



Department of Anatomy  
School of Biomedical Sciences



# THE INSIDE STORY

Issue 45, December 2021



Accepting their Otago Awards are Associate Professor Stephanie Woodley, Ms Carol Dunstone, Dr Latika Samalia and Mr Chris Smith

## Excellence recognised at Otago Awards

The Anatomy flag was flying high at the University of Otago Staff Awards held recently under restricted Covid Alert Level 2 guidelines. The Department was well represented with recipients in each of the three award categories - Research, Teaching and Professional Staff Awards.

Those honoured at the event were Ms Carol Dunstone (Professional Staff Award), Dr Mike Garratt (Early Career Award for Distinction in Research), Dr Charlotte King (Early Career Award for Distinction in Research), Dr Latika Samalia (Excellence in Teaching Award), Mr Chris Smith (Professional Staff Award), and Associate Professor Stephanie Woodley (Excellence in Teaching Award).

Head of Department Professor Lisa Matisoo Smith, who was able to attend the event along with the recipients, said she was extremely proud to see Anatomy staff honoured in all of the award categories. *"This goes to show the immense talent we have in Anatomy over all areas of the department. I am so proud of the achievements of all our staff but it is especially pleasing to see a few of our fantastic people recognised by the University for the hard work and dedication they give to their roles in the Department."*

More details about our Award recipients can be found on page 3.

# From the HoDs desk



Prof Lisa Matisoo-Smith

Well, here we are at the end of the year – and what a year it has been, in both good ways and difficult ways. I have just put together our Anatomy Year in Review presentation to show at the end of year lunch/Christmas Party, which has revived so many memories of 2021, including several rescheduled and postponed graduation ceremonies and finally one that eventually went ahead.

Of course, as you will read here, the Department has had an incredible year in Research, Teaching, and Service Awards, which makes us all very proud and pleased that our staff are being recognised for their excellence. There have been great funding successes and, sadly, unsuccessful applications, yet we continue to fight and support one another in any way we can.

As show of that support for one another, we awarded over 195 chocolate fish at our “Good News Thursday Morning Tea” events over the last 20 months, acknowledging small acts of kindness and offers of thanks. Sadly, we were unable to hold our Thanksgiving Service this year to acknowledge the incredible gift we have been given by all our donors and their families which allows us to keep our teaching program running and to undertake important research. We will reschedule as soon as possible in the New Year.

It is again with joy and a bit of sadness that I realise that this is the last newsletter that I will contribute to, as I will be stepping down as Head of Department at the end of January. I would like to take this opportunity to thank Kathryn McClea for her wonderful skills and work in putting out this newsletter, and similarly, I wish to thank the staff, students, and friends of the Department of Anatomy for all that they/you do to make this a wonderful place to work and study and such a place to be proud of. Wishing you all a wonderful holiday season full of peace and joy.

Ngā mihi nui,  
Lisa  
Head of Department

## Prestigious Fellowship for researcher



Dr Alana Alexander

[Dr Alana Alexander](#) (Ngāpuhi: Te Hikutu, Pākehā) has been awarded a prestigious Rutherford Discovery Fellowship. The fellowship, \$800,000 in funding over five years, will enable her to continue her research looking at past impacts of fisheries on the endangered Hector's and Māui dolphins and use genomics to predict the impact of future climate change on whales and dolphins.

Alana is passionate about developing and translating her research (science pūrākau) with hapū to help empower those who hold kaitiakitanga (guardianship and protection) and rangatiratanga (Māori rights) over taonga (treasured possession) species.

*“Many iwi have strong relationships with whales and dolphins, however there have been barriers to putting insights of genomic research on taonga species into the hands of hapori Māori.”*

*“Science pūrākau will help support the significance and legitimacy of Te Ao Māori knowledge structures” she says.*

In 2020 Alana featured in the *100 women, 100 words ... infinite possibilities* exhibition at the Otago Museum which showcased the stories of one hundred Otago and Southland women and girls involved in science.



# University of Otago Staff Awards

The University of Otago Staff Awards were held in November to honour academic and professional staff across the University for their outstanding achievements throughout 2020 and 2021. The following Anatomy staff were recognised.



## Ms Carol Dunstone - 2021 Professional Staff Award

Carol received a Professional Staff Award in recognition of her tireless work in the Department as Technical Manager, overseeing people and projects and managing resources for the Department's more than 250 staff and postgraduate students.

Visit the [University of Otago website](#) to learn more about Carol's award.



## Dr Mike Garratt - Early Career Award for Distinction in Research

Mike received a University of Otago Early Career Award for Distinction in Research. His research encompasses the fields of reproduction, physiology behaviour and evolutionary biology. His main focus lies in understanding how reproduction influences life-history, health and ageing.

Visit the University of Otago website to learn more about [Mike's](#) research.



