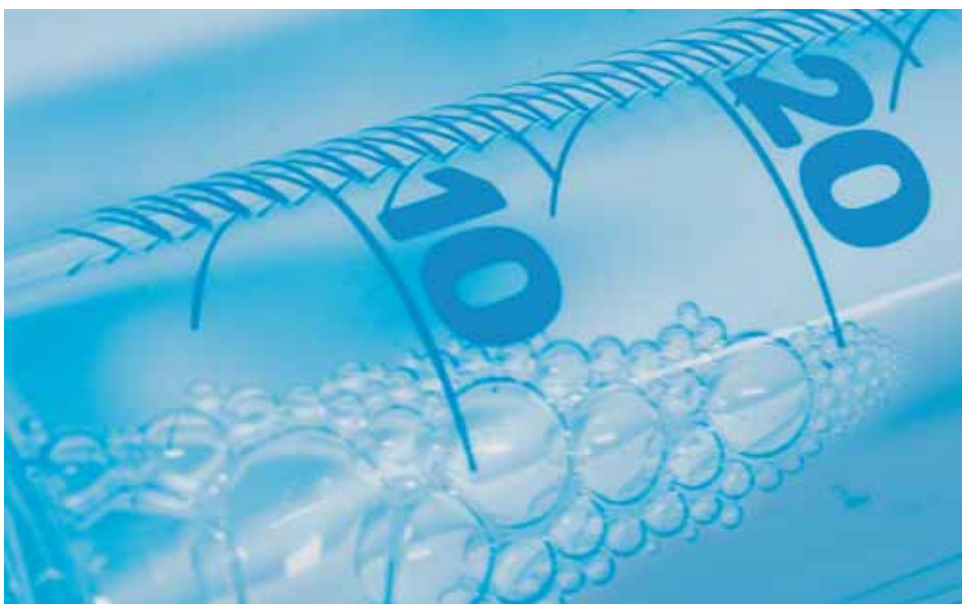


Spotlight: medical research at Monash

Volume 1, Issue 1, 2006

Welcome to the inaugural edition of *Spotlight*, a publication that highlights various aspects of health and medical research within the Faculty of Medicine, Nursing and Health Sciences.

In this issue, the focus is on the two major biomedical institutes within the faculty: Monash University Biomedical Institute (MUBI), located at the Clayton campus, and Monash Institute of Medical Research (MIMR), located in the Southern Health Care Network.



Fast facts: medical research at Monash University

From bench to bedside and beyond, Monash has strengths in a range of medical research

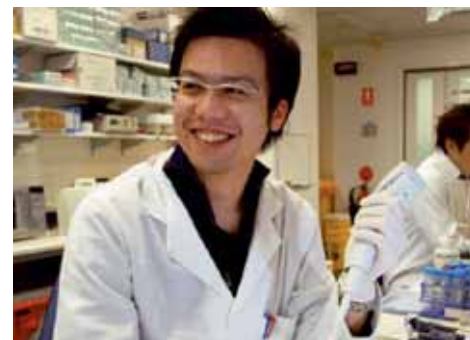
Areas of strength in health and medical research at Monash University include:

- Stem cells
- Male fertility
- Prostate cancer and disease
- Uterine and ovarian cancer
- Reproductive biology and immunology
- Inflammatory disease
- Diabetes and endocrine diseases
- Renal disease
- Infectious diseases
- Cardiovascular disease
- Mental health and neurological disease
- Health services research



The university is developing new multi-disciplinary health and medical research initiatives in three key areas that will pose major health challenges for Australia in the 21st century:

- Healthy ageing
- Healthy start to life
- Regenerative medicine

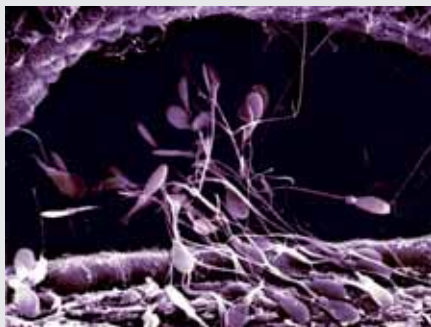


New appointments

Monash has recently recruited a number of internationally acclaimed researchers to further enhance its research effort in key areas, including:

- Professor Harald Schmidt (vascular pharmacology)
- Professor Bryan Williams (cancer – Wilms tumour)
- Professor Lenore Manderson (health social science)
- Professor Claude Bernard (immunology of multiple sclerosis)

Monash Institute of Medical Research (MIMR)



MIMR has over 300 staff and students across seven research centres. In 2004, our research funding was more than \$17 million. Our major collaborators include Andrology Australia, the Cooperative Research Centre (CRC) for Chronic Inflammatory Disease, the CRC for Innovative Dairy Products and the CRC for Oral Health Science.

