A new study by Garvan’s Bone Program has shown that osteoporotic fractures increase a person’s risk of dying even after relatively minor fractures if that person is elderly. The findings highlight the importance of preventing and treating osteoporosis.

Immunology researcher Stacey Walters found that by greatly boosting the levels of the hormone BAFF in mice, it is possible to alter their immune systems so that they will accept tissue transplants without the need for any immunosuppression. The unexpected discovery has potential to alter the body’s response to anything it perceives as not ‘self’, such as a tissue or organ transplant.

Garvan’s Diabetes Program has received nearly $300,000 in Commonwealth funding to advance their research into potential therapeutics derived from bitter melon, a vegetable and traditional Chinese medicine. Garvan, in collaboration with the Shanghai Institute of Materia Medica, has already extracted several very promising bioactive components from bitter melon.

Garvan researchers with scientists from Melbourne’s Baker IDI Heart and Diabetes Institute discovered an important clue to the mechanisms of obesity related insulin resistance, a precursor of type 2 diabetes. The finding that fat molecules clog up the cytosol, or cell interior, but not the mitochondrion or energy powerhouse of the cell, may help to clarify therapeutic directions to improve insulin action in muscle.

Why women gain weight during menopause was a major subject of discussion at an international obesity conference co-chaired by Garvan scientist Dr Amanda Sainsbury-Salis. Her summary, later published in Obesity Reviews and co-authored by Dr Jennifer Lovejoy from the University of Washington, explained that a lack of oestrogen plays an important role in the reduction of physical activity and energy expenditure during menopause. Combined with unchanged eating habits, this made weight gain more likely.
I am very pleased to report that 2008 was a very productive year for the Institute.

We produced a record number of internationally reviewed research publications (180) with an average impact factor for the top 80% of just under eight. This is at international benchmark levels for the leading research institutions and is a key performance indicator for the Garvan and other research enterprises.

In consumer terms, it means that we were able to globally contribute 180 brand new pieces of significant knowledge about the diseases we study. It also means that each of these achievements was verified and acknowledged by our scientific peers with the majority published in very influential journals.

Following successful competitive applications, I am also very proud to say that three of the Institute’s major research programs will now be underpinned by National Health and Medical Research Council program grants in 2009. This is a testament to the work of these research groups but most importantly, signifies that our cancer, diabetes and immunology programs have guaranteed high level support for the next five years. Philanthropic support remains as essential as ever, though, to initiate novel projects, support new research groups and provide key items of equipment which these grants cannot cover.

Joint planning with St Vincent’s for our new campus Cancer Centre received a boost late in 2008 with a grant of $2.5 million from the Australian Cancer Research Foundation. The Centre is scheduled for completion in late 2011 and will greatly facilitate our translation of research discoveries into real advances in prevention and treatment of cancer.

All of us at Garvan look forward to maintaining our history of breakthroughs in the year ahead and sharing them with you. We wish all our supporters a happy, healthy 2009.

Professor John Shine AO FAA
Executive Director

“...it’s reassuring to think that something I’ve accumulated throughout my lifetime can bring benefit to humanity as a whole.”

Through making a bequest in his will to the Garvan, Peter Olive is one of Garvan’s Partners for the Future. Here is the story behind his decision to help us continue to fight disease for future generations.

With both Peter’s parents suffering prolonged illness, he became well aware at an early age of the value of medical research and of efforts to find cures – or at least better treatments – for a range of serious diseases.

When he was in his late twenties, Peter’s mother developed ‘thrombocytopenic purpura’, a form of chronic haemophilia for which there is no known cause or cure. After battling the disease for nearly 10 years, she finally succumbed.

From that day on, Peter’s grief-stricken father, a fitter and turner, said that he wanted to leave money to medical research. But alas he himself then suffered a stroke and lost virtually all his motor and communication skills. Though Peter’s father lived for another five years after the stroke, he was unable to ever revise his will.

