MAURICE WILKINS CENTRE
FOR MOLECULAR BIODISCOVERY

Issue 3 | December 2009

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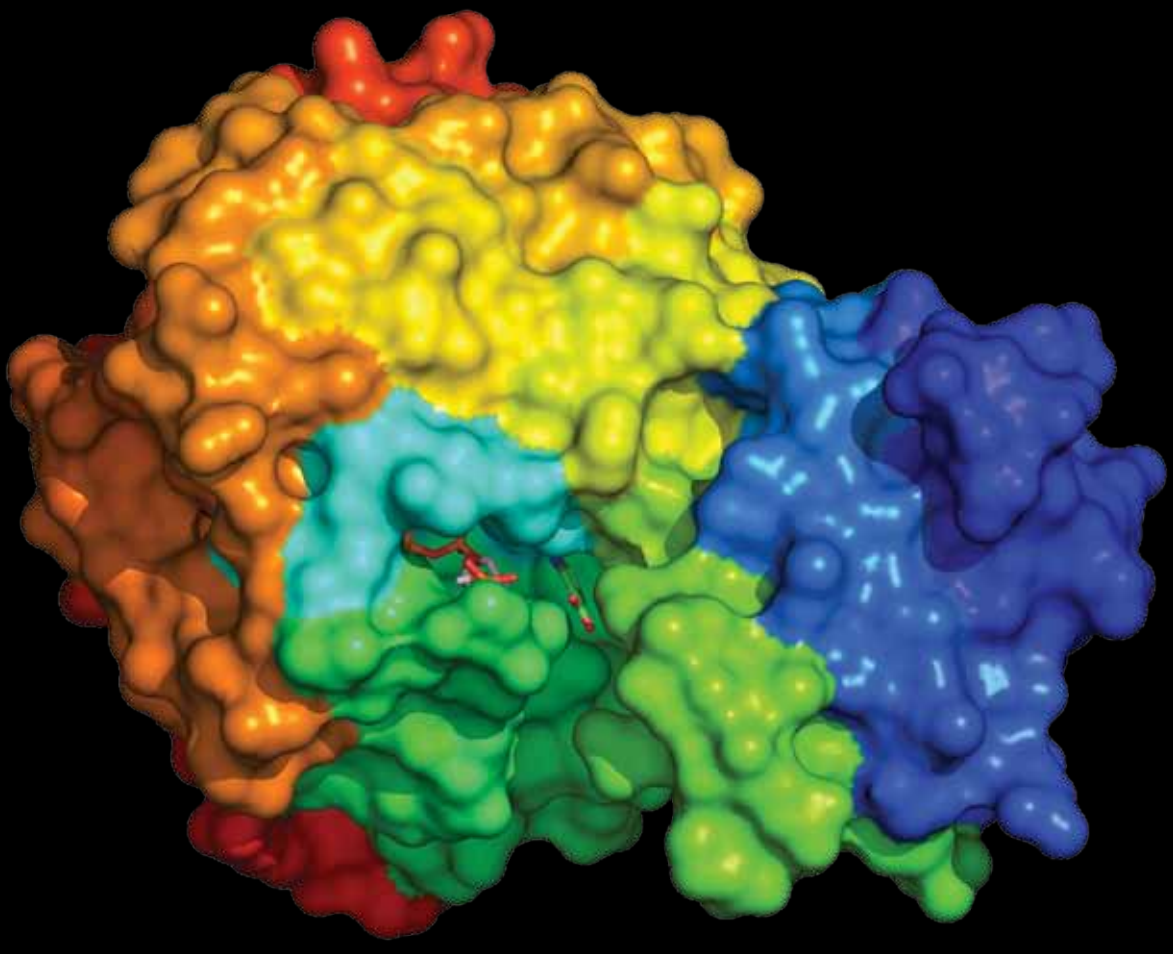
Solutions to Serious Diseases



Maurice Wilkins Centre

The Maurice Wilkins Centre brings together leading biologists, chemists, and computer scientists to target serious disease. The Wilkins Centre includes New Zealand researchers with world-class reputations for inventing new drugs targeting cancer, diabetes, and infectious disease, several of which are in clinical trials.

The Wilkins Centre also develops new vaccines targeting infectious disease and cancer, and new tools to help basic research and clinical medicine, including sophisticated software for medical use. In bringing together scientists and doctors from a wide range of backgrounds, the centre sponsors cutting-edge research that would not otherwise have been carried out. This intense research environment provides an outstanding training ground for the next generation of leaders in New Zealand biomedical science.

As well as coordinating a national network of leading researchers across New Zealand, the Wilkins Centre provides world-class research infrastructure, including both cutting-edge equipment and highly specialised technical training. These two fundamental activities – enabling nationwide multi-disciplinary collaboration, and maintaining internationally competitive research infrastructure – support our mission to ensure that New Zealand capitalises on its outstanding reputation for biomedical research.

For more information see www.mauricewilkinscentre.org

For more information on New Zealand Centres of Research Excellence see www.acore.ac.nz

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Cover image: Representation of the 3D structure of the TrpD enzyme from Mycobacterium tuberculosis. Courtesy of Wilkins Centre Investigator Dr Shaun Lott.

MAURICE WILKINS CENTRE
FOR MOLECULAR BIODISCOVERY

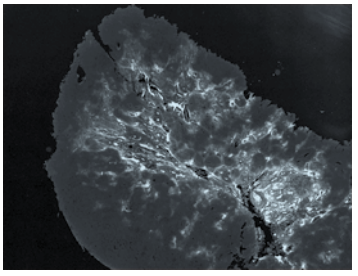
FEATURE

DIRECTOR RELISHES NEW ROLE

pg.3

After seven years of service, Distinguished Professor Ted Baker has handed over the directorship of the Maurice Wilkins Centre to Associate Professor Rod Dunbar.