## Dr Charlotte King - Early Career Award for Distinction in Research

Charlotte received a University of Otago Early Career Award for Distinction in Research. She has an international reputation in the field of biological anthropology. Her research focusses on the emergence of agricultural societies and the ways transition has helped shape human culture and biology.

Visit the University of Otago website to learn more about [Charlotte's](#) research.



## Dr Latika Samalia - 2021 Excellence in Teaching (Pacific Island Endorsement)

Latika received a University of Otago Excellence in Teaching Award (with a Pacific Island Endorsement) for her dedication and enthusiasm for teaching anatomy to her students and for providing a safe, relaxed and undaunting environment for them to work in.

Visit the [University of Otago website](#) to learn more.



## Mr Chris Smith - 2021 Professional Staff Award

Chris received a Professional Staff Award in recognition of his exceptional service to the University and wider community through his role as the Curator of the W.D. Trotter Anatomy Museum. His passion for the museum and its history is evident through his knowledge of the museum and its collections, and his involvement with medical school reunion groups, and the Otago Medical School Alumni Association.

Visit the [University of Otago website](#) to learn more about Chris' award.



## A/P Stephanie Woodley - 2020 Excellence in Teaching Award

Steph received an Excellence in Teaching Award in 2020, however due to Covid restrictions the awards ceremony could not be held in 2020. She, along with fellow 2020 award recipients, was able to attend and be celebrated at this year's event.

Her award is in recognition of her sustained excellence in developing new curricula, initiating new ideas, improving her teaching, and providing leadership in teaching and course design. This acknowledges her passion for creating a dynamic, student-centred, learning environment to foster critical-thinking and instil a deep knowledge of clinically-relevant anatomy in her science and physiotherapy students, features which she also weaves into health professional workshops and outreach activities for the wider community.

Visit the University of Otago website to learn more about [Steph's](#) teaching and research.

# Giving back for the future

Medical textbooks, histology slides and brain moulds are some of the teaching resources PhD candidate Nethmini Haththotuwa has been collecting and sending back to her home University in Kandy, Sri Lanka.

A team of helpers from Anatomy is supporting Nethmini's endeavour to give back to the University of Peradeniya where Nethmini gained her undergraduate and Masters degrees, and where she also holds the position of Lecturer (probationary) in the Department of Basic Sciences, Faculty of Allied Health Sciences.

Stethoscopes, tendon hammers, a surgical instrument steriliser, histology slides and scanned images, various models and plastic bone sets, along with jelly brain plaster cast moulds and 122 medical textbooks are some of the resources collected from around the Department of Anatomy. Nethmini and Dr Latika Samalia are also working together to develop and plan the layout of new dissection room, pathology and histology classrooms and a cadaver storage facility.

Initially, Nethmini was collecting and sending the items to Sri Lanka out of her own pocket. She now has the help and support of Professor George Dias, Dr Samalia, Dr Louisa Baillie, Mr Chris Smith and Ms Fieke Neuman who have all pitched in to find resources which still have an educational value, but are surplus to requirements in the department.

Many of the resources will find a home in the new Anatomy Museum at the Department of Basic Sciences which the University of Peradeniya will officially open on 17th December 2021.

Nethmini came to the Department of Anatomy in 2019 to undertake postdoctoral study under the supervision of Professor George Dias. Her research looks at the effects of a novel protein, developed by the Dias research group, on the health of hair and skin using in vivo and in vitro tests.

She plans to graduate and return to Sri Lanka, and her lecturing position in October 2022.

Anyone who would like to donate a resource is welcome to email [Nethmini](#).

## 3-minute presentation success

It's been a good year for Nethmini. She recently took part in the Department of Food Science's Annual Research Day and was placed third in their 3-minute presentation.

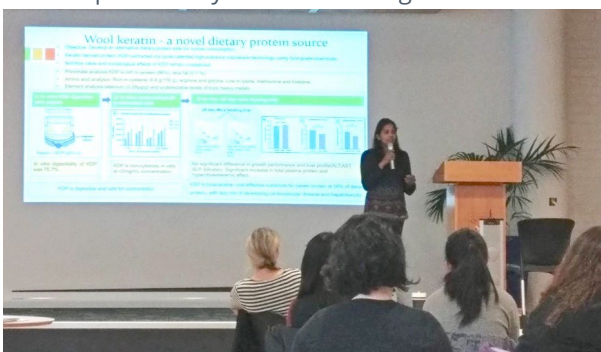
Her doctoral research investigates the effects of novel dietary protein extracted from sheep wool on skin and hair. She is co-supervised by Professor George Dias from Anatomy and Associate Professor Alladin Bekhit from the Department of



With some of the donated books are (L to R) Dr Louisa Baillie, Fieke Neuman, Dr Latika Samalia, Chris Smith and Nethmini Haththotuwa (seated)

Food Science which gave her the opportunity to present part of her research findings at their research day and talk about the value of wool keratin as a novel dietary protein source, nutricosmetic and nutraceutical.

