

UniNews



DAME MARGARET BRIMBLE

How a drug developed in her University of Auckland lab will improve lives

Page 6

GARDENS ON SHOW

For the University's 140th anniversary, Jason Fell's photography exhibition
Page 8

NASA TOUCHES DOWN

NASA's top brass visit Te Pūnaha Ātea, and praise New Zealand's role in the 'golden age of space exploration'
Page 5

REIMAGINING EDUCATION

Professor Peter O'Connor and Dr Claudia Rozas Gómez wonder about 'jammed-in learning'
Page 10

A selection of Waipapa Taumata Rau, University of Auckland staff and student expert commentary in the media recently. Email: uninews@auckland.ac.nz



Emma Carroll. Photo: Richard Robinson

WHALE SKIN REVELATIONS

Dr Emma Carroll told earth.com that chemical analysis of skin samples from southern right whales, along with data from whaling expeditions stretching back to 1792, showed changes to where the animals fed in recent decades, likely driven by prey changing location due to warming in the Southern Ocean. But “climate change doesn’t mean one thing everywhere and it is causing different effects in different parts of the ocean,” she said. The research helps show where conservation efforts should be directed.

Link: tinyurl.com/earth-Emma-Carroll

BOOSTING PACIFIC ACADEMICS

Pacific academic Seuta’afili Dr Patrick Thomsen told *Stuff* the University’s new Fofonga for Pacific Research Excellence aims to improve Pacific representation in the academic ranks. Patrick, the Fofonga’s inaugural director, will serve communities by “facilitating collaborative Pacific-led research for Pacific communities and offering networking opportunities”.

Link: tinyurl.com/Fofonga-Patrick-Thomsen



Hilary Longhurst

GENE TREATMENT CHANGES LIVES

A world-leading gene-editing trial in seven Kiwi patients has relieved their symptoms and saved them thousands of dollars in treatments. The patients have a hereditary disease that causes unpredictable attacks of severe swelling. Associate Professor Hilary Longhurst (Faculty of Medical and Health Sciences) told RNZ, *NZ Herald* and TVNZ that the CRISPR-Cas9 therapy binds to the gene that causes the disease, and snips it. The gene repairs naturally, but can no longer produce the protein responsible for the swelling. Hilary says the treatment is ‘beautifully simple and adaptable’.

Link: tinyurl.com/TVNZ-Hilary-Longhurst



Makarena Dudley

GROUND-BREAKING THERAPY

Dr Makarena Dudley (Te Rarawa, Ngāti Kahu), from the Centre for Brain Research talked to RNZ and Radio Waatea about a new therapy for Māori with mild to moderate *mate wareware* or dementia. It involves cognitive behaviour therapy (CBT) and will be tailored to Māori to fit into their cultural context and wrapped up in the Haumanu Whakaohoho Whakāro programme.

Links: tinyurl.com/RNZ-Makarena and tinyurl.com/waatea-Makarena (audio)



Muizz Shah

TESTING STORMS

What kind of storm would it take to blow over the SkyTower? Dr Ahmad Zaki from the Faculty of Engineering and doctoral candidate Muizz Shah spoke to *Stuff* about using the University’s wind tunnel at the Newmarket campus to model what a worst-case scenario might look like for the city.

Link: tinyurl.com/Stuff-Skytower



Paul Heyward

TEACHER TALK

Dr Paul Heyward from the Faculty of Education and Social Work talked to Today FM about the March teachers’ strike. “Graduates are not coming into initial teacher education because they see the salary and they see the negative press around teaching.”

Link: tinyurl.com/heyward-todayFM

THIS ISSUE

My Story: Lisa Finucane	3
Good to Know	4-5
– Royal Society Fellows	
– Supporting Pacific research	
– EV charging partnership	
– NASA at the University	
Dame Margaret Brimble	6-7
Jason Fell	8
Dilys Johns	9
Clubs Expo	9
Art & Culture	10-11
– Claudia Rozas Gómez	
and Peter O’Connor	
– Book Award finalists	
Books	11
Māramatanga: Alex Sims	12

Editor: Denise Montgomery
denise.montgomery@auckland.ac.nz
 Photography: Billy Wong, Elise Manahan, Chris Loufte, William Chea (cover photo: William Chea)
 Design: Mike Crozier
 Production: University of Auckland
 Volume 53 – Issue 2 – April 2023
 Published by: Waipapa Taumata Rau, University of Auckland
 Communications Office,
 Alfred Nathan House, 24 Princes Street,
 Private Bag 92019, Auckland 1142
 Web: auckland.ac.nz/UniNews

Something to share? The next *UniNews* is May 2023, copy due mid-April.
 Email: uninews@auckland.ac.nz

For the fortnightly *Whaimōhio The Loop* newsletter, email: staff-comms@auckland.ac.nz. Deadlines are on the intranet under News, Events and Notices, *The Loop*.

When posted, *UniNews* is delivered in certified degradable EPI packaging in keeping with our sustainability goals. In PDF, this document has clickable links to any URLs.

MY STORY:

LISA FINUCANE

Cancer is still our bogey monster.

It can come out of nowhere – the fittest, most sugar-free, meat-free, fat-free, smoke-free people get hit. And the efficacy of treatment varies from person to person – success seems random. Cancer is the troll under the bridge that puts the fear of whatever god(dess) you do or don't believe in, into you.

Last September, 12 years since I was first diagnosed with ovarian cancer, and following five operations removing, over the course of time: ovaries, uterus, cervix, omentum, spleen and parts of the liver, bladder, bowel and vaginal vault, two courses of chemo, two different hormone blockers (non-steroidal aromatase inhibitors), and a multitude of MRIs, CTs and blood tests, my low grade serous ovarian cancer ramped up. Yes, it's serious not serious, but this was serious too.

No more operations, drugs not working, tumours spreading, cancer antigen 125 (CA125) markers moving from a respectable 14 to 480. The prognosis was gloomy. Good night, nurse.

Along with fast tracking a bucket list (a new front door edged out a return to Torquay) I started another course of chemo (six rounds at three-weekly intervals) along with a drug called Avastin – this one about \$8,000 a pop until a threshold is reached, then it's paid for by the drug company. Health insurance covered the first round.

"It doesn't usually work for your type of cancer," said the oncologist. "But there's not much else so we'll give it a try."

