Position Description

JOB TITLE:	Bioinformatics Research Officer
GROUP:	Computational Biology Group
THEME:	Personalised Medicine
REPORTS TO (TITLE):	Computational Biology Group Leader
LAST DATE REVIEWED:	1st June, 2021

JOB SUMMARY

Paediatric cancer takes a devastating toll on patients, their families and the community, with 950 new patients diagnosed in Australia each year. Precision cancer medicine aims to improve outcomes in cancer patients by matching patients to the optimal treatment, based on molecular tumour profiling. Bioinformatics is critical to this; however, several significant challenges remain to bridge the gap from 'omic' data into improved outcomes. Molecular profiling of tumours plays a critical role in the diagnosis and prognosis of patient tumours and holds enormous research potential to further understand the biological processes underling paediatric cancer.

The Computational Biology Group at the Children's Cancer Institute develops novel computational approaches to improve outcomes in patients with childhood cancer. This primarily involves the analysis of whole genome, transcriptome and methylome data, from patient tumours and preclinical models. From this, we develop methods to understand the role of inherited and somatic variation in tumour initiation, progression, and to identify therapeutic vulnerabilities. Our research has a highly translational focus and is leading the genomic and bioinformatic analysis underlying the national Zero Childhood Cancer program (ZERO), the Luminesce Alliance Childhood Computational Biology Program and the ACRF Child Cancer Liquid Biopsy Program. We are partners of the Australian Bioinformatics Commons, an ambitious national initiative to securely share human genomic data to accelerate research.

We are seeking a bioinformatics research officer to tackle two major challenges of precision medicine, namely: obtaining an accurate molecular diagnosis and predicting the prognosis of each patient with childhood cancer. Numerous molecular classifiers have been developed for most major paediatric cancer subtypes, through most are focussed on subsets (e.g. brain tumour subtypes) and typically leverage only a single type of molecular data, and rarely incorporate histopathological findings from traditional diagnostic laboratories. This research officer will develop a suite of diagnostic and prognostic approaches, which leverage multi-omic molecular data (RNAseq, WGS and methylation profiling) and histopathology data.

The successful candidate will be an independent, highly motivated, and talented researcher, with a passion for conducting high quality research in paediatric oncology and computational biology. This highly translational project will result in the development of approaches which support the uptake of comprehensive molecular profiling (RNAseq, WGS and methylation profiling) as a first-line diagnostic tool, driving important clinical and research benefits. They will work closely with other members of the Computational Biology Group to support the development, and delivery of a training program aimed at building capacity, knowledge, and expertise across institute research staff in bioinformatics, computational biology, genomics, and study design.

PRIMARY TASKS / RESPONSIBILITIES

In fulfilling the core strategic objectives of the group, the role will be engaged in the following duties and responsibilities:

- Identify and evaluate existing molecular classifiers for major paediatric cancer subtypes, using extensive in-house and external data
- Develop a system to capture known diagnostic and prognostic information that reflects the traditional diagnostic pathways for paediatric cancers
- Develop algorithms to leverage recent multi-omic molecular profiling data to identify 'data-driven' diagnostic and prognostic molecular features
- Ultimately develop a universal, multi-omic molecular classifier for paediatric cancer
- Be motivated to seek academic career progression opportunities through driving manuscript writing, grant writing and presenting research and conferences.
- Support the computational biology group and collaborations with paper writing, and grant writing
- Interact with members of the precision medicine curation team to translate this research into clinical practice.
- Day-to-day support and occasional training of students and junior staff as required.
- Staying abreast on advances in genomics and next generation sequencing technology in general, maintaining knowledge about clinical genomic testing and personalised medicine
- Promote CCI on the local, national, and international stages
- Other duties as assigned.