More than 20 years later, Peter’s bequest to the Garvan today is both about honouring his father’s wishes and imbuing his own life with a greater meaning. As he puts it: “Why allow yourself to simply disappear without a trace? A bequest like this helps me to make some sort of rational sense of my own life as well as honouring dad’s will. After all, it’s reassuring to think that something I’ve accumulated throughout my lifetime can bring benefit to humanity as a whole. And so you pass on the baton, but for humanity the race is not over...”

For more information about leaving a bequest to Garvan, please fill in the coupon on page 8. Alternatively you can call Monica Schneider on 02 9295 8117 for a confidential discussion; or email m.schneider@garvan.org.au.

Quick Quiz

1. What is the average age of Garvan researchers?
2. How long does it take for a cell to completely copy its DNA?
3. If you stretched out your entire DNA from one cell how long would it be?

Answers: 1. 35 years 2. 8 hours 3. 2 metres
Why are Garvan and St Vincent’s setting up a Cancer Centre?

Our joint development of the Garvan St Vincent’s Campus Cancer Centre is a response to both community need and opportunity.

The Cancer Institute NSW has forecast the incidence of cancer to be as much as 1 in 2 men and 1 in 3 women in our ageing population. There will be a need for at least four or five cancer research and care ‘hubs’ in NSW, and unfortunately, none of these centres will run out of, or have to compete for, patients. In many cases in fact, we already collaborate with other research enterprises and hospitals involved in setting up additional cancer centres.

The opportunity lies in the explosion of genetic and biomarker information about subtypes of cancer and what this means for the development of personalised medicine approaches to the diagnosis, treatment and prevention of cancer. We also believe that there is great potential to optimise and integrate the existing strengths of Garvan and St Vincents and Mater Health, Sydney, and specific successes already achieved in translational research (where basic research findings are applied in patient settings).

Our Centre is both different and complementary to other cancer initiatives being developed in Australia. On the St Vincent’s Campus, patients will still access the existing state-of-the-art chemotherapy or radiotherapy services. Their ‘cancer journey’ will be coordinated through the Centre’s nurse coordinators and the Centre will act as the patient’s portal to all the services they need. The Centre will be focused on cancers that affect adults rather than children and will have particular strengths in cancers of the breast, prostate, pancreas, and blood among others.

Why are Garvan and St Vincent’s setting up a Cancer Centre?

Our joint development of the Garvan St Vincent’s Campus Cancer Centre is a response to both community need and opportunity.

The Cancer Institute NSW has forecast the incidence of cancer to be as much as 1 in 2 men and 1 in 3 women in our ageing population. There will be a need for at least four or five cancer research and care ‘hubs’ in NSW, and unfortunately, none of these centres will run out of, or have to compete for, patients. In many cases in fact, we already collaborate with other research enterprises and hospitals involved in setting up additional cancer centres.

The opportunity lies in the explosion of genetic and biomarker information about subtypes of cancer and what this means for the development of personalised medicine approaches to the diagnosis, treatment and prevention of cancer. We also believe that there is great potential to optimise and integrate the existing strengths of Garvan and St Vincents and Mater Health, Sydney, and specific successes already achieved in translational research (where basic research findings are applied in patient settings).

Our Centre is both different and complementary to other cancer initiatives being developed in Australia. On the St Vincent’s Campus, patients will still access the existing state-of-the-art chemotherapy or radiotherapy services. Their ‘cancer journey’ will be coordinated through the Centre’s nurse coordinators and the Centre will act as the patient’s portal to all the services they need. The Centre will be focused on cancers that affect adults rather than children and will have particular strengths in cancers of the breast, prostate, pancreas, and blood among others.

Researcher Profile: Alexis Voglezang

What is the current focus of your research?
The most evolutionarily advanced part of the human immune system is made up of B cells, which produce antibodies to neutralise infectious bacteria or viruses, and T cells which provide help to these B cells. How these cell types communicate during an immune response is still poorly understood. We are very interested in the immune signalling molecule IL-21, which allows T and B cells to talk to each other during an immune response. In particular, we’re trying to find out how the two kinds of cells use IL-21, whether it’s the B cells which produce the antibody that can neutralise a disease causing agent, or the T cells that provide help in a specific response.