*"It was challenging to say everything within 3 minutes and answer the questions from food science experts. But I won third place out of seven presenters from the Food Science Department so I was pretty happy to get a place for the Department of Anatomy!"*





# Funding boost for health care projects

Two major research projects involving Anatomy researchers have received a funding boost from the NZ Lottery Health Board. Both projects aim to provide better care and health outcomes for New Zealanders.

## Supportive care needs in prostate cancer patients

[Dr Erik Wibowo](#) is an Associate Investigator in a research project that aims to improve the quality of life for prostate cancer patients. Prostate cancer is a significant health burden within New Zealand and is the most commonly diagnosed cancer in men. Although the survival rate for this male cancer is encouraging, for most men living with or surviving prostate cancer, the months and years after treatment – known as the survivorship period – present a new set of challenges (e.g. treatment decisions, side effects and symptom management). Consequently, their quality of life during the extended survivorship will be maintained if supportive care meets the needs of the patients. This research will assess supportive care needs of prostate cancer patients in New Zealand and is aimed to directly benefit healthcare providers by providing evidence for supportive care among New Zealand prostate cancer patients.



Dr Erik Wibowo

This research, headed by Professor Dave Baxter (School of Physiotherapy), has received \$115,366 in funding from the NZ Lottery Health Board.

## Blood test for early Alzheimer's detection

[Associate Professor Joanna Williams](#), Scientific Officer Diane Guévremont and co-researchers in Australia have received \$89,421 to support their research on the development of a blood test that can provide early detection for people at risk of developing Alzheimer's disease.

Joanna's research team have previously discovered that small microRNA molecules found in blood plasma change as the symptoms of Alzheimer's disease progress. *"A blood test to pick up the changes in these molecules would allow early intervention before memory loss begins"* she says.

More than 70,000 New Zealanders are diagnosed with Alzheimer's disease and this is likely to rise to 150,000 in the coming years. A therapy that delays the onset of this disease by as little as a year will reduce associated health costs by \$300 million per annum but this is only possible through early detection.



A/P Joanna Williams

# BMS Teaching and Research Awards

Congratulations to our staff who were honoured with awards at the School of Biomedical Sciences Research and Teaching Awards. The awards recognise distinguished and sustained contributions to teaching and research throughout 2021.



Receiving their awards are Dr Mike Garratt, Dr Catherine Collins (with baby Poppy) and Prof Lisa Matisoo-Smith [Absent - Tim McLennan]

Those who received awards were:

*Distinguished Professional Practice Fellow/Teaching Fellow*  
- Tim McLennan

*Pacifica Research Award*  
- Prof Lisa Matisoo-Smith

*Hauora and Kaupapa Māori Research Award*  
- Dr Catherine Collins

*Emerging Researcher Award*  
- Dr Mike Garratt

# A career of microscopic proportions!

Mr Allan Mitchell retired recently after 47 years working at the University of Otago. Throughout those years many students and academics whose research was dependent on electron microscopy (EM) will have Allan to thank for helping produce the images and results that appear in their theses and publications.



Allan joined the Department of Anatomy in June 1974 when he was appointed as a Technical Trainee (and sole technician) in the department's Electron Microscope Unit. 1974 was a good year – Christchurch hosted the Commonwealth Games in January, Norman Kirk was Prime Minister (although he was to die on 31 August that same year), TV sitcom 'Happy Days' debuted on television, the Bull Dogs All-Star Goodtime Band was voted group of the year (look them up – they're great!), and the New Zealand cricket team defeated Australia in a test match for the very first time.

It was also a good year for microscopy at Otago because it marked the beginning of a wonderful career for Allan and the development and growth of electron microscopy at Otago.

He may have started out as a trainee, but by 1990 Allan was managing the South Campus EM Unit following the amalgamation of the Anatomy and Pathology EM Units. In 1992 the Microbiology EM Unit moved into the South Campus EM Unit, the Dental School EM Unit joined in 1999 and Allan became Manager of the only EM Unit on the Dunedin campus at the University of Otago.

The Unit is known today as OMNI Electron Microscopy and it now encompasses five full-time technical staff, five electron microscopes and an operating budget

of nearly \$1m.

Allan's passion and commitment to electron microscopy over the years is evidenced by the survival of the Unit through some very difficult years and his overall ethos of maintaining an environment of 'happy motoring' for researchers and the Unit's staff.

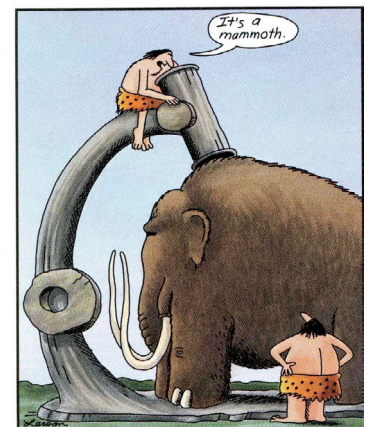
It can be said that Allan has been an indomitable fighter for EM. Electron microscopes are not cheap and Allan has had to work hard to push for the best equipment possible. In order to do this he has had to be far more than a mere technician. He has had to appreciate the research of a diverse group of academics working in very different fields, he has expanded his administrative skills, and acquired a dose of savvy political skills along the way! Without the latter many hopeful projects would never have seen the light of day.

