The Hon Mark Butler MP, the federal Parliamentary Secretary for Health, recently visited FNI for the historic signing of the agreement between the Commonwealth and FNI for the Institutes’ successful $39.8m application to the Health and Hospitals Fund. Announced in the 2009 federal budget, this additional contribution brings the Federal Government’s total commitment to the project close to $80m.

Signing on behalf of the partners in the building project Professor Geoffrey Donnan said, “The Federal Government’s commitment to neuroscience is welcomed by the 700 researchers and staff who will work in the new facilities, and especially by those who will benefit from breakthrough cures for conditions of the brain and mind”.

**THREE BIG STEPS IN PARKINSON’S RESEARCH**

FNI senior research scientist Dr Lachlan Thompson and his team have made significant breakthroughs in understanding how to repair the brain circuitry that controls motor skills, thus paving the way for a stem cell-based treatment for Parkinson’s disease (PD).

Cell therapy for PD is based on the idea that transplantation of new dopamine neurons into the brain can restore motor function by structurally and functionally compensating for the neurons lost to the disease. Results have been promising but highly variable and some patients have experienced unwanted side-effects. Researchers and clinicians in the field believe this relates to the cell source.

Dr. Thompson said, “Clinical trials have relied on cells from embryonic stem cells. Not only does this present ethical issues, there are serious practical issues. Foetal tissue preparations are impossible to standardise with respect to both the numbers and the types of cells that are implanted into the patient. It is therefore not surprising that we have seen variability in the therapeutic impact and, in some cases, side-effects that arise from the inclusion of unwanted cell types.”

In a series of three recently published papers Dr Thompson’s work illustrates key advances in this field. The work identifies the cell type in foetal tissue that is most beneficial for recovery of motor function after transplantation, a procedure that allows for purification of these cells prior to transplantation, and new insights on where in the brain to deliver the cells to optimise the recovery of motor function.

“I think our recent findings really set the stage for the development of stem cell-based procedures that would eliminate the need for foetal tissue and also lead to more effective and predictable therapeutic outcomes for patients”, Dr Thompson said.
FNI Wins Heart Foundation Award Two Years Running

Dr. Dominique Cadilhac has become the second female FNI researcher to win the prestigious Heart Foundation Research Fellow (Victoria) Award in as many years.

Dominique won the award for her work on the Australian Stroke Clinical Registry (AuSCR), which aims to reduce the disparity in acute care and outcomes in stroke by using the data in the registry to describe the factors that influence the quality of care in hospitals. The data will also allow Dr. Cadilhac to assess the cost implications for Australia.

The Governor of Victoria, Professor David de Kretser, AC presented the award to Dominique in April at the National Heart Foundation research awards night.

The award will co-fund Dr. Cadilhac’s work over the same period as her existing National Health and Medical Research Council grant thereby providing her with security over the coming years.

Dominique said, “I feel honoured to have received this award both in terms of recognition of my work and the contribution that women make to science in Australia”.

FNI’s Associate Professor Julie Bernhardt won the award last year for her ongoing work in an early intervention rehabilitation project which aims to get eligible stroke patients up and moving within 24 hours of an attack.

The largest NHMRC Program Grant for 2011 was announced and it went to a group of epilepsy researchers who between them will share $16.45m. Four of the nine chief investigators are from FNI, which clearly demonstrates our strength in this field.

In late May FNI held its third Annual General Meeting, which was attended by 130 Members-at-Large, Governors, Board members and staff. The Chairman and FNI Directors outlined our performance in 2009, and I provided a snapshot of our challenges and expectations for 2010.

The FNI Fundraising and Marketing team has accelerated our public speaker’s program. Each month a FNI researcher attends U3A, Probus, Lions or other club and gives a presentation about our work and the general direction of neuroscience. These talks are free and are part of our outreach service.

In upcoming events, the Charityworks for MS gala dinner is being held on the 21st of August, with the proceeds going to MS research at FNI. The theme is ‘Diamonds, Diamonds, Diamonds’ and I encourage you to attend. Details are available at the event website www.charityworks4ms.net.au

Finally, I am pleased to announce that we have secured Dr Tim Bliss as the speaker for the 14th Kenneth Myer Lecture in November. Dr Bliss and Terje Lømo published the first detailed account of long-term potentiation (LTP) in 1973, and he has been working in the field ever since. LTP is directly related to long-term memory and synaptic plasticity and Dr Bliss is regarded as the world leader in the area.

This year’s Kenneth Myer Lecture will be held at the new Melbourne Convention and Exhibition Centre on the 11th of November and I expect it will be an exciting event.

Prof Geoffrey Donnan, Director, Florey Neuroscience Institutes
Brain Matters speaks with Neuropeptides Division Head, Associate Professor Ross Bathgate about the research currently undertaken by his team.

