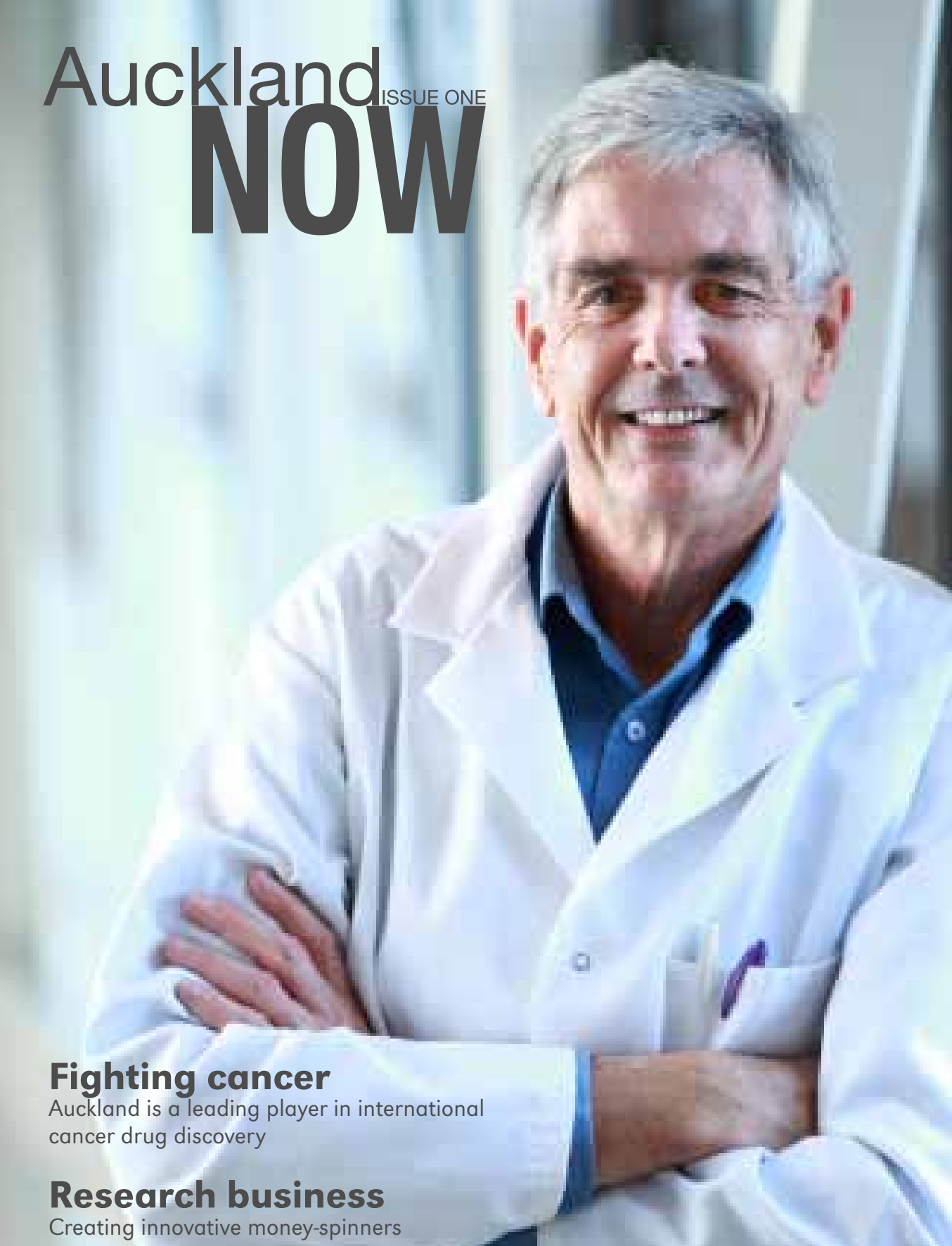
Auckland NOW

ISSUE ONE



Fighting cancer

Auckland is a leading player in international cancer drug discovery

Research business

Creating innovative money-spinners

Pathway to university

Getting more Māori and Pacific students into tertiary education

THE UNIVERSITY OF AUCKLAND
NEW ZEALAND
Te Whare Wānanga o Tāmaki Makaurau

WELCOME

By Vice-Chancellor, Professor Stuart McCutcheon

Auckland **NOW**

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Welcome to the first issue of *Auckland Now*.

Through this new publication we aim to show you the variety of ways in which The University of Auckland supports the development of Auckland, New Zealand and the global community.

