



**MEDICAL AND
HEALTH SCIENCES**



FACULTY OF MEDICAL AND HEALTH SCIENCES
**POSTDOCTORAL
SOCIETY**

SUMMIT2022

FMHS Postdoctoral Research Forum



Message from the Chairs

On behalf of the SUMMIT2022 Team, the Faculty of Medical and Health Sciences' Postdoctoral Society, the Liggins Institute Postdoctoral Forum, and the Auckland Bioengineering Institute Early Career Researchers, we welcome you to the 5th annual SUMMIT symposium.

The annual SUMMIT symposium started as an event to provide opportunities for Research Fellows and Senior Research Fellows in the fields of medical and health sciences to connect, network, and to encourage the establishment of fruitful collaborations. Embodying this spirit, we are excited that the SUMMIT2022 Postdoctoral Research Forum was organized by a transdisciplinary group across FMHS, Liggins, and ABI. Indeed, such innovative partnerships are critical for the progress of scientific research. Take a minute to look around, appreciate, and greet the wealth of expertise present today!

Today's programme includes talks across the different Schools, Departments, and Institutes covering epidemiology, clinical studies, basic biology, and mathematical modelling. Our inspiring invited speakers will also share with us the challenges of building a research institute, both within and outside the University of Auckland system.

To our generous sponsors, thank you for providing highly valuable award categories, and catering for our networking sessions. Your continued support of our emerging researchers is much appreciated, and it is your involvement that made SUMMIT2022 possible.

We hope you enjoy your day.

William Schierding & Eryn Kwon

Chairs of SUMMIT2022

SUMMIT 2022 Organising Committee

Chairs/Convenors

Eryn Kwon
William Schierding

Sponsorship and Judging Coordinators

Sophie Farrow (lead)
Rashika Karunasinghe
Sandy Lau

Photographers

Pratik Thakkar
Sandy Lau
Nike Franke

Invited Speakers

Eryn Kwon (lead)
William Schierding

Catering and Logistics

Rashika Karunasinghe (co-lead)
Pratik Thakkar (co-lead)

Programme & Communications

Nike Franke (lead)
Yue Wang
Farha Ramzan
Teena Gamage

Abstracts Team

Emma Buckels (co-lead)
Joanna Chu (co-lead)
Nike Franke
Haruna Suzuki-Kerr
Sanjay Marasini
Hamid Abbasi
James McKeage
Gergely Toldi

ABI Liaison

Hamid Abbasi (lead)

Virtual Contingency and Zoom

Haruna Suzuki-Kerr

Contributions from the following sources provided core support for the FMHS SUMMIT 2022 Postdoctoral Research Forum:

Institutional Support

Faculty of Medical and Health Sciences
Auckland Bioengineering Institute
Liggins Institute

Philanthropic Support

Auckland Medical Research Foundation (AMRF)
Maurice and Phyllis Paykel Research Trust (MPPT)

Corporate Sponsors

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MediRay	ThermoFisher



The views expressed in written conference materials or publications, and by speakers do not necessarily reflect the views of the University of Auckland; nor does mention by trade names, commercial practices, or organisations imply endorsement by the University of Auckland.



3rd November 2022

Grafton Campus, University of Auckland

Presentations are in 501-010. Lunch, afternoon tea, post-event drinks, and prize-giving are in the atrium outside building 504. **Exhibitors' area** is in the atrium outside Building 504

SUMMIT 2022 Programme

Session One 9:00 am- 12:00 pm (501-010)

Chair: Pratik Thakkar

- 9:00am Introductions and Housekeeping (SUMMIT Co-Presidents Dr. William Schierding and Dr. Eryn Kwon)
- 9:05am Karakia (kaumātua Toi Katipa)
- 9:15am Welcome (FMHS-PDS President Dr. Sandy Lau)
- 9:30am **Invited Speaker:** Professor Peter Hunter (45-minute presentation, 35 min talk + 10 min for questions)
- 10:20am Research Presentations Session I (10 x 10-Minute Talks)

Lunch 12:00 pm- 1:00 pm

Session Two 1:00 pm- 3:00 pm (501-010)

Chair: Sophie Farrow

- 12:55pm Welcome Back
- 1:00pm **Invited Speaker:** A/Prof Samantha Holdsworth (45-minute presentation, 35 min talk + 10 min for questions)
- 1:50pm Research Presentations Session II (7 x 10-Minute Talks)

