UNIVERSITY of OTAGO

SAPERE AUDE

Te Whare Wānanga o Otāgo

NEW ZEALAND

HE KITENGA

SEE
PERCEIVE
FIND
DISCOVER

HE KITENGA reflects the concept of discovery. The Māori word kitenga derives from kite which translates to words such as *see*, *perceive*, *find* and *discover*. This title reflects the University of Otago's connection to New Zealand's cultural heritage, as well as its commitment to national and international research and innovation.

Founded in 1869, the University of Otago is New Zealand's oldest university. Today it has a nationwide presence and enjoys an international reputation for excellence. Over the past 154 years Otago has successfully balanced the traditions of its history with modern scholarship and world-class research.

UNIVERSITY of OTAGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

WELCOME

Research is a team sport, and leaders are essential in any team. In academic research, leadership is recognised through promotion and at the top of this promotion ladder are our professors.

In this edition of *He Kitenga* we celebrate some of our newest professors – those who have gained promotion, or been appointed, to a full professorship in the past three years. Those chosen represent a cross-section of our research leaders from the campuses and communities we serve, and highlight the breadth and depth of the research areas we cover at Otago.

In these pages you will read about researchers who have devoted their careers to making tangible differences in the lives of others – through their work preventing heart attacks, revolutionising surgeries, improving rural medicine, ecosystem health or human resource management, tackling climate change, family law and consumerism, and leading the way in bringing te ao Māori into New Zealand's health systems.

We chose 30 new professors to profile. We could have chosen a completely different 30 and brought you an equally compelling publication.

The journeys of these professors are all very different – but their goals as they reach this significant milestone in their careers are all similar. All are passionate about the desire to give back to the communities they serve and students they teach or supervise. All see this promotion as a privilege and a responsibility. Many were inspired by one particular individual as students and aim to be that person for our next generation of graduates.

Otago's promotion pathway is rigorous. To be successfully promoted to professor you must demonstrate commitment to research, teaching and service to the University and community. Input is also sought from international experts who evaluate the candidate's research contributions.

I was promoted to professor in 2007, and I know what a pinnacle moment it is in an academic career. As a physics researcher my efforts were focused on both teaching students as well as I could, and forging new paths in research to gain international success. When this led to recognition through my peers and international referees that I had "made it" to the position of professor, I was over the moon. Years and decades of work, fun, frustrations and interactions with colleagues across the globe were all well worth the effort.

At Otago, one way we acknowledge the contributions of all our newly promoted or appointed full professors is by asking them to present a public lecture, called an Inaugural Professorial Lecture, or IPL for short. These are (semi) formal affairs, with academic regalia, fanfare, invited guests and a formal reception to follow. Attending IPLs are usually the highlights of the working week for those of us in Otago's Senior Leadership Team – we get to hear the stories and successes of some of our best and brightest.

Here we give you the opportunity to do the same. You can read the stories of our new professors – and you can also watch them tell their own stories in their IPLs which we have recorded and shared to Youtube. At the end of each story we include a scannable QR code which will take you directly to their IPL recording. Be warned – these are so interesting and compelling you might lose track of time as you become engrossed in the videos. As mentioned earlier, we have chosen just a selection of new professors to profile – but you can watch all of the videos.

As always, we welcome feedback about our research and about our publications. So please feel free to contact me, the editor of *He Kitenga* Lisa Dick, or any of our research leaders directly if you want to find out more.

Ngā mihi manaakitanga

Professor Richard Blaikie
Deputy Vice-Chancellor
(Research and Enterprise)

A full list of IPL videos is available here:

He Kitenga 2023

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FROM IMMUNOLOGY TO RHEUMATOLOGY

In the early days of the COVID-19 pandemic, as the world worked frantically to find out more about the new virus, rheumatologist Professor Rebecca Grainger got an offer which would lead to one of the research highlights of her career to date.

Invited to join the steering committee of an international initiative – the COVID-19 Global Rheumatology Alliance – she worked with others in Europe, Australia and the United States to develop a registry of people with rheumatic disease and COVID-19, a way to rapidly identify the factors associated with serious COVID-19 disease.

The alliance was co-led by Grainger's late colleague and friend, Otago medical graduate Associate Professor Philip Robinson from the University of Queensland together with Professor Jinoos Yazdany from the Zuckerberg San Francisco General Hospital.

United in facing a common threat, the researchers became a high-functioning team, publishing their first

paper, *Characteristics associated with hospitalisation for COVID-19 in people with rheumatic disease: data from the COVID-19 Global Rheumatology Alliance physician-reported registry* just five months later in July 2020.

It has been the career ride of a lifetime for Grainger, who holds a joint clinical-academic role in the Department of Medicine at the University of Otago, Wellington.

"One of the reasons this could be the most satisfying work of my academic life is that unlike the average of 17 years it takes for research evidence to reach clinical practice, our findings had an impact in a matter of months, influencing policy around who got vaccinated when, who got the medications, and who needed to take extra precautions."

Over the three-year collaboration, the team has published more than 30 research papers.

Grainger is proud of what they have achieved in improving outcomes for patients, but it is typical of her supportive attitude to others that she is proudest of the policies they put in place to ensure junior colleagues got the opportunity to be involved in the research.

"I did particularly enjoy the mentoring aspect. I think it comes back to the excellent supervision and care I had from my Otago University supervisor, immunologist Professor Margaret Baird, when I did my Bachelor of Medical Science (BMedSc) degree. I've realised I have quite a high motivation to create similar circumstances for other people when I can."

Grainger's BMedSc year was influential in other ways too, with her interest in immunology prompting her to choose a clinical speciality involving inflammatory and autoimmune conditions.

"I had this idea that we were learning so much about the immune system that it would almost certainly provide opportunities to develop better-informed therapeutics in areas like rheumatology.

"That 20-something-year-old was right and, in the decades since, rheumatology has seen many completely new classes of medicines which have completely changed the potential outcomes for our patients.

"I tell my medical students, 'you are learning stuff that didn't exist when I was you' and that is a very exciting story to tell them."

Medical education is one of her passions, and she has served as Associate Dean, Medical Education, at Otago's Wellington campus since 2018.

"I really love the energy of our students and there is nothing that gives me more joy than when I see the penny drop, or realise they have come to an understanding of something they didn't understand before."

In her research career she focuses on the three areas of rheumatology, alongside medical education and technology and, recently, the development of mobile apps to support the self-management of health conditions.

She regards her promotion to professor as an acknowledgement that she has the skills and knowledge to be a meaningful mentor to colleagues.

"The most important thing to me is being helpful to others – being a leader, a mentor, an enabler and a supporter of learning and research."

Watch her IPL >>

Products, processes and people: making sense in medicine

FUNDERS:

Arthritis New Zealand • Otago Medical School Medical Education Research Fund • University of Otago Teaching Development Grant
Otago Medical School Collaborative Grant

"It means a great deal to have my expertise and leadership teaching and research recognised with this promotion, and have the opportunity to support and foster others to achieve their academic and personal potential."

PROFESSOR REBECCA GRAINGER

"As a professor of Pacific descent, I want to be a positive role model to our young Pacific students showing them that anyone of Pacific origin can succeed at the highest level, and that our voice can make a difference in shaping Pacific research of the future."

PROFESSOR DARYL SCHWENKE

A PACIFIC HEART

When newly appointed Professor of Physiology Daryl Schwenke was at high school, he had his sights set on becoming a truck driver, but it wasn't to be.

"My parents convinced me to give university a try, because no one in my immediate or extended family had been to university and I had the grades to get in," Schwenke explains. "I thought, 'why not try it for a couple of years, and once I am done I can pursue my career as a truck driver'."

As it turned out, Schwenke discovered a fascination for physiology which eventually saw him head to Otago where he completed a PhD in respiratory physiology before exploring possible postdoctoral opportunities overseas.

A lab at the National Cardiovascular Center in Japan stood out as a place to advance his understanding of the cardiovascular system. This lab was also the home of the person who first discovered the hormone ghrelin, which has gone on to shape Schwenke's research pathway for the past 20 years.

Although ghrelin is a stomach hormone involved in appetite (it is sometimes called the hunger hormone), Schwenke and his teams in Japan and Otago have discovered it has amazing, positive effects on the heart.

"It improves heart function in so many ways," he says. "For example, it improves both the neural control of the heart and the health of blood vessels so that blood travels around the body and to the heart much better. In diabetes, ghrelin also improves blood flow to the extremities, which helps to alleviate peripheral artery disease, a common complication of diabetes."

His research has shown that the body needs some ghrelin to protect against the onset of cardiovascular disease. For those with cardiovascular disease, ghrelin treatment dramatically improves outcomes.

Schwenke, who is of Samoan descent, says he is aware Pacific people are at greater risk of cardiovascular disease, and he has recently been awarded Health Research Council funding to explore whether Pacific people have lower levels of ghrelin.

"There is an increasing disparity in cardiovascular disease outcomes for Pacific and Māori. The vision for me is to identify physiological pathways unique to them, that can be selectively targeted to provide this extra beneficial outcome, so that the eradication of the disease is more normalised between ethnic groups."

Schwenke is also excited by teaching and sharing the research he is doing. "It's one way, I hope, of infecting students with a passion for biomedical research."

He spent several years as Associate Dean Pacific for the School of Biomedical Sciences during which he and the Pacific Framework Group, which he led, worked to increase the recruitment, retention and outcome of Pacific students.

"It was a pleasure to see an almost exponential increase in the number of Pacific students we were attracting. We also wanted to show them that research is an exciting career option and that they can achieve at this level."

Watch his IPL >>

Sympathetic to the heart of the Pacific

FUNDERS:

Health Research Council • National Heart Foundation
Japan Society for the Promotion of Science • University of Otago

"Becoming a professor means I have a fulfilling and stimulating career that relates to something I care about. An academic job is unique in that it involves continuous personal growth through research and contributing to the growth of others through education."

PROFESSOR JONATHAN BROADBENT

DECREASING DENTAL DISPARITIES

A passion for better oral health for all New Zealanders has led to Jonathan Broadbent's appointment as Professor of Dental Epidemiology and Public Health at Otago's Faculty of Dentistry.

"Oral health problems matter," Broadbent says. "They impact people's ability to smile, to eat and be pain free. Their treatment is costly and this compounds the problems of inequality in oral health. Inequality in treatment of oral conditions is worse than inequality in the occurrence of the conditions themselves."

After two decades of research, teaching and clinical dentistry, Broadbent's primary interest is the longitudinal epidemiology of oral health conditions such as dental caries, tooth loss and periodontal disease, and their causes.

He leads the dental component of the Dunedin Multidisciplinary Health and Development Study (the Dunedin Study), working on investigating the determinants of oral health, the natural history of oral conditions, and the impacts of oral conditions on quality of life.

"By following changes in participants' oral health across five decades, the Dunedin Study has convincingly shown that chronic conditions such as tooth decay share risk factors, whether social or lifestyle, in common with many other conditions. Studying and finding ways to prevent tooth decay are important because tooth decay during childhood is a 'canary in the coalmine' for chronic health conditions later in life."

Broadbent cites the mentorship of colleagues and teachers such as Study Director the late Professor Richie Poulton and Emeritus Professor Murray Thomson as huge factors in his successful career.

He also acknowledges the encouragement of his parents, who home-schooled him. While growing up, he enjoyed the intellectual stimulation of reading science books, but also loved doing things with his hands. "When my mum suggested being a dentist, I realised that was the career for me. I soon discovered an interest in research after I was given opportunities as a junior dental student."

Following his Bachelor of Dental Surgery degree, Broadbent gained experience in clinical teaching and practice as a dentist. During his PhD, he spent holidays volunteering as a dentist in the Pacific.

He has won several awards, including the New Zealand Dental Associations' Award for Research (2001) and Outstanding Young Dentist Award (2011), the Health Research Council's Liley Medal (2017) and the International Association for Dental Research's Distinguished Scientist H. Trendley Dean Memorial Award (2023).

He helps edit the *New Zealand Dental Journal*, the *Journal of the Royal Society of New Zealand* and *BMC Oral Health*.

Broadbent also coordinates the teaching of dental public health to undergraduate and postgraduate dental students.

"Much of my work is in epidemiology and the public health side of dentistry. Dentistry is largely a solo sport but in dental public health we try to make it into a team game.

"As a dad with four young sons, teaching the next generations of Broadbents and dentists is the most important part of what I do. I owe a great deal to my parents and colleagues who have supported and encouraged me through my career, so I feel I now need to do the same for my own boys and for the next generation of dentists."

Watch his IPL >>

Getting long-itudinal in the tooth: caries, trajectories and disparities

FUNDERS:

Health Research Council • Ministry of Health Oral Health Research Fund • New Zealand Dental Research Foundation

CUTTING EDGE

For Professor Tim Eglinton surgery and academic research go ‘hand in hand’.

“I’ve always considered research to be woven into the field of surgery,” says the University of Otago, Christchurch, consultant colorectal surgeon and Head of the campus’s Department of Surgery and Critical Care.

“You can’t really perform operations day in, day out without questioning what you’re doing, such as, ‘why is this situation occurring?’ or ‘how can we improve patient outcomes?’.”

It is that enquiring mind, combined with a love of the practical aspects of surgery, that led to his professorship, conferred in 2021.

“It’s an immense privilege to be awarded the title and I see it as a mantle to uphold – especially in my role as HOD Surgery. I inherited a department that was functioning extremely well and I’m keenly aware of my responsibility to continue that legacy.”

Alongside his role as a busy consultant colorectal surgeon in Christchurch, Eglinton’s research is focused on improving the lives of those with inflammatory bowel disease (IBD) and colorectal cancer. He has published widely on this and other surgical conditions such as diverticular disease (a condition where small bulging pouches develop in the digestive tract).

"It's an immense privilege to be awarded the title, and I see it as a mantle to uphold, especially in my role as Head of the Department of Surgery. I inherited a department which was functioning extremely well and I'm keenly aware of my responsibility to continue that legacy."

PROFESSOR TIM EGLINTON

"Some of the simplest studies we've undertaken have gained momentum, then gone on to change international practice. Things like researching the role of surgical intervention and also colonoscopy for diverticulitis – our study results are now part of worldwide surgical guidelines, particularly in terms of when to operate and when not to."

Alongside working with the Ministry of Health to improve equity of access to elective surgery, his current focus centres on translational molecular and artificial intelligence research in surgery.

"Our department has published 75 papers in the past five years, looking at what causes colorectal cancer and how we can increase personalised treatment and outcomes. That work is now bearing fruit by attracting more funding, enabling further progress."

Eglinton knew from his teens at Palmerston North Boys' High that medicine was his future.

