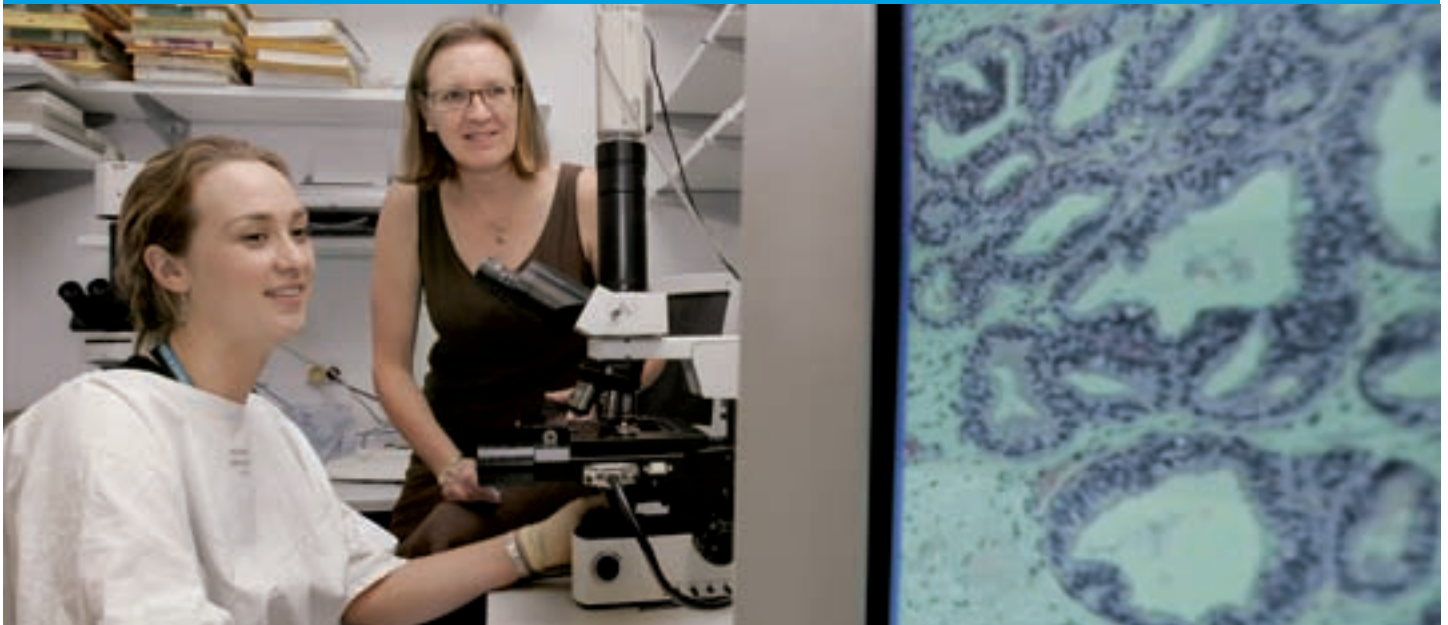


MIMR creates world's first 'man-made' prostate



Prue Cowin and Prof Gail Risbridger studying prostate cells. (Photo courtesy of AFP)

In a giant step towards understanding prostate disease, MIMR scientists have grown a human prostate from embryonic stem cells.

Co-first authors of the study, which was published in the prestigious *Nature Methods*, Dr Renea Taylor (also from Monash Immunology Stem Cell Laboratories) and PhD student Prue Cowin, have developed a means of growing, in the laboratory, the equivalent of an adolescent's prostate, in just 12 weeks.

In a revolutionary approach to tackling both prostate cancer and benign prostate disease, scientists in MIMR's Centre for Urological Research (CURE) can now study young, healthy prostate tissue and track its progression to

prostate cancer and benign prostate disease (BPH). This ongoing supply of 'home-grown' prostate tissue enables the team to monitor and understand the changes that take place and how the diseases develop.

"Prostate cancer is the most common form of cancer in men, and BPH affects up to 90 percent of men aged 50 and over, so to have found a way to study how and why these diseases develop is very exciting," Prue said.

Dr Taylor said they created the tissue by 'telling' the embryonic stem cells to become a human prostate gland. "Although it's microscopic in size, the tissue we've grown behaves as a normal prostate, which makes it the perfect model for testing the different

hormones and environmental factors we believe play a role in the onset of prostate disease," she said.