What does the neuropeptides division at FNI research?
“The Neuropeptides Division has two main areas of research:

— Studies of the role of the enzyme, insulin-regulated amino peptidase (IrAP) in normal brain physiology – particularly in relation to cognitive disease.

— Various studies on the relaxin family of peptides/hormones and their receptors which are focused on determining the role of the peptides in cardiac physiology, tissue fibrosis and the brain’s behaviour. We are working to develop therapeutics based on these peptides to treat numerous diseases. An example of this approach is the peptide hormone relaxin, which was originally discovered for its biological roles during pregnancy.

Research at FNI and other institutions has determined that relaxin would be an effective treatment for cardiovascular disease which has directly led to its use in clinical trials for the treatment of acute heart failure.

Studies on the other members of the relaxin peptide family are expected to lead to similar potential treatments for human disease.”

What is the biggest research achievement of the division to date?
“Over the past 10 years, the Neuropeptides division has been focused on the discovery and characterisation of the relaxin-3 gene. Studies in more recent years have been looking at determining the biological role of relaxin-3 in the brain. This has been a difficult, yet ultimately rewarding endeavour with members of our division and key international collaborators, providing strong evidence for a role for relaxin-3 in the regulation of responses to stress, and the control of arousal, emotion and memory.

These findings have implications for increasing our understanding of and improving treatments for a range of psychiatric illnesses, including anxiety and sleep and mood disorders.”

What will it mean to patients if relaxin passes Phase III clinical trials?
“Acute heart failure (AHF) is a major cardiovascular syndrome that affects several million people worldwide every year. It is the leading cause of hospitalisation in people over age 65 and remains a major clinical challenge with high and increasing mortality rate. Minor improvements to the treatment of AHF have failed to improve short and long-term prognosis or reduce hospitalisation rates, thereby requiring a need for new AHF treatments.

Research at FNI and other laboratories prove relaxin is a natural modulator of cardiovascular action with the potential to treat cardiovascular disease patients. In particular, the potential dilation and kidney related actions of relaxin suggested it would be an effective treatment for AHF.

Advanced brain imaging will be used to understand the effects of genetic variation on brain structure and function.

Prof Graeme Jackson, one of the FNI chief investigators said, “The success of the grant application lies in the fact that Australia has extraordinary talent in the field of epilepsy research. Many of the team members are world leaders in their own right and have worked with their collaborators in the past”.

“I would suggest that there is no better mix of epilepsy researchers in the world today”, Prof Jackson went on to say.

A team of approximately 80 researchers from The University of Melbourne Department of Medicine, FNI’s Parkville and Austin Campuses, SA Pathology, The University of Adelaide, School of Molecular and Biomedical Science and The University of Queensland Centre for Advanced Imaging will be working on the project.

The University of Melbourne’s Prof Sam Berkovic leads the group with nine other chief investigators, four of whom are from FNI.

The team is comprised of neurologists, molecular geneticists, physiologists and brain imaging specialists and leads the world in the discovery of the genetic causes of epilepsy. They will continue to identify genes underlying epilepsy and study how genetic variations result in development of seizures.

Subsequently, clinical trials in AHF were initiated by FNI’s commercial partner, Corthera Inc. based in San Mateo, California, USA. Relaxin was shown to have many positive effects during the Phase II clinical trials where it was administered to hospitalised patients via a 48-hour infusion causing an increase in cardiac output and positive kidney impact.

Phase II studies demonstrated that patients treated with relaxin spent less time in hospital, had reduced mortality and decreased heart or kidney failure and reduced hospital readmissions.

The success of the Phase II trials has prompted expanded Phase III trials. In an exciting development, Corthera has been acquired by Novartis, one of the largest pharmaceutical companies in the world, and they are taking relaxin to Phase III trials.”
FNI’S THIRD ANNUAL GENERAL MEETING

Attended by more than 130 FNI members-at-large, Governors, Board members and staff, the Florey Neuroscience Institutes Annual General Meeting (AGM) was held on Thursday 20 May at the Spring Street Conference Centre.

Associate Professor Julie Bernhardt gave a compelling insight into her work in early rehabilitation in stroke through physiotherapy and movement, an international study she has conducted for several years. Dr Jhodie Duncan spoke about her work on an American study which confirmed the link between serotonin abnormalities and Sudden Infant Death Syndrome (SIDS).

Awards were made to a number of staff and students, including awards for 35 years for continuous service to Professors Michael McKinley and Geoff Tregear.

THE JOHN T REID CHARITABLE TRUSTS — A SIGNIFICANT BENEFACTER

In 2006 the John T Reid Charitable Trusts generously provided support for the purchase of a Mass Spectrometer, vital equipment used primarily in our Neuropeptides Division.