Afternoon Tea 3:00 pm- 3:30 pm

Session Three 3:30 pm- 5:10 pm (501-010)

Chair: Farha Ramzan

- 3:30pm – 4:30pm Research Presentations Session III (6 x 10-Minute Talks)
- 4:35pm – 5:10pm Elevator Pitch Competition (11 x 3-Minute Talks)
- 5:30pm – 7:00pm **Networking and Prize Giving Ceremony** (in back of the Atrium, outside AMRF Lecture Theatre)



Research Presentations

Awards for the oral research presentations are sponsored by the Auckland Medical Research Foundation (AMRF), Decode Science, and Capsugel (Lonza)

Session One 10:20 am- 12:00 pm (501-010)

- 9.00am Karakia
- 9.30am **Invited Speaker:** Professor Peter Hunter
- 10.20am Essa Tawfiq (Epidemiology and Biostatistics)
Validation of cardiovascular disease risk prediction equations in over 14,000 cancer survivors in New Zealand
- 10.30am Annette Lasham (Molecular Medicine & Pathology & SMS)
The Helena McAlpine Young Women's Breast Cancer Study: an Analysis in Young New Zealand Women
- 10.40am Lola Mugisho (Ophthalmology)
Inhibiting the NLRP3 inflammasome pathway prevents age-related cognitive and retinal decline in C57BL/6j mice
- 10.50am Haruna Suzuki-Kerr (Physiology)
Homeostatic Roles of P2X4 Receptors in Auditory Sensory Hair Cells
- 11.00am Kate Lee (Molecular Medicine & Pathology)
New mechanisms in metabolic health: Māori and Pacific-specific variant increasing BMI yet halving diabetes risk.
- 11.10am Mariana Muelbert (Liggins Institute)
Glucocorticoids in preterm human milk
- 11.20am Sandy Lau (Obstetrics and Gynaecology)
Placental extracellular vesicles provide transient protection against cardiovascular disease development in rodents
- 11.30am Teena Gamage (Physiology)
Identifying an EV-derived biomarker of preterm brain injury from biofluids
- 11.40am Farha Ramzan (Liggins Institute)
Kawakawa tea intake and inflammation: An integrative mRNA-miRNA analysis
- 11.50am Zhiyong Yang (Auckland Bioengineering Institute)
Quantifying transmural cardiomyocyte features in the human right-ventricle



Session Two 1:00 pm- 3:00 pm (501-010)

- 12.55pm Welcome Back
- 1.00pm **Invited Speaker:** A/Prof Samantha Holdsworth
- 1.50pm Hamid Abbasi (Auckland Bioengineering Institute & Physiology)
Deep-Learning-based Markerless Tracking of Infant General Movements for Early Diagnosis of Neurodevelopmental Disorders
- 2.00pm Yue Wang (Liggins Institute)
Growth hormone receptor antagonism delays tumour regrowth when combined with radiation in a lung cancer xenograft model
- 2.10pm Simerdeep Dhillon (Physiology)
A multi-modal approach for post-asphyxial seizure detection in preterm fetal sheep
- 2.20pm Claire Wang (Molecular Medicine & Pathology)
Understanding genetic impact on metformin efficacy to guide clinical treatment in diabetes
- 2.30pm Tonja Emans (Physiology)
The Forgotten Circulation: Sympathetic control of mesenteric venous capacity in conscious hypertensive rats.
- 2.40pm Brya Matthews (Molecular Medicine & Pathology)
Identifying Adult Human Skeletal Stem/Progenitor Cells in the Periosteum
- 2.50pm Carol Bussey (Physiology)
Rewriting cardiac circadian regulation: sympathetic but not parasympathetic control

Session Three 3:30 pm- 5:15 pm (501-010)

- 3.30pm Sam Paritt (Anatomy and Medical Imaging & The Centre for Brain Research)
Home-TENS for improving bladder function in chronic SCI: a translational study
- 3.40pm Kelly Zhou (Physiology)
Persistent cortical and white matter inflammation after therapeutic hypothermia for ischemia in near-term fetal sheep
- 3.50pm Emma Buckels (Molecular Medicine & Pathology)
Transient lipodystrophy protects against high-fat diet-induced bone volume loss in male mice
- 4.00pm Mickey Fan (Physiology)
Venous capacity and compliance in older hypertensive adults: influence of hypoxia and hyperoxia



