

Matthew Gedye

Email · GitHub · Website

Graduate researcher investigating microRNAs localised to skeletal muscle mitochondria, and how exercise and type 1 diabetes shape their expression — using human, mouse, and cell-based models alongside bioinformatics. Drawn to the threads connecting mitochondrial biology to comparative physiology, evolutionary medicine, and metabolic disease.

Research Interests: Mitochondrial Biology | Comparative Physiology | Computational Biology | Evolutionary Medicine | Metabolic Disease

Education

PhD in Exercise Physiology and Molecular Genetics

Deakin University and the University of Copenhagen

November 2023 – Present

Proposed thesis title: *Investigating the mechanistic role of microRNAs localised to skeletal muscle mitochondria under physiological and pathological conditions*

Supervisors: Prof. Glenn Wadley, Prof. Severine Lamon, Dr. Bianca Bernardo, A/Prof. Søren Neilsen

Master of Human Nutrition

Deakin University

2020 – 2022

Thesis title: *Do Long Non-Coding RNAs play a Role in the Molecular Signalling Pathways of Glucose Metabolism in Skeletal Muscle?*

Supervisor: Dr. Adam Trewin

Bachelor of Health Science (Major in Physiology and Anatomy)

La Trobe University

2012 – 2016

Research Experience

Graduate Researcher

Institute of Physical Activity and Nutrition (IPAN), Deakin University — November 2023 – present

Centre for Physical Activity Research (CFAS), University of Copenhagen — March 2026 – present

Investigating microRNAs localised to the mitochondria of skeletal muscle and how exercise and type 1 diabetes influence their expression, using human, mouse, and cell-based models. Applying bioinformatics to explore mechanisms of mitochondrial localisation.

Research Technician

Department of Molecular Genetics and Microbiology, Duke University

2022 – 2024

Principal Investigator: A/Prof. Lawrence David

Assisted in applying molecular techniques (FoodSeq) to sequence plant and animal DNA in human stool as an objective complement to subjective dietary assessment in nutritional epidemiology research.

- Coordinating laboratory inventory management of biological sample stock
 - Coordinating collaborations with domestic and international research teams for transfer of biological samples for DNA sequencing
 - Assisting in DNA extraction from human stool samples
 - Facilitating community outreach to launch pilot studies
 - Coordinating human trials including participant recruitment, screening, and enrollment
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Teaching

Teaching Assistant — Exercise Metabolism; Exercise Prescription and Delivery

Deakin University

2024 – present

- Led undergraduate practical labs
 - Grading of assignments and examinations
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Professional Experience

Fitness Professional and Personal Trainer

Vision Personal Training, Hawthorn

2016 – 2021

- Coaching for weight loss (5–30 kg) through nutritional guidance and safe exercise
 - Coaching for running goals from 5K to ultra-marathons with specific running and strength training
 - Addressing specific health issues related to disease management and pregnancy
 - Developing and delivering seminars on weight loss and nutrition to community groups and organisations
 - Collaborating with and referring clients to recognised health professionals such as dietitians and physiotherapists
 - Mentoring and training new staff members
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Publications

Hiam, D., **Gedye, M.J.**, Wadley, G.D., and Bernardo, B.C. (2025).

Challenges and Future Perspectives in Circular RNA Investigation.

Advances in Experimental Medicine and Biology, 1485:467–479. — Review.

https://doi.org/10.1007/978-981-96-9428-0_27

Pisetsky, D.S., **Gedye, M.J.**, David, L.A., and Spencer, D.M. (2024).

The Binding Properties of Antibodies to Z-DNA in the Sera of Normal Healthy Subjects.

International Journal of Molecular Sciences, 25(5):2556.

<https://doi.org/10.3390/ijms25052556>

Presentations

Gedye, M.J., Bernardo, B.C., and Wadley, G.D. (2025).

Treatment of isolated mitochondria with RNase-A and Proteinase-K for downstream transcriptomic analysis.

Oral presentation — SENS Research Symposium, Deakin University.

Gedye, M.J., Bernardo, B.C., Lamon, S., and Wadley, G.D. (2024).

Do non-coding RNAs play a sex-specific role in regulating mitochondrial biogenesis in skeletal muscle following exercise?

Oral presentation — SENS Research Symposium, Deakin University.

Skills

- **Experimental Models:** Human participant recruitment and clinical sampling; rodent exercise training and dissection; cell culture (in progress)
 - **Wet Lab:** Mitochondrial isolation, RNA extraction, mitochondrial assays, muscle biopsy handling
 - **Bioinformatics:** Small RNA-seq analysis (alignment, differential expression, target prediction); R (DESeq2, ggplot2, dplyr), Bash scripting; miRBase, MirGeneDB, MitoCarta, TargetScan
 - **Communication:** Team collaboration, mentoring and teaching, public speaking
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Awards & Scholarships

- **Research Training Program Scholarship (RTP)**, Australian Government, 2024 – present
 - **Deakin University Postgraduate Research Scholarship (DUPR)**, Deakin University, 2023 – 2024
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Societies

- Student Representative, Australian Physiological Society (AuPS), 2024 – present
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References

Available upon request