Key Interactions:

- Internal: Computational Biology Group Leader, Precision Medicine Informatics Manager, Senior Research Engineer, Curation Scientists
- External: Subject matter experts around Australia, key national collaborators from the Zero Childhood Cancer Network, key international collaborators

MINIMUM REQUIREMENTS

Qualifications

- PhD in computational biology, genomics, or related field

Experience and requirements

- Highly developed skills in bioinformatics and genomics
- High-level of proficiency in at least one of bash, R, and python
- Strong demonstrated expertise working with multiple next generation sequencing methods
- Strong understanding of cancer biology
- Strong understanding of classification algorithm and statistics in general
- Ability to develop, manage and maintain internal and external relationships, including collaborations
- Experience in clinical interpretation of genomic data is desirable but not essential
- Highly motivated to produce high quality research with rapid translational and clinical impact

KEY SKILLS

- Strong analytical, critical thinking, and problem-solving skills
- Creativity, flexibility and independence as a researcher
- Capacity to manage multiple priorities and projects with excellent organisational and time management skills
- Able supervision of staff and students
- Capacity to work under minimal supervision
- Exceptional written and oral presentation skills
- Exceptional project management skills
- Exceptional interpersonal skills and ability to work cooperatively, openly, and transparently

EXPECTED OUTPUTS

- Perform high quality bioinformatics research, resulting in the development of novel methods, biological insights, and a combination of methods-led, and disease-led research papers
- Contribution towards grant writing, paper writing, and scientific communication, including preparing and delivering internal and external presentations
- Assist with the design, implementation, and maintenance, and actively contribute to an ongoing training program for non-bioinformaticians
- Development and maintenance of strong collaborative links to leverage and contribute to international data sets

Children's Cancer Institute policies applicable

- Code of Conduct/Ethics
- Whistle-blowing
- Use of Electronic Resources
- Workplace Health & Safety
- Appropriate Workplace Behaviour
- Privacy
- Any other policies not listed here but are available on the Children's Cancer Institute Intranet Policies pages

SERVICE STANDARDS AND GENERAL EXPECTATIONS

- Respond to phone calls and emails within 48 hours
- Read internal communications within 48 hours
- Maintain up to date personal information in the HRIS (ConnX - Self Service) at all times

OUR VALUES

A is for **Accountability** and **Integrity**

C is for **Camaraderie, teamwork** and **Sharing**

E is for **Excellence** and **Success**

S is for **Satisfaction. The result of living our values everyday**

COMPLIANCE AND CODE OF ETHICS AND CONDUCT

Staff members are responsible for ensuring that they are familiar with and comply with their conditions of employment as stated in their individual contract, all Children's Cancer Institute Policies and Procedures and relevant ethical and regulatory guidelines. Staff must be aware that breaches by individuals will not be tolerated or condoned and may be subject to the Disciplinary Action Policy.

Your knowledge and awareness of Children's Cancer Institute Policies and Procedures (including the Code of Ethics and Conduct), will be monitored from time to time to ensure that our compliance program is effective.

Part of compliance adherence involves the use of standardised forms, checklists, and other aids (as appropriate) to ensure that important compliance issues are not overlooked. All forms must be used in accordance with instructions and the procedures as outlined in the relevant policies and procedures to ensure that compliance to the laws and regulations occurs.

WORK HEALTH & SAFETY

- Must adhere to all WHS policies and procedures including reporting incidents within 24 hours
- Take reasonable care for their own health and safety and the health and safety of other people who may be affected by their conduct in the workplace
- Actively participating in health and safety meeting, training and induction programs
- Complying with all safe work procedures and instructions
- Use equipment in compliance with relevant procedures, without wilful interference or misuse
- Ensure that any hazardous conditions, near misses and injuries are reported immediately to the supervisor and in the WHS reporting system (Myosh)
- Must not wilfully or recklessly interfere with or misuse anything provided in the interest of environment health and safety or welfare

REPORTING STRUCTURE

Position reports direct to: *Computational Biology Group Leader*.

Departmental Structure: *See Organisation Chart*

Note: Reporting structure may change subject to management decisions and business requirements.

Position Description

APPROVED BY

All parties below need to approve by signature and date.

Mark Cowley

Computational Biology Group Leader

Date: 10 June 2021

Name

Date: _ _ _ _ _ _ _ _

> It is not the intention of the position description to limit the scope or accountabilities of the position but to highlight the most important aspects of the position. The aspects mentioned above may be altered in accordance with the changing requirements of the role.