His tenacity and commitment is evidenced by the strong support he and his team provided to senior academics and Heads of Departments of Anatomy to procure significant funding for new electron microscopes. 2011 brought success to purchase a \$NZ 2.2 million dollar strategic cryo-transmission electron microscope. This microscope is now leveraging significant publications and grant income.

The latest new technology to be introduced to the Unit is the serial block face scanning electron microscope. This revolutionary system is the ideal tool for understanding complex, three-dimensional structures at the nanometer level. As usual, Allan was closely involved in shepherding this exciting new capability through from initial idea to procurement.

Over the years he developed his own skills and expertise in the processing and imaging of a vast array of samples, from plants to bugs to synapses in the brain to rocks and teeth. Allan is well known and well regarded internationally for his wide-ranging EM expertise.

I will leave the last word to Professor Gareth Jones who spoke at Allan's retirement function. *"Allan has changed little over the years. He has resisted the temptation to acquire a suit, let alone a tie, and he could never be mistaken for one of the real managers who never go near a lab. And for that we are all very grateful."*



Early microscope

Thank you to Professor Gareth Jones and Professor Dorothy Oorschot for providing information for this story.



# News in Brief

## Can-do attitude for Can Appeal

Staff and postgraduate students have been donating cans and other non-perishable food items for the School of Biomedical Sciences Foodbank appeal.

While the main drop-off point for donations was the Anatomy tea-room, Ms Aven Drayson (below) often found herself working amongst the over-flow of donated goods.

Thank you everyone for your generous donations.



## Excellence in Teaching

Dr Latika Samalia was recently awarded the Dean's Medal for Excellence in Teaching by the Dean of the Otago Medical School Professor Rathana Subramaniam.

This latest award comes after Latika received a University of Otago Award for Excellence in Teaching (Pacific Island Endorsement), and being named the winner of the Ako Aotearoa Prime Minister's Supreme Award for 2021.

It has certainly been a big year for Latika. The incoming Medicine and Dental classes are certainly in very capable hands!



# No close-shave for Anat-Mo' Bros'

Supporting men's mental health and suicide prevention were the motivating factors for three Anatomy Teaching Fellows who threw away their razors in support of the Movember Fundraiser. Jeremy McCallum-Loudeac, Tim McLennan and Niranjana Ramesh joined more than 353,000 men around the world who proudly grew, shaped and preened their upper-lips to raise funds in support of health projects in mental health and suicide prevention, prostate cancer and testicular cancer.

It was a massive effort from the guys, not only raising impressive moustaches but also raising \$1,566 over the 30 days of Movember.

But it doesn't stop here. Movember fundraising continues right through until the end of the financial year - April 2022 - so it's not too late to support them.

You can still donate through the [Anat-Mo' Bros'](#) Movember web page or scan the QR code below.

Jeremy, Tim and Niranjana wish to thank everyone (especially their Anatomy colleagues) who contributed towards the cause, and have helped support and promote the awareness of men's mental health.

To learn more about Movember and men's health head to the [Movember](#) website.



*Below: Showing off the mo' are Niranjana Ramesh, Jeremy McCallum-Loudeac and Tim McLennan*



# Marsden research funding success

Researchers in the Department of Anatomy are celebrating after receiving funding from one of New Zealand's largest funding bodies. Support for the following projects, led by the department's leading and emerging researchers, will help develop emerging and novel research which impact areas of reproduction, climate and social change.

## Standard Grants:

[Dr Michael Garratt](#) - \$926,000

*Beyond sperm transport: how seminal fluid shapes the female life course.*

Dr Garratt's previous research made the startling discovery that the act of mating elicits major changes to a female animal's life-course, increasing growth and fertility but shortening lifespan. This occurs even without sperm in the ejaculate, suggesting that factors in seminal fluid other than sperm cause these remarkable effects. This project will directly manipulate the transfer of seminal fluid during mating in mice to establish whether this is the causal stimulus that influences female growth, fertility and ageing. This research could reveal far-reaching effects of seminal fluid exposure beyond sperm transport, providing new insights that could help manage and improve livestock productivity and human health.



[Distinguished Professor Neil Gemmell](#) - \$926,000

*Succession or suppression: how do sex-changing fish know when they should or shouldn't change sex?*

Many fish species change sex during adulthood due to changes in their social environment. Typically, the absence of a dominant male triggers sex change in the dominant female. How male absence initiates such a striking transformation is as mysterious as it is extraordinary. The project aims to determine the traits and cues of the social hierarchies, how an individual's position in its social hierarchy impacts on its capacity to change sex, and the behavioural cues and molecular events that precede and encompass the initiation of socially regulated sex change.



