

## INFORMATION FOR CANDIDATE

for appointment as

Postdoctoral Fellow  
(Fixed-term)

### DEPARTMENT OF ANATOMY FACULTY OF BIOMEDICAL SCIENCES

#### 1. SUMMARY OF THE RESEARCH PROJECT:

Mitochondria, the "powerhouses" of our cells, are indispensable for all complex life, orchestrating cellular energy production and many other vital functions. Their proper operation relies on the intricate collaboration of two genetic blueprints: the vast nuclear genome and the much smaller mitochondrial genome (mtDNA). While it is well established that mutations within mtDNA contribute to a spectrum of severe conditions—from degenerative diseases like Leigh Syndrome to metabolic disorders, aspects of ageing, certain cancers, and even infertility—our understanding of the extent to which mtDNA shapes an organism's observable characteristics (phenotype) and its broader impact on overall health and fitness remains surprisingly limited.

Our proposed research aims to bridge this critical knowledge gap by employing new, highly precise mitochondrial DNA editing technologies in the fruit fly, a powerful model organism. Through this cutting-edge approach, we will systematically introduce specific mtDNA mutations and meticulously investigate their effects on fundamental biological traits such as metabolism, reproductive success (fertility), lifespan (longevity), and complex behaviours.

This position is funded by a Marsden Fast-Start Fund grant that runs until 28/2/2029 and is fixed-term for 2.5 years.

#### 2. MAIN OBJECTIVES:

- Undertake independent and collaborative research on the project outlined above.
- To analyse data, present it at scientific meetings.
- Write manuscripts reporting on research results for publication in peer-reviewed journals.
- Assist with writing progress reports to the organisation(s) funding the current research.
- Assist with training and supervision of postgraduate students associated with the research.
- Assist in writing grant applications and pursuing funding opportunities.
- Attend laboratory meetings, seminars and departmental meetings.

#### 3. RELATIONSHIPS:

<b>Directly responsible to:</b>	Professor Neil Gemmell.
<b>Supervision of:</b>	Assistance with the supervision of students and staff associated with the project.
<b>Functional relationships with:</b>	Postdoctoral research staff, research assistants, technical assistants and students in the Gemmell lab. Other members of the Department of Anatomy and collaborating laboratories.

#### **4. BUDGETARY RESPONSIBILITY:**

Supervise and undertake ordering of materials associated with the research.

#### **5. PERSON SPECIFICATION:**

- PhD in genetics, neuroscience, molecular biology, or similar, with evidence of ability to publish.
- Experienced in all routine molecular genetic techniques, with knowledge of next generation sequencing, transcriptomics and gene expression analysis essential. Knowledge of mtDNA editing approaches would be extremely advantageous.
- Computer literate with experience in database management, statistical and genetic analyses
- Accurate record-keeping and attention to detail
- Ability to relate to a wide variety of people within a research environment, with past experience of student supervision desirable.
- Ability to work without direct supervision, set priorities and allocate own timetable.
- Self-motivated.

#### **6. MĀORI STRATEGIC FRAMEWORK:**

Act in a manner consistent with the principles and implications, as well as the University's commitment to the Treaty as articulated in the Māori Strategic Framework.

#### **7. PACIFIC STRATEGIC FRAMEWORK:**

Act in a manner consistent with the strategies and goals contained in the University's Pacific Strategic Framework, role-modelling and promoting Pacific values, equity and diversity principles and cultural safety practices.

#### **8. HEALTH & SAFETY:**

Act and work in a manner compliant with current health and safety at work legislation and University procedures, frameworks and guidelines. Role model safe behaviour and practices, share the responsibility to prevent harm and contribute to a safe campus and work environment, including raising workplace health and safety concerns for self, students, visitors and other staff.

#### **9. SUSTAINABILITY:**

Act in a manner consistent with the University's sustainability commitments; role-modelling sustainable practices, with a particular emphasis on minimising the environmental impact of day-to-day activities.