

POSITION DESCRIPTION

POSITION TITLE:	Research Officer
CLASSIFICATION:	QR2
RESPONSIBLE TO:	Professor Bill Dougall
LOCATION:	Herston

POSITION OBJECTIVES

The Research Officer will support computational biology efforts for two groups, the Translational Oncology Discovery Group and the Translational Cancer Immunotherapy Laboratory. This position will integrate cutting-edge techniques for scRNAseq, spatial proteomic and spatial transcriptomic analysis with clinical and pathology meta-data in order to define prognostic and predictive biomarkers of disease.

The Research Officer will be responsible for the application of appropriate and sophisticated computational analysis of spatial and bulk transcriptomic or proteomic data, dynamic clonal-specific tracking and the integration of these data with clinical and pathology meta-data.

It is expected that the Research Officer will collaborate closely with interdisciplinary teams (eg. Research, Clinical, Pathology) and apply the most relevant clinical or biological insight to enhance the medical impact of spatial and bulk multiomics research.

ORGANISATIONAL CONTEXT

QIMR Berghofer is a statutory body under the *Queensland Institute of Medical Research Act (1945)*. QIMR Berghofer Medical Research Institute proudly serves the people of Queensland with better health and wellbeing through impactful medical research. Our collaborative research programs address the foremost health challenges of our time. Our research responds to health challenges arising from social and environmental factors and aims to advance Aboriginal and Torres Strait Islander health equity.

QIMR Berghofer has a vision to lead the way to significant innovation in health outcomes, nationally and globally. We are committed to supporting ground-breaking research discoveries, achieving sustainability and conducting impactful research.

The Institute focuses its research within four key Programs:

- Cancer Research
- Infection & Inflammation
- Brain and Mental Health
- Population Health

The Translational Oncology Discovery Group is particularly interested in accelerating scientific and clinical progress in spatial analysis of cancer tissue.

The Translational Cancer Immunotherapy Laboratory studies the interaction between the immune response and tumour control, with a particular emphasis on translating our ever-expanding basic science knowledge into clinically applicable therapeutic platforms.

QIMR Berghofer promotes a *Working Better Together* operating model, recognising that whilst the purpose of the Institute is medical research, and the contribution of researchers is key, it cannot be done without the work of our highly-skilled professional staff. It recognises that we are all here to facilitate the same mission – *Better health through impactful medical research. Working Better Together* is underpinned by the shared understanding and application of our values:

- Excellence
- Integrity
- Respect
- Collaboration
- Accountability

REPORTING AND RELATIONSHIPS

The Research Officer reports to Professor Bill Dougall and supports the Translational Oncology Discovery Group.

The Research Officer also works closely with Associate Professor Siok Tey in the Translational Cancer Immunotherapy Laboratory and all members of the Lab.

PRIMARY RESPONSIBILITIES

- Develop and refine single-cell RNAseq, spatial proteomics and spatial transcriptomics methods and computational analysis work-flows, working collaboratively with clinical and research teams.
- Execute spatial transcriptomic and proteomic platforms (eg Nanostring CosMx, GeoMx), acquire raw data and processing/normalisation of data.
- Perform spatial image analysis using tools, including Fiji, Imaris, QuPath
- Perform spatial transcriptomic data analysis using tools, including Seurat, Scanpy, Squidpy, LisaCLust, stLearn, SCDNEY, GPTcelltype, SingleR, scPred, InSituType
- Analysis of sequencing data, including bulk RNAseq, single-cell RNAseq, including gene expression analysis and pathway analysis, and sourcing and integration of publicly available sequencing data
- Utilise high-performance computing systems for large-scale data processing and analysis
- Communicate and collaborate with a diverse team of clinicians, researchers and pathologists to integrate most impactful clinical or mechanistic questions.
- Provide data analysis in clear, interpretable manner and report accurately and comprehensively to stakeholders in a timely manner, including preparation of data and figures for papers
- Ongoing critical appraisal of current and emerging literature.
- Education and teaching of lab members where relevant.
- Model and promote excellence and integrity, adhering to the highest quality and ethical standards
- Ensure work practices comply with the requirements of the Work Health and Safety Act, related legislative requirements and the Institute's Work Health & Safety (WH&S) policies and procedures.

KEY SELECTION CRITERIA

Essential

- PhD in Medicine or Computational Biology or related fields.
- Recognised qualifications and previous experience applied computational biology in cancer.

- First-hand experience in the majority of techniques outlined under primary responsibilities.
 - Strong background in cancer omics data analysis, understanding molecular and cellular mechanisms of cancer and spatial-temporal tracking of cancer clones.
 - Demonstrated experience with single-cell spatial transcriptomics platforms, including computational analysis.
 - Demonstrated experience with programming languages, including R, R-studio, Python, BASH.
 - Demonstrated experience with high-performance computing environments, including Portable Batch System (PBS), Galaxy.
 - Demonstrated ability with custom development of computational pipelines for spatial analysis.
 - Demonstrated ability to use good judgement when working with minimal or no supervision.
 - Strong interpersonal and communication skills, with the ability to relate to staff across all levels of the organisation.
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QIMR Berghofer also offers:

- Salary Packaging
- State-of-the-art facilities
- Stimulating work setting focussed on cutting-edge medical research
- Supportive/collaborative team environment
- Parental leave provisions