Professor Gail Risbridger, CURE Director and research project leader, said the implications of this breakthrough were enormous. "We have created a perfect model for studying how BPH develops as part of the normal ageing process. We can now observe under the microscope the transition of healthy prostate tissue to cancer," she said.

MIMR scientists and their collaborators are confident their exciting discovery will transform the way scientists and clinicians worldwide research prostate cancer and BPH – diseases that affect nearly every man.

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Director's message



Men's health issues often have a lower profile in the media than female health-related stories. Researchers and media commentators have their own theories for this, but greater attention needs to be given to men's health in the public domain, especially as on average, men are less likely to visit the doctor than women, and have a lower life expectancy.

In a small bid to redress the balance, this edition of the *MIMR News* focuses on men's health. Nearly every man will have some kind of prostate trouble in his life, whether it's prostate cancer, or the non-life threatening, but equally debilitating, benign prostate disease. Testicular cancer is a disease that if diagnosed in its early stages, can often be cured, but continues to affect more and more young men. And then there's the male contraceptive pill – an often controversial issue that may soon be a reality.

The year is passing quickly here at MIMR. In April, our Founding Director, Professor David de Kretser AO was inducted as Victoria's new Governor. This very proud moment for his family and MIMR staff was tinged with sadness as David walked out of our doors for the last time as a scientist.

I hope this edition of the *MIMR News* sheds some light on a range of common men's health issues, and provides you with a glimpse into what goes on within our walls of our Institute.

A handwritten signature in black ink that reads "Bryan P S Williams".

Professor Bryan Williams
Director

Monash Vice Chancellor new MIMR Patron

Vice Chancellor and President of Monash University, Professor Richard Larkins AO, has been appointed as the co-Patron of MIMR. He shares the role with the Institute's original Patron, the former Governor-General of Australia, Right Hon Sir Zelman Cowen AK, GCMG, GCVO.

Professor Larkins has a long and distinguished career in medicine and medical research. Before accepting the role of Vice Chancellor at Monash, he was the Dean, Faculty of Medicine, Dentistry and Health Sciences at the University of Melbourne. Prior to his academic appointments, Vice

Chancellor Larkins was the Head, Department of Medicine, Royal Melbourne Hospital/Western Hospital. He was awarded an Order of Australia in 2002.

"I am delighted and honoured to accept the role of Patron of this fine Institute. Under the outstanding leadership of Professor David de Kretser it achieved world fame as an authority in reproduction. Now, Professor Bryan Williams is ideally qualified to lead the Institute into its next phase which will broaden the scope of the Institute including research into cancer."



MIMR joins national prostate tissue bank

MIMR has joined forces with the Australian Prostate Collaboration to become the Victorian branch of BioResource, a national prostate cancer tissue bank.

The tissue bank provides scientists with much-needed access to prostate cancer tissue samples. Tissue collected from consenting patients is used to research all aspects of prostate cancer.

Courtney Bamford, BioResource Victorian Coordinator and member of the Centre for Urological Research (CURE) team, liaises with urologists and consenting patients about to undergo radical prostatectomies and willing to donate tissue to BioResource. "We collect the tissue from surgery, then our pathologists freeze a portion of both suspected cancerous and benign tissue, which is used for serum and plasma analysis and DNA or RNA extractions and histological analysis for experiments," she said. "The real power of BioResource lies in our future plans to collect extensive data on each patient so we can better relate scientific findings with clinical outcomes."



Courtney Bamford, Vic BioResource Coordinator

Professor Gail Risbridger, CURE Director and Director of the Victorian BioResource branch, said the tissue bank is the ideal resource to complement her team's research. "The prostate tissue we've grown in our lab is helping us understand the progression of healthy tissue to a diseased state, but there's still so much we need to learn about cancerous tissue itself," said Prof Risbridger.

"Men who agree to donate their discarded tissue following surgery to be stored and used by BioResource are providing scientists with the tools they need to do everything in their power to understand the most commonly-occurring cancer in men," she said.

For more information about BioResource, contact Courtney Bamford on (03) 9594 7437.