Modern medical, biochemical and biotechnological research relies heavily on mass spectrometers to determine and characterise the structure of molecules. There is no other technique in science that provides such high sensitivity and detailed information on the structure of molecules in such a wide range of samples.

Over the past three years, the Trusts has also granted a Fellowship to young peptide chemist Dr Akhter Hossain. Dr Hossain has done some exciting work in chemically synthesizing a number of molecules, including relaxin and insulin-like peptides. The mass spectrometer has been critical in characterising the purity and stability of these synthetic peptides. This work is likely to lead to the development of new therapeutic agents with applications in important areas of clinical need.

FNI Director Professor Geoff Donnan was delighted recently to welcome Ms Belinda Lawson, one of the Trustees, for a laboratory visit. We thank the John T Reid Charitable Trusts for their generous support of our work over the years.

NEW POST DOCTORAL FELLOWSHIP SUPPORTS A FNI STAR

The Mendelsohn Postdoctoral Fellowship has been established to support a young FNI researcher doing exceptional work, but who does not currently receive salary support from a funding body.

The award is named after Professor Frederick Mendelsohn, past Director of the Howard Florey Institute and Florey Neuroscience Institutes and valued up to $80,000 per annum for three years.

The fellowship is awarded in recognition of the outstanding scientific track record of a FNI researcher who is up to seven years postdoctoral, who shows the ability to attract peer review funding and demonstrates leadership ability both within FNI and the broader community. Professor Geoffrey Donnan, FNI Director said, “I am delighted to announce that we have awarded the 2010 fellowship to Dr Lachlan Thompson for his contributions to Parkinson’s disease research”.

Professor Donnan went on to say, “There is great commitment to this fellowship within FNI. The award aims to recognise young researchers within the Institutes at a time in their careers when both scientific and financial recognition are particularly important”.

Dr Lachlan Thompson
Did you know that you can give shares directly to Florey Neuroscience Institutes and claim a tax deduction for the current market value of those shares?

If you have thought about giving in this way, you may find it more beneficial to give the shares directly than selling the shares and giving the proceeds.

The market value of the shares needs to be $5,000 or less and the following conditions should be met:
- the shares were acquired in a listed public company
- when the shares were gifted, they were listed for quotation on the official list of an Australian Stock Exchange
- the shares were acquired at least 12 months before they were gifted.

If shares are valued at greater than $5,000, it may be possible to claim a tax deduction each year for five years.

Gifts of shares are highly valued by FNI because they can be added to our existing portfolio of investments and used to grow our Future Cures Endowment Fund held within the Foundation.

The FNI vision for the future is one that will enable us to attract and retain the very best of the world’s research scientists so that new knowledge created through discovery in neuroscience will benefit everyone. Scientific discovery requires a considerable investment and it is our goal to build our financial resources so that future cures will be facilitated.

Please consider if you might be able to assist in improving life through brain research by making a gift of shares. You should discuss this with your stock broker or financial adviser and you may like to let Jenni Elliott know of your intentions by contacting her on either jenni.elliott@florey.edu.au or 03 8344 1657.

**A NEW WAY OF GIVING**

**DR RADWA BADAWYY RECEIVES COMMENDATION FROM PREMIER**

Dr Radwa Badawy, a Postdoctoral Epilepsy Fellow at FNI received a commendation at this year’s Premier’s Award for Medical Research and Public Health for her findings into Epilepsy using transcranial magnetic stimulation (TMS).

Each year the Premier’s Award for Health and Medical Research is awarded to an outstanding Victorian postgraduate health or medical research scholar. The Award recognises the contribution made by early-stage researchers and is an initiative of the Victorian Government and the Australian Society for Medical Research.

Dr Badawy’s research was carried out in the Department of Neurology at the Austin Hospital. She used a relatively new technique called transcranial magnetic stimulation (TMS) to measure the brain activity in patients with epilepsy and developed a novel testing method to study her patients, who were newly-diagnosed and not yet taking medication.

“I feel very honoured to be commended on this award. It really shows how far we have come in terms of research for epilepsy”, said Dr Badawy.

“Epilepsy is characterised by recurrent seizures which have a major medical and psychosocial impact and can totally disrupt the lives of patients as well as their family,” said Dr Badawy.

“If I can help understand what causes epilepsy and as a result we can stop even one person from having seizures, I will feel as though I have achieved something.”

**CATHY FOSTER – A BEQUESTOR PROFILE**

Cathy Foster is an active and vibrant FNI supporter who has always been interested in the workings of the brain. Her interest in medicine led her to choose nursing as a career, but ongoing illness made it impossible to continue.