RESEARCH



NEW CLASS OF ANTI-CANCER DRUGS

pg.5

Maurice Wilkins Centre investigators have discovered a new class of anti-cancer drugs that shows exciting early promise against lung cancer.

GETTING TO THE HEART OF MATTERS

pg.7

Pioneering computer technology sponsored by the Maurice Wilkins Centre is hot property in the United States and Europe.

SUPPORTING FUTURE SCIENCE LEADERS

pg.9

Two talented students are learning invaluable new skills to help them combat cancer and tuberculosis courtesy of the Maurice Wilkins Centre's PhD scholarships.

TACKLING THE IMMORTALITY OF CANCER CELLS

pg.11

Chemists at The University of Auckland have successfully made the naturally-occurring anti-cancer compound gamma-rubromycin.

FROM ROBOTS TO ROADMAPS

pg.13

The purchase of cutting-edge equipment is helping Maurice Wilkins Centre scientists carry out world-class research in New Zealand.

NEWS

WILKINS CENTRE NEWS

pg.14

Recent awards and honours
Scientific networking and events

FEATURE

NEW MAURICE WILKINS CENTRE LEADER

Photo: Godfrey Boehnke

DIRECTOR RELISHES NEW ROLE

Associate Professor Rod Dunbar hasn't had much of a chance to sit down and relax since he took over the directorship of the Maurice Wilkins Centre. But he isn't fazed by his busy timetable. "It's been a great time to take over as director because there are so many exciting initiatives underway. We're busy extending the centre's collaborative research programme, as well as our outreach activities. We're particularly focused on supporting up-and-coming scientists by backing their early stage ideas through our research seeding programme. Working with such a talented and dedicated group of researchers is a pleasure."

Professor Ted Baker, a celebrated structural biologist, handed over the directorship of the Wilkins Centre to Dr Dunbar at a celebration event at The University of Auckland in August 2009. Professor Baker, who was made a Companion of the New Zealand Order of Merit in 2007 for his services to science, remains a Principal Investigator at the centre while continuing to lead one of the country's largest medical research groups at The University of Auckland.

(OPPOSITE) PROFESSOR TED BAKER (LEFT) AND ASSOC PROF ROD DUNBAR

"Ted is an extremely important figure in the scientific community, not only in New Zealand, but internationally," says Dr Dunbar. "He knows what works long term in terms of fostering research excellence, and I'm very grateful to have his continued support and advice."

Dr Dunbar was born and educated in Christchurch. He gained a medical degree from Otago University before completing a PhD in immunology and embarking on a research career that included six years at Oxford University. His research focuses on the human immune system, and his research group is currently developing new immunological and cellular therapies for cancer.

"There's a broad portfolio of promising new medicines discovered in New Zealand that are now reaching clinical trials, including two drugs coming through their final Phase 3 trials," says Dr Dunbar. "One of the main aims of the centre is to support and strengthen New Zealand's pipeline of new medicines. The New Zealand Drug Discovery Symposium which we held in September 2009 demonstrated the strong future for drug discovery within New Zealand, and its potential to deliver both health and economic gains."

Dr Dunbar says 2010 is shaping up to be a big year, with many of the highly innovative projects seeded by the Wilkins Centre beginning to mature. He says the centre will be increasing its efforts to help young scientists just starting out in their research careers, including support to develop their own ideas, and improving their access to high level career guidance. The centre will also host a series of technical workshops that will be made available throughout the country as webcasts, and continue to meet with the wider community, including the business and investment leaders who will enable future development of its scientists' discoveries.

"Over the next decade we're going to see strong growth in the number of researchers and companies discovering new medicines in New Zealand. The Wilkins Centre is keen to help accelerate that growth."