Prostate disease facts & figures

Benign prostate disease (BPH)

- Nearly every man over 50 is affected by BPH, and up to 90% of men will experience discomfort and require treatment for BPH by the time they are 80.
- BPH is caused by cellular changes to the prostate gland, which leads to an increase in the tissue around the urethra, slowing and stopping the flow of urine.
- BPH can be extremely debilitating as the need to pass urine is urgent and frequent, and can be disruptive to sleep. It can also cause serious bladder and kidney problems.

Prostate cancer

- Prostate cancer is the most common cancer in men.
- In Australia each year, 11,000 new prostate cancer cases are diagnosed and 2500 men die from prostate cancer.
- Approximately 25% of men aged over 50, and 40% of men over 60 will have evidence of cancerous cells in their prostate.
- In many prostate cancer cases, the cancerous cells are slow growing and may never be life threatening.
- Current screening and diagnostic measures are unable to differentiate between slow and fast spreading prostate cancer.

A not-so-bitter pill to swallow



Dr Moira O'Bryan

Would women trust men to a male contraceptive pill? According to Dr Moira O'Bryan, who leads a research program in this field, the answer is yes.

"A study of almost 2000 women worldwide showed 65 percent believed men should take responsibility for contraception, and over 85 percent believed a male pill was a good idea¹," said Dr O'Bryan.

It's likely a hormone-based male pill will be available within the next five years. However, this form of contraceptive is unlikely to suit all men. Dr O'Bryan is aiming to overcome these limitations by identifying a protein found only in the sperm cells which may hold the key to a contraceptive that would work for all men.

"We're expecting that when this protein is blocked chemically, it will stop sperm development or function. If this is the case, it could be the perfect contraceptive target, as any alteration made to it by a drug shouldn't affect the rest of the body," she said. "We're now working with mouse models to make sure our findings are correct and of value to drug companies to develop a more reliable male contraceptive."

"It will be at least ten years before a non-hormonal pill is ready for men to use. But the scientific breakthroughs we continue to make, combined with the social research, shows there is a definite market for a safe, reliable, reversible male contraceptive," she said.

1. AF Glasier et al, *Would women trust their partners to use a male pill?* Human Reproduction, vol 15, no 3, pp 646-649, 2000.

Fertility and HIV

Many HIV-positive men are now living longer, healthier lives due to advances in HIV therapies, and many of these men can even look forward to starting a family. MIMR scientists, together with their collaborators at the Burnet Institute and Melbourne University, are among only a few groups in the world researching the effects HIV and HIV therapies have on the male reproductive system.

"Advances in IVF procedures overseas mean men living with HIV may be capable of safely having children without passing on the virus," explained Associate Professor Mark Hedger, who with Dr Miranda Xhilaga, is investigating how HIV targets male reproductive tissues.

"However, men with this virus eventually become infertile as the disease damages the testes and kills the sperm, although we still don't know how long this takes, or even how it happens," Assoc Prof Hedger said.

"We're looking at how retroviruses, like HIV, in their earliest stages affect the male reproductive system. We hope we can then learn how and why men with HIV become infertile. We're also interested in investigating the effects that long-term HIV therapies, such as highly active anti-retroviral treatment (HAART), have on reproductive function."

Assoc Prof Hedger believes that as HIV treatments continue to improve, research such as this will play an important role, as scientists and doctors look for ways HIV-positive patients can pursue their dream of a family.

Working to beat testicular cancer

Testicular cancer is the most common cancer in young men, with about half of all new diagnoses in men under 33 years of age¹. However, a man's predisposition to testicular cancer is determined before he is even born.

Senior Scientist Dr Kate Loveland and PhD students Vinali Dias and Sirisha Mendis are using their reproductive biology expertise to learn more about testis development in a bid to understand how and why testicular cancer develops.

"Our work with mouse models showed a protein called activin influences testis growth during fetal development and puberty. We discovered it acts on the kind of cells that can form testicular cancer cells in humans," said Vinali. "Working with human tissue samples, we've shown malignant testis cells respond to activin in a different way to healthy cells. Given its key role, we're now looking at how activin is expressed in normal, pre-malignant and cancerous testis tissues."

Dr Loveland and her team believe activin plays a key role in testicular cancer. They're hopeful their research will lead to a useful prognostic tool and a way of short-circuiting the changes that cause pre-malignant cells to become cancerous.

