



creating
possible

Position Description

Position Title:	Research Officer
Salary Range:	MCRI Research Salaries – Research Officer – Level A – Step 1
Reporting Manager:	Group Leader / Clinician-Scientist Fellow
Direct Reports:	0
Home Group:	Cancer Therapies

Who are we?

The Murdoch Children's Research Institute (MCRI) is home to significant scientific discoveries. We believe there is an answer, a cure or a better treatment for every childhood condition — and we're determined to find it.

We are a diverse team of world-leading researchers, doctors, engineers, and hardworking professionals in operational and scientific services from all corners of the world with one shared goal — to transform child health worldwide.

Our strength lies in our partnership and co-location with The Royal Children's Hospital and the University of Melbourne — the Melbourne Children's Campus. This partnership model amplifies opportunities to quickly translate research into clinical care.

MCRI includes a wholly owned subsidiary, the Victorian Clinical Genetics Services (VCGS), a private not-for profit organisation. VCGS is a specialist childhood, prenatal and adult genetics service. VCGS provides an integrated genetic consultation, counselling, testing and diagnostic support service to children, adults, families and prospective parents.

Together, we share a powerful vision:

Our purpose:

We want all children to have the opportunity to live a healthy and fulfilled life.

Our 2025-2030 Strategy:

Towards Precision Child Health

We exist for a **purpose**, to give all children an opportunity to live a healthy and fulfilled life.

We **value** individuals with the determination to solve complex problems, who thrive on collaboration, and who embody honesty, respect, and accountability.

Our **goals** centre around an inclusive environment in which our people can undertake bold research that can be scaled for impact through strategic partnerships.

We **operate** in a collaborative environment, tackling problems in teams, across disciplines and across boundaries.

Our research generates evidence underpinning changes that **impact** the lives of children in our hospitals, in our communities, and across the globe.

What is it like to work for us?

We are dedicated to ensuring a positive working environment that values all backgrounds and experiences. We cultivate an inclusive culture that is underpinned by equal opportunity for all and a culture based on respect, consideration, and dignity. We invest in developing our People and fostering an environment where learning and development is central to our staff reaching their full potential.

The Institute is also committed to the safety of children and young people and takes a zero-tolerance approach to all forms of child abuse, exploitation, and harm. The Institute prioritises child safety in our decision-making at all levels of the Institute and supports our employees to understand and enact their safeguarding responsibilities.

Position Overview

The Cancer Therapies and Transcriptomics and Bioinformatics/reNEW Bioinformatics Hub Groups at MCRI are committed to improving the safety and effectiveness of cancer treatments for children through precision medicine approaches. Our research focuses on reducing adverse drug reactions (ADRs) by integrating clinical data, pharmacogenomics, and artificial intelligence.

We are seeking a highly motivated Postdoctoral Fellow in Bioinformatics and Artificial Intelligence to support a collaborative, cross-disciplinary research program that spans MCRI and international partners. The successful applicant will join a dynamic team working at the intersection of genomics, pharmacology, and machine learning to predict treatment-related toxicity and disease progression in paediatric oncology.

The Research Officer will be embedded within the Cancer Therapies Group and will work closely with the Transcriptomics and Bioinformatics Group and collaborators in genomics, data science, and clinical oncology. Key responsibilities include the integration and analysis of large-scale clinical and genomic datasets (including whole genome sequencing (WGS), pharmacogenomics (PGx), and electronic medical record (EMR) -derived phenotypes), development of scalable bioinformatics workflows, and application of advanced machine learning models (e.g. transformers, PheWAS frameworks, DELPHI models) to uncover predictors of ADRs and disease trajectories.

The scope of this role includes contributing to the development and delivery of national pharmacogenomics infrastructure and supporting strategic national and international collaborations, including with EMBL-EBI (European Bioinformatics Institute). The position provides opportunities to undertake placements at EMBL-EBI, UK, to develop collaborative research relationships and expertise in genomic data infrastructure, platforms, and resources that support pharmacogenomics and genomic medicine.