RESEARCH

IMPROVING THE OUTCOME FOR CANCER PATIENTS

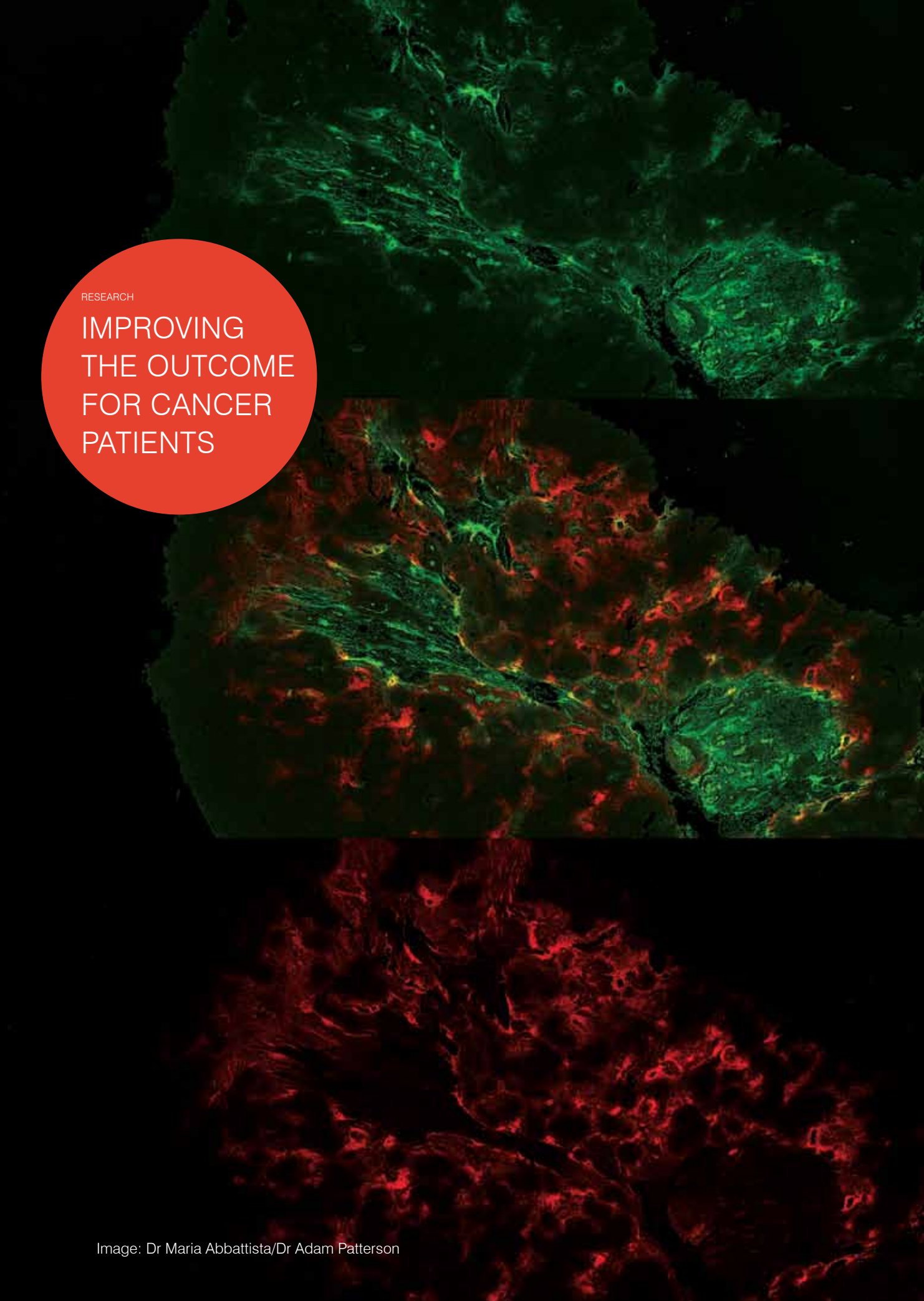


Image: Dr Maria Abbattista/Dr Adam Patterson

NEW CLASS OF ANTI-CANCER DRUGS

Maurice Wilkins Centre Investigators Drs Jeff Smaill and Adam Patterson announced the discovery of a new class of anti-cancer drugs at the world's premier conference for molecular targets and cancer therapeutics in Boston, Massachusetts, in November 2009[1].

The drugs are a type of prodrug – an inactive compound that is converted into an active drug by the body's metabolic processes. They were discovered at the Auckland Cancer Society Research Centre at The University of Auckland, and have shown dramatic results against lung cancer in pre-clinical trials.

The new prodrug "sticks" to the cancer tumour for over three days compared with other drugs that stay in the tumour for only a few hours. It targets proteins found in solid tumours called Human Epidermal Growth Factor Receptors (HERs). These proteins are involved in cell growth and have been implicated in the development of a variety of cancers.

(OPPOSITE) FLUORESCENT IMAGING SHOWING EXISTING (GREEN) AND NEW (RED) HYPOXIC AREAS OVER A 24 HOUR TIME PERIOD IN A TUMOUR

"Our experiments show that this new prodrug is much more active than the current gold-standard drug treatment for advanced or spreading lung and pancreatic cancer," says cancer biologist Dr Patterson. "It's very common for tumours to start re-growing after you stop administering this type of cancer drug. But after we stopped doses of this prodrug, the tumours still hadn't re-grown 30 days later."

Dr Smaill, a medicinal chemist, says the main problem with previous drugs developed to target HER proteins is that they also block the function of these proteins in normal tissues. This can cause side effects such as severe diarrhoea, skin rash, nausea and vomiting, ultimately limiting the amount of drug that can be given to the patient. "This new class of prodrugs are designed to release a HER inhibitor in the tumour that can irreversibly attach to the active site on the HER proteins, stick there and stay, permanently shutting off the growth signal from the receptors to the nucleus of the cancer cell."

Drs Smaill and Patterson, based in the laboratories of Professors Bill Denny and Bill Wilson in the Auckland Cancer Society Research Centre, started working on this new class of prodrugs in 2005 after receiving salary support from the Wilkins Centre. In 2007, the project received further funding from the Foundation for Research, Science and Technology. The biopharmaceutical company Proacta Inc., a University of Auckland spinout company, has also funded a significant proportion of the development to date, and owns the rights to commercialise these compounds.

About two-thirds of tumours have patches that contain low levels of oxygen, termed hypoxia. Hypoxic tumour cells are more resistant to cancer treatments and are more likely to spread and become invasive. The prodrugs developed by Drs Smaill and Patterson actually use this feature against the tumour, activating only in the hypoxic cancer cells found in tumours – not healthy normal cells. ""This new stealth prodrug design is unique, being the first of its kind that 'sits and waits' for acute changes in tumour oxygenation. These transiently hypoxic cells are considered a critical target cell population and eliminating them should dramatically improve the outcome for cancer patients," says Dr Patterson.

