



## **Postgraduate Research Scholarship:**

### **Development of immune effector cell therapies targeting mesothelin-positive solid cancers**

#### **The Project**

**Mission:** to conduct research into the efficacy, safety and delivery of CAR T-cell immunotherapies against mesothelin (MSLN)-positive cancers using patient-derived organoid and preclinical animal models.

#### **Group/Team:**

The research will be conducted within the Gene & Stem Cell Therapy Program, Centenary Institute, as part of its vibrant basic and translational research program. The successful candidate will also be an active member of the Department of Cell & Molecular Therapies (CMT), Royal Prince Alfred Hospital (RPAH), which is the leading centre-of-excellence for cell and gene therapy in NSW and a foremost centre nationally.

The successful student will be supervised by Professor John Rasko AO, a leading clinical haematologist and pathologist at RPAH and Centenary Institute, as well as other senior scientists at CMT and Centenary Institute once the project commences. The PhD program of research will be integrated within an existing Cancer Council NSW-funded clinical trial at CMT, RPAH, and the Li Ka Shing Cell & Gene Therapy Initiative, The University of Sydney, located within the Centenary Institute. The supervisory team regularly meets together with hospital scientists, clinical trials staff, clinicians, oncologists and bioinformaticians to discuss research progress.

**Project Overview:** The project will examine the molecular & immunological profile of anti-MSLN CAR T-cells; perform preclinical evaluation of the efficacy and immune response of the anti-MSLN CAR T-cell immunotherapy including examining routes of delivery and the CAR-T/tumour interface; and develop key assays in support of a CAR T-cell immunotherapy clinical trial against MSLN-positive cancers. The student will also be exposed to GMP manufacturing and quality control processes involved in producing immune effector cells for clinical trials.

**Techniques:** molecular and cellular biology, retroviral gene transfer, flow cytometry, FACS, MACS, confocal and high-content imaging, organoid culture, impedance-based assays, imaging mass cytometry, Nanostring, RNA-seq, single-cell sequencing, tumour xenograft animal models.

For further information, please contact:

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