"My parents weren't medical but I had three older sisters studying medicine and physiotherapy in Dunedin and family visits south attracted me to the student and academic lifestyle," he says.

He met wife Devonie, a research physician, in their first week at medical school. The couple have three children – one studying medicine at Otago.

After obtaining his General Surgery fellowship in Christchurch in 2005, he specialised in colorectal cancer and IBD surgery in Cambridge in the UK, followed by a stint in Adelaide where he gained skills in the growing field of laparoscopic surgery. He took up a joint consultant-academic position in Christchurch in 2008, later completing a Master's of Medical Science with distinction, investigating the genetics of IBD.

"I was incredibly fortunate to walk into an environment here, established by Professor Frank Frizelle, Professor Richard Gearry and many others, where research was well established and the systems well supported."

In addition to teaching medical students, Eglinton is passionate about advancing postgraduate surgical training and is the current Chair of the Australia and New Zealand Training Board in Colon and Rectal Surgery.

"Surgery is, for obvious reasons, pretty stressful and in our line of work, occasionally, things don't go well. I always remind my trainees about the power of the human spirit. It's important we pick ourselves up and carry on, remembering that no matter how hard this might be for us, what the patient is going through is so much tougher.

"The quality of the students and trainees keeps getting better, they're more confident, articulate, and capable. I'm quite optimistic for the future – I feel we'll be well looked after."

Watch his IPL >>

Surgery in evolution: technology, trials and training

FUNDERS:

Colorectal Surgical Society of Australia and New Zealand Foundation • Health Research Council Australia's National Health and Medical Research Council • Medtronic • Ministry of Health • The Gut Foundation

POLICING HR MANAGEMENT

When Professor Fiona Edgar was young she did not dream of being head of the University of Otago's Department of Management. She wanted to be a policewoman. And while her Human Resource Management (HRM) path has been decidedly lacking in dicey drug busts and perilous pursuits, there has been policing of sorts: Edgar has built a solid reputation as a staunch watchdog of employee rights.

Edgar was a late starter to academia. She had two children by the time she arrived at tertiary study. Having not met the height requirements to be a cop, she set her sights on teaching, and it was while studying for a Diploma of Education that she took a paper in Management and fell decisively into the arms of the University of Otago.

"That paper sparked my interest. I'd worked through the 1980s – a tumultous period for business with many organisations closing, relocating or downsizing. There were a lot of people-management issues going on then. It was a time of walk-outs, sabotage, redundancy negotiations and sexism."

While working at a large appliance manufacturing company in the midst of downsizing, Edgar imbibed the palpable employee disgruntlement: "There was a lot of unrest. The staff had got worked up about jobs being on the line – someone even put glue down one of the paint guns, so there was a bit of sabotage going on."

It was this sense of employee disenfranchisement that informed much of Edgar's subsequent research. Her PhD examined the impact of legislation on HRM policy and practice.

"I decided I'd need to talk to both employers and employees, and discovered that no one had talked to employees before. It all seems like common sense but it wasn't common back then. HRM was just something managers did to employees."

Edgar was among the first in her field to recognise employees as important organisational stakeholders.

"This has meant that although interesting, my research can be provocative. Because I brought a pluralist lens to HRM it meant I was asking people to consider the voice of the employee. I drew from perspectives in Industrial Relations as well as HRM and sort of melded those together."

This melding helped win her an Early Career Award for Distinction in Research in 2008.

Though tracking this area has been Edgar's biggest focus, she has also branched out to explore the impact emotions have on performance at work and how they are influenced by workplace practices. One of her most recent and favourite studies looked at "the ubiquitous, yet discreet, emotion of workplace schadenfreude".

Edgar has been teaching strategic HRM in the Department of Management for two decades. She arrived at her new professor status in 2022 and is still a little startled by it all.

"I've never had aspirations to be a professor or head of department – in fact probably quite the opposite. But I know my family are very proud. If it wasn't for their unwavering support, I wouldn't be where I am."

She is now in her fourth year as Head of Department. Under her watch, you can safely assume the tally of workplace incidents of gluey sabotage is nil.

Watch her IPL >>

People, performance, and pluralism

FUNDERS:

Ireland Collaboration • Labour Market Policy Group • Bright Future Doctoral Fellowship

"Being promoted to professor is a huge honour and privilege – a wonderful recognition of my research contribution within the family justice field."

PROFESSOR NICOLA TAYLOR

FAMILY LAW MATTERS

Professor Nicola Taylor has devoted her working life to child and family law issues.

Raised on a farm at Windwhistle in rural Canterbury, Taylor studied social work at Massey University and then law at Otago.

While continuing her studies and starting her own family, she became a founding staff member of the Children's Issues Centre at Otago in 1995, taking over as Director in 2012. She has also held the Alexander McMillan Leading Thinker Chair in Childhood Studies since then.

Taylor's teaching and research has covered a broad span of issues to do with the law as it affects children and families.

"We are really keen to make sure that our research can benefit people going through very challenging experiences, and the professionals – such as lawyers and judges – who work with them."

Taylor says one of the areas in which she and the Children's Issues Centre have had a profound influence on law policy and practice, in New Zealand and internationally, is in listening to children's voices and enhancing their involvement in family law proceedings.

"Our early research showed that many children didn't even know they had lawyers appointed to represent them," Taylor says.

Another major area of research has related to relocation disputes, when one parent wants to move away with their children, within New Zealand or overseas, and the other parent objects.

"We undertook one of the few international studies, talking with parents and children affected by a relocation dispute," Taylor says. "The study contributed hugely to the quest for international consistency in dealing with relocation disputes."

Similarly, Taylor has conducted influential research on international child abduction, where children are wrongfully taken to another country, or not returned from an overseas visit.

Taylor says this research has addressed key exceptions to the return of abducted children: such as when the child objects to being returned to their state of habitual residence; or there is a grave risk to the child if they are returned. Taylor and an English colleague are currently conducting an international online survey on the latter.

Taylor's extensive writing output includes recent co-written books related to child participation and international child abduction.

She has also co-launched a website that provides information for abducted children, and children generally, on what abduction is and what the law says about it, with text in English, French and Spanish.

Taylor's many accolades include jointly winning a prestigious international family law research award from the United States-based Association of Family and Conciliation Courts, for work on child relocation and abduction.

Promoted to Professor of Family Law in 2020, Taylor says it is a huge honour and privilege.

"It enables you to be recognised as a leader, and your research contribution to have even greater standing within your professional field."

Watch her IPL >>

Family law matters

FUNDERS:

University of Otago Foundation Trust • Alexander McMillan Trust: Leading Thinker Chair • New Zealand Law Foundation Michael and Suzanne Borrin Foundation • British Academy (London) • Australian Research Council UNICEF Office of Research Innocenti (Florence) • Childwatch International Research Network (Oslo)

ON THE HEART BEAT

The fact that Professor Gerry Wilkins introduces himself to most of his heart patients as a ‘plumber’ tells you a fair bit about the upbeat cut of his jib.

Wilkins has been a cardiologist/leak fixer for over 40 years now, but you wouldn’t know it; there is not even the slightest whiff of career torpor in the Wilkins’ mix – in fact, quite the opposite. He routinely says things like: “I’m the luckiest guy because I found the job that I love to go to every day.”

When he left rural Southland to study medicine at Otago, he was already heart-intrigued.

“A favourite uncle died at a very young age from a cardiac death. That didn’t seem very just to me.” A stint in cardiology and cardiac surgery during his house staff years further cemented his interest: “I was hooked”.

He says much of that hooking owes to the superlative teaching he received in the 1970s.

“I was fortunate to be mentored by Dame Norma Restieaux, Dr Mike Ablett and Professor Pat Malloy who were all impressive clinicians and very committed to their roles.”

Wilkins entered the field of cardiology at a time of huge change. A Heart Foundation Overseas Training Fellowship allowed him to spend four years at Massachusetts General Hospital in Boston where he worked alongside the pioneering people of clinical ultrasound-echocardiography and imaging.

“It was a fantastically heady time really – just to be involved in the amount of research output that we were generating from this one lab. You could just feel progress, applications, new ideas, different ways of thinking about things.”

When he returned to Dunedin in 1989 to take up a joint role at Dunedin Hospital as a Clinical Academic and Consultant Cardiologist, the atmosphere of medical

“Success in medicine is not only knowledge-based – it’s about the interpersonal connections you make with patients.”

PROFESSOR GERRY WILKINS

progress was still ramping up. Efforts to manage cardiovascular disease increased exponentially over the decades he has practised medicine. One look at the massive drop in cardiology mortality rates confirms this. Wilkins says that between the 1950s and 2009, there was a whopping 70 to 80 per cent reduction in coronary heart disease in Aotearoa (for those aged 35-69).

He has had a front-row seat to much of that medical advancement. When Dr Ablett did New Zealand's first balloon angioplasty, Wilkins was watching on, wide-eyed, from a back room at Dunedin Hospital. He was a young trainee registrar at the time.

"Everyone thought Mike was crazy. But I thought it was all fantastic! It was so mind-blowingly different. Somebody has to do these things for them to become normative. You have to have a certain amount of courage and confidence to go out a little on a limb while fully respecting patient safety."

Wilkins went on to occupy several such limbs: he pioneered many new cardiology procedures in New Zealand such as coronary and carotid stenting, and transradial and transapical interventional approaches. Asked if trialling these new methods has required a fair amount of native pluck, he says: "I think that's probably part of my make-up. But I do spend an awful lot of time thinking about something in an organised way before I go and do it."

His research interests are wide, including new medical device research, exercise physiology studies, rural health outcomes, genetics, selenium, and experimental models of cardio-renal physiology. He has participated in more than 50 multi-centre international outcome studies of new therapies that have reshaped clinical cardiology and, therein, saved lives.

He sees this collaborative research as crucial to being an academic clinician: "The way to proceed in a small town on the outskirts of the world is to be involved with all of the mainstream research that's going on as best you can and, if possible, get on to the very outer edge of it where all of that 'first in man' stuff – the new things – are being done. Staying abreast of what's happening in research helps you to be a good teacher."

The art of teaching is one of his strong suits. He has a winning knack for chat. "One of my loves – and one of my contributions – has been talking, talking, talking."

He suspects it's in his genes: "I come from a background of teachers, communicators and entertainers. It was a pretty talkative family. You recognise that if you aim to entertain, you're probably also teaching."

During his four decades on the 'heart beat', he has trained 22 fellows and collected a slew of teaching awards. After one such award, Professor Barry Taylor said of him: "Gerry exemplifies what makes a great teacher – enthusiasm, expertise and caring – all combined in the one person."

It is not just the trainee doctors who've received the Wilkins beneficence. Patient-centric care has always been crucial to him: "Success in medicine is not only knowledge-based, it's about the interpersonal connections you make with patients. I grew up in a time where the way to reassure someone was to wear a white coat and be very silent. I think that would be incredibly scary if you were the patient. I've often said to students: 'your role is not to be the doctor who you think you are; your role is to be the doctor the patient in front of you needs'."

Wilkins received his professorial promotion in 2021. His indefatigable verve shows little sign of abating. "I still like my job. I've had a blast. I remain fascinated by almost evert aspect of it."

He says that chance has played a big hand in his success. "I've had a long and lucky clinical and academic career because I just happened to be at the right time and right place." One suspects that this 'luck' has a fair amount to do with him being the *right person* too: a hearty plumber.

Watch his IPL >>

Giant steps is what you take: Advances in cardiovascular care over 40 years of research

FUNDERS:

Heart Foundation • Southland Medical Research Trust

"Becoming a professor is the quiet satisfaction at completing an untidy loose end in a busy clinical and academic career."

PROFESSOR GERRY WILKINS

"I was not aware of how much pressure I had put on myself to achieve this goal. I'd like to think that I am confident enough that I don't need outside validation, but I guess it still felt very nice."

PROFESSOR BORIS BAEUMER

MATHS MEDIUM

If you want to predict the future, ask a mathematician.

Professor Boris Baeumer's expertise is in building tools to help scientists understand situations where random occurrences can play a significant part in events.

Baeumer completed his PhD in pure mathematics in Louisiana in the United States, before moving on to applied mathematics in Nevada with postdoctoral work in hydrology.

Since joining Otago in 2001, he has focused on applied mathematics relating to modelling the movement of particles or organisms in nature that do not adhere to classical theories.

His current international collaborations include work in Nevada – exploring ways to forecast how (potentially toxic) particles move in groundwater; and in Germany and Hungary – developing theories to try to improve understanding how random events impact models.

His Marsden-funded work aims to improve how scientists make forecasts in systems where rare extreme events are involved in driving the system – such as fast underground pathways in groundwater, weather events driving erosion or seed dispersal, or distant travel spreading a virus.

"When you blow on a dandelion you might have a good idea of where most of the seeds might go, but then some of them are found in places you might never expect. We're trying to come up with better models to predict what might happen when you include those outliers.

Forecasting the probability of potentially catastrophic events has promising applications in such disciplines as hydrology, ecology (invasion of species), epidemiology (spread of disease), chemical engineering (e.g. build-up on electrodes), physics (e.g. rays going through the atmosphere), economics (stock-market), and meteorology (rainfall patterns, flood events).

"I think there is an inherent beauty finding the patterns that exist all throughout science. Combining theory with reality is fun. It's very satisfying working with mathematics."

Baeumer earned an Otago Early Career Award for Distinction in Research in 2005 and has been awarded three Marsden grants. He has published 50 scientific articles not just in mathematical journals but also in physics, geophysics and hydrology, and is on the editorial boards of *Fractional Calculus and Applied Analysis*, *Fractional Differential Calculus* and the *Australian and New Zealand Industrial and Applied Mathematics Journal*.

Baeumer's professorial appointment surprised him.

"The recognition means a great deal to me. I didn't realise how much it would mean, but now I think that making it to professor has probably been one of my proudest achievements."

Watch his IPL >>

The power of the limit of a power

FUNDERS:

Marsden Fund • University of Otago

ADDRESSING INEQUITY

"An inspiration, "a force of nature", "deeply passionate". The various (and consistent) descriptions of Professor Sue Crengle speak not only to a rather long list of accomplishments but, more significantly, to the bedrock of motivations on which she has built a career.

Crengle (Kāi Tahu, Kāti Māmoe, Waitaha) is a doctor who works in general practice and public health medicine, whose academic research activity spans more than 25 years and focuses on Māori health equity and inequities in health status and health outcomes.

"Much of my work involves identifying where and how inequities in health occur, and testing ways to eliminate these inequities," says Crengle, the Co-Director of Te Roopū Rakahau Hauora Māori o Kāi Tahu (the University's Ngāi Tahu Māori Health Research Unit).