- 4.10pm Helen Murray (Anatomy and Medical Imaging)
A picture is worth a thousand proteins
- 4.20pm Phil Sanders (Audiology)
A randomized controlled trial of a prototype digital therapeutic for individualized tinnitus management

Elevator Pitch Competition

Awards for the following elevator pitches are sponsored by MediRay NZ, Auckland Bioengineering Institute, Liggins Institute, and NEB New Zealand

4:35pm – 5:10pm Elevator pitches: 3 min talks

1. Wilson Pan (Physiology): *Multi-parametric MRI to measure the oxygen partial pressure and the fluid viscosity of the vitreous humour of the eye*
2. Shaleka Agrawal (Auckland Bioengineering Institute): *Unravelling the Mechanisms Underlying the Elevated Risk of Atrial Fibrillation in Metabolic Syndrome*
3. Luling Lin (Liggins Institute): *Aotearoa New Zealand Clinical Practice Guideline for Neonatal hypoglycaemia*
4. Barbara Lipert (Auckland Cancer Society Research Centre): *Leveraging CRISPR genetic screening to find synthetic lethal interactions for cancer therapy*
5. Brooke Wilson (Liggins Institute): *Faecal microbiome transplantation (FMT) to restore the gut microbiome in anorexia nervosa*
6. Rashika Karunasinghe (Physiology & Centre for Brain Research): *Sweet or sour: Neuronal metabolism of the extracellular sugar 'hyaluronan' regulates neural circuit growth*
7. Nike Franke (Liggins Institute): *I came out pretty much perfect*
8. Mohammad Norouzifard (Auckland Bioengineering Institute): *OKN Detection from Eye Camera Videos by 3D-CNN*
9. Pratik Thakkar (Physiology): *Sweet pressure - the nation's biggest killer*
10. Sophie Farrow (Liggins Institute): *Exploring the mechanisms through which genetic risk variants contribute to Parkinson's disease(s)*
11. Benjamin Chong (Department of Medicine & Auckland Bioengineering Institute): *Proportional Recovery After Stroke: Addressing Concerns Regarding Mathematical Coupling and Ceiling Effects*



Invited Speakers



Professor Peter Hunter

Director, Auckland Bioengineering Institute

Prof Hunter completed an engineering degree in 1971 in Theoretical and Applied Mechanics (now Engineering Science) at the University of Auckland, New Zealand, a Master of Engineering degree in 1972 (Auckland) on solving the equations of arterial blood flow and a DPhil (PhD) in Physiology at the University of Oxford in 1975 on finite element modelling of ventricular mechanics. His major research interests since then have been modelling many aspects of the human body using specially developed computational algorithms and an anatomically and biophysically based approach which incorporates detailed anatomical and microstructural measurements and material properties into the continuum models. The interrelated electrical, mechanical, and biochemical functions of the heart, for example, have been modelled in the first 'physiome' model of an organ. As the recent co-Chair of the Physiome Committee of the International Union of Physiological Sciences (IUPS) he has been helping to lead the international Physiome Project which aims to develop model and data encoding standards (CellML, FieldML, BioSignalML) and to use computational methods for understanding the integrated physiological function of the body in terms of the structure and function of tissues, cells, and proteins. He is currently a Professor of Engineering Science and Director of the Bioengineering Institute at the University of Auckland, co-Director of Computational Physiology at Oxford University and holds honorary or visiting Professorships at a number of Universities around the world. He is on the scientific advisory boards of a number of Research Institutes in Europe, the US, and the Asia-Pacific region. He is an elected Fellow of the Royal Society (London and NZ), the World Council for Biomechanics, the American Institute for Medical and Biological Engineering, and the International Academy of Medical & Biological Engineering (IAMBE). He has recently been President of the Physiological Society of New Zealand and is currently Secretary-General of the World Council for Biomechanics, Acting Vice-President of IUPS and Chair-Elect of IAMBE. Recent awards are the Rutherford medal and the KEA (Kiwi Expats Abroad) 'World Class NZ' Award in Research, Science, Technology & Academia category.