[Dr Sharon Ladyman](#) - \$939,000

*Neurons to keep mums cool.*

A recently identified population of neurons in the preoptic area of the brain can profoundly reduce body temperature, but their role in a physiological context is unknown. These neurons express receptors for the pregnancy hormone, prolactin, suggesting they may be important in regulating maternal body temperature during pregnancy. This project aims to investigate whether prolactin acts in these thermoregulatory neurons during pregnancy to sensitize their response to elevations in body temperature. This work will provide novel insight into plasticity of thermoregulation and demonstrate a key physiological function of these recently identified thermoregulating neurons.



## Fast-Start Grants:

[Dr Gert-Jan Jeunen](#) - \$360,000

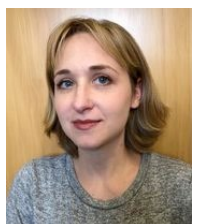
*Molecular time-capsules of oceans past - reconstructing Antarctica's marine ecosystems using historical environmental DNA from marine invertebrate collections.*

Our oceans are under siege from increasing anthropogenic pressures. The extent and speed of ecological changes in the marine domain has rarely been quantified, because long-term ecological records are scarce and accurate historical data difficult and expensive to obtain. By linking historical and contemporary eDNA surveys at matching sites in Antarctica's Ross Sea, this project will investigate how regional biodiversity has altered over 70 years. Using the data alongside information on industrialisation, bio-invasion and climatic change, this project will gain new insights into how the Ross Sea ecosystem has altered during a period of extraordinary anthropogenic and climatic changes.

[Dr Annie Sohler](#) - \$360,000

*Embodied Colonialism: Bio histories of 19th-century Pākehā and Chinese Migrants to New Zealand.*

The first generation of Cantonese and Pākehā settlers in New Zealand experienced significant environmental and social changes associated with relocation to the Deep South. Recent exhumations of early settlers and gold miners from Otago cemeteries have provided a unique opportunity to learn who these people were. By examining microscopic markers of stress and disease in tissues that form during childhood and those that form in adulthood, a longitudinal portrait of a person's health over time can be reconstructed. Biological techniques integrated with archival research will be used to reconstruct the biological history of each migrant, from stresses suffered during childhood in their "home" country to their death in Zealand, revealing the embodied effects of migration and environmental adaptation.





# Students get into summer research

The lazy hazy days of summer may be over for some students who have chosen to spend their holidays working as a Summer Research Scholarship Student. Twenty-six students will be involved in research projects across the various research groups within the Department of Anatomy.

The University's Summer Research Programme aims to give students the opportunity to spend 10 weeks' working in a clinical, laboratory-based research lab, biomedical science, ethics or public health area that is of interest to them. Most of the students who have chosen to undertake a research project in Anatomy are either about to embark on postgraduate study or will be continuing their postgraduate study in 2022. The students will be required to submit a report at the conclusion of their research project.

Those undertaking summer research projects in Anatomy are:

**Adam Kitchen** (Supervised by Prof Neil Gemmell, Dr Gert-Jan Jeunen, Prof Gerry Closs (Zoology))

**Annabell Voice-Powell** *"A Novel Optogenetic Tool for Revealing how Inflammation Alters Brain Serotonin"*

Anxiety disorders are closely linked with neuroinflammation, but methods for studying how inflammatory markers like cytokines alter neuronal function to promote anxious states are limited. The proposed study will validate a new optogenetic tool for manipulating relevant signalling pathways in specific brain regions in a highly controlled "on-off" manner, avoiding confounds associated with genetic knockout models and non-specific pharmaceuticals. Using this tool, we can unmask the biological link between inflammation and anxiety, which will help identify new therapeutic targets to treat one of the leading causes of health loss in New Zealand. (Supervisor: Dr Mick Watt and supported by an Otago Medical Research Foundation Scholarship)

**Anna Kardalisky** (Supervisors: Dr Eddy Dowle, Prof Neil Gemmell, Dr Gert-Jan Jeunen)

**Arvin Keith** *"Osteobiographies of the skeletons in the W.D. Trotter Anatomy Museum: Using old and new forensic techniques to tell their stories and explore their treatment in the present"*

The W.D. Trotter Anatomy Museum is an invaluable resource for research and education, housing the largest human anatomical collection in the Southern Hemisphere with over 2,000 specimens and models. Many of the skeletons in the Museum were purchased historically from South Asia. Internationally, there has been an increased amount of ethical debate about these types of legacy collections. This project aims to tell the life stories of these human remains using traditional and new techniques to assess ancestry, age-at-death, sex and quality of life. Application of indigenous knowledge provides potential to improve contemporary pedagogies within anatomical science education. (Supervisors: A/P Siân Halcrow, Dr Charlotte King)