What are some of the recent findings from your work?
Some recent and exciting finds from our lab focused on a particular subset of T cells called “T follicular helper cells”. These specialised T cells are thought to be the ones that direct the traffic of an immune response. They are the only ones that can be in the right place at the right time, amongst all the B cells where they provide help that results in production of highly effective antibodies for fighting specific invaders. We know already that these cells produce IL-21, but our research shows that this is also vital for the normal function of this cell type and hence for all the downstream antibody responses that follow.

What is the biggest challenge in your area of research?
Our biggest challenge is finding ways for our research to help positive outcomes in human health. We would really like to find ways that our research about IL-21 and antibody responses could be incorporated into vaccines or medication to improve protection against infectious diseases.

What do you enjoy doing away from the research lab?
Away from the lab, I love to travel. Very far away from the lab! A career in science delivers great opportunities to attend conferences and visit labs in other countries, which is always exciting. Last year I presented some of my work in conferences in the US and Taiwan, both of which were lovely to explore a little.
feature story:

A Great 2008 for Garvan Breakthroughs

The excitement of discovery was alive and well at the Garvan Institute in 2008, with significant research breakthroughs in cancer, osteoporosis, type 1 and type 2 diabetes, immune disorders and the problem of weight gain and loss. Here’s a snapshot of our major findings from 2008.

Neuroscience

Professor Herbert Herzog, Head of Garvan’s Neuroscience Program, and Dr Amanda Sainsbury-Salis, a senior scientist, showed that a hormone released naturally from the gut could be used to treat obesity and type 2 diabetes. They found that long-term increases in hormone peptide YY (PYY) can induce and maintain lower body fat levels in mice, paving the way for development of PYY or PYY-like compounds as weight-loss medicines to be used in conjunction with a healthy diet and regular physical activity.

The research also points to a possible treatment for type 2 diabetes. PYY significantly improves a person’s ability to clear glucose, or sugar, from the blood. It should therefore have the ability to prevent glucose intolerance, a known precursor of type 2 diabetes.

The benefit of weight loss medications based on gut-derived satiety hormones is that they enhance a process that occurs naturally, therefore reducing possible side effects.

Diabetes

Researchers in Garvan’s Diabetes Program uncovered the therapeutic properties of bitter melon, a vegetable and traditional Chinese medicine, that make it a powerful treatment for type 2 diabetes.

Teams from the Garvan and the Shanghai Institute of Materia Medica pulped roughly a tonne of fresh bitter melon and extracted four very promising bioactive components. These four compounds all appear to activate the enzyme AMPK, a protein well known for regulating fuel metabolism and enabling glucose uptake, very important factors in the treatment of type 2 diabetes.

Bitter melon has been used by practitioners of Chinese medicine for hundreds of years. It has no known side effects making it an attractive alternative to well known diabetes drugs which can have side effects.

The project has recently secured $300,000 in Commonwealth funding to enable fundamental follow up work.

Breakthrough research by Garvan researchers appeared in 180 publications in 2008 – this represents 180 brand new pieces of significant knowledge about the diseases we study.

In addition to reducing body fat and improving glucose tolerance, the team showed that elevated PYY increases thyroid function, which in turn increases body temperature and metabolic rate. So when a PYY-overproducing mouse is fed the same diet as a control mouse, it has less body fat.

Supporter Survey

An additional thank you to all who filled in the 2008 Garvan supporter survey. Your feedback is very much appreciated. We are still in the process of analysing your answers and will report back to you in the next issue.

2008: A Strong Year for Community Support

As we report on Garvan’s scientific achievements in 2008 (see right), we would like to take this opportunity to thank the 5,390 individuals and organisations who contributed to these achievements by generously giving, in both small and large donations, a total of more than $6.4 million to our breakthrough medical research. The Institute relies on community support for a significant percentage of its operating budget and without it, Garvan’s work could not continue at its current level of output and excellence.

Garvan was also particularly fortunate to receive several bequests last year. Bequests of all sizes have played a major role in allowing Garvan to make significant leaps forward in our work; for example our Arthritis and Immunology Research Program was established by a bequest from a thoughtful supporter. Unless a donor stipulates otherwise, all bequests are managed through Garvan’s endowment fund, so that their capital endures to build a sustainable future for the organisation.