1 AACR-NCI-EORTC International Conference on Molecular Targets in Cancer Therapeutics

RESEARCH

BUILDING COMPUTER MODELS OF THE HUMAN BODY

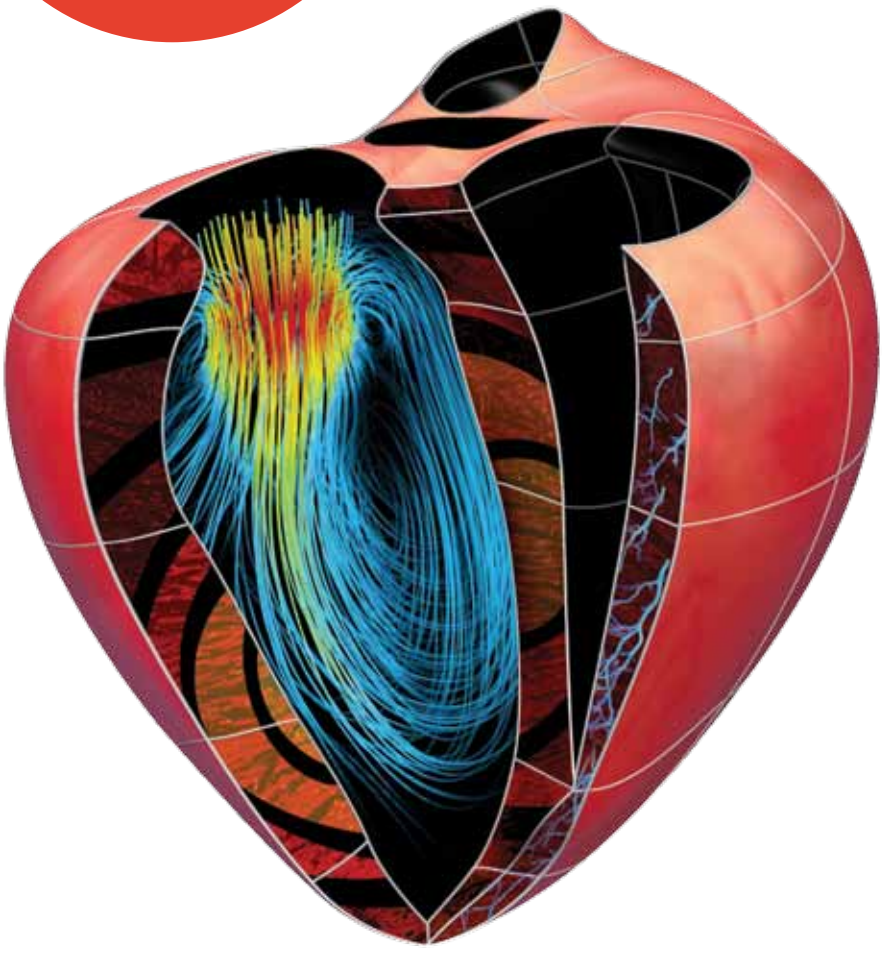


Image: Dr Jack Lee/Dr David Nordsletten

GETTING TO THE HEART OF MATTERS

Heart disease is the leading cause of death in the Western world. A major Europe-led project called euHeart is trying to provide insight into the origin and progression of this deadly disease. The project is developing individualised computer models of the human heart based on a patient's own test results. These models will in time be able to improve diagnosis and treatment of patients suffering from heart disease.

One of the key computer programmes being used to create the project's heart models was developed by scientists at the Auckland Bioengineering Institute. CellML is a computer language that allows scientists to store and exchange computer-based mathematical models. The Maurice Wilkins Centre has provided funding support for the institute's groundbreaking CellML work for the past seven years, including helping to cover salary and travel expenses and sponsoring the annual international CellML workshop.

(OPPOSITE) GRAPHICAL ILLUSTRATION OF AN 'IN SILICO' MODEL OF THE HEART

Auckland Bioengineering Institute Associate Professor Poul Nielsen says it became clear in the mid-1990s that they needed a much more precise model of the heart – one that represented the heart at a cell and tissue level as well as at the whole organ level. They started creating CellML to describe the different parts of the heart model and how they relate to one another, and the mathematical equations that underlie processes in the heart's cells. "We then created a way to read CellML in our mathematical modelling programme, CMISS, which meant that people describing the mechanisms of the heart could now include information at the cellular level into their model."

Today, the repository of models on the CellML website includes models for many different parts of the body, not just the heart. This reflects the important role of CellML in the Physiome Project, an international project looking at building sophisticated computer models of all 12 organs in the human body, of which the euHeart project is a part. Dr Nielsen says the CellML models in the repository can be accessed for free by anyone with access to the internet. "People can now build their own models using validated models from the repository."

Auckland Bioengineering Institute Director and Wilkins Centre Principal Investigator Professor Peter Hunter, who created the first anatomically based computer model of the human heart, says the institute is currently making improvements to CellML so that it can describe an even wider set of models. He says the influence of CellML technology is spreading far and wide. "'Research funding agencies in Europe and the US now request that models use the CellML standard developed in Auckland. It's definitely raised the standards of computational biology."

RESEARCH

MENTORING YOUNG TALENT

Photo: Les Maiden/Duncan Shaw-Brown

SUPPORTING FUTURE SCIENCE LEADERS

One of the major goals of the Maurice Wilkins Centre is to provide support for talented PhD students throughout New Zealand whose work might lead to new treatments for human disease. In late 2008, the Wilkins Centre launched its Flexible Research Seeding Programme, designed to help seed very early stage research. Most of the budget for this programme is earmarked for collaborative PhD scholarships and supporting expenses. Since the programme was launched, twelve PhD students have been awarded scholarship support, which includes funding for work and travel expenses and access to specialised research equipment and facilities.

Student Tammie Cookson (23), who received her BSc (Hons) in Chemistry in 2008, was one of the first to receive a PhD scholarship through the Research Seeding Programme. Tammie is based at The University of Canterbury and studies there under the supervision of Wilkins Centre Investigator Associate Professor Emily Parker. Tammie is working on a new class of compounds, developed at The University of Auckland, which show promising early results against tuberculosis (TB).

(OPPOSITE)
CLAIRE HORVAT (LEFT)
AND TAMMIE COOKSON

The new compounds Tammie is investigating appear to target an enzyme produced by the TB bacteria called anthranilate phosphoribosyl transferase (TrpD), pictured on the front cover. “Results from mice studies show that the TB bacterium can’t cause TB in its host without this enzyme,” says Tammie. “The idea behind our research is that if you can stop TrpD from functioning, you might be able to treat TB.”

With the help of the research programme funding, Tammie will be able to travel up to Auckland where she will work alongside Wilkins Centre Investigator Dr Shaun Lott, a specialist in structural biology at The University of Auckland’s School of Biological Sciences. The collaboration between the two universities will give Tammie the chance to extend her knowledge of chemistry in a multidisciplinary project.