Crengle's dedication to serving those who haven't been served particularly well goes back many years.

"Through medical school, then as a junior doctor working in the mainstream health sector, I became more and more aware of issues to do with Māori health outcomes," she says. "I had initially planned to work in psychiatry and mental health care, but went into general practice in 1991. Since then, all of my work has focused on Hauora Māori, whether it has been in general practice, the University setting or in public health."

In her Inaugural Professorial Lecture (IPL), Crengle provided several examples of research – including major projects on lung cancer screening and the "polypill" (a pill that contains a combination of several medications commonly used to treat heart disease and high blood pressure) – dispelling notions that Māori were reluctant participants in research, and that they were difficult to recruit and/or retain in research projects.

The key, she says, is to utilise co-design principles and appropriate protocols and processes, including a Māori kaupapa and equity lens, as well as ensuring that strong ratios of Māori staff are involved in interacting with participants.

"The progress in regards to Hauora Māori is certainly iterative. But when I look back on my career to date, we have definitely made progress."

Take, for example, the establishment in 2021 of the Māori Health Authority, on which she was one of eight board members until July 2023.

Part of the Government's wider reform of the health system, Crengle regards it as the "biggest opportunity that we've had in Māori health in my career".

A brief summary of her academic output features no fewer than 19 research grants (as principal or joint principal investigator), and many more as researcher; at last count, she had more than 130 articles in refereed journals, and had contributed to more than 40 papers.

Crengle's achievements are too long to list in full, but recent awards include: The Maarire Goodall Supreme Award (Te Ohu Rata o Aotearoa) in 2022; a University of Auckland Research Impact Award (as a member of the Youth2000 team); and Māori Television's 2021 Matariki Supreme Award (as a member of the Māori pandemic group Te Rōpū Whakakaupapa Urutā).

As for her promotion to professor, she describes the achievement as the highlight of a long, and continuing, academic career, but also as a "huge relief".

As part of Crengle's IPL, acting Pro-Vice-Chancellor (Health Sciences) Professor Patricia Priest, spoke in awe of her colleague's contributions "in teaching and research, service to Māori, to health, to the University and to the country".

Asked how she manages all this mahi, Crengle pauses in order to distil her answer:

"Well, I was brought up by my parents to do the very best I could. These values were instilled in me from a young age.

"Working a day a week in general practice in Southland keeps me grounded, too, as do my mates and whānau.

"Oh, and I also do crossfit."

Watch her IPL >>

Myth-takes about Māori and research

FUNDERS:

Health Research Council • Healthier Lives National Science Challenge • Global Alliance for Chronic Disease Te Whatu Ora Health New Zealand • Te Aho o te Kahu Cancer Control Agency

HOUSING BY NUMBERS

As a statistician, Professor Nevil Pierse is most at home poring over the numbers, but his work in housing and health research at the University of Otago, Wellington, is far from theoretical.

Pierse grew up in Ireland, studying maths and statistics at undergraduate level before going on to do research on statistical process control for his Master's degree.

A round-the-world trip sparked a love for New Zealand and when he returned home, he successfully applied for a job with the He Kāinga Oranga – Housing and Health Research Programme.

His role, under the mentorship of award winning Programme Director, Distinguished Professor Philippa Howden-Chapman (see pages 92 to 93), took him into the heart of local communities.

"My job was going in and talking to community groups about the randomised control trial we were doing on the use of heat pumps and fuel-efficient heaters, and explaining about statistics, why we had to collect the data and what we were doing with it."

He loved working with people and says the sense of community among Māori was a reminder of his upbringing in a small Irish village.

"I come from Meenogahane, which has a population of about 40, and the local communities here have a lot in common. People are trying to boost up their communities, so working with them on the trial was really inspiring."

Seventeen years later, Pierse is a Co-Director of He Kāinga Oranga alongside Professor Howden-Chapman and the group is lauded nationally and internationally for their ground-breaking research.

"Our work is done very much with the goal of explaining it to Treasury and saying, 'look, for every $1 you invest in the Healthy Homes Initiative, you are saving $4 in health spending, and $1 in benefit spending'."

PROFESSOR NEVIL PIERSE

Their findings that warm, dry housing can significantly reduce rates of infectious, respiratory and cardiovascular disease and deaths, particularly for children and older people, have directly influenced government policy, and have been fundamental to the development of both the Winter Fuel Payment and legislation requiring landlords to meet healthy homes standards.

The Stats NZ Integrated Data Infrastructure (IDI) research database has been a key part of their research. The massive database holds de-identified data on all New Zealanders' interactions with the government, ranging from hospitalisation rates to school attendance.

Using the IDI, He Kāinga Oranga has been able to analyse the impact of the government's Healthy Homes Initiative (HHI), which provides insulation, heaters and curtains to low-income households.

"The IDI has data on the 30,000 homes and 75,000 household members that have benefited from the initiative and we can see the positive impact it is having on people's health and wellbeing. We estimate it is preventing 9,700 hospitalisations a year. For the children, this adds up to 2,500 days they were able to spend in school instead of being in hospital."

The research findings are shared with the community groups who assisted in collecting the data, but crucially are also demonstrating the value of the scheme to policy makers.

"Our work is done very much with the goal of explaining it to Treasury and saying, 'look, for every $1 you invest in the Healthy Homes Initiative, you are saving $4 in health spending, and $1 in benefit spending'," Pierse says.

Pierse is leading two major research projects at He Kāinga Oranga. The first, which he is co-leading with his mentor Professor Howden-Chapman, is funded by the Health Research Council (HRC) and involves working with the government and communities to measure the impact on wellbeing of the healthy homes standards for rental properties. The second, supported by a Ministry of Business, Innovation and Employment (MBIE) Endeavour Fund grant, analyses the effectiveness of housing programmes to combat homelessness in achieving health and wellbeing goals. Its emphasis on improving outcomes for tamariki and rangatahi is based on their research showing housing instability in childhood is a major risk factor for later homelessness.

"Permanent, sustainable housing can be life changing," Pierse says. "When families are provided with warm, dry, secure housing you see the kids' hospitalisation rates decline, their school attendance improve, their grades improve, their parents can get to work, the households' interactions with the justice system decline.

"This is improving the whole of their lives. It's not just a health intervention, it's not just a housing intervention. For children and young people up to the age of 25, their lives can be turned around quickly and comprehensively."

Pierse sees his promotion to professor as an acknowledgement of his work as a statistician, a recognition that the data is world-leading and that housing is a subject worthy of academic research.

He pays tribute to Professor Howden-Chapman, who has been a major influence throughout his career.

"She is somebody I hugely admire. I seek to emulate and carry on her work through a statistical lens. She opened many, many doors for me and now that I am co-working with her, she is a very supportive colleague."

Pierse says the team approach of He Kāinga Oranga has been vital to its success.

"Looking at the statistics is one wing of it, but the other members of the team bring skills in interviewing people, working with communities, working with policy, and building a framework for it all. Nobody can do all of that. It only works because we are part of a team."

Watch his IPL >>

Numbers from a Kerry statistician: housing and health

FUNDERS:

Ministry of Business, Innovation and Employment • Health Research Council • Te Whatu Ora • Accident Compensation Corporation Hutt Mana Charitable Trust • Variety • Cure Kids • Building Research Association of New Zealand

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"For me, the best thing about been made professor is the acknowledgement of the partnership shared by community partners in my projects. It is also a wonderful acknowledgement of the team of researchers I work with."

PROFESSOR NEVIL PIERSE

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"I hope [my professorship] is useful. That it will have some tangible benefit for that team of rural teachers, researchers and clinicians who are striving to improve healthcare in their communities."

PROFESSOR GARRY NIXON

RURAL RECOGNITION

Decades of service to rural health as both a doctor and an academic have earned Dr Garry Nixon a professorship.

Nixon realised the need for dedicated rural postgraduate training pathways for young doctors some 30 years ago when he discovered how hard it was to attract staff to the small hospital he worked at in Clyde, Central Otago.

He became involved in teaching and, along with others, developed a rural hospital medicine training programme that is now well-established nationally, with the academic component still delivered by the University of Otago.

For Nixon, teaching evolved into research focused on improving health services for rural communities.

"Where I live and work it's inevitable you start to consider the bigger questions relevant to rural health. You see problems from day to day and think about generating evidence that will lead to positive change."

Efforts for better health outcomes have included investigating the safety and impact on patient care of point-of-care diagnostic technologies such as ultrasound and laboratory testing. Collaboration with colleagues in Northland ensured the results were relevant to all of rural New Zealand.

At Otago, Nixon is Head of Rural Section (General Practice and Rural Health) and Associate Dean Rural (Health Sciences) alongside continuing to work as a clinical practitioner at Dunstan Hospital.

Now as Otago's first Professor of Rural Health, Nixon leads a countrywide initiative to develop and refine a new urban-rural classification for health, and then use it to compare outcomes and access to services in urban and rural areas.

"Our teaching and research teams are dispersed across some 20 different sites around New Zealand, yet our research is pretty pragmatic, answering specific questions around disparities between rural and urban health."

Nixon's work on improving rural health helped to earn an MNZM in 2016, and the Royal New Zealand College of General Practitioners' coveted Eric Elder Memorial Medal for rural services in 2017.

"Being awarded the College of GPs' medal was very personal because I worked with the pioneering rural doctor Eric Elder from Tuatapere when I was a fifth-year medical student in the mid-1980s. Getting an award in his name was pretty special."

Nixon's role as an academic supervisor currently has him overseeing PhD students researching rural chest pain assessment pathways, the scopes of practice of rural allied health professionals, healthcare consumption across the urban rural spectrum and the workforce outcomes of rural interventions in the undergraduate medical programme.

"At a personal level I probably get the most satisfaction from working with my younger colleagues, seeing them progress useful rural careers, take on leadership and teaching roles and now some of them becoming researchers. That's enormously gratifying.

"Being awarded the professorship makes me hope this honour will make a difference, another step for the academic discipline of rural health, and evidence that you don't have to shift to the city to become a medical academic."

IPL will be available here:

FUNDERS:

Health Research Council • Te Whatu Ora • University of Otago • Healthcare Otago Charitable Trust

TEACHING TEACHING

Professor Clinton Golding is passionate about supporting tertiary teachers and students.

Raised beside the Manukau Harbour, Golding studied philosophy at the University of Auckland, and then worked at various schools and universities in New Zealand and Australia (including a stint as "Head of Thinking" at an Auckland secondary school).

He joined the Higher Education Development Centre (HEDC) at Otago as a Senior Lecturer in 2011, was promoted to Associate Professor in 2016 and to Professor of Higher Education in 2021.

Golding works in the field of higher education and academic practice.

"I became interested in teaching and researching about teaching and research, and how I could help enrich the learning across a whole institution," Golding says. "I am particularly interested in enabling colleagues to enhance and invigorate their teaching, supervision and writing, and to further their careers and get promoted."

His broad writing output includes two free online journal articles for thesis students and their supervisors: one on what examiners do as they assess a thesis, and one on advice for writing a thesis. One article has had more than 85,000 downloads and the other more than 100,000 downloads.

"The two articles are good examples of my approach to research," Golding says. "My aim is to produce research that is useful in practice: what I term 'handy research'."

Part of his work in HEDC supports Otago academics to apply for what are now called Te Whatu Karangi Aotearoa Tertiary Educator Awards. He says that he is proud to have contributed towards Otago's unmatched success in these national awards, including the seven Prime Minister's Supreme Awards Otago staff have won since 2012.

"We have many extraordinary teachers at Otago, but it is very difficult to write about your own teaching in a convincing award application, especially as teaching is frequently done naturally and unconsciously," Golding says. "It is my privilege to encourage great teachers – many of whom are unaware how wonderful they are – to apply for national teaching awards. I assist them in writing winning applications and showing that their practice is awesome and that it makes a big difference for their students. Some of my current research is about this difficult writing task."

Golding has personally won multiple local, national and international teaching awards. These include the Australian Teaching Excellence Award – the Australian equivalent of Te Whatu Karangi Aotearoa Tertiary Educator Awards – which he achieved as a senior lecturer in the Graduate School of Education at the University of Melbourne.

Reflecting on his 2021 promotion, Golding says: "For me, being a professor means I am now firmly established with nothing to prove, so I can instead focus on what I love doing, which is to support others."

Off work through illness at the time, his wife arranged for his "Professor Clinton Golding" name plate to be sent home.

"It's now above the door by my kitchen, reminding me of my achievement."

FUNDERS:

Ako Aotearoa

"For me, being a professor means I am now firmly established with nothing to prove, so I can instead focus on what I love doing, which is to support others."

PROFESSOR CLINTON GOLDING

CLIMATE CAREER

Having grown up enjoying winter and summer holidays in the family mountain hut at the Craigieburn Valley ski area, new Professor of Geography Nicolas Cullen feels he has come full circle.

That circle has taken him around the world – from the Greenland ice sheet to Mt Kilimanjaro's tropical glaciers and back to the Southern Alps and Antarctica – researching how snow and glaciers are linked to the climate system.

Cullen completed undergraduate and Master's degrees at the University of Canterbury before beginning doctoral studies at the University of Colorado at Boulder working with Konrad Steffen, a Swiss professor who was totally devoted to the Greenland ice sheet, which also became the focus of Cullen's PhD.

"Greenland holds the largest body of fresh water in the Northern Hemisphere, in the form of a massive dome of ice. If it melted, it would add the equivalent of about seven metres of sea level rise across all our oceans."

By the late 1990s, scientists were beginning to realise the outlet glaciers in parts of Greenland were losing mass. Cullen was one of several postgraduate students recruited to look after a network of weather stations, established by Professor Steffen, known as the Greenland Climate Network (GC-Net).

"The GC-Net has provided unique meteorological observations that have been instrumental in revealing the rapid changes taking place on the Greenland ice sheet."

After that, Cullen worked as a postdoctoral fellow at the University of Innsbruck working with a multidisciplinary team assessing the impacts of climate change on the retreat of glaciers on Mt Kilimanjaro, before coming to Otago in 2006.

While he remains a collaborator on these international projects, his focus has switched to the Southern Alps, and Antarctica. A key contribution has involved establishing a long-term meteorological and glaciological monitoring programme at Brewster Glacier in the Southern Alps, which has become a globally recognised benchmark for glaciological research.

"One of the key outcomes of the research being conducted there is that it has provided a platform for undergraduate and postgraduate students to get involved in high-mountain field research, which has led to a range of student-led research projects," says Cullen.

Research conducted by Cullen's students has significantly advanced understanding of how extreme weather events and changes in climate are impacting the unprecedented retreat of Southern Alps glaciers.