Overcoming bi-polar disorder and learning difficulties, Cathy went on to graduate from Swinburne University, studying part-time while raising her son. She later returned to nursing, working in large teaching hospitals, and she ultimately went on to gain her Diploma of Teaching.

Cathy suffered a slight stroke five years ago, which has left her with residual weakness on her right side and some memory loss, but this does not deter her from living a busy and productive life, with creative quilting and walking among her hobbies. She is also the editor of her local Probus Club monthly magazine.

Cathy’s strong personal interest in brain disorders has led her to make a bequest to FNI in her Will, and we are very happy to welcome her to this select group of supporters.
THANK YOU TO THOSE WHO HAVE GENEROUSLY DONATED TO THE FLOREY NEUROSCIENCE INSTITUTES BETWEEN MARCH AND MAY 2010. LISTED ARE THOSE WHO KINDLY DONATED $250 OR MORE.

ANZ BANKING GROUP LIMITED, BELL CHARITABLE FUND, SANDRA BENJAMIN, ELIZABETH BROWN, JUSTINE BROWNE, THE HON JUSTICE ALEX CHERNOV & ELIZABETH CHERNOV ELFRIEDE CIZEK, FAYE CLARKE, ARTHUR CLOSE, JUNE DANKS, L GORDON DARLING AC & MARILYN DARLING, JOHN GEOFFREY DONALDSON, EVELYN FAWCETT, EILEEN GRIFFIN, ANNE KANTOR, KARINGAL NEIGHBOURHOOD WATCH, KEVIN LUSCOMBE AM, MILLER FOUNDATION, HAROLD MITCHELL FOUNDATION, N B MOWER, ESTATE OF THE LATE YASUKO MYER, MARGARET NEELY, SUE O’NEILL & ENID TELFORD, PARKINSONS ASSOCIATION FRANKSTON, DR K PEARSON, IAN POTTER FOUNDATION, PRATT FAMILY FOUNDATION, EDA RITCHIE, DOROTHY SAMS, ROBERT SINCLAIR, SUSIE STOCK, DR TAKAKO SUBOCZ, NANCY TELFORD, W D THORN, G W VOWELL FOUNDATION LTD, JANET WHITING & PHIL LUKIES. IN MEMORIAM. MARGARET BROWN, JOHN DUNCAN, LOIS BROWNE, KERRY ROSS SAMS, DON DALLEY

PHD STUDENT LOOKS AT THE NEUROPEPTIDE RELAXIN-3

PhD student, Gabrielle Callander, talks to Brain Matter(s) about her study into relaxin-3.

You are currently undertaking your PhD within the Neuropeptides Division of FNI, what is your work concentrating on?

“My work has two related themes. The first is to investigate the function of the neuropeptide, relaxin-3, which was discovered by Ross Bathgate in the human genome almost 10 years ago. The second is to develop tools to manipulate how much relaxin-3 is made in the brain.”

What was it about neuroscience that attracted you to do your PhD in this area?

“I was working on other members of the relaxin family of peptides during my Honours year. The opportunity to study relaxin-3 arose and I was fascinated. I was curious that it is present in animals from fish right through to monkeys. I figured if so many different species had it, it must be special!”

Do you remember when you first developed a passion for science?

“In high school our very first experiment was called “Mystery Powders”. We had to do experiments with various white powders, record our observations, and determine what they were. We asked questions like “Do they dissolve in water?” and “Do they pop when heated?” We were allowed to suggest all kind of experiments, I secretly loved it! Although it did take the fun out of it when I found out it was only sugar, salt, bicarb soda and flour.”

As a researcher, what would you like to achieve within the next five years?

“Within my field, I’d like to fill the missing gaps within our studies by understanding relaxin-3’s activation of its receptor, RXFP3, on target neurons. I would like to determine what signals get sent, what genes get turned on and what proteins are released.

On a personal level, I’d like to learn some new techniques and set up new collaborations. The collaborative nature of FNI has meant I have already learned many skills from members outside my own group. Learning new skills or working with people who have a different skill set to my own increases my chances of answering our questions.”

Who, either as a scientist or otherwise, do you admire and why?

“Our former group leader Associate Professor Geoffrey Tregear. I once heard someone describe him as “The last of the gentleman scientists” and it’s true. Geoff is a pioneer in the field of peptide chemistry and has made enormous contributions to relaxin research and FNI.”

When you’re not planning your next experiment what do you like to do to relax?

“I love to exercise! Research is pretty sedentary and it’s great to get outdoors when I’m not at work. I really enjoy riding bikes – I have three! It doesn’t matter whether it’s my single speed in city traffic, road bike along Beach Road or cross-country bike at the YouYangs, it’s all good fun.”

Gabrielle Callander