From the Dean

This issue of M³ is about the things that the Faculty of Medicine, Nursing and Health Sciences is building, whether these are laboratories, new agreements with international leaders in stem cell science, or programs to support the health experts of the future.

It may look like a prehistoric winged beast, but the skeleton on the cover belongs to the common laboratory mouse, and has been captured in remarkable detail using the kinds of technologies being developed at the Australian Synchrotron.

The NHMRC in April announced $13.2 million worth of funding for a powerful new beamline for imaging and medical therapy. The grant, which was led by Monash University, is a partnership between the Australian Synchrotron and the Australian medical research community.

Clinical and biomedical researchers will reap combined rewards from this new technology: the ability to image anatomical and physiological processes at an unprecedented level; and the chance to harness beamline technology as a radical form of radiotherapy. We will also build a world class imaging suite in the adjacent T8 Telstra building, bolstering the research credentials of our Department of Medical Imaging and Radiation Sciences.

In other infrastructure developments, much of the School of Biomedical Sciences has now finished moving into Buildings 76 and 77 on the Clayton campus, two buildings that are part of a research precinct worth a combined $140 million.

During the recent budget, the Federal Government acknowledged the Faculty’s unique ability to translate research from bench to bedside by awarding $71 million towards a new translational facility at the Monash Medical Centre that will be a partnership between Monash University, Southern Health and Prince Henry’s Institute.

But the Faculty is just one part of a robust University. Our fellow faculties of Science and Engineering will build on their research excellence through the $89.9 million New Horizons precinct, which they will share with CSIRO on the northern side of the Clayton campus. And the John Monash Science School, which is sprouting from the grounds of the south-west carpark, will immerse bright students from Years 10, 11 and 12 in the world of science.

Our focus is not just on tangible investments. The Faculty’s new philanthropic campaigns call on staff and alumni to contribute to a wonderful program that helps bright students stuck in tough circumstances.

We have also committed to a strong support role helping the Aboriginal and Torres Strait Islander Healing Foundation – a federally funded body established to study the effects of trauma and mental illness on the wellbeing of Aboriginal and Torres Strait Islander people, with a strong focus on the Stolen Generations. Along with Lowitja O’Donoghue, Aboriginal researcher and Monash PhD candidate Gregory Phillips has been appointed by the Government to establish this organisation, and is working closely with the Dean’s office on this project.

It’s an exciting time, and we look forward to seeing the changes that these new foundations will have on health research around the world.

“Our focus is not just on tangible investments.”

Steve Wesselingh
June 2009
Building 15 on the Clayton campus, home to the Monash Bachelor of Medicine/Bachelor of Surgery course, and one of the central buildings of our Faculty.

M³

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From the cover:
Super structures
Synchrotron radiation sheds light on the inside of a mouse. Image by Dr Karen Siu of the Monash Centre for Synchrotron Science and Dr David Parsons, Adelaide Women’s and Children’s Hospital.

M³ magazine has been printed using 9 Lives 80 per cent recycled paper. The paper is manufactured under the environmental management system ISO 14001.
A new $71 million health research centre will be built at the Monash Health Research Precinct (MHRP) in Clayton. Announced as part of the 2009 to 2010 Federal budget, the centre will be a partnership between Monash University (through the Monash Institute of Medical Research), Southern Health, and the Prince Henry’s Institute.

The new facility should be completed by the end of 2012, and will ensure strong links between laboratory, translational and clinical trial research. The MHRP’s focus will include inflammatory and infectious diseases, men’s and women’s health, and cancer and stem-cell technologies. Research within MHRP spans the spectrum of health and disease. The eight main research themes are: cardiovascular disease, cancer, women’s health, men’s health, inflammatory and infectious diseases, endocrinology and metabolism, neuroscience and mental health, and paediatrics.

Monash Vice-Chancellor Professor Richard Larkins said the facility would further strengthen research infrastructure in and around the Clayton campus and was a tribute to the hard work of Monash staff who worked on the concept with their partners over several years.

Monash Institute of Medical Research director Professor Bryan Williams said the facility would provide an exceptional opportunity to accelerate basic laboratory observations into clinical practice and improving patient care.

Student focus: Dr Tahani Altamimi

The Master of Family Medicine (Clinical) will provide long-term professional benefits to Saudi Arabian postgraduate and physician, Dr Tahani Altamimi. “The academic component of the course will equip me to teach in the future, and the clinical component has been tailored to my particular interests,” Dr Altamimi says.

A diligent student with a distinction average, she can be found most weekdays in the newly refurbished Department of General Practice buildings at Notting Hill. She also undertakes clinical placements at general practice clinics and other specialties clinics. After completing her Master’s degree, she will apply for the Monash PhD program. Her project would involve a return home to collect data on Saudi Arabia’s high rates of breast cancer among Saudi women.

“Unfortunately, most of the women are young – between the ages of 30 and 50 – and they usually present at an advanced stage. Although there is a scanning program, many women don’t attend, either because they are scared of the machines or they are very shy. They don’t know that if the condition is diagnosed and managed at an early stage they may live longer, disease-free,” she says.