This contributed to Cullen receiving, in 2014, the NZ Geographical Society President's Award for Graduate Research Supervision, which is awarded to a thesis supervisor who demonstrates excellence in graduate supervision. As testament to the quality of the research-focused teaching environment Cullen has fostered, four of his former postgraduate students are now climate scientists for the National Institute of Water and Atmospheric Research (NIWA).

"One of the most satisfying aspects of my time at Otago is that it has provided me with a platform to help shape the next generation of leading climate scientists."

IPL will be available here:

FUNDERS:

National Institute of Water and Atmospheric Research
The Deep South National Science Challenge • Alexander von Humboldt Research Foundation
Antarctic Science Platform

"Being made a professor means advancing climate science with a stronger voice and enhancing my ability to shape the next generation of leading climate scientists."

PROFESSOR NICOLAS CULLEN

"Becoming a professor is recognition of the work we do in a university. It's about how much we put into the next generation of New Zealanders, and recognition of those who came before us – those who were mentors or gave support or guidance."

PROFESSOR LISA MCNEILL

FASHION FOCUS

Professor Lisa McNeill is helping to reduce waste in the world's second largest industry behind petroleum: fashion.

McNeill is a consumer behaviourist, whose research hones in on the fashion industry and the decisions people make around buying clothes.

This is ground-breaking work. Fashion is one of the world's worst polluters, creating an estimated 92 million tonnes of textile waste per year. In Chile, a mountain of discarded clothes has become so large it can be seen from space.

McNeill, from Otago's Department of Marketing, examines how people use possessions – in particular fashion – to construct and reinforce their identity. While she also studies purchasing decisions around food, she is particularly interested in fashion because in this area purchasing is frequently driven by *want*, rather than *need*.

"I want to challenge people's perceptions that it is frivolous and not real research. That ignores the fact that everyone wears clothes, and everyone makes decisions around what they buy and how they present themselves."

Her 2015 examination of people's relationships with fashion and sustainability is internationally considered a seminal work, and her recent work exploring the notions of needs versus wants was one of the top 10 most downloaded publications in the *International Journal of Consumer Studies* for 2020.

She is also an original member of the international 'Sustainable Fashion Consumption Network', working with international researchers to develop multidisciplinary, multi-stakeholder conversations on sustainability. She is regularly interviewed by the media both in New Zealand and overseas. On the day of her *He Kitenga* interview she was speaking to a Japanese textile trade publication about Japan Airlines renting garments.

But her career might have been quite different, if not for some astute guidance.

McNeill's academic journey began not in Commerce, but Humanities, when she studied for a BA in English Literature. As she finished that degree, she went to see Otago's then Pro-Vice-Chancellor for Humanities, Professor Jennifer Black, to talk through her next steps.

"She told me I had really good attention to detail and suggested I take some Commerce papers," McNeill says.

Professor Rob Lawson quickly noticed her ability and encouraged her to focus on Marketing.

She did not look back. An honours degree in Marketing led straight to a PhD. As she finished her PhD a lecturer position opened in the Department. She climbed the academic ladder, with a stint as Director of Otago's International Business Programme and was made professor in 2022.

Her impact is local, national and international. She and her colleagues on the Sustainable Fashion Consumption Network are helping to drive changes in the fashion industry, developing a framework for the circular fashion system, as well as a Fashion Futures 2040 Vision. For example, related to this, the European Union has introduced legislation for dealing with the fast fashion industry; in France, consumers who repair clothes are given a rebate on that spend; and in Canada there are now clean-burning textile waste incinerators which feed energy back into the system for use in things like public schools.

"A lot of this is driven by the spotlight that our work in this area is shining on the industry. As a collective, our voices are being heard."

You cannot work in this area without confronting your own decisions around purchasing and McNeill, who comes from a strong fashion background (her grandmother was a seamstress who made couture gowns and became a pattern maker for Bendon), has had to change her own behaviour.

"I appreciate and like fashion. But I realised that if I want to continue to enjoy fashion while thinking about consumption, I needed to change my habits. I prefer to purchase second hand and be conscious about putting clothes I have finished with back into the system.

"Just today, a friend showed up in my office with a coat. She had fallen out of love with it and, because I had often complimented her on it, she decided to bring it in for me. Funnily enough she arrived wearing a dress I had passed on to her."

A true embodiment of the McNeill's academic life.

Watch her IPL >>

The wearable weight of being

FUNDERS:

Otago Business School • University of Otago • University of Tasmania • University of Alberta

A FORAY IN FUNGI

It was his parents' love of gardening and his own wonder at seeing something grow that first sparked an interest in plants for Professor David Orlovich.

"When I was a little kid, the sheer magic of plants with leaves and stems and flowers and fruit appearing out of a thing as small as a seed seemed incredible to me," explains Orlovich. "I just love staring at the small details. They're intricate and I think there's an inherent beauty in small things."

Orlovich joined a carnivorous plant club at high school and, during his undergraduate years at the University of New South Wales, was convinced that was what he would focus on for his postgraduate research.

However, his PhD supervisor Professor Anne Ashford had a lot of experience in fungi, and he became deeply interested too, using his microscopy skills, including electron microscopy, to examine the tiny details.

Ashford's lab focused on research around the role of fungi in mediating the communication or transfer of minerals, nutrients and even water between the soil and plants. This is referred to as the mycorrhizae.

Since coming to Otago more than 22 years ago, Orlovich has become increasingly involved in discovering new species of fungi, thanks in part to the annual New Zealand Fungal Foray.

"It is a bit of a daunting task because it is estimated that we may have names for only about 20 per cent of the fungi in New Zealand," he says. "Describing a new species means showcasing what it looks like and where it grows. Once you have done that, you need to know what it is related to because then you can see the change in evolutionary time between a species and its relatives."

He has described several dozen species in the last few years, including using DNA sequencing to provide an evolutionary framework around which to fit all these species in.

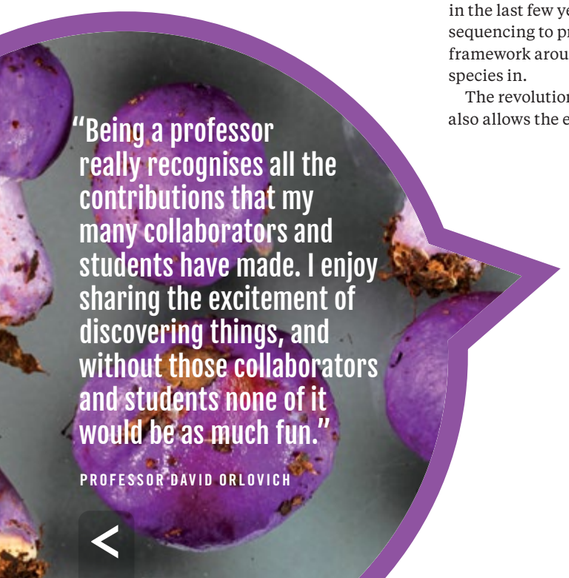
The revolution in sequencing technology also allows the extraction of environmental DNA from soil samples, so if a new mushroom is discovered in Dunedin, its DNA can be used to identify other locations where it has been found.

Orlovich has Marsden Fund support to investigate why so many native fungi have evolved to look like truffles, and to identify the commonly mutated genes involved.

"It is thought our ground dwelling bird species are attracted to the bright colours. When the bird eats the fungus, the spores get trapped in their poo and instead of being blown around to mate with other spores, they end up being more likely to mate with themselves, causing inbreeding."

Orlovich has more than 60 journal articles and book chapters to his name and has supervised or co-supervised 63 postgraduate students to date, but it is the teaching side of his work that gives him the most enjoyment.

"I like inspiring excitement and that sense of discovery with the students. But the fact I'm going to teach something makes me want to be an expert in it, so that drives my passion for research."



Watch his IPL >>

Exploring the fungal underworld

FUNDERS:

Marsden Fund • Australia and Pacific Science Foundation
US Department of Energy Joint Genome Institute

A CAREER OF FIRSTS

Professor Anna Ranta is the first female in the field of adult neurology in New Zealand to be promoted to professor.

It is the latest in a series of ‘firsts’ in her career.

She was also the first female clinical director in medicine at the Capital and Coast District Health Board (now Te Whatu Ora), the first female physician promoted to professor in the Department of Medicine at the University of Otago, Wellington, and the department’s first appointed female Head of Department.

As a medical student in the United States, she was told surgery was not an appropriate career choice for a woman.

Neurology has turned out to be a fine ‘second choice’.

Ranta grew up in Germany before moving with her family to the United States when she was 16. After her specialist training, she worked in private practice, before moving to Palmerston North with husband John and children Syrah and Daphne in 2007 to take up the role of consultant neurologist at the hospital.

When they needed a stroke lead, she put her hand up. It was a defining moment in her career.

She has gone on to transform stroke care in New Zealand, developing an early AI tool to help general practitioners (GPs) triage patients experiencing a mini stroke, setting up a national stroke register and developing a ‘telestroke’ system to bring specialist neurologist expertise to provincial hospitals.

Her GP tool, the ‘pocket neurologist’, was developed in 2008 in response to her concerns that patients with mini strokes or transient ischaemic attacks (TIAs) were not being diagnosed or referred for specialist care appropriately.

"[Being professor] means people take me a bit more seriously, which makes things more efficient for me. Not so much time needs to be taken to convince people that I have some idea of what I am talking about."

PROFESSOR ANNA RANTA

"TIAs are a really important sign of early stroke recurrence so we want to intervene very quickly to avoid that patient coming back with a big stroke. It's a great opportunity for prevention," she explains.

The development of the TIA electronic decision support tool led to her first Health Research Council (HRC) funded research project, to evaluate its use by GPs. The tool was shown to significantly improve GPs' adherence to best practice guidelines and reduce 90-day vascular event recurrence, prompting the Ministry of Health to fund its roll-out nationally.

Ranta then turned her attention to New Zealand's low rate of thrombolysis, the use of intravenous medication to unblock blood vessels and restore blood supply to the brain after a stroke. In 2009, only three per cent of stroke patients were offered the treatment, which must be supervised by an expert and generally performed within 4.5 hours of symptom onset to avoid irreversible brain damage.

Developing an evidence base through the national stroke register was game-changing, providing data on stroke patients' access to best practice therapy, as well as on outcomes and complication rates. She is proud that the national thrombolysis rate has steadily increased and now stands at 12 per cent.

It became clear, though, that urban patients were more likely to be offered treatment than those in provincial areas, so Ranta pursued the concept of a 'telestroke' network where specialist neurologists in urban centres would provide after-hours expertise to other parts of the country.

The idea progressed to a pilot after Ranta moved to take up a new role in Wellington and the then Capital and Coast District Health Board Neurology Department agreed to take the lead on the project. Wellington neurologists now provide an on-call service for hospitals in the lower and central North Island up to Gisborne and Taranaki, as well as in Nelson and Blenheim.

"It has made a significant impact on New Zealanders' access to thrombolysis and other stroke reperfusion therapies," she says. "By 2021 almost the whole country was covered by some sort of telestroke support system."

While telemedicine and web-based diagnostic tools, such as Health Pathways, are now commonplace, her use of technology to improve service delivery was well ahead of its time.

It is backed by a commitment to research, with her REGIONS Care (Reducing Ethnic and Geographic Inequities in New Zealand Stroke Care) HRC-funded project gathering evidence on stroke outcomes for patients in non-urban and urban centres, and by ethnicity. The study's main finding, that rural Māori have worse outcomes following a stroke, has doubled her passion for reducing ethnic and geographic inequities.

What she is most proud of, though, is getting people from diverse backgrounds, different clinical groups, different geographic areas, different specialties and different ethnicities working together to improve outcomes.

"Working as part of a diverse team always leads to the best outcomes and nothing I have contributed has occurred in isolation – every initiative had a great team behind it."

Becoming a professor, she says, has given her a sense of validation and the confidence to cast her net outside New Zealand, beyond international research collaborations, to help develop acute stroke services in Pacific Island nations Fiji and Samoa – where they refer to her respectfully as 'Prof Anna'.

Watch her IPL >>

Do different folks have different strokes?

FUNDERS:

Health Research Council • Ministry of Health/Te Whatu Ora • Neurological Foundation

A CAREER THAT COUNTS

An early obsession with stars had Professor Robin Turner pinning her hopes on becoming an astronaut or astronomer. But somewhere along the physics/astronomy/maths-laden way, she accidentally became a biostatistician.

"It all happened in a random way," says Turner of her academic journey. "I could have graduated as an astronomer or a physicist. I did a medical physics project that became a PhD in statistics and that's how I ended up in health-related research."

After graduating from the University of Canterbury, Turner cut her biostatistical teeth across the ditch in a training programme in Sydney, Australia. She then spent six years at the University of Sydney in the School of Public Health's Screening and Test Evaluation Programme. This was followed by a stint at the University of New South Wales as a biostatistician and, later, as a senior lecturer in Epidemiology.

After 12 years in Australia, she and husband Jason packed up their cats, Harley-Davidson motorbikes and her beloved bagpipes and returned to New Zealand (Turner is a serious piper, by the way: she included no less than 16 bagpipe-related photos in her Inaugural Professorial Lecture). She had spotted a compelling position at the University of Otago as Director of Biostatistics.

"I said 'there's no way I'm moving to Dunedin – it's way too cold'. But I put aside my fear of freezing to death and applied and got the job."

Since taking up the role in 2017, she has grown the unit into an independent Centre in the Division of Health Sciences and raised the profile of a little-understood discipline.

Turner says people are often perplexed about the role of the biostatistician. Even her parents are somewhat mystified about what she does.

"It's not just about numbers – it's much bigger than that. We're the quantitative methodological experts, so we use statistics to answer health-related research questions. We have to know how far to push a method, whether we can trust the answer, what to do if we can't, and what things to check."

She says there is a fair amount of detective work, problem solving and even a spot of creativity: "The creative part is figuring out how to answer a question with complicated, messy, real-world data."

Turner's career ladder is more horizontally lavish than vertiginous.

"Our CVs look different to those of other academics – it's about breadth of work."

While her involvement in research with real-world impact has been gratifying – such as projects involving melanoma diagnostics, breast cancer research and understanding influenza and other respiratory diseases – it is the collegial nature of her work that she most prizes.

Ask her how it felt to be made professor in 2021, and she will divert the conversation to the achievements of her colleagues.

"One of my proudest moments was when everyone on my team got promoted. I'd encouraged them all to apply for promotion and I think I was happier than they were – I actually jumped up and down!"

Watch her IPL >>

Approaching significance

"Being a professor has given me a greater platform to advocate for biostatistics as a foundation discipline for health sciences research and I hope it inspires other people (particularly women) to keep applying for promotion as soon as they are ready."