Despite testicular cancer being quite rare, there has been a 34 percent increase in diagnoses in Australian men over the last 10 years². Dr Loveland acknowledges a pharmacological cure for testicular cancer is still a long way off, but important steps are being taken. "Each small breakthrough we make will have implications for treating this disease, so it's very important we continue to learn as much as we can about it," Dr Loveland said.

1. Cancer Council Australia website www.cancer.org.au

2. Cancer Council NSW website www.cancercouncil.com.au



Vinali Dias in the lab

Gandel family show their support for medical research



John and Pauline Gandel, and Laurence and Stephanie Joseph from the Gandel Charitable Trust joined members of the Monash Health Research Precinct Sequencing Committee to celebrate the launch of the Gandel Charitable Trust Sequencing Centre. The event recognised a significant gift from the Gandel Foundation to purchase a new DNA sequencer for the Precinct.

The DNA Sequencing Centre is a core facility for Precinct members; MIMR, Prince Henry's Institute and Southern Health. Researchers use DNA sequencing to determine the exact order of the 3 billion bases that make up the genes in the 24 chromosomes in the human genome. This process is crucial to understanding conditions such as male infertility, ovarian cancer, diabetes, Down's Syndrome infection and inflammation.

In addition to processing DNA for the Precinct, the Gandel Charitable Trust Sequencing Centre is used by Monash University and external organisations including the Ludwig Institute, University of Melbourne and CSL for their research. Centre Manager, Vivien Vasic, is excited about the new equipment and the improved services it will provide.

"Our new Sequencer uses the latest technology to provide researchers with a more efficient service. It provides information on 30 percent more bases than the original sequencer, which means we can obtain more information from each DNA sample. This helps researchers and clinicians gain a greater understanding of the genes they're studying. The generosity of the Gandel Charitable Trust means we now have a more accurate, reliable and speedy service for our internal and external clients," Vivien said.

*Prof Evan Simpson, Director Prince Henry's Institute,
Prof Bryan Williams, Director MIMR, Mr John Gandel AO*



Farewell Founding Director

On March 31, MIMR said goodbye to its Founding Director, Professor David de Kretser AO, as he left the Institute to take up his new role as Governor of Victoria. His farewell celebrations included the unveiling of his portrait, painted by Peter Byron. With David's family, friends peers and MIMR staff present, accolades and speeches were given



to someone who not only founded MIMR, but who has had a profound impact on men's health at an international level. Staff members Lynda Foulds and Associate Professor Mark Hedger, both long-standing colleagues of David's, summed up the spirit of the man:

"I was offered a position to work with David's research program in 1978, which focused on the hormones inhibin, the activins and follistatin. How could I resist the opportunity of working with a man with such impressive side burns!"

"David has supervised 14 Honours and BMed Sci students, 40 PhD students and employed 36 Post-Doc fellows, and innumerable Research Assistants... from all over the world. As a result of David's great loyalty that he has shown towards his staff and students, 14 of these people are still working with him today, with a combined total of well over 225 years of service to David, the Institute and the University."

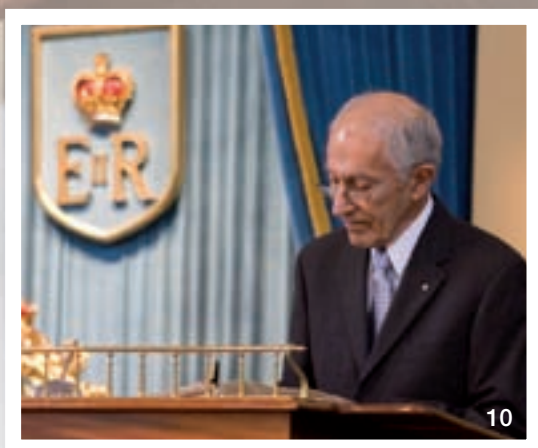
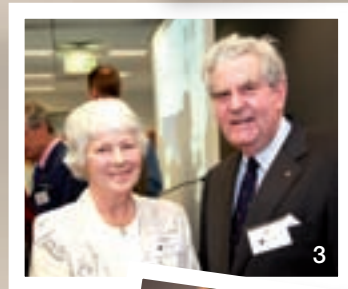
"On behalf of all those who have worked with you over the years, we thank you David for your motivation, inspiration and integrity, and for all the opportunities you have presented us on both a professional and personal level. We wish you good luck, good health and great happiness in your new life as Governor of Victoria."