Chemo isn't a great experience, though being bald, sans eyebrows and eyelashes, does encourage kindness in random strangers. Exhaustion, 'chemo brain' and a constant vile taste are among the more sharable ones but with a hearty peasant-like constitution my tolerance is high – sometimes luck has been on my side.

And, luck seemed to kick in again. Not a cure by any means but the treatment, for the moment at least, has slowed things down and even reversed the severity, with tumours shrinking and the CA125 marker now a less scary 70 and falling.

Fun fact: Vice-Chancellor Professor Dawn Freshwater's early days as a researcher in London were in ovarian cancer. She was part of the team that discovered the mutation CA125, which is a marker used for early detection and for ongoing monitoring of the progression of the disease.

So, in March I energetically celebrated a significant decade birthday, Torquay is back on the travel plans, and the front door surrounds might even get painted. This leads to the reasons I love my alma mater: its research (putting a plug in here for a bit of focus on the gynae cancers, particularly



Lisa Finucane: 'I'm pretty relaxed discussing reproductive organs in mixed company.' Photo: Billy Wong

“The best detection is to listen to your body and talk to your GP, ensuring they take ovarian cancer seriously as a possible cause.”

– Lisa Finucane, media and communications manager, University of Auckland

ovarian, please Auckland Cancer Centre Research Centre). And a plug for Old Government House – an amazing venue for a special birthday party. There aren't many places where you can dance surrounded by a great art collection.

The trouble with research, as colleagues will be too aware, is that it needs funding. And some areas get a bit more support than others. Breast cancer and even prostate cancer benefit from huge profile raising and related funding. Good on the drivers of this but, without begrudging them, it's challenging to think that treatment for low grade serous ovarian hasn't changed in the 13 years I've had it – largely because the funding isn't there for research and development. And there's the issue of women's cancers being overlooked and gynaecological cancers being harder to bring into the public space (face it, you probably cringed a bit at the earlier mention of vaginal vaults).

Not very fun fact: ovarian cancer takes the life of one woman in New Zealand every 48 hours. Unfortunately, it's likely that more than half of women incorrectly believe a pap smear can detect it, and symptoms are often put down to menopause, irritable bowel syndrome, or just

'women's issues' (yes, still). Often by the time it's diagnosed, it's at stage three or four, where the outcome is not ideal.

Broadly speaking, symptoms include bloating, feeling full, pain in the abdomen, pelvis or back, and needing to pee more. Others might include indigestion, painful intercourse, tiredness, unexpected weight loss, changes in bowel habits and abnormal bleeding. The best detection is listening to your body and talking to your GP, ensuring they take ovarian cancer seriously as a possible cause.

Of course there is work going on in this space: about five clinical trials for women with ovarian cancer in Aotearoa, more than 40 in Australia and hundreds around the rest of the world. There are some amazing women in the medical profession (big shout-out to University of Auckland honorary senior lecturer and clinical research fellow, Dr Michelle Wilson) and in private life who are driving awareness raising and fund raising – mainly because of personal experience. (For further information and support, see two good websites, cureurovariancancer.org and talkpeach.org.nz)

And yes, I know I'm writing from a position of health insurance, extraordinary support and a privileged background that equips me to challenge professionals, seek alternatives and understand options presented. I'm pretty relaxed discussing reproductive organs in mixed company, even when the company is not so thrilled with the topic. Not everyone has these advantages. Even with them, ovarian cancer – any cancer – is not for the faint hearted.

Last September, Cure Our Ovarian Cancer New Zealand submitted a 145-page Health Select Committee Report: *Steps to Save Lives*. You can read it at tinyurl.com/ovarian-report World Ovarian Cancer Day is on 8 May.

JOLLY GOOD FELLOWS

The Royal Society Te Apārangi has selected 11 Waipapa Taumata Rau academics among its Ngā Ahurei a Te Apārangi Fellows.

They've been chosen for their distinction in research and advancement of science, technology or the humanities.

Waipapa Taumata Rau's representatives are Associate Professor Mark Bolland, Medical Medicine (Faculty of Medical and Health Sciences); Professor Klaus Bosselmann (Faculty of Law); Professor Virginia (Ginny) Braun, Psychology (Faculty of Science); Professor Gill Dobbie, Computer Science (Science); Professor Simon Holdaway, Archaeology (Faculty of Arts); Professor Paul Kilmartin, Chemical Sciences (Science); Professor Nancy November, School of Music (Creative Arts and Industries); Professor Christine Rubie-Davies, Learning, Development and Professional Practice (Education and

Social Work); Emeritus Professor Helen Sword, Humanities (Arts); Professor Julia Tolmie (Law); Professor Andrew Allan, Biological Sciences (Science).

Auckland is New Zealand's leading research-led university, which Deputy Vice-Chancellor, Research, Professor Frank Bloomfield, says is due primarily to the quality of its researchers and the impact their work has in Aotearoa New Zealand and globally.

"The research and scholarship of our new Fellows is regarded as world-leading in their respective areas and, as such, they have been recognised."

The new Fellows will be formally inducted at an event in Whanganui-a-Tara Wellington on 27 April.

Full story and details of research areas: auckland.ac.nz/royal-fellows-named



Gill Dobbie



Klaus Bosselmann



Mark Bolland



Ginny Braun

SUPPORTING PACIFIC RESEARCH



Associate Professor Sir Collin Tukuitonga leads the new Pacific health research centre.

The University's flagship Pacific research centre, hosted by the Faculty of Medical and Health Sciences, launches this month.

Te Poutoko Ora a Kiwa, the Centre for Pacific and Global Health, is led by Associate Professor Sir Collin Tukuitonga, Dr Judith McCool (School of Population Health) and Dr Roannie Ng Shiu (Faculty of Medical and Health Sciences).

The centre's mission is to positively impact health in the Pacific through high-quality research. Former director-general of health Sir Ashley Bloomfield will chair the centre's advisory board.

Nalei Taufa, the centre's operations manager, says a goal is to elevate Pacific research within the region. "We must insist on research that's committed to building the capacity of the local workforce and facilitating projects in the region that are inclusive and participatory."

Meanwhile, a new transdisciplinary platform for Pacific research leadership is also starting up this month. The Fofonga is led by the office of the Pro Vice-Chancellor Pacific and its inaugural interim director is Seuta'afili Dr Patrick Thomsen. "We're aiming to build a networked set of support mechanisms that encourage Pacific researchers to take the lead on knowledge-generating activities to benefit and serve the aspirations of our peoples and communities," says Patrick.