PROFESSOR ROBIN TURNER

FUNDERS:

Health Research Council

STEADYING THE VA'A

Professor Rose Richards wants to leave behind a "quiet legacy" that is measured by the number of people she has supported as well as her behind-the-scenes contributions to the world of academia.

Richards has dedicated her career to promoting and advocating for the thriving wellbeing of Pacific peoples.

Across her positions she has advocated for a diverse Pacific-led research workforce, a health workforce that meets the needs of Pacific communities and a tertiary health curriculum that empowers and celebrates Pacific knowledge.

Richards was initially drawn to research – collaborating on projects in cancer prevention, physical activity, sleep and Pacific health.

She now serves in the leadership space as Deputy Director of the Va'a o Tautai – Centre for Pacific Health and Co-Director of the Coastal Peoples Southern Skies – National Centre for Research Excellence.

"These are spaces to really imagine new realities and build new worlds; to see how great research that genuinely includes our communities as partners and genuinely prioritises Māori and Pacific capacity-building can be," Richards says.

Feeling she was different from many of the academic leaders she looked up to, Richards says in her early career she had to carefully consider what she could offer as a leader.

"I had this model in my head of being a rock in the stream," she says. "I'm not a dynamic, trail-blazing kind of person, but what I am very good at is endurance and holding fast at times of uncertainty.

"Even as a single rock in the stream, you're changing the direction of the current. And if you happen to be lucky enough to find other rocks who will come and sit beside you, downstream you create a different space, a bigger space, a space that is not going so fast, but where other types of things can thrive."

Richards says she has been lucky to find other "rocks" who share her passion for advocacy and capacity-building.

"I have people here that I rely on for support and advice on what needs to happen next, and we're linked together in this purpose of wanting great things for our communities and our families."

Richards came to Otago as a student at 17 years old. Now, 30 years later, she acknowledges it as one of her villages; an environment that shaped her professionally and personally.

"I came here when I was technically a kid and have stayed under its roof for 30 years. It was in this village that I learned a whole lot about how to be in the world and what has value in the world."

Richards met her husband in their second year at Otago, and they welcomed two daughters while she completed her doctorate.

She has recently had the opportunity to do research alongside her daughter, who is in her second year of study at the University.

While Richards is proud of the strides made by the University to better support Pacific, she says that there are still many frontiers where Pacific perspectives and innovations are needed, and for this reason her research interests cover "a whole lot of everything".

"What I do now is more about support. It's about holding things steady and taking care of the stuff in the backroom so our next generation of researchers can really go for gold."

Richards says her overarching aim as a professor is to be a "safe pair of hands" that can be trusted to do the right thing. She hopes to quietly be the right person, with the right skills, at the right time for those around her.

IPL will be available here:

FUNDERS:

Coastal Peoples Southern Skies National Centre for Research Excellence • Health Research Council Better Start National Science Challenge • Cancer Society of New Zealand

DARING AND GRATITUDE

Faumuina Professor Fa'afetai (Tai) Sopoaga's peril-pocked story has more tragedy and triumph than one life ought to have girth for. The girl who left Samoa at the age of 16 to pursue higher education in New Zealand eventually became the first female medical doctor of Pacific descent in Australasia to be made professor (2020). But not before she'd faced several mammoth curveballs.

When Sopoaga arrived here in 1984, she was a hope-filled, independence-ready teenager. She was granted a scholarship from the Government of Samoa to study medicine with the expectation she would return to serve her country. She completed her last year of secondary school at Timaru Girls' High School before heading to Dunedin for the holy grail: Medical School.

But during that first year at Otago, her life was upended by the sudden onset of a debilitating illness: lupus. "I was devastated. This was my only chance for higher education because my parents couldn't afford to send me away. The stakes were high for me. I *had* to succeed."

That determination proved no match for lupus though (the word is Latin for 'wolf' for good reason). "I could not continue my studies and became deeply depressed. I just shut down, didn't speak, and lost the ability to see colour – I could only see black and white. My precious mum came to take me home, bless her heart."

Sopoaga says it was through prayers and the care of her parents (both church ministers), family and community, that she began to mend. "I looked out the window one day and saw a red hibiscus. I could see colour again – and knew I was healing." She recovered enough to reapply for Medical School and was told she'd need to pace herself. "It was very difficult. I had surgeries along the way. I was continually tired."

It was not just low energy levels that tested her mettle. In fifth-year medicine, she was taken to task by a bullish consultant during a seminar. "I felt humiliated. I went home and cried for five days and decided not

to sit my final exams because I didn't want to be in a profession that wasn't caring of its people."

With encouragement, she sat and passed those exams and used the experience to inform her own approach to teaching. "I thought to myself, 'gosh, there must be a better way to teach medical students rather than just scaring them'." (Sopoaga's way *was* better: she went on to win the Prime Minister's Supreme Award for tertiary teaching excellence in 2018.)

After graduating, Sopoaga worked as a junior doctor in Samoa for two years before returning to Otago for postgraduate training. That is when she received the next body blow: "I was told I had two necrotic hips, lupus nephritis, and my liver functions were concerning. My rheumatologist said, 'you're as sick as a dog – you have to get off the ward'. If I wanted to live long I'd need to stay in New Zealand and look for ways to give back to Samoa. Additionally, I'd have to train in areas my health could support – psychiatry, radiology or public health."

Sopoaga chose the latter and began her stint at the Department of Preventive and Social Medicine in the 1990s. She thrived under the mentorship of Emeritus Professor Charlotte Paul and the leadership of Emeritus Professor Sir David Skegg. She missed patient contact though, so undertook GP training. The mix suited her well: "Public Health has a population approach and general practice keeps your feet grounded."

Those feet were soon un-grounded by yet another health wallop: she was diagnosed with breast cancer and required to step back from clinical work to undergo treatment. By this stage, she was well used to the art of pivoting: "I've learned over the years that in God there is a purpose – that if one door closes, another opens. As [Pastor] Chuck Swindoll said, 'We are surrounded by a series of great opportunities brilliantly disguised as impossible situations.'"

In 2009, a new door opened: Sopoaga was appointed Inaugural Associate Dean of Pacific in Health Sciences. She led the incorporation of Pacific health into the medical curriculum, including the immersion programme (where medical students increase their cultural understanding through immersion within Pacific families). She advocated for additional senior Pacific leadership roles across Health Sciences and advanced her research interests in Pacific health workforce capacity-building and transition to higher education.

Now Director of the Va'a o Tautai, Centre for Pacific Health, Sopoaga has been able to extend tangible help to other Pacific countries, especially Samoa. She assisted the development of its medical school, led the mobilisation of Samoa Doctors Worldwide Volunteers in relief efforts for the 2019/2020 measles epidemic, served as New Zealand's Ministry of Foreign Affairs and Trade Health Advisor in Samoa during COVID-19 (for two years), and is now Health Advisor to the Samoa Ministry of Health. Her efforts have not gone unnoticed there: her family conferred on her the high chief title 'Faumuina' from her village of Fagaloa.

Sopoaga received another gong in 2022: she was appointed a Companion of the New Zealand Order of Merit for services to Pacific health and tertiary education. But she is less interested in chatting about that than on pondering her next contribution.

"I see my role now as investing in the next generation, growing the Pacific health workforce. It's lovely to look up and see the faces of all these students who are going to be the future doctors. To serve is a privilege. Leadership is about serving. It's about caring."

Sopoaga's Inaugural Professorial Lecture was titled, 'Dare to be wise. Dare to succeed. Dare to care. Pacific aspirations in Aotearoa'. When asked if a sense of daring has been the defining quality of her journey, she says, "Yes. I had to dare to leave my cocoon in Samoa. Then, when I got knocked back and failed, I dared to come back and try again. When I got breast cancer, I dared to believe that I could still serve."

Tai's full Christian name is Fa'afetai. In Samoan, that means 'thank you'. It's a fitting name for someone whose career has been marked by unwavering service and gratitude.

Watch her IPL >>

Dare to be wise. Dare to succeed. Dare to care. Pacific aspirations in Aotearoa

FUNDERS:

Ministry of Health • Health Research Council

CURING HEPATITIS C

Being directly involved in the elimination of a deadly disease is an elusive dream for many who dedicate their careers to medical research. Yet for newly minted professor Catherine Stedman, that dream is a reality.

Stedman, of the University of Otago, Christchurch, was at the forefront of the multinational research team (alongside pioneering University of Auckland professor Ed Gane) that in 2013 published the first successful, international clinical trial showing hepatitis C can be cured with a short course of oral antiviral medication.

"There are very few things in medicine that we can completely cure, but we've now proven that we can cure this insidious, fatal liver disease for 95 per cent of all patients, which is incredibly life-changing," Stedman says. "It has been so rewarding on a personal level. You see patients and think, well, if we hadn't got you into one of our anti-viral drug trials seven to eight years ago you likely would not be here today. The impact of viral cure is transformative, giving their lives hope again."

Stedman graduated from the University of Otago with her medical degree in 1992, working in Wellington for four years before being accepted into two specialist training programmes – gastroenterology and clinical pharmacology. The first of her and husband Phil's three children, William, was born during this time, with the younger two, Luke and Isabelle, born during a five-year Fellowship stint in Sydney, where she completed her PhD.

"When I started out there were literally a couple of female consultants at the hospital with children. My decision to step back from the demanding hours of clinical work and focus instead on research when the children were young was what helped make it all work. I had greater flexibility, wasn't on call, and was able to finish off my work at night when the kids were in bed."

The family moved back to Christchurch in 2005 when Stedman was offered a dual consultant hepatologist and research role.

"By then focused on liver research, I asked myself 'where is the unmet need?' There was a two-year patient wait list just to be seen for hepatitis C. The drug interferon was the then-standard treatment for hepatitis C, but it was toxic and no solution."

Professor Gane first approached her in 2009, seeking a partnership between the University of Auckland and the University of Otago, Christchurch, to collaborate on a potential hepatitis C cure.

"We launched two pivotal trials, one a proof-of-concept study with Australian researchers to test if combining two antiviral drugs would fully suppress hepatitis C without antiviral resistance."

The team was working on their second major anti-viral patient study – where they proved for the first time that hepatitis C could be cured without interferon – when the Christchurch earthquakes struck.

"People couldn't get into the central city, power and water were cut, and we had to fly trial patients to Auckland to secure their drug supply. One walked miles, wearing no shoes, just to see us, having lost their home and belongings. That patient commitment and adherence to the trial played a big part in its ground-breaking success."

Drug company Gilead was involved in multiple further trials to identify dosage and optimal drug combinations before the new antiviral therapy was announced as international best practice treatment in 2013.

Pharmac funded hepatitis C oral antivirals from 2016, making a cure within reach for the 1,000 New Zealanders who contract the often-hidden virus each year.

"The World Health Organization now has a goal of global hepatitis C elimination by 2030. It's so incredibly gratifying to have helped get things to this point."

Stedman is now focusing on autoimmune liver disease research, alongside tracking the successes of 23-year-old William (who was born with mild cerebral palsy) as a multi medal-winning Paralympic 400m and long jump athlete.

Watch her IPL >>

Hepatitis C and liver disease: The journey to cure and eliminate

ENHANCING REALITY

Professor Tobias Langlotz seeks augmented reality solutions to real world problems.

Professor Tobias Langlotz spent his early years in the former East Germany and then studied in Germany and Austria, completing a PhD in Computer Science at Graz University of Technology in Austria.

In 2014, he and his partner emigrated to Dunedin, where both joined the staff at Otago.

Langlotz specialises in human-computer interaction, specifically augmented reality – which enhances your view of the real world. He co-leads the Human-Computer Interaction Group at Otago.

One of Langlotz's current research projects explores how augmented reality can be incorporated into glasses that use computer-controlled optics to compensate for visual impairments.

Langlotz cites the example of people who suffer from colour blindness being better able to distinguish colours than they can through the current practice of wearing special glasses.

"Many people are identified as colour vision deficient, but they are wildly different," Langlotz says. "So, we have been exploring the idea of computational glasses that use the same technology but can be easily adapted for each person and their individual needs."

Langlotz is also looking into the use of these computational glasses to enhance human perception.

"We are working on aiding the unimpaired by giving them super-human vision. So, for example, giving people eagle-eye vision or X-ray vision. There are lots of applications for computational glasses."

Langlotz is further interested in using augmented reality so that people are able to share their environment with remote users, particularly in tourism. He says this would enable people to experience a place they would be unable to visit in person, for example, because of distance or physical handicaps or the fragile nature of the destination.

This is way beyond someone live-streaming their visit to a place, and instead gives people the feeling of being there and interacting with the place and with other vicarious visitors.

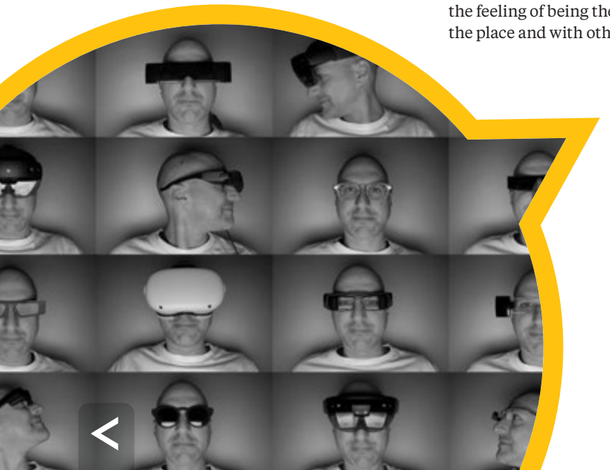
"I always wanted to have it that my Grandma in Germany, who was too old to sit in a plane, could still explore New Zealand with me and have the feeling she was with me."

Langlotz says similar technology can be used to enhance the experience when actually visiting the places, by revealing details that are long gone or cannot be accessed.

Back in Europe, Langlotz's research using augmented reality to project images onto irregular surfaces led to patents being granted and the techniques commercialised through a German company, Vioso; while his research on augmented reality on mobile phones has been patented and commercialised by a United States multinational corporation, Qualcomm.

Langlotz is active in the international human-computer interaction research community. This includes co-organising the world's largest conferences on virtual and augmented reality, held virtually in Christchurch last year, and both virtually and in person in Shanghai this year.

Promoted to Professor of Human-Computer Interaction and Visual Computing last year, Langlotz says a colleague jokingly told him he is now officially old, but he sees it as recognition of his primary goal: to make good work.



IPL will be available here:

FUNDERS:

Marsden Fund
Science for Technological Innovation National Science Challenge

"Much of today's research is a team effort and every person involved plays a crucial role. As such, becoming a professor also means acknowledging their contribution to this journey, as I could not have done it without the team around me and it would also be less fun."