**Blair McInnarney** *"The potential for low-dose caffeine to rescue midbrain dopaminergic neurons and hence attention deficit/hyperactivity disorder"*

This research focuses on the neuroprotective properties of caffeine for dopaminergic neurons in a subregion of the midbrain. This is contextual to the development of attention-deficit/hyperactivity disorder in extremely premature infants. Previous research has shown that a higher dosage of caffeine is neuroprotective. However, given poor side-effects in these studies, there is a need for a low-dose treatment to be investigated. Using an appropriate rat model, treatment interventions have already been administered. In my summer research project, stereology is used to analyse sections, allowing the absolute number of dopaminergic neurons in a subregion of each rat's midbrain to be calculated. This will allow us to quantitatively assess any protective properties. (Supervisor: Prof Dorothy Oorschot)

**Brooke Willoughby** *"University Science Students Studying Anatomy – What Motivates Them to Learn?"*

The research that Brooke is undertaking this summer is all about motivation – specifically what motivates learning in science students who are studying anatomy. Part of her project involves analysing survey data from 200 students who study anatomy, and part of it involves facilitating and interpreting student discussions from focus groups and individual interviews. The knowledge gained from this project will be used to inform and refine student-centric educational approaches in anatomy, with the aim of increasing student motivation. (Supervisors: A/P Steph Woodley, Dr Rebecca Bird and Dr Natasha Flack)

**Cameron Young**      *"Bringing the past to life: Telling the stories of people from the Otago Anatomy Museum using forensic methods and an indigenous framework"*

The W.D. Trotter Anatomy Museum is an invaluable resource for research and education, housing the largest human anatomical collection in the Southern Hemisphere with over 2,000 specimens and models. Many of the skeletons in the Museum were purchased historically from South Asia. Internationally, there has been an increased amount of ethical debate about these types of legacy collections. This project aims to tell the life stories of these human remains using traditional and new techniques to assess ancestry, age-at-death, sex and quality of life. Application of indigenous knowledge provides potential to improve contemporary pedagogies within anatomical science education. (Supervisor: A/P Siân Halcrow)

**Daniel Taylor** (Supervisor: Dr Phil Blyth)

**Emma Sudron**      *"Improvement of Wallaby detection and control methods"*

Emma's project aims to improve wallaby detection and control methods, a major objective of the National Wallaby Eradication Programme. The project will use strontium isotope analysis of wallaby teeth, hair and claws to try and identify the place of origin for three culled animals. This pilot study will provide a proof of concept for the use of strontium isotope analyses to determine the range and mobility patterns of the Bennett's Wallaby in Otago. (Supervisor: Dr Rebecca Kinaston)

**Eugene Kado**      *"Expression of crebrf mRNA in key metabolic hypothalamic nuclei"*

The R457Q CREBRF gene variant is only detected in polynesian populations and has been shown to associate with improved glucose tolerance and is protective against developing gestational diabetes. The aim of this project is to examine the expression of CREBRF in the brain, particularly the metabolic centres of the hypothalamus. Eugene will use RNAscope methodology to examine levels of CREBRF in both control mice and in a novel mouse line in which the Polynesian-specific variant has been knocked into the Crebrf gene. (Supervisors: Prof Dave Grattan and Dr Sharon Ladyman)

**Fong Fu**      *"Openness to using an external penile prosthesis for maintaining sexual intimacy by men with erectile dysfunction"*

Fong is exploring how willing men with erectile dysfunction in trying a novel management strategy (an external penile prosthesis) to maintain sexual intimacy. Fong's research has an important clinical relevance in sexual medicine, as many commonly offered treatment for erectile dysfunction have limitations that lead to men abandoning them. (Supervisors: Dr Erik Wibowo, Dr Lauren Walker (University of Calgary))

**Grace Kendall**      *"Linking gut dysfunction and brain inflammation in Parkinson's disease"*

This project aims to quantify neuroinflammation in a novel gut-focused rat model of Parkinson's disease (PD) in which chronic gut inflammation exacerbates dopamine neuron degeneration and motor deficits. Levels of central and peripheral inflammatory markers will be quantified via blood cytokine analysis and immunohistochemical staining of CD68, GFAP, TNF- $\alpha$ , and  $\alpha$ -synuclein in the substantia nigra (SN) and compared between the established 6-OHDA model and the novel model. Additionally, the extent of SN dopamine neuron loss will be stereologically quantified. The development of an animal model of PD that exhibits wider pathology and symptoms holds the potential to further our understanding of PD and expand research to allow testing of novel gut-focused treatments. (Supervisor: A/P Louise Parr-Brownlie)