Fofonga's first major project is supporting the further development and sustainability of the Pacific Early Career Academics Network (PECAN), a University-wide group established in 2019 by Pacific researchers across the faculties.

Full story: auckland.ac.nz/te-poutoko-ora-research



Professor Grant Covic

PAVING THE WAY FOR ELECTRIFIED ROADS

A partnership between Waipapa Taumata Rau and Downer New Zealand could spell the beginning of the end for "range anxiety".

Researchers from the University in collaboration with Downer have launched a new facility that could be a game-changer in the uptake of electric vehicles (EVs) in Aotearoa New Zealand.

The Accelerated Pavement Test (APT) "rocker" facility at Downer's Auckland asphalt plant has been developed over the past four years to test the effectiveness of wireless "in-pavement" charging for EVs. The facility will help researchers from the Faculty of Engineering to investigate the potential for integrating wireless charging pads into roads and highways, so drivers won't need to plug in to charge their EVs.

It could spell the beginning of the end for "range anxiety" – a term used to describe an EV driver's fear that their battery will run out of power before they reach their destination.

"This facility will help us model and assess the complex mechanical, electrical and thermal interactions when a wireless power system is placed within different pavement designs," says Professor Grant Covic, who leads the research team.

"It will enable us to find the best fit and lowest cost solutions suitable for New Zealand roads."

The launch is part of the Inductive Power Transfer (IPT) Roadway Project funded by the Ministry of Business Innovation and Employment, which aims to develop new ways to charge New Zealand's fleet of EVs to meet emission reduction targets.

Full story: auckland.ac.nz/EV-collaboration

NASA TOUCHES DOWN AT WAIPAPA

Two of the National Aeronautics and Space Administration's top people make an impact on campus.

The University played host to two top representatives from NASA in March.

Senator Bill Nelson, who holds the top job of administrator of NASA, and deputy administrator Pamela Melroy presented to an audience of students and researchers hosted by Te Pūnaha Ātea, the Space Institute. Both NASA leaders have been to space, Senator Nelson as a payload specialist and Melroy as one of only two women to command Space Shuttle missions.

The NASA leaders began their visit with a pōwhiri at Waipapa marae, before heading to the Faculty of Engineering's Unleash Space in the Centre for Innovation and Entrepreneurship where they were introduced by Deputy Vice-Chancellor, Research, Professor Frank Bloomfield.

Senator Nelson said the space agency was keen to see graduates from New Zealand taking up internship opportunities and praised the country's achievements in the space sector.

He said the curiosity and drive to explore that led Pacific peoples, including Māori, to journey across the vastness of the Pacific Ocean, were shared in the quest to learn more about space, the planets of our solar system and eventually beyond this to 'distant cosmic shores'.

Melroy noted that New Zealand was one of only five nations in the world capable of launching rockets into space.

"It is great to have New Zealand as part of this age of space exploration."

If space had taught her anything, she said it was to see Earth as a single planet. As an astronaut, she had gazed at New Zealand from space so she was heartened to visit and admire the colours of this country's glacial opalescent rivers and lakes up close. "If we want to protect our planet we have to act as citizens of Earth, as members of the crew of spaceship Earth."

As a signatory to the NASA Artemis Accords, New Zealand is one of 23 nations supporting the multilateral and peaceful exploration of space.

Director of Te Pūnaha Ātea Professor Guglielmo Aglietti thanked the guests who also heard from others including a former NASA intern, and Professor Kathy Campbell (School of



Clockwise from top: NASA deputy administrator Pamela Melroy and administrator Senator Bill Nelson; Vice-Chancellor Professor Dawn Freshwater meets NASA's top brass; Deputy Vice-Chancellor, Research, Professor Frank Bloomfield; NASA guests at Waipapa marae; at Parliament, student Michaela Dobson, centre, with two of the other interns who won New Zealand Space Scholarships to NASA. Campus photos: Chris Loufte

Environment) from Te Ao Mārama, the Centre of Fundamental Inquiry.

The guests then undertook a tour of the Space Institute's Mission Operations Control Centre where a media conference was held.

Frank noted that the University has had the foresight to build a critical mass of researchers across several faculties and to establish Te Pūnaha Ātea as the focus for a range of space-related research, teaching and learning. "We're extremely proud to support researchers collaborating in research ranging from astrobiology through to the use of artificial intelligence to search for exoplanets and work on the Capstone mission," he said.

The mission has a craft in lunar orbit as part of the preparation for reaching Mars.

The NASA leaders were also at Parliament for

a ceremony on 15 March where postgraduate geology student Michaela Dobson was awarded a New Zealand Space Scholarship to NASA's Jet Propulsion Laboratory to help explore if life existed on Mars. She is one of five interns who were announced. Dobson will work on research into a fossilised hydrothermal and hot spring system in Nevada, gleaned information to guide scientists if the rover *Perseverance*, one of NASA's robotic vehicles, comes across hot spring deposits which could have traces of past life.

"It's cool to show the door is open for sciences like geology, not traditionally seen as important for space research and the space industry," she says. "Diversity matters – diverse views are how science advances."

Full stories: auckland.ac.nz/nasa-uoa-visit and auckland.ac.nz/nasa-intern-2023

MOTHER OF THE MAGIC MOLECULE

A drug just approved by the FDA had its molecular discovery in a University of Auckland lab with Dame Margaret Brimble at the helm.



Distinguished Professor Dame Margaret Brimble Photo: Chris Loufte

When Distinguished Professor Dame Margaret Brimble discovered the molecule that led to the life-changing neurological drug Trofinetide, she was working in a humble University of Auckland lab with three chemists.

“My old PhD supervisor visited me from England where he was director of medicinal chemistry at Merck, Sharp and Dohme. He had a team of around 40 chemists. He said, ‘Margaret, how do you think you’re ever going to discover a new neurological drug candidate with three chemists? You’re dreaming!’”

It took five years for Margaret’s chemistry team, working with a team of biologists, to discover and design the chemical structure of NNZ-2566, the molecule that is the heart of Trofinetide. The drug itself has been 20 years in development.

“In 2001, I was working with a team on designing a drug molecule for traumatic brain injury, through University of Auckland spinout company Neuren Pharmaceuticals,” says Dame Margaret.

“The goal was to synthesise a mimic of a natural peptide from insulin-like growth factor 1 (IGF-1).”