To all who contributed in the past year, and particularly to those supporters who gave to Garvan’s work for the very first time in 2008, we thank you for joining us in our aim to develop better methods of diagnosis and treatment, and ultimately to prevent disease.

To all who contributed in the past year, and particularly to those supporters who gave to Garvan’s work for the very first time in 2008, we thank you for joining us in our aim to develop better methods of diagnosis and treatment, and ultimately to prevent disease.

2008: A Strong Year for Community Support

As we report on Garvan’s scientific achievements in 2008 (see right), we would like to take this opportunity to thank the 5,390 individuals and organisations who contributed to these achievements by generously giving, in both small and large donations, a total of more than $6.4 million to our breakthrough medical research. The Institute relies on community support for a significant percentage of its operating budget and without it, Garvan’s work could not continue at its current level of output and excellence.

Garvan was also particularly fortunate to receive several bequests last year. Bequests of all sizes have played a major role in allowing Garvan to make significant leaps forward in our work; for example our Arthritis and Immunology Research Program was established by a bequest from a thoughtful supporter. Unless a donor stipulates otherwise, all bequests are managed through Garvan’s endowment fund, so that their capital endures to build a sustainable future for the organisation.

To all who contributed in the past year, and particularly to those supporters who gave to Garvan’s work for the very first time in 2008, we thank you for joining us in our aim to develop better methods of diagnosis and treatment, and ultimately to prevent disease.

Supporter Survey

An additional thank you to all who filled in the 2008 Garvan supporter survey. Your feedback is very much appreciated. We are still in the process of analysing your answers and will report back to you in the next issue.
Osteoporosis

Garvan researchers in the Bone Program have shown that low levels of testosterone in men double their risk of bone fracture, all other risk factors being equal. This is a significant finding given that 30% of the 110,000 osteoporotic fractures experienced in Australia each year occur in men. It is likely that the findings will have implications for clinical practice, possibly including testosterone supplementation.

The Bone Program has also shown that there is a link between prostate cancer and a higher risk of bone fracture. Analysis of data from Garvan’s Dubbo Osteoporosis Epidemiology Study (DOES) suggests that men with prostate cancer face a 50% higher risk of fracture, which increases to nearly double the risk if they are receiving treatment. These results indicate that men with prostate cancer should consider seeking evaluation for osteoporosis, particularly if they are being treated with ADT (Androgen Deprivation Therapy).

Another important outcome from the Dubbo study launched in 2008 was the fracture risk calculator. The simple web-based tool allows anyone over 60 to predict their individual risk of bone fracture. To access the tool visit www.fractureriskcalculator.com.

Cancer

Dr Alex Swarbrick, head of Garvan’s Tumour Progression Research Group, published findings that Id1, a gene active only in the more aggressive forms of breast cancer, can control breast cancer growth.

Roughly eight years ago, a new subset of T cells, T follicular helper (TFH) cells, was identified. This important class of T cells operates in specific environments termed ‘germinal centres’, specialised areas within lymph organs where B cells proliferate to form high affinity antibodies whenever we fight infection. TFH cells play a critical role in that they communicate with, and help activate, B cells.

The novel finding was that the molecule interleukin 21 (IL-21) is a growth factor for TFH cells. IL-21, a chemical messenger, is already well known to immunologists. While its newly identified growth factor role is only one of several functions, that function is fundamental. Without IL-21, the all-important TFH cells could neither develop nor survive, which suggests that IL-21 directs the most finely-tuned aspect of our immune response.

This critical finding could provide novel ways to boost vaccination or natural defences.

Immunology and Inflammation

Dr Cecile King, head of Garvan’s Mucosal Autoimmunity Group, with PhD student Alexis Vogelzang uncovered a novel way to boost the body’s natural defences.

Our bodies rely on the production of potent or ‘high affinity’ antibodies to fight infection. The process is very complex yet Dr King discovered that it hinges on a single molecule, a growth factor, without which it cannot take place.

Breakthrough research by Garvan researchers appeared in 180 publications in 2008 – this represents 180 brand new pieces of significant knowledge about the diseases we study.

