



HARRY PERKINS INSTITUTE
OF MEDICAL RESEARCH

Perkins Student Projects

Learn more at perkins.org.au



About the Perkins

Thank you for your interest in becoming a student at the Harry Perkins Institute of Medical Research. Students form an integral part of what we do. Together, we're making progress every day toward preventing, diagnosing and defeating disease.

Since 1998, the Perkins has grown to become one of the nation's leading research hubs, where more than 400 research, professional and clinical trial staff work together to defeat disease.

Boasting two state-of-the-art research facilities on the QEII Medical Centre and Fiona Stanley Hospital precincts, as well as laboratories at Royal Perth Hospital, the Perkins has created a culture of innovation and collaboration to deliver better patient outcomes faster.

Research at the Perkins is focussed on the major diseases that impact the WA community. This includes cardiovascular disease, cancer, diabetes and rare genetic diseases. Our teams investigate the genetic causes of these diseases and develop new treatments to improve the quality and length of people's lives.

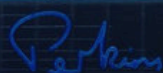
If you're like us and want to undertake cutting edge research that uncovers new ways to prevent and treat disease, then join us in our mission to improve community health.

We provide project opportunities for students from any university enrolled in degrees including:

- Bachelor of Engineering with Honours
- Bachelor of Science with Honours
- Bachelor of Biomedical Science
- Relevant masters programs
- PhD studies

If you are interested in a student project, please contact the Laboratory Head with whom you would like to work.

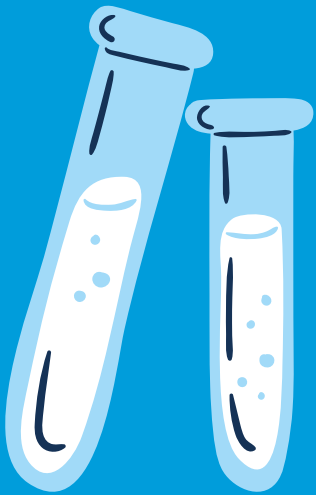
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Why study at the Perkins?



With friendly and cooperative teams and world-class amenities that include a 250 seat auditorium, tech laden meeting rooms and seminar rooms, on-site cafés, fantastic end-of-trip facilities and a range of fitness and recreational opportunities available on campus - the Perkins provides an exciting environment aimed at increasing both professional and social collaboration.

The Perkins combines scientific talent, advanced research technology and pioneering facilities to enable great partnerships between the State's major research groups. Our teams are led by global experts in their field - each making impactful breakthroughs that are changing the outcome for people facing disease.

You can give your career the ultimate head start by joining us at the Perkins. Be part of a learning environment that fosters excellence and innovation to help students develop the tools needed to succeed.

Student Scholarships

The Perkins offers a number of prestigious scholarships to support high-achieving students wanting to further their career in medical research.

Students must enrol for their degree through a Western Australian university and undertake their research at the Harry Perkins Institute of Medical Research under the supervision of a Perkins researcher.

Our Research Development Office can help with applications for top-up scholarships while you're undertaking a research project at the Perkins.

Vacation Scholarships

Perkins Vacation Scholarships provide students with an exciting opportunity to learn valuable skills and sample real-life medical research in the labs of leading scientists.

If you are considering postgraduate research, speak to a group leader about a project opportunity and they can assist you in applying for a 6-week vacation scholarship.

Student Project Opportunities

CANCER PROGRAM

Perkins cancer researchers investigate some of the toughest to treat cancers, such as triple-negative breast cancer, liver cancer and melanoma. Listed below are some of the student projects that you could contribute to.

Cancer Epigenetics Laboratory

Laboratory Head

Associate Professor Pilar Blancafort

pilar.blancafort@uwa.edu.au

Project 1: Manipulating the epithelial to mesenchymal transition by targeted epigenetic editing in breast cancer

Project 2: Development of novel therapeutic strategies to silence oncogenic fusions in childhood sarcomas

Project 3: Using Epi-CRISPR systems to sensitize breast and brain cancers to chemo and radiotherapies

Project 4: Targeted epigenetic reactivation of dormant tumour suppressors in liver cancer

Project 5: Development of a novel Epi-CRISPR platform to manipulate pro-immunogenic and immune-suppressive genes in breast cancer

Project 6: Epigenetic remodelling through the manipulation of Rab GTPases in breast cancer

Laboratory for Cancer Medicine

Laboratory Head

Professor Peter Leedman AO

peter.leedman@perkins.org.au

Project 1: Breast Cancer and novel therapies

Project 2: Head and neck cancer and new treatments

Project 3: Novel RNA-based therapies for liver cancer

Bioimaging Research and Innovation or Translational Engineering Laboratory (BRITelab)

Laboratory Head

Dr Brendan Kennedy

brendan.kennedy@uwa.edu.au

Project 1: Handheld optical imaging probes for use in breast surgery

Project 2: Towards real-time interpretation of optical elastography

Project 3: GPU acceleration for real-time surgical guidance

Project 4: Building optical imaging systems for remote application

Synthetic Biology and Drug Discovery Laboratory

Laboratory Head

Professor Oliver Rackham

oliver.rackham@curtin.edu.au

Project 1: Using synthetic biology to create new therapeutics

Project 2: Better CRISPR technologies to fix genes

Project 3: Engineering and understanding the architecture of human cells

Student Project Opportunities

CARDIOVASCULAR SCIENCE AND DIABETES

The Cardiovascular Science and Diabetes Program at the Perkins is focussed on translational research to improve outcomes for heart disease, diabetes and kidney disease through research and biomedical engineering.