**Grace Suhono** (Supervisors: Dr Laura Gumy, Dr Macarena Pavez)

**Harriet Spoelstra**      *"Exploring how a naturally occurring brain protein enhances memory processes"*

I am using immunocytochemistry and microscopy to investigate the relationship between the molecule, secreted amyloid precursor protein (sAPP $\alpha$ ), and the surface expression and synaptic localisation of the GluN1 component of NMDA glutamate receptors. sAPP $\alpha$  is a neurotrophic and memory-enhancing protein and understanding the mechanisms behind its memory-enhancing properties could prove useful for advancing sAPP $\alpha$  as a potential therapeutic for Alzheimer's disease. (Supervisor: A/P Joanna Williams)

**Hua Shin Tan** (Supervisors: Dr Ming Zhang, Dr Johann Zwirner)

**Jamie Salemink-Waldren** *"Experiences with endometriosis and/or PCOS in Aotearoa New Zealand"*

Jamie is undertaking an online survey to investigate the intersection of endometriosis and polycystic ovary syndrome (PCOS) in Aotearoa New Zealand. Although research is being done into both diseases no studies have investigated how these two diseases interact and what the subsequent consequences are for affected individuals. This project is the first step in the



development of a biopsychosocial research programme examining the intersection of these diseases. Since the launch of the survey, over 1000 responses have been received, which Jamie will analyse over the remaining period of his summer studentship. (Co-supervisor: Dr Jane Girling)

**Josh Plowman** (Supervisor: Dr Tim Hore, Dr Melanie Laird)

**Katie Frost** *"An anatomical investigation of the deep flexor muscles of the leg"*

This is Katie's second year with the Department of Anatomy as a summer student working within the Clinical Anatomy Research Group. The research she will be undertaking over this summer is an extension to her previous project, and focusses on the muscles of the deep flexor compartment of the leg - tibialis posterior, flexor digitorum longus and flexor hallucis longus. This project will involve cadaveric dissection and 3D technology to explore the detailed characteristics of this muscle group, which are important for understanding the changes that may occur in pathological conditions. (Supervisor: Dr Natasha Flack and A/P Steph Woodley)

**Matt Gillett** *"Role of prolactin in maternal adaptations of the small intestine"*

Pregnancy and lactation are highly metabolically challenging periods and food intake increases to meet these energy demands. One key maternal metabolic adaptation is an increase in surface area of the small intestine to allow increased nutrient absorption. Recently, it has been suggested that prolactin, a key lactogenic hormone released during pregnancy, plays a role in mediating this adaptation. Matt's project will use a transgenic mouse with a deletion of prolactin receptors in the small intestine to investigate the contribution of prolactin action in the small intestine to food intake, meal patterning and body weight gain during pregnancy. (Supervisor: Dr Sharon Ladyman)

**Meera Rathan** *"Production of the endothelial isotope of human secreted amyloid precursor protein-alpha to investigate its protective effect on the Blood Brain Barrier"*

The aim of Meera's project is to produce a human neuroprotective protein known as secreted amyloid precursor protein-alpha (sAPPα). I will be growing a cell line that expresses a form of this protein normally produced by cells of the Blood Brain Barrier. The Blood Brain Barrier prevents toxic substances entering the brain and the strength of this barrier is altered in diseases such as Alzheimer's disease. This sAPPα protein will be essential for use in future studies to understand how this protein might be used to strengthen the blood brain barrier during diseases such as Alzheimer's. (Supervisors: Dr Margaret Ryan, Prof Warren Tate (Biochemistry), with support from Katie Bourne (Biochemistry))

**Nicholas Anderson** *"Why is egg development so slow in the ovary?"*

Nick's summer project focuses on the ovarian follicle, a cellular structures that help oocytes (eggs) develop in the ovary. Nick's project uses a drug (Bromodeoxyuridine) that can measure cell division 48 hours in the past and a second technique that can measure cell division in the present (ki67 immunohistochemistry). The project will determine whether ovarian follicle grow slowly at a continuous rate or in a series of rapid bursts with prolonged pauses between. Eggs take a long time to mature in the ovary and understanding this process will help us understand how important it is for a female to live a healthy lifestyle in the weeks or months leading up to pregnancy. (Supervisor: Dr Michael Pankhurst)

**Rebekah Perry** (Supervisor: Dr Andrew Clarkson)

**Saane Fakapulua** *"What factors influence academic stress of Pasifika anatomy students?"*

Saane is investigating how lifestyle (sleep, exercise), social (social support, social anxiety), and academic (lecture/tutorial attendance, support-seeking) factors may influence academic stress in Pasifika anatomy students. We hope that data from this study can be used to better support the academic experience of Pasifika students in our Department. (Supervisors: Dr Erik Wibowo, Dr Latika Samalia)

**Stephana Pereira** (Supervisors: Dr Johann Zwirner, A/P Ming Zhang)

**Tithi Gandhi** *"Sex differences in DNA methylation as a driver of isoform expression in the developing mouse gonad"*

The relationship between sex differences in DNA methylation and gene isoform mRNA expression during early mouse sex determination. (Supervisor: Dr Megan Wilson)

Yosh Patel

### *"Imaging the human brain in three dimensions (3D) for teaching"*

Currently available 3-D models of the brain are either too superficial or too complicated for the Department's ANAT 242 course in Neurobiology. The overall aim of this project is to reconstruct one set of serial plastinated sections from one human brain to obtain one new 3D digital model. Labels specific to the ANAT 242 course will be added – in contrast to using existing models/packages available which has labels outside of that required at 200-level. (Supervisors: Prof Dorothy Oorschot, A/P Zhang, Mr Ross Marshall-Seeley)

## Summer studies at Anatomy

The Department is offering two on-campus papers for Summer School in 2022. Summer School runs over six weeks from 10 January through to 18 February 2022 and is a great way to pick up academic credit to help manage your workload throughout the other busy semesters.