PROFESSOR TOBIAS LANGLOTZ

A QUEST FOR HAPPINESS

Some people spend their lives searching for happiness. Newly promoted psychology professor Tamlin Conner has made a career from it.

Conner's work examines "modifiable lifestyle habits than improve or impede wellbeing" or, in other words, the small, manageable things humans can do to make them happy and healthy.

Her research spans the science of wellbeing and includes large-scale multidisciplinary studies of the psychological, nutritional and biological predictors of wellbeing, and interventions to improve wellbeing through psychological and lifestyle changes.

While much of psychology is concerned with the "abnormal", Conner is interested in "normal" behaviour. Rather than focusing negative emotions – depression, anxiety, etc – she wanted to focus on positive emotions – happiness and wellbeing.

"Clinical psychology is about ameliorating the negative. But I wanted to explore promoting the positive. Just because you are free from depression, doesn't mean you are happy."

In some ways her findings are common sense – eating more fruit and vegetables, exercising, getting plenty of sleep, going out into nature, engaging in something creative – all increase wellbeing. What is surprising is how much of a measurable difference they make.

In one study, in which Conner collaborated with Otago Human Nutrition researchers, participants self-reported how many serves of fruit and vegetables they ate each day. Those eating more serves reported feeling happier, calmer and more energetic than those who were eating fewer serves and, vitally, eating more fruit and vegetables predicted improvements in happiness the next day and not the other way around.

"Being promoted to professor is the culmination of a lifelong journey. I'm deeply aware of the privilege and responsibility that come with being a part of the professoriate. I anticipate a shift in my priorities – towards giving back to others and engaging in meaningful work with wider societal impact."

PROFESSOR TAMLIN CONNER

Another study went further – showing a causal link between fruit intake and happiness. Collaborating with Professor Margreet Vissers of the University's Christchurch-based Centre for Free Radical Research, the team recruited participants low in vitamin C and asked them to take a placebo tablet, a vitamin C tablet, or eat two kiwifruit daily for four weeks. While both the vitamin C and kiwifruit groups showed an increase in vitamin C levels, only those eating the actual fruit reported an increase in their "zest for life".

Conner's interest in people was evident even when she was a child growing up in Southern California.

"I have been interested, my whole life, in how other people live their lives – what they do, what makes them tick, and what motivates and engages them. Even growing up, I was a keen observer of people. I loved people watching. I didn't know I would turn that into a career."

Her first choice, in turning a fascination with people into a career, was journalism. But she quickly discovered she didn't like the pressured, short-term timescales of journalism and switched her major to another subject focused on people: psychology.

"It was a better fit."

Conner completed her undergraduate degree at the University of Colorado at Boulder and went on to complete her PhD at Boston College with Professor Lisa Feldman Barrett.

Under the supervision of Professor Barrett and using what was modern technology at the time – personal digital assistants – she compared how people remembered their emotions versus how they actually experienced their emotions as reported on the digital assistants in their daily lives.

Her timing was right on two fronts. Firstly, the burgeoning new field of wellbeing. Globally people were becoming more and more interested in happiness and wellbeing; indeed good health and wellbeing is now ranked third in the United Nations Sustainable Development Goals. Secondly, the growth in technology that allows researchers to measure people's feelings, experiences and behaviours in the moment of their everyday lives.

While personal digital assistants were the height of modern technology when Conner conducted her early studies, now, of course, she and her fellow researchers use apps and messages sent directly to people's smartphones. She has made this field her own, co-editing the *Handbook of Research Methods for Studying Daily Life*.

Conner arrived at Otago in 2008 and opened her own lab – the Daily Experiences Lab. Since then, she has collaborated with many others and has become a global expert in the behaviours that impact wellbeing.

Alongside her work on fruit and vegetables, she has examined the role of sleep, exercise and creativity. During the COVID-19 lockdowns, her work on creativity (which showed that engaging in a creative task predicted increased feelings of happiness for the next few days) was cited as evidence that baking would help people feel better. She has also worked in special populations – such as those living with chronic pain or food allergies.

Conner is an exceptional researcher and teacher. She won the Division of Sciences Outstanding Teacher award in 2022 and the Otago University Students' Association Supervisor of the Year award in 2017. Her work is supported by high profile grants.

Her promotion to professor is the achievement of a lifelong goal. It is also an added responsibility – and she aims to give back to the field over the next few decades.

And is she happy?

"Sometimes. I probably work too much to have a balanced life. But that will come with time."

Does she do all of the things she has researched which help with happiness?

"Not all the things, but I do I eat well and I exercise."

Watch her IPL >>

Pathways to wellbeing

FUNDERS:

Health Research Council • Marsden Fund • Lottery Health • Zespri • Beef+Lamb New Zealand • University of Otago Research Grant

EQUITY AND INNOVATION

A love of sport and a desire to understand how the body worked has led Professor Louise Parr-Brownlie (Ngāti Maniapoto me Te Arawa) to pursue an academic career that has taken her to the forefront of Parkinson's disease treatment research.

"No one in my family had attended university," Parr-Brownlie says. "Otago had always appealed but, ultimately, I came here because it was the only place in the country where I could do a Bachelor of Physical Education."

Her knowledge of kinesiology, along with physiology, proved ideal for a teaching role in the Department of Physiology, but her interest in Parkinson's came later when she began looking into options for her PhD.

"I had been doing research in motor control – how the brain controls movement. That interest transferred to wanting to understand what is altered in the brain when someone lives with a movement deficit and finding novel ways to treat that."

Parkinson's disease is the result of a tiny group of dopamine cells dying off in the mid-brain, altering the way information is processed through motor pathways, causing what Parr-Brownlie calls a network disorder.

"Ultimately, activity is altered in the area of the brain – the motor cortex – that controls sending information down the spinal cord to muscles."

Parr-Brownlie's postdoctoral research took her to the National Institute of Neurological Disorders and Stroke, part of the National Institutes of Health in the United States.

After returning to New Zealand she explored using optogenetics stimulation, which uses flashes of light to control cell activity and reduce symptoms, creating a device that is now available commercially.

However, stimulation treatments are invasive and can only be offered to a limited number of people, creating an inequity for Māori and older people.

Parr-Brownlie switched her focus to the inflammatory response, which underlies many neurological and neurodegenerative disorders, and exploring the link between the brain and the gut.

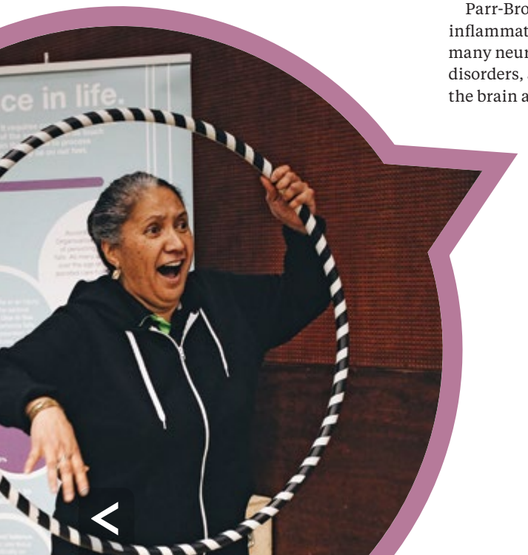
A pair of New Zealand studies have already shown a ketogenic diet can significantly reduce the symptoms of Parkinson's and Alzheimer's diseases, but Parr-Brownlie acknowledges how difficult it is to adhere to diets.

"We know the ketogenic diet brings changes in brain chemicals, but instead of putting people on a diet, what if we administer those chemicals?

"We're seeing promising results with the first chemical we've tried, but I think we'll find that there is a combination of two or three that will give us the best outcome."

Parr-Brownlie has recently stepped down from her leadership position with the Ageing Well National Science Challenge, to take up a new role with the Ministry of Business, Innovation and Employment (MBIE) as a Departmental Science Advisor.

She is looking forward to the MBIE role and applying her knowledge and experience, using both Western science and mātauranga Māori, towards redeveloping the science sector as part of the current Te Ara Paerangi – Future Pathways science system reforms.



Watch her IPL >>

Weaving equity and innovation into Parkinson's research

FUNDERS:

Health Research Council • National Heart Foundation
Japan Society for the Promotion of Science • University of Otago

"Integral to my success is my whānau, friends and the communities that I serve. I was excited to share and celebrate the news of my promotion with them, and wish to wholeheartedly thank them for their support throughout my career."

PROFESSOR LOUISE PARR-BROWNLIE

INSPIRED BY HOPE

Professor Karen Nairn's long and distinguished career in academia includes describing and discussing a range of socio, cultural and political intersections. Or, in other words, attempting to frame that which is not-quite-black-and-white.

Nairn's career journey ranges from high school classrooms to university lecture theatres, and to smaller forums where she has guided and challenged many postgraduate students.

"When I was young, I wanted to be a detective. But I think research is detective work in a way. You are seeking answers to questions," Nairn, the Associate Dean Research at Otago's College of Education, says.

"It's really nice to be in a supporting role for the Dean, but also focused on research. I love teaching and I love research, and having an academic career has given me both."

A "late-starter" to academia, Nairn left her job as Head of Geography at a Christchurch secondary school in the 1990s. At 30, and with two young children, she "took the plunge". A Master's, Doctorate and, more recently, Professorship are proof the move was less about risk, more about hard work.

"I came from a background where even going to university wasn't on the agenda. I've been here at Otago for 20 years, and I've gone to professorial lectures and thought, 'wouldn't it be amazing if that happens to me?'. And now I'm a professor. I'm so delighted."

Nairn's considerable research output includes two Marden-funded projects, both youth-focused and both in book form.

The most recent, *Fierce Hope: Youth Activism in Aotearoa*, is the result of several years of research. Co-authored by Judith Sligo, Carisa R. Showden, Kyle R. Matthews and Joanna Kidman, it includes more than 140 interviews with members of six prominent, influential groups: Generation Zero, JustSpeak, Protect Ihumātao, InsideOUT Kōaro, Thursdays in Black and ActionStation.

The topics are as varied as they are pressing: climate change, gender rights, sexual violence, decolonisation and prison reform.

"All six groups recorded significant achievements during the time that we worked with them. Many of the young people we worked with are leaders. Already, a number of them are involved in policy and community planning.

"It was the most inspiring piece of work I've ever engaged in as a researcher."

Fierce Hope expands on the Marden-funded 2013 publication, *Children of Rogernomics: A neoliberal generation leaves school*, a collaboration with Judith Sligo and Jane Higgins.

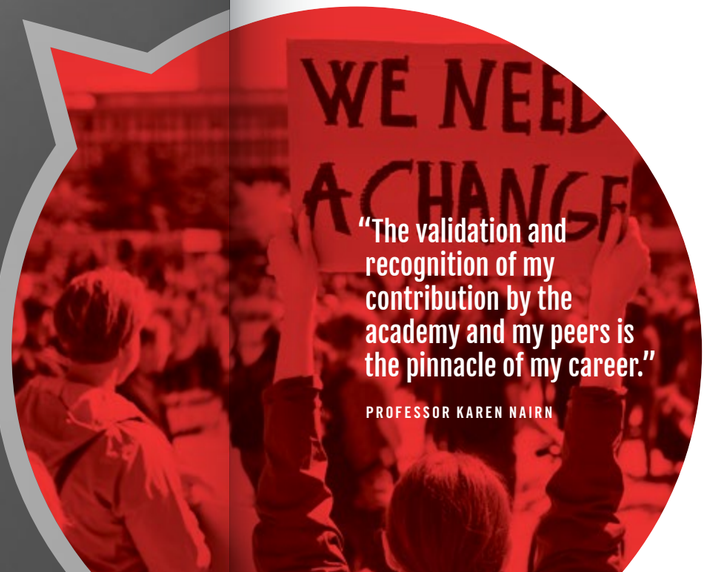
She is also leading another significant ongoing project, focused on young women in leadership.

"It's aimed at young women who might sit outside the standard perceptions of leadership, who might not see themselves as fitting the stereotype of the extrovert leader," Nairn says.

"My research has always been about Aotearoa. Although I'm certainly interested in what's happening in the rest of the world, I care passionately about this country."

Watch her IPL >>

Fierce hope and research with young people



"The validation and recognition of my contribution by the academy and my peers is the pinnacle of my career."

PROFESSOR KAREN NAIRN

FUNDERS:

Marsden Fund

CANCER CROSSROADS

Professor Chris Jackson has committed his working life to achieving better and fairer cancer care.

Jackson grew up in Oamaru, studied medicine at Otago and worked in the public hospitals in Wellington, Kenepuru, Hutt and Dunedin.

Drawn to oncology by the close relationship between doctor and patient, he worked at the Royal Marsden in London, the first hospital in the world dedicated to the study and treatment of cancer.

The medical oncologist says he could draw any number of graphs or pie charts to display why cancer matters, but a simple show of hands at any gathering – of people whose lives have been touched by cancer – is the best demonstration.

Back in Dunedin, Jackson has worked at what he describes as "the crossroads of cancer care": clinical work with patients, research and clinical trials, teaching medical and other students, policy advice and implementation and advocacy.

Jackson's clinical work has mostly specialised in treating patients with advanced gut and skin cancers. In addition to seeing patients at Dunedin Hospital, he also works at Mercy Cancer Care, which he co-founded in 2011.

Jackson splits his time between his clinical work, University research and teaching.

His research initially involved clinical trials with new drugs, but has expanded to embrace cancer policy research and advocacy.

"I wanted to help the patients I saw in clinic every day who were having such a terrible time with negative experiences that were preventable, and to do that you had to get involved in changing the health system."

"What I learned was that generating knowledge is not enough. You also needed the humanity of doctors and patients working together to share the stories with the public of what was going on."

PROFESSOR CHRIS JACKSON

He says these fixable experiences included delayed diagnoses, slow pathways through the health system and the so-called “post-code lottery” of cancer care – the starkness of which Jackson’s research on bowel cancer had helped demonstrate.

This arose from the largest and most detailed study of bowel cancer treatment and management in New Zealand: a five-year examination of inequities in bowel cancer outcomes. It resulted in an extensive report and recommendations on how to improve bowel cancer services. To his dismay, nothing happened.

“What I learned was that generating knowledge is not enough,” Jackson says. “You also needed the humanity of doctors and patients working together to share stories with the public of what was going on.”

Jackson pursued this approach both as a cancer policy researcher and in his additional role as the outspoken Medical Director of the Cancer Society of New Zealand from 2015 to 2021.

One high-profile campaign arose from Jackson’s involvement in an international collaboration, which revealed that New Zealand’s cancer outcomes were worse than comparable countries.