Molecular Endocrinology and Pharmacology Laboratory

Laboratory Head

Professor Kevin Pflieger

kevin.pflieger@uwa.edu.au

Project 1: Investigation of G Protein-Coupled Receptor Molecular Pharmacology

Advanced Clinical and Translational Cardiac Imaging Research Group

Laboratory Head

Professor Girish Dwivedi

girish.dwivedi@perkins.uwa.edu.au

Project 1: Modifying gene expression to combat obesity and metabolic syndrome.

Project 2: Immunopathogenesis of sarcoidosis: Animal and human studies.

Project 3: Integration of artificial intelligence into arrhythmia care.

Project 4: Hassle-free heart disease screening; A non-invasive AI-based retinal imaging technology to screen for cardiovascular diseases.

Centre for Clinical Research in Emergency Medicine

Program Head

Professor Daniel Fatovich

Daniel.Fatovich@health.wa.gov.au

& Laboratory Head

Dr Erika Bosio

Erika.Bosio@uwa.edu.au

Project 1: Modelling Sepsis pathophysiology: modelling human microvascular dysfunction to enable improvement of patient outcomes.
Project 2: Understanding Anaphylaxis: exploring the significance of unique genetic and cellular features of the condition.

Student Project Opportunities

GENOME BIOLOGY AND GENETICS PROGRAM

The Genome Biology and Genetics Program focuses on factors that affect health and well-being at the genetic, protein and population levels, with the aim of improving diagnosis and treatment of disease.

Rare Disease Genetics & Functional Genomics Laboratory

Laboratory Head

Associate Professor Gina Ravenscroft

gina.ravenscroft@perkins.uwa.edu.au

Project 1: Identifying and characterising novel disease genes and variants in rare and neuromuscular diseases.

Project 2: Investigating the pathobiology of tubulin-related neuromuscular and neurodegenerative diseases.

Project 3: Investigating the pathobiology of inclusion body myositis.

Preventive Genetics Laboratory Disease Models and Therapies Team

Team Leader

Dr Rhonda Taylor

rhonda.taylor@perkins.org.au

Project 1: Modelling RYR1-related disease in patient-iPSC-derived muscle cells.

Project 2: Investigating oligonucleotides treatments for childhood muscle diseases.

Project 3: Developing iPSC-derived models of genetic muscle disease to understand pathobiology.

Epigenetics and Genomics Laboratory

Laboratory Head

Professor Ryan Lister

ryan.lister@uwa.edu.au

Project 1: Developing new molecular tools to edit the epigenome

Project 2: Investigating epigenome reconfiguration during learning and memory

Project 3: Artificial manipulation of human cell identity

Systems Biology and Genomics

Laboratory Head

Professor Alistair Forrest

alistair.forrest@perkins.org.au

Project 1: Artificial Intelligence-Based Medical Data Mining.

Project 2: Identifying Novel Intercellular Signalling Pathways to Enhance Cancer Immunotherapy Efficacy.

Project 3: Modelling Combinatorial Effects of Experimental Perturbations at Single-Cell Resolution.

Project 4: Evaluating the Collective Probability of Ligand-Receptor Interactions with Distinct Spatial Distributions.

Project 5: Long non-coding RNAs and novel transcripts expressed in single cell and spatial transcriptomic cancer datasets

Translational Renal Research Laboratory

Laboratory Head

Dr Aron Chakera

aron.chakera@uwa.edu.au

Project 1: Developing novel diagnostics for the earlier detection and treatment of peritonitis

Project 2: The role of mesothelial cells in peritoneal-dialysis associated peritonitis

Project 3: Understanding bacterial factors that predict more severe disease

Project 4: Using peritoneal dialysis as a uniquely accessible human system to study host-pathogen interactions linked to standardized clinical outcomes



Perkins **Student Committee**

A STUDENT-LED GROUP WITHIN THE PERKINS.

The Perkins Student Committee organises a variety of student-based events, both social and professional-development-focused. Some of the popular events have included: Bouldering and frisbee evenings, Speed Mentoring, Post-PhD panel discussions, writing days and quiz nights. They also organise the annual Perkins Student Symposium, which showcases the amazing work conducted by students at the Perkins.

In addition, the Perkins Student Committee strongly advocates for the needs and priorities of Perkins students to the Perkins Executive.

An initiative started in 2022 is the Student Food Pantry, stocked with snacks and staples to keep students satiated throughout long experiments.

The committee are always happy to try answer any questions you may have about being a student in medical research, things to consider when choosing research projects, and tips on how to find the right project and supervisor for you.

Want to know more about the student experience at the Perkins? [Get in touch at: studentcommittee@perkins.org.au](mailto:studentcommittee@perkins.org.au)

Join our community

BE PART OF SOMETHING SPECIAL

You can learn more about the Perkins at one of our many community events. Come along to a Community Q&A panel discussion, sign up for an activity in the Lotterywest BioDiscovery Centre or take part in one of our major fundraising events.

The Perkins accepts volunteers in various areas of our operations. This includes office support in the community engagement and fundraising teams, and/or volunteering to support our major events.

For more information visit perkins.org.au/get-involved



MACA CANCER 200 RIDE FOR RESEARCH

The MACA Cancer 200 is a two-day 200km bike ride that raises funds for Perkins cancer research. Together we can beat cancer.



cancer200.org.au

NEW TOWN TOYOTA WALK FOR WOMEN'S CANCER

The NTT Walk for Women's Cancer is not a race, it's a journey. Walk through Perth and enjoy the friendly atmosphere of the event.



walkforwomenscancer.org.au



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DRIVING DISCOVERY
DELIVERING HOPE