She was working with three early-career chemists, David Callis, Nick Trotter and Paul Harris (now an associate professor in the School of Biological Sciences) alongside biologists including Associate Professor Jian Guan (Liggins Institute) and Professor Mike Dragunow (Faculty of Medical and Health Sciences).

The NNZ-2566 molecule discovered is a synthetic analogue of the neuropeptide, GPE, which had been suggested in the literature to show neuroprotective properties. These properties were later confirmed by Jian and Professor Sir Peter Gluckman at Liggins.

While NNZ-2566 didn’t work out for traumatic brain injuries, it was clear it had neuroprotective effects that Neuren scientists believed could be explored elsewhere.

“Our team just did the medicinal chemistry that created the drug molecule,” says Dame Margaret.

“Neuren Pharmaceuticals then looked for neurological disorders that NNZ-2566 might be

useful for and were inspired by a MIT study that showed promise for Rett syndrome. They took the investigational drug NNZ-2566 into phase two clinical trials, and it was named Trofinetide by the World Health Organisation,” she says.

“Along the way, there were biomedical scientists, clinicians, patients, business people and investors, many people were involved.”

Later, Neuren entered an agreement with Acadia Pharmaceuticals in San Diego, partnering with Acadia for the Trofinetide clinical trials because of the company’s experience in such trials in the US.

“The public don’t realise how many people have been hanging on for this decision.”

– Distinguished Professor Dame Margaret Brimble, Faculty of Science

After years of graft, for Acadia and the patients in the trials, Acadia submitted its application to the US Food and Drug Administration (the FDA) for approval.

On 10 March 2023 the FDA approved Trofinetide, to be marketed in North America as Daybue for the treatment of Rett syndrome.

“Obviously, having created the key molecule, I’ve followed its progress into clinical trials closely and understood the importance for Rett syndrome patients,” says Dame Margaret.

“The public don’t realise how many people have been hanging on for this decision.”

Rett syndrome is a debilitating condition that causes symptoms similar to cerebral palsy or autism in an estimated one in 10,000 girls, affecting motor control and communication skills, which stagnate or regress after the first six to 18 months of a child’s life.

It is caused by mutations in a gene called MECP2 that inhibit the formation of a molecule that’s essential to cognitive and motor function. Successes in clinical trials with Trofinetide have included girls with the syndrome starting to talk for the first time and having improved mobility.

“I think about the impact this will have on the lives of people like Rett sufferer Katelin Lancaster and her mother Melinda, in the US.”

Dame Margaret met Melinda and Katelin in 2019 when she went to San Diego to be inducted into the American Chemical Society Medicinal Chemistry Hall of Fame.

Melinda recently blogged (tinyurl.com/Katelin-mum-to-Margaret) about the special gratitude she felt towards Dame Margaret: “Because of Margaret, I heard Katelin speak sentences, read from a book, draw a circle, be calm, pour with precision ... Katelin will get to experience that all again and ... other Rett children and adults and their families will get to experience that and more for the first time.”

Katelin had received the drug in the first two clinical trials, but the cut-off age for the third trial was 25 so she couldn’t take part.

In Dame Margaret’s office in the School of Chemical Sciences, where the air conditioning seems non-existent and there is no natural light, a hand-painted plate and coffee mug Katelin made sit proudly on a shelf.

“The handprints on the plate are green, which Katelin knew was the Kiwi colour. With help, she also drew a picture of the Trofinetide molecule. She’s just saying thank you.”

Melinda also had necklaces made in the shape of the chemical structure of the molecule and gave them to Rett patients for encouragement as they participated in the clinical trials.

Dame Margaret’s office walls are covered in awards. She was made a Dame in the 2019 Queen’s Honours, has been inducted into the American Chemical Society Medicinal Chemistry Hall of Fame, received the 2023 American Chemical Society Ernest Guenther Award for natural products chemistry and the 2022 Royal

Society of Chemistry Pedler career award for research and innovation in organic chemistry. In 2018, she became a Fellow of the Royal Society of London, the first female New Zealander working in New Zealand to do so. Other accolades, too many to list, include the Te Apārangi Royal Society of NZ (RSNZ) Rutherford Medal, RSNZ Hector Medal and the RSNZ MacDiarmid medal.

But will the creator of NNZ-2566 – the component of the first neurological drug to be discovered by a New Zealander and approved by the FDA – receive any material reward other than media attention and gratitude from patients? Probably not. Dame Margaret's share options with Neuren Pharmaceuticals, now listed on the Australia Securities Exchange, expired before the drug showed promise in clinical trials for Rett, although more recently she did buy some shares privately.

"At the time I was just happy to have a lab and to be able to give three early-career chemists jobs in New Zealand; for me, that was the most important thing. I'd also not long had a baby and had returned to the University of Auckland from Australia. I'd been working on the molecule for traumatic brain injury not Rett, and couldn't have known how it would evolve. But I'm so glad it did."

What she's now hoping is that the drug will get Pharmac approval to enable New Zealanders to be treated.

"While there might only be around 40-60 Rett patients in New Zealand, this drug was painstakingly developed over many years by many New Zealanders and a New Zealand company, Neuren Pharmaceuticals, which started here at the University of Auckland, so I'd really hope it can be used in this country."

There are other potential benefits to the approval of Trofinetide. Clinicians may be able to prescribe it for other genetic disorders such as Fragile X syndrome. There's even some hope it could help in autism.

Meanwhile Dame Margaret and her team, again working with Dr Jian Guan, have discovered another drug molecule, NNZ-2591, which is showing potential in clinical trials for other rare neurodegenerative syndromes: Phelan-McDermid, Angelman, Pitt Hopkins and Prader-Willi.

"Neuren is running phase two clinical trials using NNZ-2591 for some of these disorders. But you need a huge amount of money for trials – it cost \$54 million for the phase three trial for Trofinetide."

After a flurry of media interest since the FDA approval, Dame Margaret is getting on with her postgraduate teaching, and pursuing her research in organic chemistry. She works in the Faculty of Science as a distinguished professor in Chemical Sciences and Biological Sciences. She is also deputy director of the Maurice Wilkins Centre



The plate decorated for Dame Margaret by Rett syndrome patient, Katelin. Left: Just a few of the awards Dame Margaret has earned for a lifetime of endeavour. Photos: Chris Loufte



for Molecular Biodiscovery, a National Centre of Research Excellence.