Tahani has also been appointed as President of the Saudi Physicians Association in Victoria, a body that provides advice and assistance to Saudi physicians who are currently studying here or who are planning to come to Australia to undertake postgraduate studies.
Beaming to health

A new grant will allow researchers from Monash and other universities to use the Australian Synchrotron for both medical imaging and radiation therapy.

“Beaming to health"

Professor Ian Smith from Monash University has led a successful funding bid to use the Australian Synchrotron to research and potentially treat human diseases such as cancer.

The $13.2 million grant from the National Health and Medical Research Council and funding from the Victorian Government, announced in April, will see a major upgrade of the imaging and therapy beamline to become one of the most advanced and comprehensive medical beamlines in the world.

Dr Daniel Häusermann from the Australian Synchrotron, Dr James Pearson from the Department of Physiology and Monash Centre for Synchrotron Science, and Professor Rob Lewis, Director of the Monash Centre for Synchrotron Science, were also part of the team that applied for the grant.

Professor Smith, Director of Monash University Research Platforms and Deputy Dean (Research) of the Faculty of Medicine, Nursing and Health Sciences, said that until now the Synchrotron had been primarily a research facility. “This announcement means scientists here can take the first steps towards using synchrotron light for human imaging and therapy,” he said.

Professor Smith, Director of Monash University Research Platforms and Deputy Dean (Research) of the Faculty of Medicine, Nursing and Health Sciences, said that until now the Synchrotron had been primarily a research facility. “This announcement means scientists here can take the first steps towards using synchrotron light for human imaging and therapy,” he said.

“The Australian Synchrotron Imaging Therapy Beamline is immediately adjacent to a new joint CSIRO/Monash University imaging and therapy research facility. It is hoped both facilities will ultimately be physically connected to expand research capacity.

“Monash University has forged a strong record in synchrotron science, including radiation, physics, engineering and medical research. This new imaging facility will provide a comprehensive and unique imaging ‘one stop shop’ for researchers in Australia and across the world,” said Professor Smith.

Professor Rob Lewis, the Director of the Monash Centre for Synchrotron Science, who chairs the medical beamline science advisory panel, said the funding would allow the full range of medical applications requested by the research community to be realised.

“This beamline will produce unrivalled images at micron level resolution whilst also being able to trial new radiotherapy techniques, creating the potential for more effective treatment and less damage to surrounding healthy tissue,” he says.
Monash stem cell researchers, together with researchers from the Australian Stem Cell Centre and the Florey Neuroscience Institutes, are among the first recipients of collaborative grants under the Victoria-California Stem Cell Alliance.

The alliance is a landmark collaboration between Victorian and Californian researchers, and is co-funded by the Victorian Government and the California Institute for Regenerative Medicine (CIRM).

![Image]

"The group of researchers, who are among the best stem cell scientists in the world, were awarded funding for four projects that aim to translate basic science to effective treatments for patients with a range of debilitating conditions."

Professors Ed Stanley and Andrew Elefanty of MISCL will work with San Diego’s Novocell Inc to establish standardised tests that will ensure the safety of human embryonic stem-cell based products, including tests to measure potential tumour formation.

"Monash is an internationally focused university that supports intricate research programs on the most pressing biomedical issues. These exciting joint projects with California are a triumph of collaboration between the brightest experts in the world that will help to tackle a range of debilitating illnesses," said the University’s Deputy Vice Chancellor (Research), Professor Edwina Cornish.

The projects were announced in May by Victoria’s Minister for Innovation, Gavin Jennings, at BIO2009 in Atlanta, Georgia. The successful projects were submitted to the CIRM Early Translational Research Awards. A total of 15 projects were selected to receive funding at this time from the 72 received by CIRM.

www.med.monash.edu.au/miscl

Bursary set to help students

The Faculty has extended its program to support bright students who need a helping hand, distributing numerous bursaries for 2009 to provide financial support.

Michael overcame a great deal to earn his place at Monash University. He grew up as a ward of the state because his parents were emotionally and physically abusive. In his teens, Michael just survived as his peers turned to drugs.

With the support of an inspiring teacher, he achieved a strong VCE result and earned a place at Monash University.

Michael is one of the recipients of a Medicine, Nursing and Health Sciences Scholars Bursary. The bursary was established last year to help promising young people who are experiencing financial and personal adversity. It assists students with costs such as books, living expenses, and in the case of international students, tuition costs. The money will also provide emergency funds for students experiencing hardship.

"Because of the bursary I’ve been able to cut back on the number of hours I work each week. I can afford to put more time into study,” said Michael. “On an emotional level, it was great to be recognised. I felt valued and empowered.”

These students are from all walks of life. Some are local like Michael. Others come from less-developed countries or arrive in Australia as refugees. Some are from rural areas, or from Australia’s remote Indigenous communities.

It is hoped that donations for the Medicine, Nursing and Health Sciences Scholars Bursary will build a $4 million endowment. Each year, $200,000 of this will be distributed to students in need.