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Monash Institute of Medical Research (MIMR)

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What we are known for

- Assisted reproduction – the discovery of in vitro fertilisation (IVF) by Institute scientists has helped thousands of couples realise their dream of starting a family.
- Sudden Infant Death Syndrome (SIDS) research – intensive research and public education campaigns led by the Institute have seen the SIDS rate halve in Australia over the last 10 years.
- Male infertility – MIMR scientists were the first to discover two hormones instrumental to the male reproductive system, now know to play vital roles in wound healing and some inflammatory diseases.

Current research

- Adult stem cell research – using adult stem cells found in the lining of the uterus to produce fat, muscle, cartilage and bone tissue.
- The effect of hormones on the prostate – examining the role of the female hormone oestrogen in the causes and possible treatment of prostate cancer.
- New genetic link to breast cancer – the discovery of a gene, *Elf5*, which controls development of the mammary gland, may be instrumental in future breast cancer treatments.
- Breakthrough in miscarriage research – a drop in the hormone MIC-1 has provided clues as to why some women suffer repeat early-stage miscarriages.
- Chronic liver disease – a hormone involved in reproductive processes may slow the progress of chronic liver disease.



Monash University Biomedical Institute (MUBI)



MUBI has over 700 staff and students across eight discipline areas, covering the full spectrum of biomedical sciences. In 2004, our research funding was more than \$32 million. Our major collaborators include ARC Centre of Excellence for Structural and Functional Microbial Genomics, Australian Stem Cell Centre, Australian Synchrotron, Centre for Bioprocess Technology, CRC for Biomedical Imaging, CRC for Oral Health Sciences, CRC for Vaccine Technology, Neurosciences Victoria and Victorian Bioinformatics Consortium.

Contact

Monash University Biomedical Institute (MUBI)

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Director

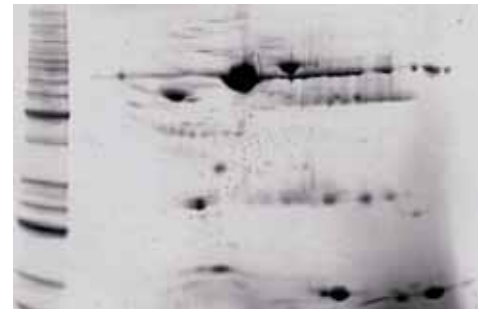
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What we are known for

- Stem cell researchers, led by Professor Alan Trounson, have developed new ways to regenerate and repair a variety of tissues including pancreas, lung, kidney, blood vessels and heart tissue. This will lead to new treatments for diabetes, multiple sclerosis, blood, lung and renal diseases.
- Inter-disciplinary collaborators Michael Berndt and Warwick Anderson have been sharing their different scientific approaches to make valuable insights into the understanding and development of new therapeutics for cardiovascular disease. The recent appointment of vascular pharmacologist Harald Schmidt will further bolster this research.



Current research

- Anti-obesity drug – A synthetic variation of human growth hormone that can be taken orally is being trialed as an anti-obesity drug by speeding up our natural metabolism of fats. Early results show the drug not only burns fat, but reverses diabetes in some people.
- Edible Malaria Vaccine – By genetically engineering tropical crops such as lettuce or banana, an edible vaccine for malaria could be distributed and grown throughout pandemic affected areas, stopping one of the world's biggest killers without the need for expensive drugs.
- Blood from stem cells – The dream of replacing regular blood drives and the dependence on donations by artificially growing blood in a laboratory is a step closer, as embryonic stem cells are coaxed into producing cells that resemble our red blood cells.
- Mixed immune systems tolerate transplantation – mixing a donor's bone marrow stem cells with the recipient's bone marrow trains the immune system to tolerate organs transplanted from the donor. Mastering this effect may allow much greater transplantation success without the side-effects of immunosuppressants.



More fast facts



Monash University is one of Australia's leading centres of medical research. The university secured more than 35 per cent of NHMRC project and program grants awarded to Victorian universities for 2005, with \$14.3 million in project grants and \$26.8 million in program grants. Nearly 60 per cent of the university's total research funding of \$120 million is for the purposes of health and medical research.

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Monash University

Monash University is:

- Australia's leading university in winning NHMRC program grants in 2004 and 2005.
- Internationally recognised for its research in biochemistry and molecular biology, microbiology, physiology, epidemiology and preventive medicine, medicine, reproductive development and regenerative medicine.
- The recipient of the largest NHMRC program grant ever awarded. In 2004, a team led by Professor Julian Rood was awarded \$15.3 million over five years to study the molecular basis of bacterial infectious diseases.
- Making a significant investment in infrastructure to support medical research, including the Science, Technology, Research and Innovation Precinct (STRIP; Stage One: \$52 million; Stage Two/Three: \$120 million) and the Alfred Medical Research and Education Precinct (AMREP; \$12 million investment from Monash).

Monash University benchmarking

According to the Times Higher Education Supplement (THES) World University Rankings for 2005, Monash University is ranked:

- 33rd (overall) in the world
- Third (overall) among Australian universities
- 28th in the world for biomedicine research – moved up from 37th in 2004

Next issue

Our focus will be on cancer research to coincide with the arrival of the new Director of MIMR, Professor Bryan Williams.