She says she was lucky to have had the opportunity to run the lab where NNZ-2566 was born. "Academics tend to be working on our next best paper and working with students; not many get to work in drug discovery."

She has funding from the Ministry of Business Innovation and Employment to develop new-generation antibiotics, with antibiotic resistance a major global health concern. Her team is reinvestigating two existing last-line-of-defence antibiotics, the polymyxins (colistin) and daptomycin (cubicin) and trying to reduce their known toxicity to the kidneys.

"This drug was painstakingly developed over many years by many New Zealanders and a New Zealand company, Neuren Pharmaceuticals, which started at the University of Auckland."

– ***Distinguished Professor Dame Margaret Brimble, Faculty of Science***

"We're changing one part of a lipid in the antibiotic for another synthetic lipid and tinkering with other parts of the molecules ... we'll be working on that for the next few years."

She is also interested in traditional Chinese medicines.

"In Chinese medicine, when you dig down, some of these plants/herbs have really challenging structures. That's what I find interesting.

"I've had some very talented Chinese students. I believe that if they're coming to New Zealand to train, it's good to train them on a topic of relevance to China as well."

Another of her students, Eilidh Young, is also interested in this area. She's working on a Chinese medicine project using a compound from Goji

berries. "She has successfully synthesised it," says Dame Margaret. "She's a brilliant student."

Dame Margaret says she has worked with more than 100 PhD students and has more than 650 publications to her name and around 50 patents. But the scientist who once said "creating molecules is my art" actually preferred languages in high school, especially Latin. "I did chemistry, but it wasn't until I came to this university that I really enjoyed it. My father was a GP, but I didn't like the blood and guts so didn't want to do medicine.

"Although I liked languages, in those days you had to choose between degree programmes. I did a BSc but kept the French along with maths, which I also liked, and chemistry. I enjoyed organic chemistry because of its logic and pattern recognition. Students may think it's rote learning, but it's definitely not.

"I was talking to a group of PhD students to find a new project recently. We looked at the chemical structures for some natural products published in the literature, trying to choose one to synthesise. We ended up with two options from 20. One of the students asked, 'how did you get to those?' I just thought they looked nice and interesting.

"It's a bit like mountaineers choosing mountains to climb. We choose our next molecule to make.

"We try to map out a synthetic route – how are we going to get from chemicals we buy off the shelf to the complex target molecule? It's like molecular chess. It can take 25-plus steps and then it could all go wrong and you have to start again with a new strategy. But along the way, students learn a lot about all the different reactions they encounter so that after completion of their PhD, they're really well trained in different areas of organic synthesis."

She says they need to be resilient.

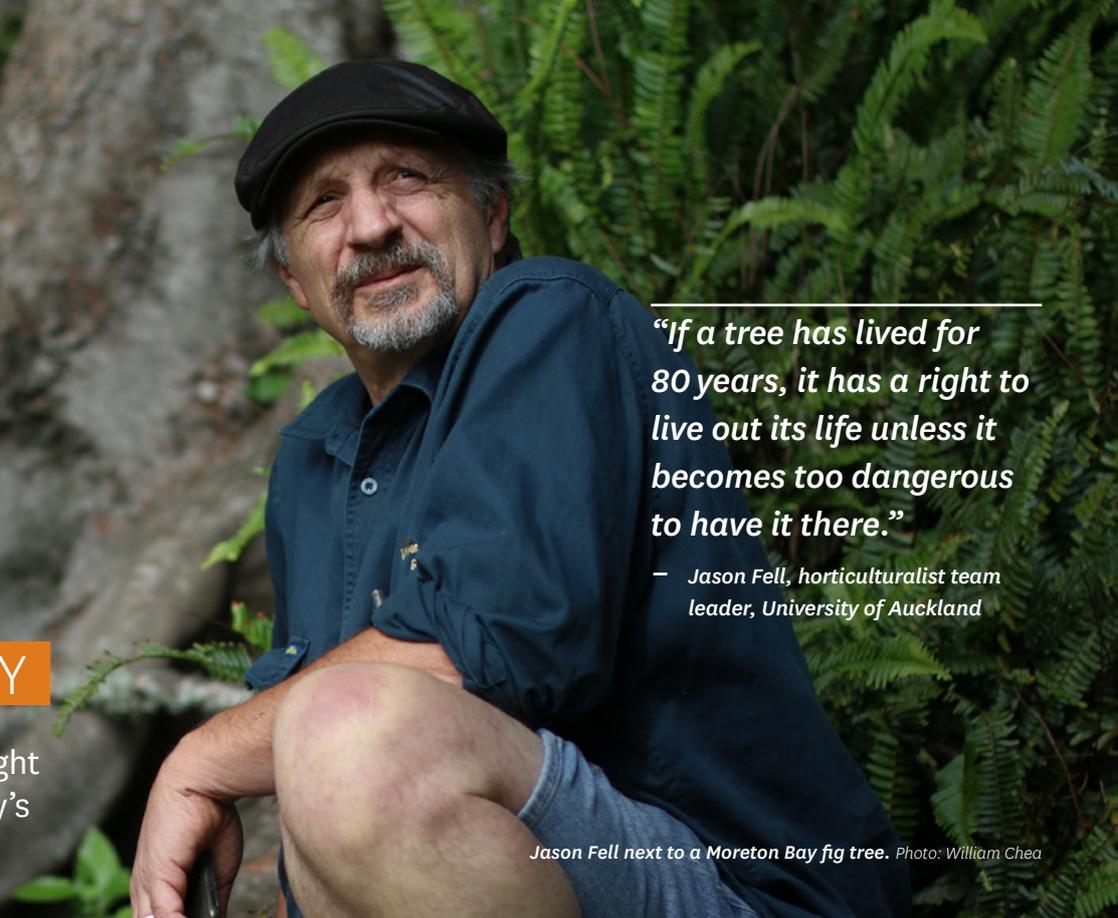
"It's really tough. You have to accept it's 90 percent failure."

Right now, a big success for Dame Margaret and her fellow scientists will outshine the failures for a bit longer.

■ Denise Montgomery

CAPTURING CAMPUS BEAUTY

Photo exhibition will highlight the history of the University's 140 years of plantings.



“If a tree has lived for 80 years, it has a right to live out its life unless it becomes too dangerous to have it there.”