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The four successful projects

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Neural stem cells to treat Alzheimer’s

Professor Richard Boyd and Professor Frank La Ferla from the University of California, Irvine, will lead a multidisciplinary team of scientific leaders to determine whether neural stem cells can be translated from the bench to the clinic as a therapy for Alzheimer’s disease.

A progressive neurodegenerative disorder, Alzheimer’s affects over half a million Australians. There are currently no effective therapies for the disease, and existing treatments – which can bring severe side effects – provide only minor symptomatic relief.

This project builds on extensive preliminary data that supports the feasibility of neural stem cell-based therapies for the treatment of Alzheimer’s disease.

The project leaders will use human embryonic stem cells that are transformed into human neural stem cells, and then will test their ability to improve cognitive recognition function on animal models. But a challenge in successfully treating patients with these therapeutic cells is the very high likelihood that they will be rejected by the patient’s immune system.

Immunology expert Professor Richard Boyd will tackle this quandary in the Victorian part of the project. His team will apply technologies for re-educating the immune system to develop novel strategies for ensuring long-term acceptance of the stem cells transplants, without the need for prolonged use of immunosuppressive drugs.

Neural stem cells to treat Alzheimer’s

Professor Richard Boyd, Director of the Monash Immunology and Stem Cell Laboratories.

Faculty staff were invited to support the bursary in April through the University’s first staff philanthropy campaign. In June, the Chancellor invited his fellow Monash alumni in Australia to donate to student support initiatives in each faculty.

Dr Caroline Gargett, a researcher at the Monash Institute of Medical Research who was ranked by the National Health and Medical Research Council as Australia’s top project grant recipient for 2008, was one of the first staff to become involved.

“Tt is a great believer in the power of education and the importance of education being available to as many young people as possible,” said Dr Gargett.

“I have taught undergraduate students in the past. Too much part-time work puts a great deal of pressure on them. It takes away the joy of learning.”

Dr Gargett is a leading stem cell researcher and a passionate supporter of the bursary.

To learn about contributing to the Medicine, Nursing and Health Sciences Scholars Bursary, visit: www.monash.edu.au/giving/student-support/mnhs or contact:

Josée Pinsonneault
Faculty Campaign Director, + 61 3 9903 4677
josee.pinsonneault@adm.monash.edu.au

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Andrew Elefanty and Ed Stanley, Monash University and Novocell Inc.

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After several years in development, the Australian Regenerative Medicine Institute was launched in April by Federal Member for Chisholm Anna Burke and Parliament of Victoria Cabinet Secretary Tony Lupton.

The Institute, based at Monash University’s Clayton campus, is part of the largest single financial commitment to research that Monash has ever made, with the University investing $103 million into the construction of cutting-edge laboratory facilities for biomedical research.

The Victorian Government has dedicated $35 million towards major research equipment and the specialist fit-out of laboratories, and the Australian Government has contributed $15 million.

“ARMI’s scientists will focus on unravelling the basic mechanisms of the regenerative process, enabling doctors to prevent, halt and reverse damage to vital organs due to disease, injury or genetic conditions. This work will form the basis of treatments for conditions such as neurodegenerative disorders, diabetes, arthritis, and musculo-skeletal and cardiovascular diseases,” said Professor Nadia Rosenthal, director of ARMI.

The Vice-Chancellor of Monash University, Professor Richard Larkins AO, said that work in the Institute will be of enormous significance in understanding how tissues regenerate.

“The State Government and Federal Government have shown great foresight in investing in this exciting initiative, which will ensure the further development of Victoria and Australia as one of the most innovative sites for medical research,” Professor Larkins said.

www.med.monash.edu.au/armi

Events

Taking out the Curves: novel angles from the bench to help combat obesity

Listen to Monash obesity scientists chew the fat on one of the biggest challenges for health practitioners today, and what basic science can tell us about tackling it. This panel discussion will include insight from obesity heavyweights Professors Iain Clarke, Professor Brian Oldfield, Professor Michael Cowley, and Associate Professor Matthew Watt.

When: Thursday 13 August, 2009
Where: Persimmon Room
National Gallery of Victoria
180 St Kilda Road
Melbourne
Time: 7.15 am to 9 am

RSVP: Ticket release to be announced.
Check: www.med.monash.edu.au/events for updates, or contact: Megan Keating on (03) 9905 5971 or at mnhs.rsvp@med.monash.edu

Symposium on Indigenous Health and Healing

Indigenous health policies and programs tend to focus on the symptoms – violence, addictions, abuse, incarceration, poverty and unemployment – rather than the causes of dysfunction, such as trauma, loss of identity, and shame. The Prime Minister has responded by announcing a Healing Foundation to invest in dealing with causes. But what is healing? What is its relationship to existing health policies and programs?

When: Monday 9 November, 2009
Where: BMW Edge
Federation Square (corner Swanston Street and Flinders Street)
Melbourne
Time: 4 to 6 pm
RSVP: Megan Keating (03) 9905 5971 mnhs.rsvp@med.monash.edu

Admission is free, but places are limited. Visit: www.med.monash.edu.au/events for more information about future Faculty events.