Another student to benefit from the Research Seeding Programme is Claire Horvat (25), a third year PhD student at Victoria University. Claire and her supervisor, Wilkins Centre Investigator Dr David Ackerley, are working on developing new anti-cancer enzymes from bacteria. Scientists know that certain enzymes from bacteria can be used to activate drugs that kill cancer cells. If these enzymes can be targeted to tumours, for example using tumour-targeting viruses, they will make them sensitive to new drugs, while leaving normal cells unaffected. But how can you tell if the enzymes have reached their desired target? To help answer this question, Claire is testing a wide range of different coloured probes that react with these bacterial enzymes and “light up” when they are activated. “Our aim is that each probe will light up when it reacts with a different enzyme. We’ll then be able to see where the different enzymes are, which will help us ensure that the therapy is only targeting cancerous cells. These probes will also have lots of other useful research applications.”

In April 2009, Claire received funding from the Wilkins Centre to work with Wilkins Centre Investigators Dr Jeff Smaill and Dr Adam Patterson at the Auckland Cancer Society. Drs Smaill and Patterson have developed the prodrug compounds that Claire is working with. “The Wilkins Centre scholarship support has been great. I’ve been able to take my research a step further and learn a whole new skill set.”

RESEARCH

DEVELOPING NEW TREATMENTS FOR CANCER AND AGEING

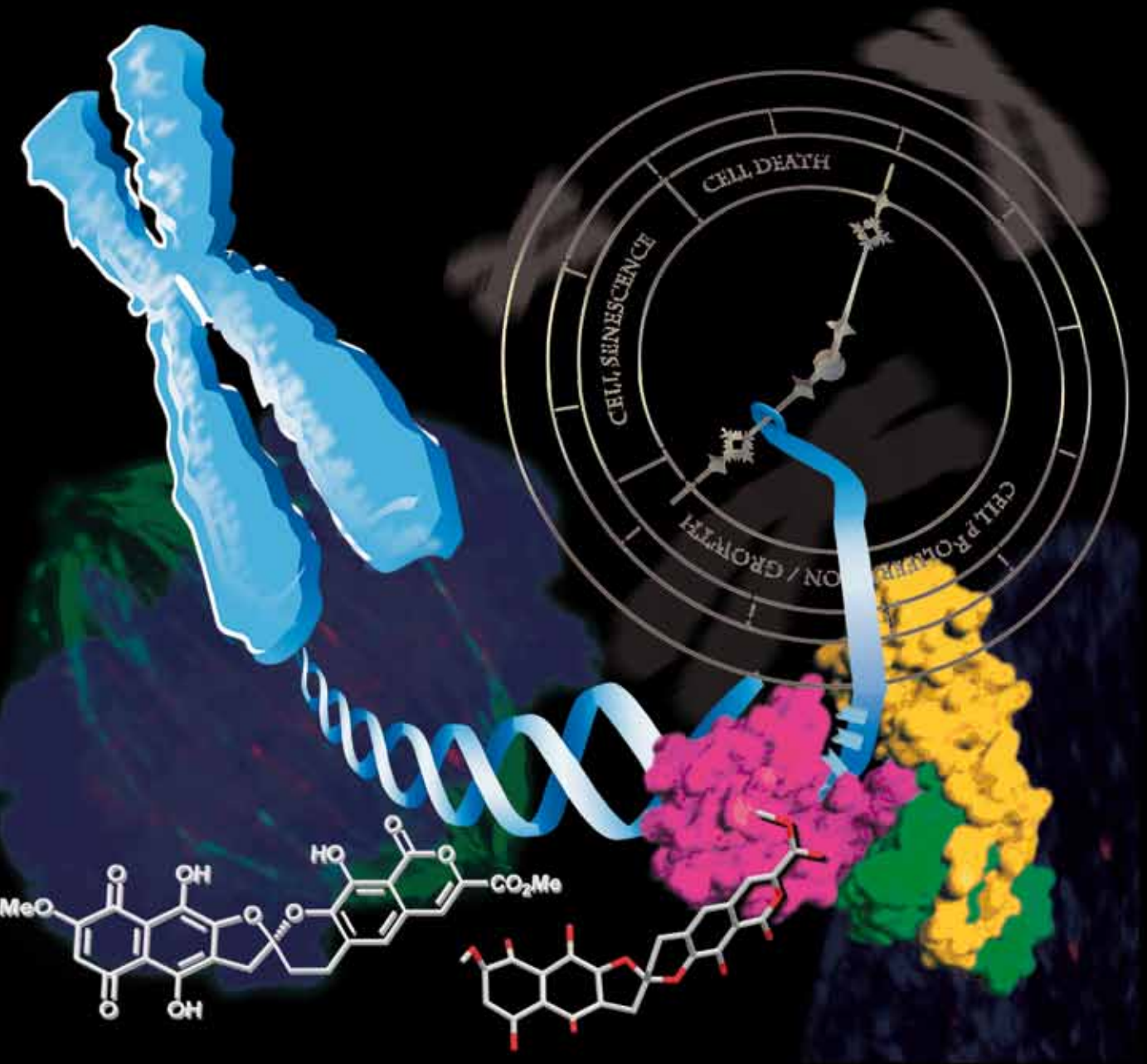


Image: Dominea Rathwell

TACKLING THE IMMORTALITY OF CANCER CELLS

Most human cells can divide only a certain number of times before the protective ends of their chromosomes – called telomeres – become too short. Once this happens, the cells can no longer divide and they die. However, some cells can make a protein called telomerase to keep their telomeres long, therefore making it possible for the cells to divide indefinitely. Unfortunately, about ninety percent of human tumours also have this ability, making cancer cells immortal.

