

PERKINS STUDENT PROJECTS

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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.

Learn more at perkins.org.au



HARRY PERKINS INSTITUTE OF MEDICAL RESEARCH

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. 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.



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CANCER PROGRAM

STUDENT PROJECT OPPORTUNITIES

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 proimmunogenic and imune-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 peter.leedman@perkins.org.au Project 1: Breast Cancer and novel therapies <u>Project 2</u>: Head and neck cancer and new treatments <u>Project 3</u>: Novel RNA-based therapies for liver cancer

Oncofetal Ecosystem

Laboratory Head Prof Ankur Sharma ankur.sharma@perkins.org.au

<u>Project 1</u>: Onco-Fetal Reprogramming of Tumor Ecosystem <u>Project 2</u>: Single cell genomics to understand immunotherapy response in HCC <u>Project 3</u>: Tumor Evolution and Ecosystem <u>Project 4</u>: Tumor Associated Macrophages

Bioimaging Research and Innovation or Translational Engineering Laboratory (BRITElab)

Laboratory Head Dr Brendan Kennedy

brendan.kennedy@uwa.edu.au

<u>Project 1</u>: Handheld optical imaging probes for use in breast surgery <u>Project 2</u>: Towards real-time interpretation of optical elastography <u>Project 3</u>: GPU acceleration for real-time surgical guidance <u>Project 4</u>: Building optical imaging systems for remote application

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.

Translational 3d Printing Laboratory for Advanced Tissue Engineering (T3mPLATE)

Laboratory Head Dr Elena Juan Pardo For further information elena.juanpardo@uwa.edu.au <u>Project 1</u>: Combining different techniques for treating complex wounds

<u>Project 2</u>:Design 3D printing software for improved tissue engineering <u>Project 3</u>: Develop advanced 3D printing hardware to create complex structures <u>Project 4</u>: Use melt electrowriting for advanced tissue engineering

Centre for Clinical Research in Emergency Medicine

Laboratory Head Professor Daniel Fatovich For further information Daniel.Fatovich@health.wa.gov.au

<u>Project 1</u>: Relationship between fluid resuscitation and the endothelium in sepsis-associated coagulopathy <u>Project 2</u>: Anaphylaxis and Snakebite: Mechanisms of activation of immune cells by antivenoms <u>Project 3</u>: MicroRNAs as biomarkers for the diagnosis of critical illness <u>Project 4</u>: Unravelling the association between delirium and attendance by older people from aged care to the emergency department

Molecular Endocrinology and Pharmacology Laboratory Laboratory Head

Professor Kevin Pfleger kevin.pfleger@uwa.edu.au Project 1: Investigation of G Protein-

Coupled Receptor Molecular Pharmacology

Advanced Clinical and Translational Cardiovascular Imaging

Laboratory Head Professor Girish Dwivedi For further information girish.dwivedi@perkins.uwa.edu.au Project 1: Investigating the

Immunopathogenesis of Sarcoidosis: animal and human studies <u>Project 2</u>: Integration of Artificial Intelligence with Ablation for Arrhythmias <u>Project 3</u>: Microbiome changes following low-impact bacterial pneumonia in a novel dual disease mouse model

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.

Epigenetics and Genomics Laboratory

Laboratory Head Professor Ryan Lister ryan.lister@uwa.edu.au <u>Project 1</u>: Developing new molecular tools to edit the epigenome <u>Project 2</u>: Investigating epigenome reconfiguration during learning and memory <u>Project 3</u>: Artificial manipulation of human cell identity

Translational Renal Research Laboratory

Laboratory Head Dr Aron Chakera

aron.chakera@uwa.edu.au

<u>Project 1</u>: Developing novel diagnostics for the earlier detection and treatment of peritonitis

<u>Project 2</u>: The role of mesothelial cells in peritoneal-dialysis associated peritonitis <u>Project 3</u>: Understanding bacterial factors that predict more severe disease <u>Project 4</u>: Using peritoneal dialysis as a uniquely accessible human system to study host-pathogen interactions linked to standardized clinical outcomes

Systems Biology and Genomics Laboratory

Laboratory Head Professor Alistair Forrest alistair.forrest@perkins.uwa.edu.au

Project 1: Single cell profiling meets single

<u>Project 1</u>: Single cell profiling meets single molecule sequencing <u>Project 2</u>: Spatial transcriptomics of tumours <u>Project 3</u>: Gene and alternative splice form discovery in single cells <u>Project 4</u>: Cell-to-cell communication analysis <u>Project 5</u>: Bioinformatics for single cell and spatial analysis of cancer

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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