— Jason Fell, horticulturalist team leader, University of Auckland

Jason Fell next to a Moreton Bay fig tree. Photo: William Chea

If you look around any of the Waipapa Taumata Rau campuses, you'll see flourishes by Jason Fell everywhere.

Long-time staff member Jason is one of the guardians of the University grounds, working as the horticulturalist team leader based at Epsom Campus.

With the University celebrating 140 years of existence this year, Jason is putting together an exhibition featuring photos of the gardens and grounds over the years. He'll be helped by grounds and precinct manager, Stanley Jones.

“The exhibition will show my perspective of being here for 20 years and photos I've taken over that period,” says Jason, who used to work as a photographer.

Jason began working at the University in 1983, for a two-year stint. He returned in 2001 and has been looking after the gardens ever since.

He describes himself as a gardener by blood, with family working in the trade back through the generations.

“My mother's father was a keen gardener. I'm told he was one of the first to cross-pollinate carnations, making an orange carnation from that. His father was a gardener in Wellington at Government House and Parliament buildings, before they built the Beehive.”

Before returning to work at the University, Jason worked as a photographer and it was those skills that led to his return to work in the gardens at the University.

“I've been a photographer for about 40 years. When I picked up a job taking photos of graduates at the University in 2001, I wandered in to see my old boss. Speaking to him again made me realise how much I had enjoyed working here. I have a real connection with the grounds, especially the trees.”

The exhibition will be a special opportunity for the University's horticulture team to show off their work. The Asian-fusion garden at the Newmarket Campus will be one of the many planting projects showcased. The garden style is primarily Japanese, with a Chinese influence, and the formation and design is by European gardeners. Jason is particularly proud of that garden.

“Newmarket can feel like a concrete jungle,” he says. “But the students and staff at this Campus absolutely appreciate this area. It's a space in the middle of the city where you can get out and unwind for a bit. That's so valuable.”

Although the gardens and the plants within them are always changing, the age and history of a plant can play a significant role in the decision-making process surrounding its future.

“My philosophy is that if a tree has lived for



The Asian-fusion garden, also known as the Zen garden, at Newmarket Campus. It features a candy cane bamboo. Photos: Jason Fell



One of Jason's many favourites is the kauri (Agathis Australis) planted by the Governor-General Sir Bernard Fergusson in 1967.

80 years, it has a right to live out its life unless it becomes too dangerous to have it there.”

He says trees on campus didn't suffer too much because of Cyclone Gabrielle. “I put a lot of that down to having a proactive pruning approach to our significant trees on campus.”

One of Jason's favourite plants is a 120-year-old Moreton Bay fig tree at the Epsom Campus. The tree is as old as the Campus itself and because of its significance, has even outlived some of the buildings there.

“When I first took over the Epsom Campus, the Moreton Bay fig was towering over U block. It used to drop its figs and sometimes the branches would fall. It hit a roof one day and no one reported it or did anything, and it caused a leak that wasn't too good for the building.

“Instead of removing the tree, they ended up moving the building off this campus. I liked that because it was as if the tree had won.”

When it comes to designing new planting projects, Jason takes practicality and the future of the garden heavily into account. And he also has some advice on how to make a great garden.

“One thing about being a horticulturist is you are always looking ahead. So, when I design or if I'm looking at a garden, I'm seeing it three years in the future and not now. You do get a lot of landscaping designers that come in and plant, and it looks great initially, but within a year or two it gets so overcrowded that it needs major stuff pulling out.

“When you're designing a garden, you're thinking of varieties of plants, and whether they will suit that area. But also, how easily are they maintained? Do you have to prune the plants a lot? There are many things to consider.”

Due to the limitation of land available, Jason worries that future sustainability initiatives may be more of a challenge to implement. Moving from Epsom Campus will impact the gardeners' work in this area, but they are looking at ways around it.

“When we move from Epsom, we won't have enough land to collect our leaves and mulch, and will have to get chipping done on the other campuses. So it's going to be a challenge to keep up with the composting in the way we have done here at Epsom Campus.”

Always looking at solutions, he has one that could work. “We have Ardmore Field Station so it might be good to try and set up new sustainability initiatives somewhere like that.”

■ William Chea

The exhibition will run from 15 June at Old Government House. Keep an eye on the intranet for details.



CONSERVATION PIONEER HONOURED

Dilys Johns, a senior research fellow in Anthropology, has received a lifetime achievement award.

The award, from the International Council of Museums Committee for Conservation, was for her work conserving taonga found in wet sites throughout Aotearoa New Zealand.

Dilys is a Fellow of the International Institute for Conservation and director of the Conservation Laboratory at the University. In 1987, she established a unique national facility for the conservation of wet organics within the Archaeology Department in the Faculty of Arts (now the School of Social Sciences). The National Wet Organic Archaeological Materials Conservation Laboratory specialises in the study and conservation of waterlogged at-risk taonga tūturu, working with hapū and iwi.

Dilys has been involved with a variety of projects in New Zealand and the Pacific and

has established facilities throughout Aotearoa to conserve waka and large, at-risk collections off-site. These range from 700-year-old waka to the thousands of taonga she has conserved in satellite laboratories that have been established with direct input from hapū/iwi who were consulted not only in the conservation process but in publishing the results.

“Most importantly my four decades of conservation and research with hapū/iwi has helped reconnect taonga with their descendants,” she says. “Our work has enabled 700 years of ancient mātauranga and waka construction expertise to be accessible, enhancing the mana for present and future tamariki.

“My research resources are now being used by heritage agencies and iwi to illustrate the unique and sophisticated transformation of waka manufacture in Aotearoa over time.”

■ Julianne Evans

Full story: auckland.ac.nz/dilys-johns-award

PRIME MINISTER HITS THE CLUBS

The biggest-ever Clubs Expo held on Campus caught a vibe during O'Week.

More than 160 stalls popped up over three days at the City Campus and one day at Grafton. Clubs at the University cover

almost every possible interest from academic and specialist to sport, cultural and political. It was an opportunity to finally mix and mingle in a more relaxed atmosphere, without Covid restrictions.

As well as the students, a number of politicians hit the Clubs Expo, including National leader Christopher Luxon, former Prime Minister and outgoing MP for Mt Albert Jacinda Ardern, Northcote MP Shanan Halbert and Prime Minister Chris Hipkins.