Since 2003, medicinal chemistry PhD students Dominea Rathwell and Kit Tsang at The University of Auckland, and Maurice Wilkins Centre Principal Investigator Professor Margaret Brimble, have been trying to make a naturally-occurring antibiotic called gamma-rubromycin, which inhibits human telomerase. This year, with the help of funding from the Wilkins Centre, the team successfully made gamma-rubromycin using 17 different chemical reactions. Their findings were published in the October 2009 issue of one of the world's top chemistry journals, *Angewandte Chemie*, and were ranked by the journal's editors as amongst the top five percent of articles they published.

(OPPOSITE) SCHEMATIC REPRESENTATION OF GAMMA-RUBROMYCIN (THE 6-RING MOLECULE) INTERACTING WITH TELOMERASE (THE MULTICOLOURED MOLECULE)

Rubromycins are a unique family of quinone antibiotics produced from a strain of bacteria called Streptomyces. They were first discovered to have anticancer properties in 1990. Some people have suggested that the complex structure of the rubromycins is responsible for inhibiting telomerase. Artificially making rubromycins in the lab proved very challenging, making it difficult to obtain enough of these chemicals to study how they work. Professor Brimble and her medicinal chemistry team have developed an efficient method to produce a large quantity of gamma-rubromycin. The synthetic steps they have developed can easily be changed to allow scientists to study the structural features responsible for the anticancer properties of the rubromycin family. The synthesis can also be used as a basis for making other related compounds, some of which are active against HIV.

Professor Brimble is now teaming up with Professor Nancy Ip from the Hong Kong University of Science and Technology to study the effects of these newly-made rubromycin compounds on telomerase. Professors Brimble and Ip are both former laureates of the L'Oréal-UNESCO programme For Women in Science and they have been awarded a grant from the New Zealand Foundation for Research, Science and Technology for a collaborative research programme focused on cancer and ageing. The research team acknowledges the important role of seed funding from the Wilkins Centre in enabling a project which is now likely to attract major international investment in New Zealand-based research.

RESEARCH

WORLD-CLASS TECHNOLOGY

Photo: Warren Jones

FROM ROBOTS TO ROADMAPS

The Maurice Wilkins Centre aims to provide world-class research infrastructure for New Zealand scientists. Local access to cutting-edge technology means that scientists can spend more time on experimental work and less time and money on travelling to use instruments overseas. In the second half of 2009, the Wilkins Centre purchased two scientific instruments that will open up new research horizons for our scientists.

A robot recently installed at The University of Auckland will help Wilkins Centre investigators screen compounds that could become the next new drugs in the war against cancer. Modern drug discovery programmes involve scientists screening many different variations of chemical compounds to test which are the most effective. Each variation of the compound is screened several times to make sure the results are accurate. This is a time consuming and labour intensive process when done manually, and there is room for human error.

(OPPOSITE) RESEARCH TECHNICIAN WOO LEE USING THE NEW ROBOT

The new computer-controlled robot is the first of its kind in New Zealand for discovering new medicines. It will initially be used to screen for compounds that target a specific family of enzymes found in cancer cells called PI3-kinases.

Wilkins Centre Investigator Dr Christina Buchanan says the robot can accurately screen 120 compounds a week. Before, it took four technicians a week to screen just 48 compounds. “The robot uses up to eight ‘tips’ simultaneously to collect samples of compounds. Each tip can collect tiny volumes of a liquid, as little as .5 of a microlitre (one millionth of a litre), which is about the size of a pinhead.” Dr Buchanan says the use of robots to help analyse compounds is clearly the way of the future. “This robot will help us to up the ante when it comes to drug discovery in New Zealand.”

The Wilkins Centre is also supporting the extension of the Auckland Bioengineering Institute’s programme to model the human body’s organs down to the cellular level. The centre has provided funding to upgrade an existing microscope in the institute to an advanced confocal laser-scanning microscope. This high resolution microscope will be used to visualise “roadmaps” of the molecules and cells in tissues such as the heart, lung, skin and bone. These roadmaps can then be used to build sophisticated computer models of the human organs under study.

Auckland Bioengineering Institute scientist Dr Marc Jacobs says once the cellular interactions have been mapped in thin slices of tissues using the new microscope, engineering-based techniques will allow prediction of the effects of these interactions across the whole organ. “This approach is offering us the opportunity to ground medical innovations in the root causes of disease, at the cellular level.”

RUTHERFORD MEDAL

Professor Peter Hunter

Auckland Bioengineering Institute Director Professor Peter Hunter was awarded New Zealand's top science honour at the Royal Society of New Zealand annual Science Honours Dinner in Auckland on 18 November 2009.

The Minister of Research, Science and Technology, Hon Dr Wayne Mapp, presented the prestigious Rutherford Medal to Professor Hunter for his leading role in the Physiome Project, a major international project that aims to build sophisticated computer models of all the human body's organs.

The Auckland Bioengineering Institute is working on all parts of the Physiome Project in close collaboration with the Maurice Wilkins Centre, the New Zealand Institute of Mathematics & its Applications, and many international partners, including The University of Oxford and MIT.

"I'm very honoured to get the award, particularly when you look at the calibre of the past recipients," says Professor Hunter. "It is also recognition of the role that engineers and mathematical scientists can play in biology."

The President of the Royal Society of New Zealand, Dr Garth Carnaby, says Professor Hunter's revolutionary approach to modelling the human body has led to new and exciting areas of research, and will eventually help advance treatments for a number of life threatening diseases.

INVITROGEN LIFE SCIENCE AWARD

Dr Debbie Hay

Maurice Wilkins Centre Investigator Dr Debbie Hay was presented with the 2009 Invitrogen Life Science Award at the Queenstown Molecular Biology Conference in September.

This award is presented annually to an emerging New Zealand based researcher who has published excellent research using molecular biology in high-ranking international journals.

Dr Hay, a senior lecturer in the School of Biological Sciences at The University of Auckland, received the award for her work on the calcitonin family of peptides, which contains several physiologically and clinically relevant peptides. These are important hormones in clinical medicine and Dr Hay has used molecular analysis to help guide development of new medicines that target them.

