THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

CREATE CHANGE

Biomedical Sciences

Cancer therapeutics laboratory

The ultimate goal of our laboratory is to develop novel strategies to overcome immunosuppression in ovarian and breast cancers. We have unique systems set up in our laboratory for high throughput tumour immune profiling and therapeutic assessment of novel compounds in immune competent mouse models of ovarian cancer. We specialise in *in vivo* application of RNAi therapeutics and utilise bioinformatic approaches to identify novel targets for treatment of cancer.

Services

High throughput immune profiling of tumours

- We have systems set up for high throughput tumour immune assessment. This includes assessment of the number and function of immune cells present in solid tumours. Typical immune cell types assessed are B cells, T helper cells, Tregs, CD8 T-cells, dendritic cells, macrophages, NK cells, NKT cells, and myeloid derived suppressive cells. The assay will allow researchers to efficiently identify major immune cell populations affected by certain therapeutics.

In vivo nanoparticle delivery of RNAi therapeutics

- We have unique systems set up for studying the biological function of RNAi therapeutics (e.g., siRNA, microRNA) in cancer mouse models. This will facilitate the understanding of biological consequences of switching off or turning on specific coding or non-coding RNAs.

Mouse models of cancer (ovarian cancer)

- Our laboratory has multiple orthotopic mouse models of ovarian cancer set up for studying therapeutic activity of novel compounds. We routinely perform assays to investigate impact of therapeutics on blood vessel density, immune cell infiltration, proliferation and apoptosis in tumours.

Characterisation of extracellular vesicles

- We have systems set up for extracting extracellular vesicles from biological fluids. We perform several downstream assessments of these extracellular vesicles including functional testings and RNA/protein expression analyses.

Pathway enrichment bioinformatics analysis

- We utilise bioinformatic pathway enrichment strategies to identify novel targets for cancer treatment. We routinely perform gene enrichment analyses to understand molecular mechanisms by which certain cancer therapeutics function.

The University of Queensland (UQ)

For more than a century, The University of Queensland (UQ) has maintained a global reputation for delivering knowledge leadership for a better world. The most prestigious and widely recognised rankings of world universities consistently place UQ among the world's top universities. UQ has also won more national teaching awards than any other Australian university. This commitment to quality teaching empowers our 53,600 current students, who study across UQ's three campuses, to create positive change for society. Our research has global impact, delivered by an interdisciplinary research community of more than 1500 researchers at our six faculties, eight research institutes and more than 100 research centres.

UQ's School of Biomedical Sciences

The University of Queensland's School of Biomedical Sciences is making ground-breaking advances in modern medical science and providing students with the theoretical and practical skills for an exciting career in academia and industry.

Our innovative research encompasses the research spectrum from basic discovery through translational pathways to medical solutions, including:

- Investigation of cellular processes such as protein trafficking, cell signalling and organelle function.
- Study of how the dysregulation of bodily processes can cause serious human disorders such as infertility, Alzheimer's disease and autism.
- Musculoskeletal and neuromotor analyses to improve whole-body movement performance.
- Novel approaches to heal conditions such as spinal injury, motor neuron disease and cancer.

Contact

Dr Sherry Wu
E: sherry.wu@uq.edu.au

W: biomedical-sciences.uq.edu.au/research/groups/cancer-therapeutics

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