Key Accountabilities

- Supports campus efforts related to gender equity, diversity, inclusion and wellbeing through participation, active learning and/or role modelling our values
 - Integrate clinical and genomic data across cohorts and develop pipelines for pharmacogenomic and transcriptomic analysis.
 - Apply machine learning models to predict adverse drug reactions and disease trajectories in paediatric cancer patients.
 - Makes significant and/or independent contributions to grant submissions and publications including lead authorship
 - Make contributions to external journal and grant reviews
 - Applies for competitive Fellowship and Grants
 - Attracts external competitive funding and has a record of high-quality publications, potential commercial/clinical/public health research impact and peer recognition.
 - Assists the Group Leader/Direct report/Program Manager in high level duties (eg: grant applications, publication revisions)
 - Active participation in the communication and dissemination of research where appropriate, including presenting at national and international conferences
 - Participate in research independently and as a member of research teams both within MCRI and external collaborators
 - Provide effective supervision of major honours or postgraduate research projects and supervise or co- supervise Research Higher Degree and Honours students
 - Steady development of an academic research profile in Cancer genomics and Computational Biology.
 - Liaises with IT and other Bioinformatics groups regarding infrastructure requirements
 - Conducts ethical research at the highest level of integrity and in line with the Australian Code for Responsible Conduct of Research and MCRI policies
 - Assists and contributes to data generation for research and publications
 - Works to improve skill base in research productivity and methodology
 - Assists in high calibre, competitive research
 - Designs and follows standard operating procedures, study protocols and study guidelines
 - Continuous maintenance of neat and orderly records, lab books and data storage
 - Understands and follows field work guidelines GCP / ICH
 - Fosters relationships with key internal and external stakeholders
 - Is engaged in the campus culture including professional development activities and attending internal/external campus conferences and seminars
 - Is aware of, and adheres to, MCRI policy on Intellectual Property/Material Transfer Agreements/Contracts/Clinical and Public Health Outcomes
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Selection Criteria

Essential

- PhD in Bioinformatics, Computational Biology, AI for Data Science or a Related Discipline Demonstrated expertise in bioinformatics, genomics, or machine learning, with a strong publication record in relevant areas
- Proficiency in Genomic Data Analysis
- Experience in the analysis of high-throughput sequencing data (e.g. WGS, RNA-seq, PGx) using standard bioinformatics tools and workflows
- Programming and Workflow Development Skills
- Proficient in programming languages such as Python and R, and experience developing reproducible, scalable pipelines using workflow managers
- Experience with Large-Scale Datasets and Cloud/HPC Environments
- Demonstrated ability to manage and analyse complex, multi-dimensional data in high-performance or cloud computing environments
- Strong Problem-Solving and Analytical Skills
- Ability to design and troubleshoot bioinformatics analyses independently, with critical attention to data quality, reproducibility, and interpretation
- Excellent Communication and Collaboration Skills
- Proven ability to work effectively within multidisciplinary teams and communicate results clearly to both technical and non-technical audiences
- Ethical and Inclusive Research Practice
- Demonstrated commitment to ethical research conduct, inclusivity, and the ability to work effectively with individuals from diverse backgrounds

Desirable (as needed)

- Undergraduate training in computational genomics, computer science, data science or a related discipline
- Experience with AI/ML Models and Modern Machine Learning Frameworks
- Experience developing, training, and evaluating machine learning models, including deep learning and transformer-based approaches. Proficiency with modern deep learning frameworks such as PyTorch and/or TensorFlow is desirable. Experience applying these methods to biomedical or genomic would be advantageous
- Knowledge of Pharmacogenomics and Clinical Genomics Standards
- Understanding of PGx reporting frameworks (e.g. CPIC guidelines) and experience with genotype– phenotype association studies (e.g. PheWAS)
- Track Record of Research Translation and Impact
- Experience contributing to collaborative translational research projects, particularly in paediatric, oncology, or rare disease contexts
- Experience with Data Governance and Ethical Compliance
- Awareness of data governance issues, including patient consent, ethics, and secure data handling, especially when working with linked clinical-genomic data

Conditions of Employment

- Keeping children safe is our highest priority. We maintain rigorous safeguarding standards and employ comprehensive screening processes to ensure the safety of the children we work with. This includes mandatory screening processes for all successful candidates, including:
 - Valid Working with Children Check (or equivalent)
 - Satisfactory criminal record check
- The right to reside and work in Australia and you meeting any applicable visa conditions

Health, Safety & Wellbeing

- We are committed to providing and maintaining a working environment which protects the health, safety and wellbeing of our people, partners and the community
- Employees conducting duties on behalf of MCRI are expected to meet the environment, health and wellbeing requirements and responsibilities specifically required for the role
- We are committed to supporting children in their right to be safe and adhere to the responsibilities we have to ensure their protection and safety as per the Child Safety Policy
- The Institute is committed to the safety of children and young people, and takes a zero-tolerance approach to all forms of child abuse, exploitation and harm. The Institute prioritises child safety in our decision-making at all levels of the Institute and supports our employees to understand and enact their safeguarding responsibilities
- We are committed to a diverse, inclusive workplace where all staff are supported to reach their full potential, regardless of gender, career status, age, disability, cultural background, religion or sexual orientation
- Specified positions may be subject to medical review to ensure that the inherent requirements of the role can be undertaken safely

As MCRI evolves to meet its changing strategic and operational needs and objectives, so will the roles required of its employees. As such, this document is not intended to represent the position which the occupant will perform in perpetuity. This position description is intended to provide an overall view of the incumbent's role as at the date of this statement.