THE MERRIFIELD AWARD

Professor Stephen Kent

Professor Kent was presented with The 2009 Merrifield Award by the American Peptide Society. The biennial award recognises the lifetime achievement of a peptide scientist whose work exemplifies the highest level of scientific creativity. Professor Kent, one of the world's leading peptide and protein synthetic chemists, is an ex-patriate New Zealander. He is currently an Adjunct Professor with the School of Biological Sciences at The University of Auckland and collaborates with Wikins Centre Investigators Margaret Brimble and Rod Dunbar. His regular visits to New Zealand over the last three years have been sponsored by the School of Biological Sciences and the Wilkins Centre.

NEWS

RECENT AWARDS & HONOURS

OXFORD PROFESSOR

Professor Garth Cooper

In April 2009 Maurice Wilkins Centre Principal Investigator Professor Garth Cooper began a part-time appointment as Visiting Professor in Pharmacology (Discovery and Experimental Therapeutics) at the University of Oxford in the United Kingdom. The initial term of the appointment is for three years, with the expectation that it will continue for the duration of his career.

The visiting professorship will facilitate a joint research programme in cardiovascular therapeutics. Workers at Oxford will help explore mechanisms of new experimental therapies for cardiovascular disease and diabetes currently under development at the Wilkins Centre.

Professor Cooper's appointment is expected to stimulate the exchange of students and post-doctoral fellows between the Wilkins Centre and the Department of Pharmacology at the University of Oxford.

RUTHERFORD FELLOWSHIP

Dr Nicola Jackson

The Rutherford Foundation of the Royal Society of New Zealand awarded Dr Nicola Jackson the inaugural Freemasons Roskill Foundation Postdoctoral Fellowship to undertake postdoctoral research at the University of Cambridge.

Nicola completed her PhD in Molecular Medicine and Pathology at The University of Auckland in 2008 and then worked as a Maurice Wilkins Centre Postdoctoral Fellow until leaving for Cambridge .

Under the supervision of Professor John Fraser, she investigated the antibiotic-resistant superbug, *Staphylococcus aureus*. Her PhD also involved a collaboration with Professor Ted Baker and Heather Baker in the Structural Biology Group.

Nicola has joined a team of scientists within the Department of Pathology at the University of Cambridge, led by Professor John Trowsdale and Dr Adrian Kelly, whose research is focused on understanding how pathogens interact with their host's immune system. This opportunity will allow Nicola to broaden her interest in host-pathogen interaction and to apply the knowledge gained from her PhD to another important human pathogen, *Salmonella enterica.*

INTERNATIONAL WINNER

Zoe Wilson

University of Auckland student Zoe Wilson, who is studying for a PhD in organic chemistry, was selected to attend the 39th St Gallen Symposium in Switzerland in May 2009.

She was one of 200 international students across a range of disciplines invited to attend the symposium, from more than 1,000 essay entries received.

The symposium, at the University of St Gallen, brings together international decision makers in business, academia, politics and society, with outstanding students and members of the media. It aims to promote the sustained success of companies and societies in a globalised world.

Zoe's winning essay 'Can a researcher be an island?' highlighted the importance of inter-disciplinary collaboration between scientists. "The St. Gallen symposium was an eye-opening experience which greatly broadened my understanding of how scientific research is perceived by the greater community. It gave me the opportunity to speak with successful people from all around the world and a range of disciplines about their experiences and how they have got to where they are"

Zoe's PhD involves attempting to synthesise a naturally-occurring chemical that has promising activity against ovarian cancer cells in laboratory tests. She is supported by a University of Auckland PhD scholarship and the Maurice Wilkins Centre.

2009 MAURICE WILKINS CENTRE LECTURE

Nobel Prize winner Professor Sir Martin Evans delivered the 2009 Maurice Wilkins Lecture in September, with an inspiring talk about his pioneering stem cell research.

Professor Evans received the 2007 Nobel Prize in Medicine, along with Oliver Smithies and Mario Capecchi, for his pivotal role in the discovery and use of embryonic stem cells. Professor Evans was the first person to identify and isolate embryonic stem cells from mice and show that these cells could be grown in the lab. Embryonic stem cells are pluripotent, which means they can become any cell in the body. Professor Evans' work paved the way for gene targeting by so called 'knockout technology' – a technique that has revolutionised the study of each gene's role in the body.

While Professor Evans was in Auckland for the lecture, he took time out to chat with Maurice Wilkins Centre graduate students about what it takes to do world-leading research. He advised the students to spend as much time as possible doing their own experiments and to "expect the unexpected". He also stressed the importance of backing up words with evidence.

Professor Evans was interviewed by Radio New Zealand presenter Kim Hill on her Saturday morning show, and also starred in a feature article in *The Weekend Herald.*

NEW ZEALAND DRUG DISCOVERY SYMPOSIUM

More than 400 scientists, doctors and business people registered for the New Zealand Drug Discovery Symposium at The University of Auckland on 11 September 2009. The Maurice Wilkins Centre organised the symposium to discuss how the next generation of medicines developed in New Zealand could benefit both the economy and the health of New Zealanders. The symposium highlighted some New Zealand-designed drugs with big futures, including the anti-cancer drug DMXAA, developed at the Auckland Cancer Society Research Centre. The University of Auckland biologist Professor Peter Shepherd, co-founder of the New Zealand spin-out cancer drug company Pathway Therapeutics, spoke about what is needed to develop a successful drug company in New Zealand. He emphasized close collaboration between biologists and chemists, great people and excellent commercialisation processes. Jenny Morel, the founder of No 8 Ventures, said the key to attracting investment in new medicines was to "tell us [investors] a story that excites us," and to validate this story with top quality science. She also highlighted the strong international reputation of researchers like Profs Bill Denny and Bill Wilson, which has proven crucial in mobilising both local and international investment.