Each journal has an ‘impact factor’ which is used to measure its importance in a specific research field. In 2008 Garvan achieved an ‘average impact factor’ of just under eight for the top 80% of its publications. This is well above the international benchmark.
What do you enjoy about working at Garvan?

The incredible staircase that signifies the beginning, middle and end of my day. I mostly enjoy the mysterious silence in the Institute; there are 500 people who work here and the only time we all come out and play is when food is present. On top of that, the fact every one of us plays some part, no matter how small or big, in making some kind of difference.

Describe a typical day.

Most of my day involves batching donations, answering donor questions, getting material out on time and then in the midst of all that, answering the phone with a smile on my face. I’m the first port of call for donors contacting the Foundation, so a big part of my job is ensuring they get the information they need.

What challenges are there working at Garvan?

I receive many calls on a daily basis, so my challenge is treating each phone call as if it were my first for the day. As a new member of the team I’m finding there is so much to know about Garvan and the work we do, so I’m doing my best to absorb as much information as I can to assist our donor enquiries.

What do you enjoy doing away from Garvan?

Discovering places to go in Sydney. I moved here just over 18 months ago from Melbourne so whenever I get the chance I go on little adventures finding hidden and interesting places around Sydney.
Mission: Nuns on the Run

When Sister Helen Clarke dreams, she aims high. She is determined to bring the $100 million Garvan St Vincent's Campus Cancer Centre (GSVCCC) a step closer to reality, and she’s ready and willing to take many steps to make it happen: hundreds of thousands, in fact.

Inspired by a strong desire to support the Centre and make a difference for cancer sufferers, late last year Sr Helen dreamed of undertaking a major fundraising walk. The idea crystallised when she approached fellow Sister of Charity Sr Leone to join her on the walk.

The Nuns’ Run was born. It will be a 400km walk led by Srs Helen and Leone over two weeks travelling from Dubbo to Darlinghurst, where the GSVCCC will be built over the next three years within the St Vincent’s Research Precinct. While the Sisters will walk the whole distance, they are inviting the public to join them in run/walks in Dubbo (24th May) and Sydney (5th June). The Sisters will then travel through Molong, Orange, Bathurst, Lithgow and Katoomba, finishing in Sydney on Friday 5th June, where the community can join the completion of their journey for another major community fundraising walk. Additional community and fundraising events will be held in towns along the way including Molong, Orange, Bathurst, Lithgow and Katoomba.

“Reaching out to the community is a vital part of our mission. Through the Nuns’ Run we want to make the point that the Centre is not just for Sydney, it’s for regional NSW and across Australia, and so it will be important for us to engage with regional communities at each stage of the route building awareness about the Centre and the cutting-edge outreach services it will offer the country,” Sr Helen added. Sr Helen is also one of the Trustees of St Vincent’s Hospital, who have donated the land for the site valued at $10 million.

Another critical part of the Sisters’ mission and a major inspiration for the Nuns’ Run is to help those affected by cancer. Sadly one in two men and one in three women will be diagnosed with cancer. These statistics are particularly close to home for Sr Helen, who has lost both parents to cancer as well as many friends and other Sisters of Charity. Having worked as a nurse since 1965 and as a past Director of Nursing at the Sacred Heart Hospice, Sr Leone has also been touched by the illness not only personally, but through her ministry.

“We encourage people joining us for the community fundraising walks to think about a loved one or friend lost to cancer, and to consider those surviving cancer. This is an opportunity to honour them and support those living with cancer while contributing to a vital new facility which will make a real difference for future generations,” said Srs Helen and Leone.

How to get involved

The GSVCCC will integrate internationally acclaimed cancer research with best practice cancer services, enabling research findings to move quickly into patient care. The Centre will have more than 250 researchers and clinicians working side-by-side; including doctors, nurse co-ordinators, social workers, clinical psychologists, genetic counsellors and patient educators; to provide best practice multi-disciplinary care. This collaborative environment will facilitate discovery of ways to diagnose cancer earlier and better predict individual patient outcome and response to therapy.

