is a mainstay of diabetes care and our researchers showed that a six kilogram weight loss achieved an improvement in arterial flexibility associated with reduced heart risk. Importantly, these effects were independent of the cholesterol reduction accompanying weight loss.

The research conducted at the Garvan Institute on the effects of bariatric surgery on health directly informs our understanding of the efficacy and benefits of surgery. It provides new information about how the hyperactive immune system is calmed by caloric restriction (fasting) and showed, for the first time, that this was directly linked to the rapid improvement in diabetes and arterial health.

Current work undertaken by Professor Samaras and collaborators includes examining adipose (fat) tissue genetic signatures that predict long term outcomes after bariatric surgery and the epigenetics of obesity - how our genes alter their expression with different environmental exposures.
Overwhelming response for Ovarian Cancer Awareness Day Leader’s Lunch

Guests heard from Mrs Rose who lamented that, 20 years after her diagnosis, outcomes for those diagnosed with ovarian cancer have not improved. She encouraged those in the room to join her in supporting Garvan’s work to improve early detection, resulting in improved survival rates.

Dr Goli Samimi, head of Garvan’s ovarian cancer research group, gave an update on her team’s world-class research into early detection, as well as new and improved therapeutics to treat women with ovarian cancer. Dr Robyn Sayer, Gynaecology Oncologist at the Royal Hospital for Women called for increased GP education relating to ovarian cancer, and called on GPs to keep ovarian cancer on their radars.

Ovarian cancer patient, Mrs Joan Swarbrick (who is also the mother of Garvan cancer researcher, Dr Alex Swarbrick), and Mrs Heather Watts, founder of Border Ovarian Cancer Awareness Group and mother of Kelsey, who tragically passed away from ovarian cancer at the age of 33, spoke personally and passionately about their experiences with this disease.

In recognition of Margaret’s outstanding philanthropic leadership and support, and her long-term advocacy in the field, Garvan Research Foundation Chairman, Mr Geoff Dixon unveiled the Margaret Rose AM Fellowship in Ovarian Cancer Research. This fellowship will be held by Dr Goli Samimi at the Garvan Institute.

Thank you to those who attended this event, and support Garvan’s ovarian cancer research program. For more information about Garvan’s ovarian cancer research, visit www.giving.garvan.org.au/ovarian

Garvan celebrates the generosity of its Corporate Supporters

To launch the working year, Garvan Research Foundation Chairman, Mr Geoff Dixon formally acknowledged the generous support of Garvan’s corporate supporters at an event celebrating outstanding work in the field of employee engagement, Corporate Social Responsibility and campaign management.

Garvan’s generosity was also recognized by the Sydney Eunectors from Accenture, ASX Group, BNP Paribas, CBP Lawyers, Fox Sports Australia, King & Wood Mallesons, National Australia Bank and Rugby AgProductions. Members received an appreciation letter from Garvan recognising the contributions of its corporate supporters.

For more information about how you can support Garvan or to arrange a private tour for your business, please contact Leonie Walton at lwalton@garvan.org.au

Maria Garcia-Cepillo, Senior Database and Supporter Care Coordinator

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

Before joining Garvan, I worked at the Heart Foundation as a Donor Liaison Officer for four years. Prior to that, I worked with other not-for-profit organisations like Anglicare and Catholic Mission.

What does your role at Garvan involve?

As a Database and Supporter Care Coordinator, it is my job to ensure that Garvan’s high support care standards are maintained. I am part of the hard-working Supporter Care team which processes and receives the donations that come in and ensures that accuracy and timeliness is maintained at all times. We also do our best to communicate regularly and efficiently with both our donors and prospective donors regarding the wide range of services that the Foundation has to offer, as well as maintain an accurate donor database to aid in Garvan’s fundraising activities.

What inspires you about Garvan’s work?

Working for Garvan has been a truly amazing experience. I have the privilege of working with some of the best people in their respective fields and it is quite inspiring to know that I am working for an organisation that is committed to funding significant medical research that will have a major impact on health issues that affect so many of us. To be a part of this cause is quite rewarding and, hopefully, in my own little way, I am helping in the realisation of many future breakthroughs.

What do you enjoy doing in your spare time?

I love spending time with my family, whether it be watching movies, travelling, swimming or going on walks. I also have a photography blog that I try (key word here is “try”) to keep up-to-date.

Tour de Cure’s pedal power raises $100,000 for Ovarian Cancer research

The team from Tour de Cure recently visited Garvan to present the Pedal Power Award for Garvan’s ovarian cancer research program, with a cheque for $100,000. The funds were raised during last year’s Tour de Cure event, and will make a significant contribution to Garvan’s ovarian cancer research.

Dr Samimi sincerely thanked the team, and gave them a tour of the ovarian cancer research lab, explaining the work being carried out there. The Pedal Power Award will contribute to this important research. Garvan extends its gratitude and a sincere thank you to the Tour de Cure team and all who participated.
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).

Study on Urea Metabolism
The bulk of protein mass in the body resides in muscle. Protein mass is not static but constantly turning over in a dynamic process of breakdown and synthesis. Loss of protein is determined by urea metabolism in the liver. We have recently discovered that male sex hormone may modify protein loss through the liver. Now we have set up novel method to investigate amino acid recycling by studying the way our bodies produce urea.

We are looking for healthy volunteers: men aged 18-50 years for research into body protein metabolism. This study involves two visits over a one week period to the Garvan Institute to study urea turnover, each visit will take up to five hours. For further information please contact Dr Vita Birzniece on (02) 9295 8231 or Dorit (02) 9295 8309 or email crf@garvan.org.au (St Vincent’s HREC Ref HREC/12/SHA/6).

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).

In Memoriam November 2013 to January 2014. Donations have been made in memory of:

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- Elyn Boyd
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- Gail Burgin
- Sonia Butts
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- Annabel Catt
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- Paul Walton
- Gloria Weston
- Julie Therese White
- Christine Williams
- Peter Charles M Wilson

Coming Up

Garvan Public Seminars
Thursday 10 April – Genomics: Getting Ahead of the Health Curve
Thursday 14 August – Healthy Ageing
Thursday 13 November – The Immune System in Health and Disease

To register for these seminars, visit www.giving.garvan.org.au/register-now or phone (02) 9295 8110.

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