So, if you're keen to pick up a few extra credits, or are just curious to learn more about the origins of the language of anatomy or the differences between humans and primates, why not enrol in one of our papers and put your summer holidays to good use.

### [ANAT131 - Origins of Anatomical Language](#)

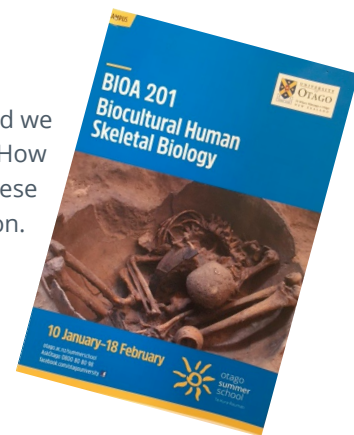
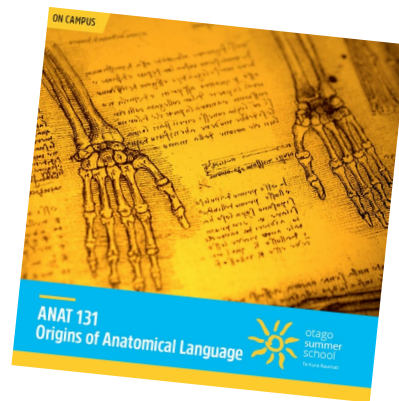
This paper introduces the study of anatomy throughout history and how anatomical terminology used to this day has roots in classical languages such as Greek and Latin. In the field of anatomy and the medical sciences, there are countless examples of words, phrases and terminologies that have interesting roots and origins derived from the classical languages. This paper, co-taught by Anatomy and the Department of Classics, uses a blended learning approach to studying the meaning of words that we use to describe the structures and functions of the organs and systems of our body.

For further information on ANAT131, you can email [Tim McLennan](#) at Anatomy or [Dr Gwyneth McIntyre](#) at the Department of Classics.

### [BIOA201 - Biocultural Human Skeletal Anatomy](#)

This paper studies questions such as: What makes humans unique to all other primates, and how did we come to be that way? How can we explain the variation in morphology among human populations? How can we use aspects of the skeleton of past people to look at their life history? This paper explores these questions by providing an introduction to the study of Biological Anthropology of the human skeleton. The paper primarily focuses on the evolution, structure and function of the human skeletal system, with an introduction to bioarchaeological and forensic methods.

For further information on BIOA201 in Summer School, you can email [Associate Professor Michael Knapp](#).



## Ian McLennan: Backyard legend!



Many of you will remember Ian McLennan, Professor and researcher. Ian retired from the Department quite a few years ago now, and has transitioned from the world of academia to the world of conservation and trapping.

Ian features in the December edition of the "City Sanctuary: Predator Free Dunedin" newsletter. Visit the [City Sanctuary](#) website to read Ian's 'Backyard Legends' bio. From the link you will also be able to learn more about City Sanctuary and the work they do in and around Dunedin.



# Remembering our donors



Flowers have been placed on the rose garden at Anderson Bay Cemetery in Dunedin in memory of the amazing donors who donated their body to the Department's body donor programme.

Staff who visited the garden took a moment to quietly reflect on the donors' contributions to the many teaching, research and workshop programmes that could not have been held in 2021 without their altruistic gifts to the donor programme.

Due to Covid restrictions, the Department was not able to hold a Thanksgiving Service in 2021. It is hoped to hold two services next year - one in Dunedin in the first part of the year, and one in Christchurch later in the year.

If you would like to receive more information about either of these services, please contact the [Body Bequest Liaison Officer](#).

## The Amazing Anatomy Race

The Amazing Anatomy Race was a fitting way to end another crazy year - five teams departed the tearoom in a race to solve clues around the University campus. Each team had to submit a selfie when they had successfully solved a clue and had arrived at the correct place to receive their next clue. The aim was to be the first team to arrive at the finishing point, Arana College, in time for Christmas lunch festivities.

The winning team, "CNE PhD Students", completed the race with plenty of time to spare, quickly followed by three other teams. Concern was raised over the fate of the last team, but they arrived as a search party was about to be assembled, and just in time for lunch.

Completing the clues and taking selfies were ...

