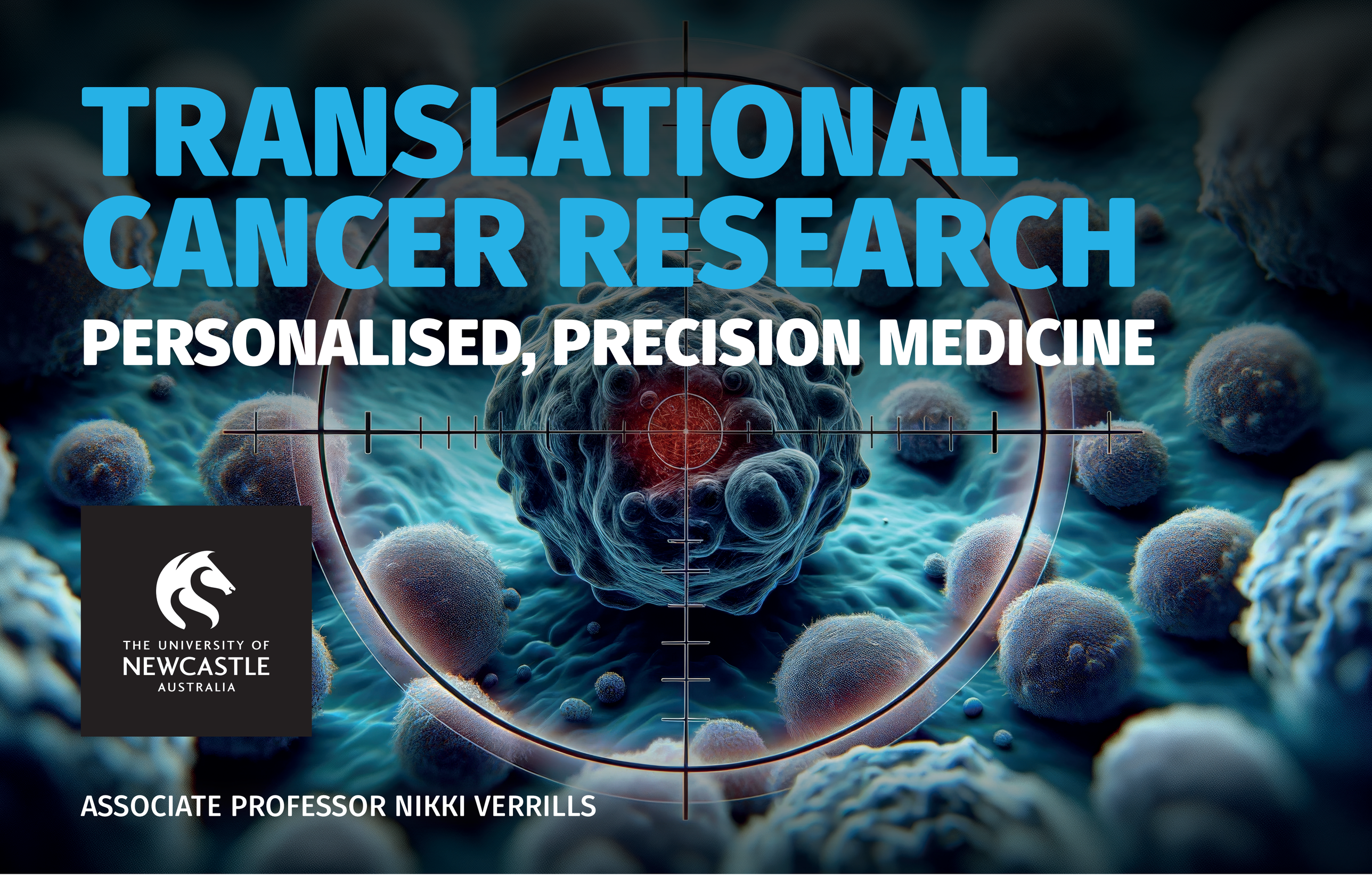
TRANSLATIONAL CANCER RESEARCH

PERSONALISED, PRECISION MEDICINE



ASSOCIATE PROFESSOR NIKKI VERRILLS

Harnessing high-resolution omics and preclinical models for new cancer therapies

Associate Professor Nikki Verrills and her team study the molecular pathways underpinning cancer development, progression and treatment resistance, to identify new targets for anti-cancer therapies. We have developed clinically-relevant models of cancers including cell-based systems, pre-clinical models and ex vivo primary patient tissue cultures, and are international experts in phosphoproteomics – a specialised, high-throughput technique to quantify activated signalling pathways in biological samples. Integrating phosphoproteomics with genomics and ex vivo drug sensitivity testing, we have developed a prognostic tool for predicting patient response to treatment, enabling personalised, precision medicine.

COMPETITIVE ADVANTAGE

- Preclinical mouse models of acute myeloid leukaemia and breast cancer, with in vivo imaging capability
- Drug sensitivity on patients cancer cells ex vivo
- Phosphoproteomics profiling of tumours or liquid biopsies for quantitation of activated cellular signalling pathways
- Unique bioinformatics pipeline for integrating multi-omics datasets with drug screening for precision medicine.

PARTNERS

- Hunter Medical Research Institute (HMRI)
- Calvary Mater Newcastle Hospital
- Race Oncology Ltd
- Takeda Pharmaceuticals.

SUCCESSFUL RESEARCH APPLICATION

- AML ROADMAP: a precision medicine tool for directing the right drug to the right patient
- Preclinical and clinical evaluation of Bisantrene as a new anti-cancer therapy for AML, breast cancer and renal cancer
- Identification of DNA-PK as a therapeutic target in AML
- Identification of a novel mechanism of resistance to endocrine therapy in breast cancer.

MORE INFORMATION

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