A/Professor Samantha Holdsworth
Chief Executive & Director of Research, Mātai

Medical Physicist & Associate Professor (University of Auckland, Department of Anatomy and Medical Imaging), Principal Investigator at the Centre for Brain Research, PhD Radiology (University of Queensland). Dr Samantha Holdsworth is a medical physicist with 19 years of experience in MRI acquisition, post-processing, and analysis. After 11 years at Stanford as a senior scientist, she returned home to Gisborne to establish Mātai, with the goal of making a difference to lives in her community. Samantha has successfully translated a variety of her MRI methodologies to clinical practice through her streamlined image reconstruction methods, leading to better detection of brain disorders and disease. She is a pioneer of fast, high resolution MRI methods and amplified MRI (a new method of visualising brain motion). Her key research interest is in the application of novel imaging technologies for the early detection of concussion/mild traumatic brain injury (mTBI) and obstructive disorders of the brain.



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Our Purpose

ENABLING DISCOVERY

WHO ARE WE

Founded in 2018, Decode Science are an Australian and New Zealand Distributor, partnering with the world's most innovative Genomics and Molecular Biology brands.

With a thorough understanding of our customers needs Decode Science strives to be the supplier of choice by matching the world's best products with exceptional local support.

WHAT DO WE DO

Decode Science enables scientists to publish faster in higher impact journals and commercialise with confidence by providing them with world leading products and best in class support.

Decode Science provides Australian customers with high-quality, leading-edge technology matched with technical sales and applications support.

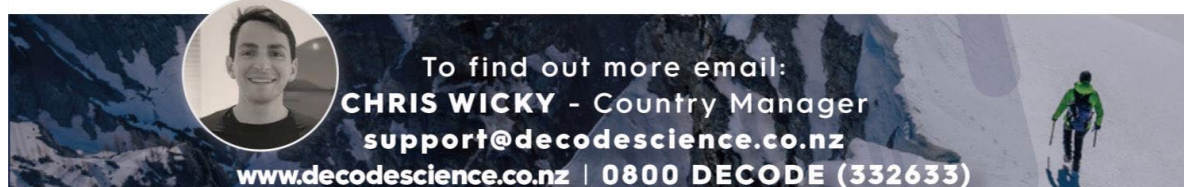
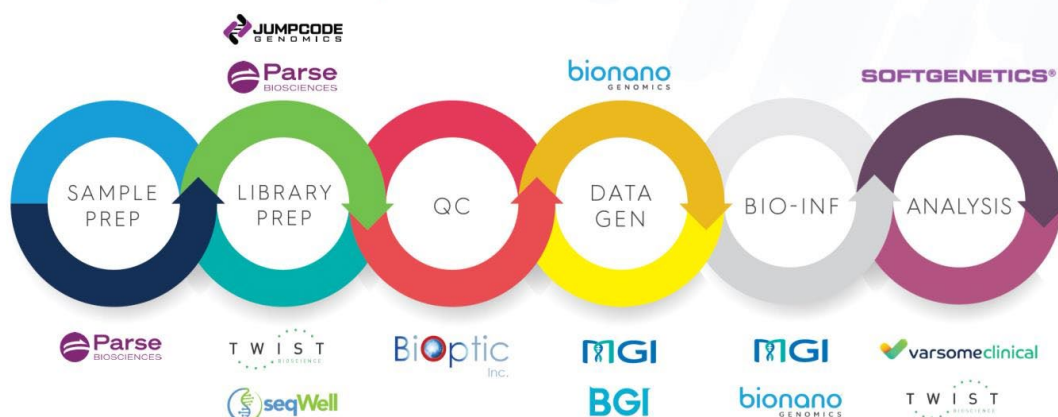
WHY CHOOSE US

With a focus on Genomics and Molecular Biology, Decode Science seeks to bring innovation and options to our customers.

Everyone at Decode Science is dedicated to helping the Clinicians, Researchers and Scientists of ANZ achieve greater success.

Our Ecosystem

MODULAR ► FLEXIBLE ► EVOLVING





Faculty of Medical and Health Sciences Postdoctoral Society

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The University of Auckland

Private Bag 92019, Auckland 1142
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Keep in touch!

Our society promotes the interests of Postdoctoral researchers in the Faculty of Medical and Health Sciences, by creating opportunities for networking, collaboration, and professional development.

We aim to provide a voice for FMHS early- and mid-career researchers, and facilitate your work within the FMHS and wider University.

All FMHS Postdocs are welcome to attend Committee meetings, and actively contribute to the running of the society.

For more information, please visit:
<https://fmhspds.blogs.auckland.ac.nz/>

Upcoming Events...

- Monthly coffee- 10:30 at Superfino Café
14th November 2022
- PDS Monthly meeting- Rm 501-505
17th November 2022