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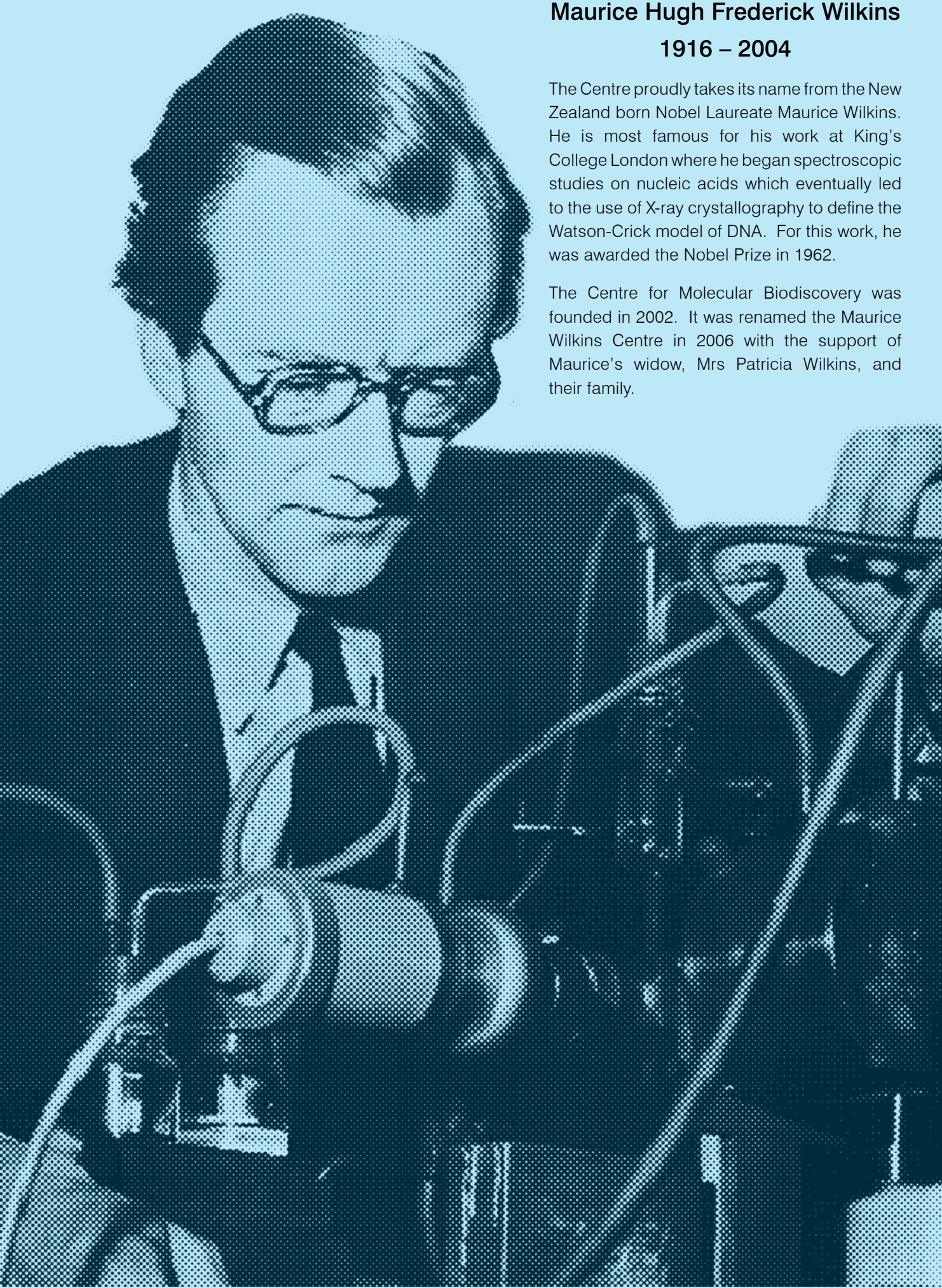
BACK BY POPULAR DEMAND

Maurice Wilkins Centre Principal Investigator Professor Ted Baker was invited to present a public lecture at the International Union of Crystallography Congress in Japan in late 2008. The event was a special one, as it coincided with the union's 60th anniversary. Professor Baker served as president of the union in the late 1990s, and he has a long association with crystallography, having worked with Nobel Prize winner Dorothy Hodgkin, a pioneer of x-ray crystallography, as a post-graduate student at Oxford University in the 1960s. Professor Baker's lecture, titled "Crystallography and the world around us", covered the history of crystallography, its application to the natural world and recent technological advances in areas such as molecular biology and robotics. It proved so popular that the union asked him to repeat the lecture at three other regional meetings in 2009 – one each in Toronto, Istanbul and Beijing. "Crystallography provides a unique window on the natural world that extends across biology, chemistry and physics," says Professor Baker.

NEWS

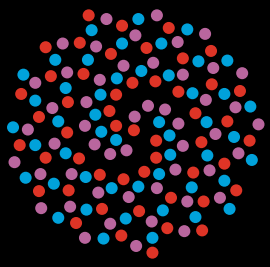
SCIENTIFIC NETWORKING AND EVENTS



Maurice Hugh Frederick Wilkins
1916 – 2004

The Centre proudly takes its name from the New Zealand born Nobel Laureate Maurice Wilkins. He is most famous for his work at King's College London where he began spectroscopic studies on nucleic acids which eventually led to the use of X-ray crystallography to define the Watson-Crick model of DNA. For this work, he was awarded the Nobel Prize in 1962.

The Centre for Molecular Biodiscovery was founded in 2002. It was renamed the Maurice Wilkins Centre in 2006 with the support of Maurice's widow, Mrs Patricia Wilkins, and their family.



MAURICE WILKINS CENTRE
FOR MOLECULAR BIODISCOVERY

A New Zealand Centre of Research Excellence

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