Prime Minister Chris Hipkins obliges with a selfie at the Clubs Expo. Photo: Chris Loufte



Education experts Dr Claudia Rozas Gómez and Professor Peter O'Connor. Photo: Craig Berry

PLAYING WITH LETTERS

A series of letters between two thoughtful educators counters the idea of learning being a race in which you dare not fall behind.

Slow Wonder: Letters on Imagination and Education is written by Professor Peter O'Connor and Dr Claudia Rozas Gómez from the University's Faculty of Education and Social Work. It playfully imagines alternatives to current ways of thinking about education, especially in its focus on the transactional and functional, says Peter, an expert on arts education.

"Everything is jammed in for learning this and learning that, which can strip away the human qualities of relationship building," says Peter.

As well as emailed letters between Peter and Claudia, and those they've written to others, the book features reflective musings in the form of poetry, and even a contrapuntal poem written by Claudia in response to, and intertwined with, Peter's original poem.

Claudia, who has a background in educational sociology and teaching, says she'd enjoyed working with Peter on a previous book, *Playing with Possibilities* (2017), which is where the 'slow wonder' idea emerged and then stayed with them both.

"It became a deeply compelling, seductive idea," says Claudia. "It spoke against the contemporary university in lots of ways, as well as contemporary ideas about education.

"Everything is speeding up, and we're in this era of fast capitalism, fast production, fast consumption; so 'slow wonder' was the opposite. It offered a kind of gentle dawdle. We thought,

"What if we just float on the surface with this notion and see what happens?"

The result was a mutual search for new things to believe in, she says. "There is an existential element to what's happening where we're reckoning with our everyday lives in the University, and within education.

"We challenge the idea that you should always be working towards something that's predetermined."

– ***Dr Claudia Rozas Gómez,***
Faculty of Education and Social Work

"I don't think it's hyperbole to say that the work of academia is to contribute to a conversation that never ends, and letters leant themselves to that. They are personal, whimsical, enraged, righteous; all those things that are normal, good and right for human beings to be."

The correspondence became a bit like a tennis match, says Peter.

"I would lob something over and Claudia would volley it back and take the idea somewhere else. Claudia pushed my writing. She works with an internal editor, whereas I can be a bit scattergun and shoot from the hip. Claudia fought for elegance in every sentence."

Writing during Covid lockdowns affected both

the conditions for writing, in that they had to connect on Zoom or write outside, as well as the content and its sense of hopefulness.

"There was this idea that when we came out of Covid, we would do things differently, and maybe better," says Peter.

Although it turns out, they admit, that we are mostly doing things the same.

One of Claudia's letters features the remarkable story of her great-grandmother Albina.

"She had an arranged marriage at around 13 or 14 with an older man, then ran away from him to the town where my family is from, in the north of Chile. She was widowed, then a son and daughter died, so she brought up all her grandchildren, including my mother."

Claudia says Albina always wanted "to die in the middle of the street so people would have to come and look for her" and that's exactly what happened.

"I use the story to talk about the importance of relationships. In a small town, everyone would have known someone who knew her; I make that connection to our own relationship with the academy and within education."

As well as the value of relationships and slowing down to pay attention and better appreciate things, the letters discuss magic, beauty and imagination.

"Imagination can be a site of resistance, one way to fight back against the orthodoxies," says Peter.

"We thought we should imagine something else if we don't like what we've got," says

Claudia. “We challenge the idea that you should always be working towards something that’s predetermined.

“What if we’re just surprised, what if we don’t know? That seems like such an important element in education; anything else seems like ‘anti-education’: to know everything before you start.”

Peter says they’re not so much throwing everything out as asking what could be better.

“To go back to [American philosopher and educational reformer] John Dewey, famous for the quote, ‘Education is not preparation for life; education is life itself’ we debate what we believe rather than what we know.

“We believe in structured spontaneity; you can still have structure and discipline and knowledge in a classroom, but we ask what might’ve been lost by being so overstructured? We’re seeking those gaps and spaces.”

Peter says the book “is full of their love of teaching and education”, despite their disenchantment with aspects of it, and Claudia agrees.

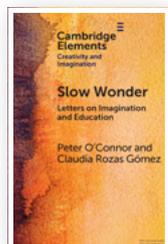
“We ask what might’ve been lost by being so overstructured? We’re seeking those gaps and spaces.”

– **Professor Peter O’Connor,**
Faculty of Education and Social Work

As she writes in her final letter: “We are in an ongoing relationship with education. That is why I tell students that teaching should be a love affair they never forget, or a puzzle they never learn to solve. Education’s state of always becoming is the end game.

“We should be glad for the wrestling because it means we are still engaged. Sometimes all we can do is stand back and look on, and trust the thread will hold. Wonder is the thread that stops us from giving up or surrendering to cynicism.”

■ By Julianne Evans



Slow Wonder: Letters on Imagination and Education,
Peter O’Connor and
Claudia Rozas Gómez,
Cambridge University
Press, \$36



Professor Melinda Webber and
doctoral student Te Kapua O’Connor.

OCKHAM HOPES

A number of staff, alumni and a student are finalists in the Ockham New Zealand Book Awards – winners to be announced on 17 May at the Auckland Writers Festival.

In the general non-fiction award category, Professor Melinda Webber and doctoral student Te Kapua O’Connor are finalists for *A Fire in the Belly of Hineāmaru: A Collection of Narratives about Te Tai Tokerau Tūpuna* (Auckland University Press). Melinda (Ngāti Kahu, Ngāti Hau, Ngāti Hine, Ngāpuhi, Ngāti Whakaue) told *UniNews* last year the book showcases the inspiring lives of ancestors in Te Tai Tokerau and Auckland. The deputy dean in the Faculty of Education and Social Work said: “We grew up without positive narratives about ourselves ...

“The common narrative is that we were the first to be ‘missionised’ and Christianised, and we then became warmongers. That was the story we were taught of our ancestors.”

Those stereotypes shape who young Māori think they can be, she said. “They can become self-fulfilling prophecies, so our young people really need counter-narratives.”

Co-author Te Kapua (Ngāti Kurī, Pohūtiare), is a PhD student in Māori Studies. Quentin Hita also translated the book into te reo Māori.

In the same category, alumnus Dr Ned Fletcher (PhD Law, 2015) is a finalist with *The English Text of the Treaty of Waitangi* (Bridget Williams Books).

