

POSITION DESCRIPTION

POSITION TITLE: Early Career Postdoctoral Research Fellow

POSITION LOCATION: Olivia Newton-John Cancer Research Institute

EMPLOYMENT TYPE: Full time and fixed term

POSITION CONTEXT:

The Olivia Newton-John Cancer Research Institute (ONJCRI) is embedded within the Olivia Newton-John Cancer Wellness & Research Centre. The ONJCRI's mission is to discover and develop breakthrough therapies to help people live better with cancer or defeat it. Our research laboratories sit alongside patient treatment facilities to optimise collaboration between researchers and clinicians. The integration of laboratory and clinic ensures the rapid translation of scientific discoveries into clinical trials for the development of new cancer treatments. The ONJCRI is a global leader in the development of immunotherapies, targeted therapeutics and personalised cancer medicine.

The ONJCRI is the successor to the global Ludwig Cancer Research organisation with a proud track record of a quarter century of collaborative clinical research programs with Austin Health. Much of ONJCRI's strong foundation is built on the Ludwig Cancer Research legacy, and Ludwig Cancer Research's ongoing funding to continue translational research projects. Moreover, through the ONJCRI's exciting partnership with La Trobe University as its School of Cancer Medicine, we play a pivotal role in training Australia's future generations of medical researchers.

This position is available in the *Matrix Microenvironment & Metastasis* laboratory, based within the ONJCRI Translational Breast Cancer Program. The *Matrix Microenvironment & Metastasis* Laboratory is involved in basic/pre-clinical research investigating the molecular basis of breast cancer metastasis, the contribution of matrix proteins in this process and the development of novel targeted therapies.

PRIMARY RESPONSIBILITIES:

Breast cancer progression is driven by both tumour-intrinsic and microenvironmental factors. The work undertaken in the *Matrix Microenvironment & Metastasis* laboratory aims to understand the functional contribution of extracellular matrix proteins and cell adhesion receptors to organ-specific breast cancer metastasis and resistance to therapy.

Three main research themes will be explored:

- 1- Mechanisms underpinning breast cancer brain metastasis;
- 2- Contribution of ECM proteins to breast cancer metastasis;
- 3- Development of new pre-clinical models of advanced breast cancer to evaluate mechanisms of resistance and efficacy of novel therapies.

The post-doctoral fellow will have the opportunity to work on a suite of projects investigating the cellular and molecular basis of breast cancer progression, using cancer cell lines, syngeneic mouse

models, human xenograft models and patient samples. The work will involve extensive work in animal models to characterise the function of specific adhesion receptors in facilitating homing of circulating tumour cells to, and colonisation of the brain at the cellular and transcriptomic level. In addition, the work will involve the development of new metastasis models and evaluation of small molecule inhibitors, inhibitory peptides and antibodies *in vitro* and *in vivo* in multiple pre-clinical models of metastasis.

The Postdoctoral Fellow will be expected to develop an innovative research program based on these themes, publish the work in a timely manner, secure ongoing funding and initiate experiments and collaborations necessary to achieve the successful completion of this project.

REPORTING LINES:

This position reports to the Laboratory Head, ONJCRI MMM Laboratory. The Postdoctoral Fellow will be involved in supervision of junior staff and students.

KEY RELATIONSHIPS:

The following key relationships that are an essential component of the position include:

Internal:

- Scientists and staff within the *Matrix Microenvironment & Metastasis* Laboratory, as well as the Translational Breast Cancer Program
- Other lab groups within ONJCRI
- Administration staff of ONJCRI

External:

- Major collaborators as warranted by the research program, including academic, industry and pharmaceutical companies.
- Relevant hospital departments and groups.

ACCOUNTABILITIES:*Experimentation*

- Develop a research program consistent with the overall goals of the laboratory
- Establish or access new or existing technologies and techniques applicable to the research goals

Supervision

- Provide support and direction to other staff and students in the laboratory. The person will help with the supervision of research technicians, PhD students as well as with Honours students and visiting scientists.

Other

- Maintain currency in the relevant scientific literature
- Attend and present data at relevant scientific conferences and internal seminars

- Participate in wider Institute activities

CHALLENGES:

This is a new position and the applicant's intellectual input and scientific expertise will be encouraged. However, while the successful applicant will be given the flexibility to work on the projects applicable to their interests and skill base, it must be totally consistent with the goals and directions described under *Accountabilities*.

QUALIFICATIONS:

Minimum qualification is a PhD in cellular and molecular biology. Applicants with postdoctoral research experience are preferred, however applicants who have just completed their PhD studies and submitted their thesis will be considered. Experience with mouse work, molecular biology and microscopy is essential.

EXPERIENCE & CAPABILITIES:***Generic:***

- We are seeking an individual with a dedicated and enthusiastic work ethic and a proven track record in cancer metastasis, preferably breast cancer.
- The successful applicant will be expected to work with drive and independence and be capable of a high standard of written and oral communication.
- The position requires strong interpersonal skills. This is a substantial position, with the potential to provide opportunities for the supervision of students and research assistants.
- The successful applicant will be responsive to the regulations stipulated by the ONJCRI's Animal Ethics and Safety Committees, the Australian Quarantine Inspection Service (AQIS) and the Office of the Gene Technology Regulator (OGTR), and other committees and regulatory bodies as applicable.

Specific:

The successful applicant is likely to be accomplished in several of the following technical areas:

Essential:

- Cellular biology and drug testing
- Flow cytometry (staining and analysis)
- Animal experimentations
- Confocal microscopy and *in vivo* imaging (bioluminescence and fluorescence)
- Tissue culture (mono- and co-culture), in vitro functional assays (proliferation, adhesion, migration, invasion assays)
- Strong molecular biology skills (Gene cloning /shRNA knockdown / RT-PCR / expression vector construction, transfection and lentiviral infection)
- Basic protein chemistry techniques (immunoprecipitation, western blot analysis), immunohistochemistry
- Computer skills (Word processing, Powerpoint, Excel, database use, EndNote, Photoshop, Corel Draw, Prism)

Desirable:

Expertise in one or more of the following techniques/research areas would be highly regarded.

- Immune regulation of cancer progression
- Cell sorting expertise
- 3D organoid//PDX culture
- Experience in use of web-based biological resources
- Electronic data management
- RNAseq and bioinformatics
- CRSPR gene editing
- PET imaging
- Nanoparticle delivery of drugs