Seven days later, MIMR's Founding Director officially began his new life, at his Inauguration Ceremony at Government House. David formally accepted the role with his trademark humble spirit:

"It is my hope that my background as a migrant, medical practitioner, scientist, educator, husband, father and grandfather, together with my Christian faith, will help me in fulfilling the duties of this Governorship."

"In approaching the issues that face our society, there are... three important principles to which we should hold fast: Communication, Compassion and Courage. It is my pledge that during my term as your Governor, I will approach my job not only with humility, honesty and integrity, but also with compassion, courage and careful attention to communication."

or... Welcome Governor



- 1) *Prof David de Kretser & artist Peter Byron*
- 2) *George Pappas, Robert Smorgon, Ann Geddes*
- 3) *Margaret and Ian Ross*
- 4) *The Right Honourable Zelman Cowen and Lady Anna Cowen*
- 5) *Hugh, Jan, David & Mark de Kretser*
- 6) *Jack Joel & Tony Rogers*
- 7) *Dr Peter Temple-Smith and Dr Zhen Zhang*
- 8) *Linda Sorrell, CEO Southern Health, Prof Don Campbell, Director, MIHSR, Prof Ed Byrne AO, Dean, Faculty of Medicine, Nursing & Health Sciences*
- 9) *Prof Paul Hertzog, Dr Rocco Iannello & Prof Evan Simpson, Director, Prince Henry's Institute*
- 10) *David de Kretser being sworn in as Governor of Victoria*

Staff awards

Congratulations to...

Rosemary Horne and David Phillips have been promoted to Associate Professors on behalf of Monash University Council.



Assoc Prof David Phillips and Assoc Prof Rosemary Horne

Associate Professor Horne is a Senior Scientist in the Ritchie Centre for Baby Health, and holds an NHMRC Senior Research Fellowship. Assoc Prof Horne is a Chief Investigator on 3 NHMRC project grants investigating

cardiovascular problems during sleep in infants and children. Her work has focused on finding the mechanisms involved on Sudden Infant Death Syndrome (SIDS) for which she has secured more than \$1.5 million in funding from sources including the NHMRC, SIDSaustralia and SIDRF South Australia.

Associate Professor Phillips, a Senior Scientist in the Centre for Reproduction and Development, joined MIMR in 1995. He is also an NHMRC Senior Research Fellow, and currently a Co-Chief Investigator on an NHMRC program grant. He is renowned internationally for his research into the biology of the growth factor, activin, and specifically its role in the body's inflammatory processes.

Dr Ursula Manuepillai, from the Centre for Women's Health Research, received the President's Presenter Award at the Society for Gynaecological Investigation in Toronto.

Dr Carol Holden, CEO of Andrology Australia was awarded the Ministry of Science and Medical Research Poster Award at the inaugural Heart Foundation Conference and Science Meeting in Sydney.



Dr Carol Holden



About Andrology Australia

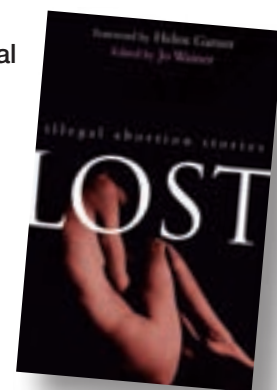
Andrology Australia assists men with a range of reproductive problems. For more information about any of the men's health issues mentioned in this edition of the *MI News*, visit www.andrologyaustralia.org or call 1300 303 878.

Found: first-hand accounts of Australia's abortion campaign

The launch of Dr Jo Wainer's book, *Lost: Illegal Abortion Stories*, published by Melbourne University Press was a timely reminder of the many Australian women who underwent illegal abortions.

Dr Wainer, Director of the Monash University Centre for Gender and Medicine, within the Monash Institute of Health Services Research, compiled the book from interview transcripts with women who had illegal abortions from the 1930s' until safe abortions were accessible in 1968.

Dr Wainer's late husband, Dr Bertram Wainer, was a high-profile abortion reform doctor and campaigner in the 1960s and 1970s. He led a campaign to make abortion safe and accessible for all women, and eventually established Australia's first openly operating abortion service in Melbourne. The Wainers' dedication to making abortion safe led to attempts on their lives, bankruptcy and retreat to rural practice. Today, Dr Jo Wainer continues her husband's campaign.



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