The University of Auckland is New Zealand's largest and most comprehensive university. With 6000 staff, it is also one of the country's largest employers.

A study by the NZ Institute of Economic Research indicates that our annual turnover of more than $820 million creates a total economic output of about $5.3 billion each year. This is a vast engine for creating and transmitting knowledge – and it is here to serve New Zealand.

I am proud to lead a university that has a clear strategy to provide excellent educational experiences to top students, to deliver research that changes lives, and to build international connections to support this country's development, while operating in a socially and financially responsible manner.

I hope you enjoy this first issue of *Auckland Now* and continue to share in the many contributions The University of Auckland makes to New Zealand.

Auckland Now showcases some of the contributions The University of Auckland makes to Auckland, New Zealand and the international community through its teaching, research and community service. For more information contact us at: aucklandnow@auckland.ac.nz

REACH FOR THE STARS

The first navigators to cross the Pacific followed the stars to reach their destination. The University of Auckland's Starpath research project aims to provide similar guidance to help more Māori and Pacific students into tertiary education.

In 2007, only 18 percent of Māori and 20 percent of Pacific students left secondary school with University Entrance (UE) compared with 44 percent of European/Pākehā students. The University – New Zealand's largest provider of degree education to Māori and Pacific communities – is keen to understand why. Through the Starpath Project it is combining research with practical strategies to improve enrolments and raise achievement levels from these groups.

"With a global emphasis on the need for higher education as a platform for social and economic advancement, we need to ensure that all young people in New Zealand have the opportunity to fulfil their potential," says Professor Raewyn Dalziel, Chairperson of the Starpath Board.

"Māori and Pacific students who gain UE have the same likelihood of going to university as other ethnic groups – it's just that so few of them achieve UE," says Professor Dalziel.

A recently released Starpath study into NCEA choices in low-mid decile schools found that although many students aspired to achieve UE, they were not taking the combination of subjects or performing at a level that would prepare them for entry into their chosen university course, says Associate Professor Elizabeth McKinley, the Director of Starpath.

Acting on this research, the University is working with partner secondary schools to trial target-setting and provide academic counselling for students. In just a year at one partner school Māori and Pacific students significantly improved their success in NCEA performance and UE results.

University of Auckland researchers have also found that intervention at primary school lifts achievement levels. With help from the University's Woolf Fisher Research Centre, Year 4-8 students from participating decile one schools who were lagging by two years in reading comprehension are now close to the national level.

A similar programme on the South Island's West Coast with a range of decile schools improved reading comprehension significantly above national levels, with Māori children performing as well in writing as other children in their age group.

Using Starpath research the University is developing a Māori and Pacific recruitment strategy to make sure potential students are aware of the opportunities Auckland provides. This will enhance the mentoring programmes the University already runs in schools with the Great Potentials Foundation, and within the University for Māori and Pacific students as they make the transition to University life and study.

www.starpath.auckland.ac.nz

Photo: Elizabeth McKinley, Director of Starpath, with Leanne Stewart and Titi Motusaga, Year 13 students at Massey High School – one of the Auckland secondary schools working with the Starpath Project.

RESEARCH BROKER

The University of Auckland's research commercialisation company, Auckland UniServices Ltd, is like a matchmaker – it finds ways to marry up University research and innovation with commercial projects in New Zealand and around the globe.

The largest company of its kind in Australasia, UniServices has continued to grow – despite the recession. Last year it broke the $100 million barrier in annual turnover. This year it is on target to grow more than 10 percent, bringing income and new employment opportunities into the University and New Zealand from 300 licences for intellectual property, plus from contract research and contract education.

UniServices has helped start 30 New Zealand businesses including LactoPharma, set up with Fonterra to commercialise biomedical components in milk such as casein and calcium that help fight diseases like diabetes and osteoporosis. Another health spin-off is the newly formed Saratan Therapeutics, which is developing drugs based on the University's breast cancer research.

"The University is a wonderful, diverse knowledge pool," says UniServices CEO, Dr Peter Lee. "To solve problems we can reach out to a vast array of capabilities."

This summer UniServices is holding "open innovation" sessions with New Zealand businesses encouraging industries to link with researchers to discover opportunities for new products and services that neither could create themselves.

"We want to introduce businesses to the insights and ideas they'll gain talking to people who understand their technology at a very fundamental level," says Dr Lee.