Jackson, fellow Otago academic (and the recently appointed Director General of Health) Dr Diana Sarfati, and one of Jackson’s cancer patients Blair Vining played prominent roles in the subsequent national debate on cancer care. (Vining had personified the Kafkaesque nature of waiting lists for terminally ill people when he was told he had about eight weeks to live and there was a 12-week wait to see a specialist.)

The advocacy in turn led to a national cancer conference, new national cancer plan and the inception of the Cancer Control Agency, Te Aho o te Kahu, headed initially by Sarfati and with ongoing involvement from Jackson.

Similarly, frustrated at breakthrough and potentially life-changing cancer treatments going unfunded by Pharmac, Jackson worked with other advocates to have lifesaving Keytruda and other cancer drugs funded by the Government’s drug buying agency. Jackson says the Keytruda funding alone is saving about 100 lives a year.

Jackson is meanwhile co-developing a novel oral chemotherapy drug that might one day be available not just through Pharmac but throughout the world. The drug would enable patients to have chemotherapy treatment in pill form at home rather than having to go to hospital for intravenous chemotherapy treatment.

Promoted to Professor of Oncology last year, Jackson says: “The title shows that your peers consider that the integrity of your work warrants that recognition. And I want to use the role of professor to speak even louder, to describe the problems even more, and to make even greater change.”

Watch his IPL >>

At the crossroads of cancer care

FUNDERS:

Health Research Council • Cancer Society NZ • Healthier Lives – National Science Challenge
Otago Medical Research Foundation • Maurice Wilkins Centre

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"The pathway to professor hasn't been easy, with individual and collective struggles, so it is nice to be recognised by the University and my peers for the work we have done and the contributions we have been able to make."

PROFESSOR EMMA WYETH

COMMITTED TO MĀORI HEATH

Emma Wyeth's pathway to becoming a full professor has run parallel to her career-long drive for better Māori health in New Zealand.

Wyeth (Kāi Tahu, Te Ātiawa, Ngāti Tama, Ngāti Mutunga) is Director of Te Roopū Rakahau Hauora Māori o Kāi Tahu, the University's Ngāi Tahu Māori Health Research Unit and Associate Dean Māori (Health Sciences).

Her primary aim over the past two decades has been to better understand and improve Māori health outcomes and equity.

She has a steadfast commitment to contributing towards developing a society where Māori individuals, whānau and communities have better health access, services, experiences and outcomes.

Wyeth was passionate about science at school, but it was only when she began studying at Otago that she realised there were educational pathways she could follow that might enable her to make a positive difference to Māori communities.

"Māori health was not available as a major then, but I was able to draw on my upbringing, experiences and commitment to Māori health in my studies. My PhD provided an opportunity for increased understanding of Māori health inequities, and I was able to further embed my commitment to improving Māori health in my postdoctoral fellowship.

"There are so many systemic and structural inequities in education and Māori health. For Māori health, a collective effort and diversity of expertise from multiple disciplines is required to undo generations of inequities and neglect."

Wyeth and her teams have consistently been awarded contestable research grants, a testament to the importance of their work.

"I'm really pleased that we've been able to accomplish so much for our own communities and society. We have a strong social accountability to our whānau and communities. It's another really important measure of success (or not!), alongside becoming a professor. The two are intertwined, and both are significant highlights in my career.

"The pathway to professor hasn't been easy, with individual and collective struggles, so it is nice to be recognised by the University and my peers for the work we have done and the contributions we have been able to make."

Wyeth is a member of numerous committees and advisory boards both internal and external to the University. She has previously been a longstanding member of the statutory Māori Health Committee of the Health Research Council (HRC), and more recently has been appointed to the Board of the HRC and chair of the Māori Health Committee.

She also sits on Te Tauraki – the Iwi-Māori Partnership Board for the Ngāi Tahu takiwā for the current health reforms – and the WellSouth Primary Health Network Board. She is Deputy Chair of Kāti Huirapa Rūnaka ki Puketeraki and is an Alternate Representative for them on Te Rūnanga o Ngāi Tahu.

IPL will be available here:

FUNDERS:

Health Research Council • Health Quality and Safety Commission and the National Trauma Network Ngā Pae o te Māramatanga: New Zealand's Māori Centre of Research Excellence (CoRE)

ACCIDENTAL BUDDHISM

The field of Buddhist Studies has Professor Ben Schonthal in its corner only by virtue of two accidentally transposed numbers.

The digit muddler was Schonthal himself and at the time of his fortuitous math fail, he was a young student enrolled in pre-med studies at Bowdoin College in Brunswick, Maine.

"In those pre-internet days, students registered for classes by copying enrolment codes on a piece of paper. When it came to my elective, I mixed two numbers up and ended up not in a class on Shakespeare, but a seminar on South Asian religions."

He was sufficiently intrigued to stick with this impromptu path and forgo the Bard. This was mostly due to the teaching flair of the man taking the seminar: John Holt.

"By the second class I was definitely hooked. He was an amazing professor who just lit up my intellectual life."

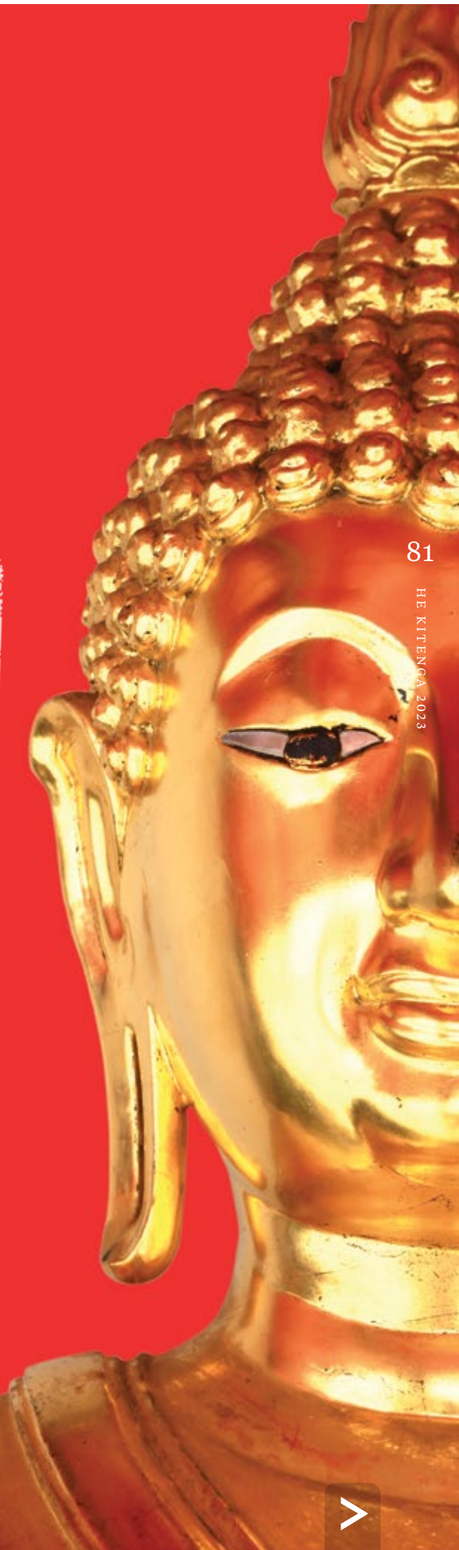
Having grown up in a Jewish family in Chicago, Schonthal had only known a Judeo-Christian world view. Learning about Buddhism shook his assumptions about life to the core.

"It was a totally different way of thinking about one's place in the world. There's an excitement you get from that. I was definitely charged up by it."

Though he kept on with pre-med, Buddhist studies had completely stolen his academic heart.

"I just quietly majored in it. Religion was almost like my little secret."

Its expansive thinking suited Schonthal's native curiosity more than the study of medicine. He found maths and science intellectually constraining: "They demanded a fidelity to received wisdom, whereas religion encouraged and rewarded a kind of questioning that may have been instinctive. (My mom would tell you that I asked a lot of questions when I was young.)"



"Being made a professor at Otago is absolutely the highlight of my professional career. I feel extremely grateful and honoured to be in this position."

PROFESSOR BEN SCHONTHAL

Schonthal went to Sri Lanka in his third year at the suggestion of his professor. That experience galvanised a whole new area of religious enquiry.

"I wondered why certain Buddhist monks – whom I saw as embodiments of peace and otherworldliness – were involved in the civil war and doing things like protesting against peace agreements. It was there that I first began asking the questions that would lead me away from medicine and towards social science: 'how does religion influence politics?' and 'what role does religion play in human conflict?'"

Since then, Schonthal's research has inhabited the intersection between religion, law and politics in Asia.

"Working at the junction of disciplines gives you this great opportunity to ask questions you wouldn't normally ask."

It is this fresh territory that earned him the Early Career Award for Distinction in Research in 2016 and, later, joint winner of the Rowheath Trust Award and Carl Smith Medal in 2021.

Currently Head of the Religion Programme, Schonthal has also contributed to activism and policy-making outside the University by working with those keen to minimise conflicts over religion (lawmakers, lawyers, activists and NGOs).

"It's through this that I found myself leading a double life – half working on religion, half working on law."

Schonthal found the perfect way to merge these double lives in 2021 when he and two colleagues from the Faculty of Law (Associate Professors Anna High and Bridgette Toy-Cronin) formed the Otago Centre for Law and Society. The first of its kind in New Zealand, the Centre seeks to advance a more holistic approach to understanding law – one viewed through the lens of social sciences.

When Schonthal was made professor in 2020, he had been at Otago for less than a decade. (He did have an earlier stint in Dunedin as a 'study abroad' student in 1998 to get marine science credits. This acquainted him with both sea sickness and his future wife Paula. He preferred the latter and spent much time eating two-minute noodles while huddled around a small heater in her squalid flat on George Street.)

Schonthal has won multiple teaching awards over the course of his career.

"I guess I aspire to do something similar to what John Holt did for me. I'm less concerned with whether or not the students will remember the different steps of the Noble Eightfold Path of Buddhism 10 years from now, but I want them to remember the feeling of the intellectual curiosity that was generated at that moment."

He sets the bar high for his own lectures and seminars: "I don't see teaching as just the conveying of information. University education is more than vocational training – it's about giving students the space, the resources and the time to ask the big hard questions and gain critical skills. It's about stimulating the kind of energy that makes them want to do that for themselves. We have to keep asking ourselves: what are we doing in this space that students can't just get from watching YouTube videos?"

Professor Will Sweetman can vouch for his colleague's efforts to dethrone YouTube. He issued a health warning of sorts to the audience at Schonthal's Inaugural Professorial Lecture: "If, during the course of this evening, you feel a sudden and overwhelming urge to change the direction of your life and take up the academic study of religion, please do not be alarmed. This is a very common side effect of listening to Ben's lectures."

Watch his IPL >>

Law's Karma: Cause and effect in courtroom and cosmos

FUNDERS:

Marsden Fund • US National Science Foundation • University of Otago Research Grant • US Institute of Peace • University of Chicago DDRA Fulbright and Javits Fellowship Funds, US Department of Education • Thomas J. Watson Fellowship Fund

"During my career I was employed on 'soft money' (fixed-term contracts) for an unusually long time, and getting a tenured position in the Department of Zoology at Otago (which did not happen until 2013) was my 'dream job'. Being promoted to professor in my dream job means a lot to me."

PROFESSOR CHRISTOPH MATTHAEI

TESTING TROUBLED WATERS

Bringing home a bucket of snails at the age of four may not have pleased his mother greatly, but it was an early sign of Christoph Matthaei's burgeoning fascination with biology and ecology.

"When I started university I was one of those kids who wanted to save the world, or at least the rainforest," explains Matthaei of his early ambition.

At the University of Freiberg, in his native Germany, he developed a passion for freshwater ecology, completing his Master's on a stream restoration project, working with the Bavarian Water Management Authority. This was followed by a PhD at the Swiss Federal Institute of Technology in Zürich.

A serendipitous meeting with ecologist Colin Townsend, who went on to become a Head of Department at Otago, eventually led Matthaei to do postdoctoral studies in Dunedin, before returning to Germany to work at Munich University.

On a later research sabbatical at Otago he met Caroline, whom he would marry, leading to a permanent move here as a research fellow.

In Germany he had been conducting blue sky research on the effects of flood disturbances on the structure of running water communities, but here at Otago he found himself examining land-use effects, particularly around the shift from sheep and beef farming to dairying. Matthaei says the burgeoning field of multiple-stressor research soon offered new opportunities.

"I've always loved doing manipulated experiments and the idea of doing it with several agricultural stressors, and to find out how they interact, was always quite fascinating."

He started out using 50-metre reaches in streams, but this was both a lot of work, and difficult to replicate for statistically robust results. In 2007, he and then research assistant Jay Piggott developed the ExStream System – which offers up to 128 experimental stream channels.

"We have now exported our system to Germany, Ireland, China, Brazil and Japan, and another is being set up at Oxford University."

Matthaei says the system is statistically highly powerful, tightly controlled, and yet surprisingly realistic.

A range of variables can be experimented with, such as nutrient enrichment, decreased water flow, CO_2 levels and temperature. However, Matthaei and his colleagues have found sediment to be what they call the 'master stressor'.

"You mainly get bad effects of nutrient enrichment when they are combined with high fine sediment levels," he says. "Policy makers and resource managers now understand the need to keep fine sediment out of streams."

Matthaei's research focus is now shifting to New Zealand's high pesticide use, which he describes as one of our biggest potential environmental issues.

Initial research looking for seven different pesticides in a set of agricultural streams resulted in scientists finding all of them – in some cases all at one site.

"We need to start regular sampling of our surface waters for pesticides. Many put this in the 'too hard basket', but overseas countries in Europe and even North America are quite a bit ahead in pesticide monitoring."

A keen teacher and supervisor, Matthaei received the OUSA Supervisor of the Year Award in 2011.

Watch his IPL >>

Life in troubled waters

FUNDERS:

National Institute of Water and Atmospheric Research • Ministry of Business, Innovation & Employment Ministry for Primary Industries • University of Otago • Department of Conservation • Otago Innovation German Research Foundation • Swiss National Science Foundation

HEART HERO

Professor Chris Pemberton feels a sense of satisfaction and hope when he passes the entrance to Christchurch Hospital's Emergency Department.

"I can proudly say that work of ours is now cemented in world guidelines for the diagnosis of acute heart failure."

PROFESSOR CHRIS PEMBERTON

Inside, among the dozens waiting to be seen in the country's second-busiest ED, will be people presenting with chest pain and acute heart failure – people he and his colleagues at Otago's renowned Christchurch Heart Institute (CHI) – have spent the past two decades trying to help.

