

Pioneering CAR-T Therapy for Metastatic Triple-Negative Breast Cancer

Project Description

Project duration:	Honours, PhD or MPhil
Description:	Triple-negative breast cancer (TNBC) is a highly aggressive and treatment-resistant subtype of breast cancer with limited targeted therapy options. This project explores a first-in-class CAR-T cell therapy targeting a protein overexpressed in TNBC but minimally expressed in healthy tissues. The project will involve preclinical validation of this therapy in cancer cell lines and patient-derived models, with the potential to combine CAR-T cells with immune checkpoint inhibitors to enhance efficacy. This research contributes to the development of personalised and durable immunotherapy strategies for hard-to-treat cancers.
Expected outcomes and deliverables:	<p>Students will:</p> <ul style="list-style-type: none"> • Gain hands-on experience in immunotherapy research and cancer cell biology • Develop skills in techniques such as CAR-T generation, flow cytometry, cytotoxicity assays, and immune activation profiling • Contribute to the validation of a novel cancer therapy in preclinical models • Be expected to complete a full research report or thesis, present their findings, and potentially co-author scientific publications
Suitable for:	This project is suitable for students with a strong interest in cancer immunotherapy, molecular biology, and translational research. Prior experience in cell culture, immunology, or molecular techniques is beneficial but not essential. The ideal candidate is curious, motivated, and willing to work as part of a multidisciplinary team.
Primary Supervisor:	Dr Murugan Kalimutho and Professor Kum Kum Khanna
Further info:	Interested applicants are encouraged to contact the research team prior to applying: e: Murugan.kalimutho@mater.uq.edu.au