As well as working with New Zealand businesses, UniServices has more than 2,000 projects in 36 countries around the globe. These range from geothermal prospecting in Iceland and demonstrating advanced educational tools in New York schools, to designing cleaner manufacturing systems in Japan.

"Overseas we are shifting our business focus towards building relationships for New Zealand with economies that are seeking innovation," says Dr Lee. "The so-called 'Asian Tigers': Korea, Singapore, Taiwan, Japan and some of China's largest cities."

In Singapore UniServices has just signed a multi-million dollar contract with one of the world's largest producers of nutritional products. In Beijing, the company is exploring how induction power technology (IPT) can transfer electrical energy without wires to power buses travelling on a central city circuit. "Our Power Electronics Group has without doubt the best technology in the world for charging electric vehicles," says Dr Lee.

"As a general rule the Asian Tigers don't have primary resources so they are eager to come out of this recession with products based on technological innovation. And The University of Auckland is very good at innovation."

www.uniservices.co.nz

Photo: Dr Peter Lee behind the wheel of the Chevron Cypher electric vehicle designed to use UniServices Inductive Power Transfer (IPT) wireless charging technology.

HARD CELL

They sound like superheroes: cancer drugs that break down blood supply to tumours, block abnormal signalling pathways in cancer cells and attack the DNA of those cells.

For cancer patients and their families, the researchers behind these pioneering drugs at the University's Auckland Cancer Society Research Centre (ACSRC) certainly are supermen and superwomen. The centre is a world leader in cancer drug development and has attracted research funding and venture capital totalling more than $60 million for two spin-out companies, Pathway Therapeutics and Proacta.

"Our aim is to develop new drugs with novel mechanisms of action to add to the world's repertoire of agents for effective cancer chemotherapy," says centre director, Professor Bill Denny (pictured on the front cover of this issue).

Of eight drugs the centre has brought to clinical trial, four are the first of their kind ever developed. Vadimezan (or DMXAA) has been particularly successful. "It is the first agent for disrupting blood supply to tumours," explains Professor Denny. "By recruiting the body's immune system it selectively damages the cells lining a tumour's blood vessels."

Later stages of the Vadimezan project were co-developed with the British company Antisoma, culminating in a deal with global drug company Novartis potentially worth US$800 million. Phase three clinical trials of the drug have just been completed in 1200 patients in New Zealand and 20 other countries. Professor Denny says if the results of these are positive, then the drug could be registered for worldwide use by the end of next year.

Another University of Auckland drug, PR-104, is attracting international interest and funding because of its potential to attack only selected cancer cells while leaving surrounding tissue undamaged – unlike current chemotherapy and radiation. Known as an hypoxia-activated pro-drug because it is activated by the low oxygen conditions unique to tumours, PR-104 is in Phase two clinical trials with liver or lung cancer patients in New Zealand and the United States.

Professor Denny runs the University's Cancer Centre in collaboration with Professors Bruce Baguley and Bill Wilson. Both Professors Denny and Baguley have been appointed Officers of the NZ Order of Merit for their services to cancer research. Along with Professor Wilson they oversee some 85 staff as well as about 15 research students – all superheroes in the making.

www.fmhs.auckland.ac.nz/sms/acsrc

Photo: Dr Julie Spicer, Senior Research Chemist and Project Leader at the Auckland Cancer Society Research Centre with colleague Dr Adam Patterson, biochemist and Senior Research Fellow.

CLASS ACT

Statistics senior lecturer Rachel Fewster left nothing to chance with her winning entry in the 2009 National Tertiary Teaching Excellence Awards.

"The single thing I love most about teaching my subject is to communicate an instinct for chance: how to predict the unpredictable," says Dr Fewster. Her lively lectures draw on real-life examples such as "Do people look like their dogs?"

Computer scientist Paul Denny was also a winner this year, one of nine teachers recognised nationwide. He urges students to question each other as a way to make sure their knowledge sticks. "I identify barriers to learning and design innovations such as interactive games to break these down."

University of Auckland teachers have been among the select group of winners every year since the Government set up the awards in 2002. "Outstanding teachers make an enormous contribution to the students they teach by fostering and inspiring excellence," says Deputy Vice-Chancellor (Academic), Professor John Morrow.

And, by chance, Paul Denny is the son of Bill, featured on our front cover.

Auckland Now: Produced by The University of Auckland **Editor:** Tess Redgrave
Art Director/ Designer: Brigid Cottrell **Photography:** Dean Carruthers