Since the 1990s, emergency doctors worldwide have used a simple blood test to help confirm whether a patient is having a heart attack, gauging levels of a protein known as cardiac troponin. However, the test throws up many false positives, resulting in patients being referred unnecessarily to a cardiologist when not at risk of an imminent heart attack.

"The rapid diagnosis and treatment of people who present with chest pain is one of the biggest concerns hospitals face, especially emergency departments," Pemberton says. "Twenty years ago, patients presenting with chest pain usually had to stay in the ED for six or more hours of monitoring, causing anxiety for the patient, delays in diagnosis and holding up precious bed resource, when only about one-third of them would be diagnosed with a genuine heart problem."

Pemberton and his CHI colleagues saw the variability in troponin levels in the blood of suspected heart attack patients as a problem to be solved, with a focus on rapid blood tests to help improve their diagnosis and management.

He helped establish and leads the Translational Biodiscovery Laboratory (TBL) within the CHI, which performs over 40,000 tests annually from its own inspired projects, international collaborations and commercial partnerships.

"Being a professor means I have the responsibility and obligation to conduct meaningful research and encourage the next generation to achieve to their potential. It's about them."

PROFESSOR CHRIS PEMBERTON

One of four sons (all with PhDs or science degrees), the Christchurch-raised, St Thomas of Canterbury student looked set to follow his father into dentistry, but headed instead to Canterbury University to complete a Bachelor of Science in Animal Physiology followed by a Master's in Neurophysiology at Lincoln University. He then joined the University of Otago, Christchurch, as a PhD candidate – lured by mentors Professors Eric Espiner and Tim Yandle to the emerging field of cardio-endocrinology.

"When I joined what's now the CHI, we were applying the troponin blood protein logic for heart attack diagnosis to the diagnosis of heart failure. It was tricky because it was difficult to pinpoint the primary symptom of patients presenting with acute breathlessness – was it acute heart failure, chronic obstructive pulmonary disease, asthma or an infection from pneumonia?

"We finally discovered that one of the proteins we were measuring, BNP, and its sibling proBNP (which took much longer to clear from the bloodstream than BNP) gave us a clearer diagnostic picture. I can proudly say that work of ours is now cemented in world guidelines for the diagnosis of acute heart failure."

In 2011 he received the Health Research Council's prestigious Liley Medal, and in 2015 he co-founded the diagnostics company, Upstream Medical Technologies, which discovers and commercialises new biomarkers.

"It's really satisfying to take research and turn it into a viable commercial entity doing good work. We have some fantastic young research talent in this country and it's pleasing the CHI can now offer MSc and PhD students a commercial, and even business pathway beyond academia."

He is Associate Principal Investigator on the Cardiovascular Centre of Research Excellence (CoRE), Healthy Hearts for Aotearoa New Zealand – Manaaki Mānawa, an associate investigator with the Maurice Wilkins Centre CoRE, steering committee member of the International Society for Bioactive Peptides and a member of the European Society of Cardiology.

Pemberton and wife Megan have five children – two work in London as lawyers, one works in Brisbane in finance, another is following a musical path, and their youngest is still at school.

He says becoming a Professor of Medicine makes him feel incredibly grateful – for the support of his family and that of mentors such as Professors Espiner, Yandle, Mark Richards, Gary Nicholls and others.

"They've all been inspiring and I am indebted to them. We are all motivated by the same thing really, using our knowledge of science to improve humanity. If you can even make a small contribution to improving a patient's life you will do it – that's why we all do it."

Watch his IPL >>

Caterpillars, coronaries and COVID: A career spent testing boundaries

FUNDERS:

Health Research Council • Heart Foundation • Ministry of Business, Innovation and Employment • World Anti-Doping Agency Lotteries Health Research • Otago Innovation • Canterbury Medical Research Foundation

"Being promoted to professor means that all of the hard work by my students and their support of, and patience with, me is rewarded."

PROFESSOR ROSLYN KEMP

PRECISION MEDICINE

Professor Roslyn Kemp seeks new ways to diagnose and treat diseases using her exhaustive knowledge of the immune system.

Kemp discovered a love of science while growing up as a self-described "nerdy over-achiever" in Nelson. She headed to the University of Otago to study physics and chemistry and ended up studying microbiology and immunology.

"What I found in immunology was something that was really complicated, incredibly cool, and the best opportunity I could focus on in terms of research to actually make a difference to people's lives," says Kemp.

After completing a PhD in immunology at the Malaghan Institute of Medical Research in Wellington (conferred by Otago), Kemp headed overseas to advance her skills and knowledge, working as a postdoctoral researcher at the Trudeau Institute in Upstate New York and at Oxford University, and as a fellow at the former National Institute for Medical Research in London.

Since returning to Otago in 2009, Kemp has devoted her research and teaching to clinical immunology, with a particular focus on immune responses in colorectal (bowel) cancer and inflammatory bowel disease, which includes Crohn's disease and ulcerative colitis.

"There is a huge problem with colorectal cancer, especially in New Zealand, which has one of the highest rates of colorectal cancer in the world; and while inflammatory bowel disease does not kill lots of people, their quality of life is massively affected."

One of the aims of the research she and her team conduct is to develop targeted individual treatments.

"This is precision medicine in its infancy but it's an exciting place to be."

Kemp notes the research would not be possible without the collaboration of medical staff at Dunedin Hospital, and their patients who agree to the use of their diseased and healthy tissue samples.

In addition to her laboratory research, Kemp has collaborated with Australian colleagues to provide guidelines for immunologists in designing experiments using new technology.

Kemp has also taken leading roles in immunology organisations, including the Australia and New Zealand Society for Immunology, and the International Union of Immunological Societies (IUIS), of which she is a former secretary-general and current council member.

She says a focus in her roles in the IUIS has been to strive to achieve equity for women within the international immunology community.

She has also served as the president of the New Zealand Society of Oncology.

Promoted to Professor of Immunology in 2020, Kemp says the best thing was the response from her students.

"They were really proud because they could see all the work we had put in together, and said they thought I deserved it."

Professor Kemp's IPL is not available.

FUNDERS:

Cancer Research Trust • Otago Medical Research Foundation • University of Otago • Maurice Wilkins Centre • Health Research Council Cancer Society of NZ • NZ Society for Oncology • NEZ Society of Gastroenterology • Lotteries Health Research • Anderson Trust

University of Otago

RESEARCH AWARDS

2023 DISTINGUISHED RESEARCH MEDAL

PROFESSOR PHILIPPA HOWDEN-CHAPMAN

HONOURED TO WIN TOP AWARD

Housing and health researcher Poutoko Taiea Sesquicentennial Distinguished Professor **Philippa Howden-Chapman** CNZM QSO FRSNZ says she is honoured to be awarded the University's top honour – the Distinguished Research Medal for 2023.

Co-director with Professor Nevil Pierse (see pages 34 to 37) of He Kāinga Oranga/ Housing and Health Research Programme on the Wellington campus, Professor Howden-Chapman and her team, along with Māori community collaborators, have been conducting world-leading research on healthy homes for almost three decades.

Under Professor Howden-Chapman's inspirational leadership, He Kāinga Oranga researchers have demonstrated the value of housing improvements, including insulation, clean and efficient heating and research-based regulatory standards for private rentals in improving health and wellbeing.

Their work has extended to working directly with Stats NZ to get questions added to the New Zealand Census for the first time on the level of dampness and mould in homes, as well as on the numbers of people experiencing homelessness and severe housing deprivation.

Together their research findings form a base of evidence showing that warm, dry, safe housing significantly reduces the rates of infectious, respiratory and cardiovascular disease and deaths, and slips, trips and falls, particularly in children and older people.

Their work has had a major impact on Government policy, directly influencing the introduction of the Warmer Kiwi Homes programme, the Winter Fuel Payment and the Healthy Homes Guarantee Act. The Healthy Homes Standards set warmth and ventilation standards for rental homes based on World Health Organization (WHO) Housing and Health Guidelines, developed by a WHO Housing and Health International Committee chaired by Professor Howden-Chapman.

The Distinguished Research Medal is the most prestigious award the University presents annually. It aims to promote research at Otago and give recognition to the outstanding performance of individual researchers or research teams.

Professor Howden-Chapman says she is humbled by being chosen as one of only a select few Otago academics to be awarded the medal.

"I am honoured to be joining a very distinguished group of Otago researchers, including the late Professor Richie Poulton, who have received this award and whom I have long admired."

"I am honoured to be joining a very distinguished group of Otago researchers, including the late Professor Richie Poulton, who have received this award and whom I have long admired."

DISTINGUISHED PROFESSOR PHILIPPA HOWDEN-CHAPMAN

UNIVERSITY of OTĀGO
Te Whare Wānanga o Otāgo
NEW ZEALAND

2023 ROWHEATH TRUST AWARD AND CARL SMITH MEDAL PROFESSOR JEMMA GEOGHEGAN

WORLD-LEADING VIRUS HUNTER RECOGNISED

Evolutionary virologist Professor **Jemma Geoghegan** is the recipient of the 2023 Rowheath Trust Award and Carl Smith Medal – awarded to early-career research staff who demonstrate outstanding scholarly achievement that enhances the understanding, development and wellbeing of individuals and society.

Professor Geoghegan (based in the Department of Microbiology and Immunology) adds the Award and Medal to an impressive list of achievements, including her recent appointment to the Webster Family Chair in Viral Pathogenesis and promotion to Professor.

Her research focuses on several areas across the field of virology, including determining the fundamental patterns and processes of viral evolution, ecology and emergence.

In 2020, she was instrumental in establishing the genome sequencing of SARS-CoV-2 in Aotearoa, using an approach later described as "world-leading".

The history of the prestigious research award at Otago was a highlight for Professor Geoghegan when she learned she had won.

"I was thrilled to hear the news that I've received this award mainly because I associate this prize with a long list of extremely talented previous awardees whose work I really respect and whom I find inspiring."

Professor Geoghegan is focused on her current and future projects, which include supervising students from Fiji to build capability for virus genomics, and an aim to broaden that capability to other Pacific Island countries.

She is also busy with her work as a Rutherford Discovery Fellow and is mum to a four-year-old daughter and a one-year-old son.

> "I was thrilled to hear the news that I've received this award mainly because I associate this prize with a long list of extremely talented previous awardees whose work I really respect and whom I find inspiring."
>
> PROFESSOR JEMMA GEOGHEGAN

2023 EARLY CAREER AWARDS FOR DISTINCTION IN RESEARCH

Seven early career researchers were rewarded in 2023 for their commitment to research excellence, leadership in their fields and engagement with their communities.

Dr Matt Jenkins

(Department of Psychological Medicine, Wellington)

Dr Jenkins applies health psychology principles to support the health and wellbeing of general and specialised populations, such as people living with mental illness.

Dr Hemakumar Devan

(Department of Medicine, Wellington)

Dr Devan's research aims to foster self-management support to empower people with persistent pain, and their whānau. Equity and valuing lived experience are core to his work.

Dr Sara Miller

(Department of Chemistry)

Dr Miller's research covers vibrational spectroscopy coupled with multivariate analysis and its application to a wide variety of materials and complex systems including pharmaceutics, hard and soft tissues, and primary produce.

Dr Kimberley O'Sullivan

(Department of Public Health, Wellington)

Dr O'Sullivan conducts research in energy poverty (energy hardship), consumer experiences of energy use, energy efficiency of housing and buildings, and the interaction of all of these with the health and wellbeing of people.

Dr Matthew McNeil

(Department of Microbiology and Immunology)

Dr McNeil investigates the mechanisms that allow bacteria to survive antibiotic treatment and develops new therapeutic approaches to combat drug-resistant infections.

Dr Stephen Young

(Faculty of Law)

Dr Young examines the intersection of Indigenous peoples and law, human rights, and duties and obligations – drawing from critical and social theories.

Dr Simon Jackson

(Department of Microbiology and Immunology)

Dr Jackson investigates how bacterial immune systems protect their hosts against bacterial viruses (bacteriophages) and the use of bacteriophages as therapies against bacterial pathogens.

Two new award categories were announced in 2023 – early career researcher awards for Māori and Pacific kaimahi. These awards were introduced to celebrate distinction in research undertaken by Māori and Pacific researchers as they develop their careers, which in many cases involves significant, active and positive engagement with communities.

The term Tofā Sāili, gifted for our Pacific Early Career Awards, refers to the wisdom gained through the constant search for truth.

The inaugural winners were:

Dr Troy Ruhe

(Va'a o Tautai | Centre for Pacific Health)

Tofā Sāili Pacific Early Career Awards for Distinction in Research

Dr Ruhe was described in his nomination as being "deliberate in his trajectory" to create equitable health research outcomes in Pacific populations, through understanding the nuances, and most acceptable and appropriate methods of implementing health research into those communities. Part of his current work is bringing a unique Pacific approach to the use of "big data", concerning equitable health outcomes and Pacific data sovereignty.

Dr Alana Alexander

(Department of Anatomy)

Māori Early Career Awards for Distinction in Research

Dr Alexander is passionate about weaving together Te Ao Māori and science, specifically as a molecular ecologist/evolutionary biologist using bioinformatic methods to focus on the interplay between pattern and process in genomic data. Her current research includes investigating the past impacts of fisheries on the endangered Hector's and Māui dolphins and then using genomics to predict the impact of future climate change on both whales and dolphins. She is also working alongside local communities to co-develop science pūrākau – memorable narratives to translate her scientific work to empower and uplift those who hold katiakitanga and rangatiratanga over taonga species.

Dr Erica Newman

(Te Tumu – School of Māori, Pacific and Indigenous Studies)

Māori Early Career Awards for Distinction in Research

Dr Newman's current research focuses on descendants of adopted Māori tamariki raised in non-Māori households and for descendants' inability to establish a connection to their Māori whānau. This significant work contributes to ongoing work on identity and belonging for Māori who are disconnected from their tūrangawaewae through adoption and will inform government legalisation and practices about adoption.

2023 RESEARCH GROUP AWARD TE POKAPŪ MĀTAI TAIĀKI IAIA, THE CENTRE FOR NEUROENDOCRINOLOGY

Te Pokapū Mātai Taiāki Iaia, the Centre for Neuroendocrinology in the School of Biomedical Sciences, is the winner of the University's 2023 Research Group Award.

Internationally one of the largest and most well-recognised groupings of researchers in the neuroendocrinology field, the collaborative group publishes an average of 30 peer-reviewed papers a year, many in high impact journals. Since 2018 alone, the researchers have secured $16 million in external research support from fully costed grants.

The Centre, comprised of 51 staff and students and led by 11 key researchers, is focused on understanding how the brain controls hormone levels in the blood and how those hormones can influence brain function.

CONTACTS

University of Otago Campuses:

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- Sciences
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