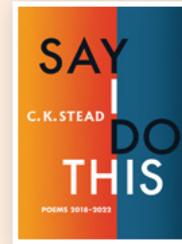
Alumna Dr Nina Tonga (PhD Art History, 2022) is a finalist in the illustrated non-fiction award. She was a co-editor on *Robin White: Something Is Happening Here* (Te Papa Press and Auckland Art Gallery Toi o Tāmaki).

Up for the poetry award is *Always Italicise:*

How to Write While Colonised (Auckland University Press) by Dr Alice Te Punga Somerville (Te Āti Awa, Taranaki). Alice did her MA in English at Auckland, her PhD at Cornell University and is now a professor at the University of British Columbia.

Robert Vennell’s book *Secrets of the Sea: The Story of New Zealand’s Native Sea Creatures* (HarperCollins, see right) is a finalist in the award for illustrated non-fiction. It features historical illustrations as well as photos. Robert finished his MSc in 2017.

BOOKS



Say I Do This: Poems
2018-2022

Emeritus Professor C.K. Stead, now 90, has put out a poignant poetry collection reflecting on home, away and friends, living and dead.

Emeritus Professor of

English Mac Jackson describes it as resounding “with intimations of mortality compounded with reactions to a contemporary world of pandemic, climate change and war, but this collection is not in the least morose”.

C.K. Stead, Auckland University Press, \$35



Golden Days

This is Master of Creative Writing alumna Caroline Barron’s second book (following her award-winning memoir *Ripiro Beach*). *Golden Days* is a psychological novel about the intense

late-teen 1995 friendship between Becky and Zoe and what happens when one terrifying night changes their lives and destroys their friendship forever.

Caroline Barron, Affirm Press, \$38

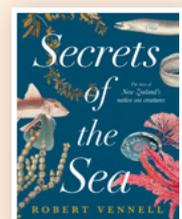


It’s Not Rocket Science: a Guide to the School Improvement Cycle

Alumnae Frauke Meyer and Linda Bendikson, both with PhDs in Education, have been involved in many research projects together which inform

this book. It gives guidance on leading school improvement effectively and aims to support busy principals and other school leaders. It includes case studies and examples that show steps towards improvement that have worked. Linda is the former director of the University’s Centre of Educational Leadership.

Frauke Meyer and Linda Bendikson,
Myers Education Press, \$40



Secrets of the Sea: The Story of New Zealand’s Native Sea Creatures

This book was published last year, but we missed it. It’s a beautifully illustrated hardback about Aotearoa’s fish and shellfish, by Science

alumnus Robert Vennell. His previous book, *The Meaning of Trees: The History and Use of New Zealand’s Native Plants* was a best-seller.

Robert Vennell, Harper Collins, \$55

“AI tools are not a replacement for human expertise, but are tools that can augment and enhance it.”

Associate Professor Alex Sims

Photo: Elise Manahan

ALL THE CHAT IS ABOUT AI

Artificial Intelligence tools used for writing present a much-needed opportunity to reimagine education assessment, says Associate Professor Alex Sims.

ChatGPT is creating angst in tertiary education and it seems it's difficult for some university lecturers, who are used to doing things a certain way, to embrace the rapid change in this technology. But many of us teaching in universities also relish the opportunity such tools enable.

The software has attracted considerable media attention this year for its ability to answer questions, provide advice on almost any topic in fluent, well-written English, to write computer code and perform various other tasks.

The chatbot, launched in November 2022, has been tested using a broad range of exam questions, including law, medical and business exams. It passed those exams.

Some of the answers provided by ChatGPT have rendered experts speechless. Yet the uncanny answers were pure luck. ChatGPT does not know whether an answer is correct; it simply predicts the solution based on its massive dataset. Therefore, many answers are not 100 percent accurate and can even be spectacularly wrong. A human is needed to determine the accuracy of answers.

The reaction of universities to ChatGPT and other similar artificial intelligence (AI) tools has been mixed, falling into three main types: prevention, banning and embracing.

To prevent their use, some universities are falling back to in-person exams featuring

old-fashioned pen and paper. However tests and exams have never been ideal assessment methods. They don't indicate whether a person can work well in teams, present and communicate information orally, and they disadvantage those with debilitating exam anxiety and so on. To accommodate these limitations, many courses have reduced the percentage of course marks given out for tests and exams.

In addition, preventing the use of ChatGPT would work only if all of a course's assessments were for in-person work. To ensure no student could use ChatGPT would require increasing the percentage of marks for old-school tests and exams, a retrograde step.

Second, some tertiary providers have explored banning ChatGPT, other AI tools, and promoting the use of AI detection tools. These AI detection tools are not 100 percent accurate and can be worked around. My concern is that students will spend more time attempting to circumvent the system than learning the content.

Both banning and preventing the use of AI tools for all or most assessments is counterproductive. People will not, for the foreseeable future, be in competition with AI. Instead, they will be competing with people who are adept and skilled at using such tools. People unable to use AI tools may become unemployable in many professional settings as they will be too inefficient and slow.

The key to successfully integrating AI into education lies in understanding that AI tools are not a replacement for human expertise but are tools that can augment and enhance it.

Universities need to teach students how to use these tools effectively. A concerted effort is necessary to provide training and guidance on how to use AI to enhance students' learning and prepare them for the workforce.

We have adapted to new tools in the past. For

example, the fears that electronic spreadsheets would put accountants out of work did not materialise.

Now AI tools are forcing a much-needed opportunity to reimagine the role of education in the 21st century. So where does this leave us with the vexed question of assessment? How do we assess students' knowledge? For most university courses, some element of in-person evaluation, whether written, oral, or both, is necessary. The remaining assessments require rethinking, and what may work for one discipline or course may not work for others.

One idea is that instead of providing a question to which the student writes an answer (the traditional approach), both the question and answer could be given. The students could critique both the question and answer and explain what they think is correct and/or incorrect and why.

Alternatively, a student could be assessed on the nature and quality of the prompts they ask an AI tool. This will increase the time required for marking, but it will assist the students' skills with using the tools and provide a good way of assessing their knowledge of the subject matter at hand.

As with most technology, the challenge is not the technology itself but rather our human emotions, experience and reaction to it.

■ Alex Sims is an associate professor in the Department of Commercial Law and an associate at the UCL Centre for Blockchain Technologies.

This piece is adapted from one first published on *Newsroom* in February as 'ChatGPT and the future of university assessments'.

The views in this article are personal opinion and are not necessarily those of the University of Auckland.