

The role of imprinting in the pancreatic cancer initiation

Project Description

Project duration:	Honours ~ 12 months of duration with a possibility of PhD after the successful completion (start from Jan 2027)
Description:	Translational Bioinformatics group is located at Translational Research Institute, Lv4 Mater Research. Our team is focused on deciphering the relationship of disorders to genomic, transcriptomic, and epigenomics variation. Our studies often involve the creation of analytical pipelines that comprehensively characterise some aspect of the genome, transcriptome, and methylome/ imprintome, while generating data which are subsequently used for creating our own bioinformatics tools. Pancreatic cancer (PC) is a highly lethal malignancy characterized by exceptionally low survival rates and profound therapeutic resistance. While traditionally attributed to DNA mutagenesis, emerging evidence highlights the critical role of epigenetic dysregulation—particularly aberrant DNA methylation—as a driving force in PC initiation and progression. This project focuses on a specialized subset of genes known as imprinted genes. Unlike conventional genes that are expressed simultaneously from both parental alleles, imprinted genes exhibit mono-allelic expression, with the inactive allele typically silenced via methylation. Given their vital role in regulating cellular growth and tissue development, this research seeks to determine how the loss of imprinting (LoI) drives tumorigenesis.
Expected outcomes and deliverables:	This is a lab-based project. Students will become familiar with: 1) tissue culture techniques – growing cells, passaging, transfections, in vitro assays 2) bacterial work – transformations and preps 3) nucleic acids extraction and ONT sequencing Students will attend regular meetings with supervisors to present their findings, troubleshoot and discuss future directions, and they will complete their thesis at the end of program. Conference attendance will be discussed upon request. Students will be co-authors on publications if their data gets published.

Suitable for:	Highly motivated students that are willing to learn. Experience with TC and molecular techniques is advantageous but not essential. Students should have strong background in molecular biology and cancer biology.
Primary Supervisor:	Dr Michaela Kindlova and Assoc. Prof. Adam Ewing
Further info:	For further details please contact m.kindlova@mater.uq.edu.au