With such a large physical challenge ahead of them, both Sisters are walking and exercising daily; a level of activity not unusual for the Sisters of Charity. Founded in 1815 in Ireland by Mary Aikenhead, the Sisters were known as the “walking nuns”. They were the first order to leave the convent and conduct their ministry among the people, which meant walking long distances to reach those in need. Their outreach stretched to the fledgling colony in Australia. They established St Vincent’s Hospital in 1857, and in 1963 the Sisters established the Garvan Institute, which at that time operated as a small research department of St Vincent’s Hospital in Sydney. Srs Helen and Leone are proud to be continuing the tradition of these pioneering nuns.

Srs Helen and Leone agree it will not be easy. “The rationale for the walk will keep me going. If I feel I can help someone that will give me the energy to walk on,” said Sr Helen. Sr Leone added: “This is a challenge for me, but what’s the challenge for people living with cancer? Their challenge far outweighs the aching muscles and sore feet I’ll experience on the walk. But if we can put our challenges together we can all move forward and find a cure for cancer.”
Volunteers Needed for Clinical Research Studies

We are currently recruiting for research studies, so if you are interested and meet the various prerequisites we would love to hear from you.

New Directions in Obesity Management

Our research examines how blood pressure medications can affect weight control. If you are between 40-80 years old, currently on a medication for high blood pressure, migraine or tremor, and you are interested in participating in our research, please contact Dr Paul Lee at p.lee@garvan.org.au or phone (02) 9295 8486 or Amanda Xuereb at a.xuereb@garvan.org.au or phone (02) 9295 8230.

Diabetes Risk Study

We are looking for people without diabetes who are overweight or lean and aged between 40 – 70 years old. You will be reimbursed for your time and travel. If you are interested contact Katherine at ktonks@garvan.org.au or phone (02) 9295 8218 or Ashley (02) 9295 8233.

Weight Study

We are studying the effects of weight loss and gain on body metabolism in healthy people aged 25-65 years who are normal or overweight. If you are interested contact Leonie on (02) 9295 8300 or email l.heilbronn@garvan.org.au or Lynne on (02) 9295 8215.

We are currently recruiting for research studies, so if you are interested and meet the various prerequisites we would love to hear from you.

In memoriam - December 2008 – February 2009

We gratefully acknowledge gifts received in memory of:

George Abade  Gwen Ford  Mrs Kath Ratos
Rick Austin  Sir John Fuller  Max Samins
James (Jim) Baker  Patricia Hillary  Therese Sarks
Eric Maurice Ball  Ivan Jacobs  Miss Ena Schofield
Ivars Bruzgulis  Lynne Joshua  Paula Siskovic
Ana Maria Casado  Lucie Kijurina  Christakis Soupidis
Barry Cook  John (Jack) Mackenzie  Garry Horsley Stewart
Michael Ernst Cordner  Norman Millers  Feriniki Tastzidis
Mark Felgode  Greg Park  Mrs Gloria Waugh
Miss Sheila Fisher  Mercedes Parolin  Emil H Witton

Coming up

The Nuns’ Run - Dubbo to Darlinghurst
24th May to 5th June
Register to join the Sisters at a community run/walk in the following locations, or support someone taking part:
- Dubbo 24th May
- Sydney 5th June
Other events will be taking place in Molong, Orange, Bathurst, Lithgow and Katoomba, visit www.nunsrun.org.au for full details.

Young Garvan Forum
The Genetic Generation: Designing the Perfect Baby. Be careful what you wish for
Thursday 25th June from 6:15pm
Garvan Institute,
384 Victoria Street Darlinghurst
To register and for more information call (02) 9295 8110. Ticket price $20

Please complete this coupon and mail it to:
Garvan Research Foundation
Reply Paid 68593, Darlinghurst NSW 2010
Call: 1300 73 66 77 (8am to 5pm)
Fax: (02) 9295 8151 (you can use this coupon)
Online: www.garvan.org.au

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 Contact Details:
☐ I no longer wish to receive breakthrough
☐ 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 ☐ Diners ☐ Amex

Card Number □□□□□□□□□□□□□□□□□□□□ 20090701
Expire Date □□□□□□□□□□□□□□□□□□□□

Cardholder’s Name
Signature

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.

be part of progress