

Research Officer/Post-doctoral scientist Stem Cell Biology and Embryology

- **Make an important contribution to the health of children through medical research**
- **Work with one of Australia's most respected national and independent medical research institutes**
- **Gain valuable experience in the not-for-profit sector**

Children's Medical Research Institute (CMRI) was Australia's first dedicated paediatric research facility and is now one of the world's most highly regarded independent medical research centres. Our research focuses on the areas of embryonic development and birth defects, cancer, neuroscience and gene therapy and we have a strong international reputation based on our research outcomes. It is also home to the world-first proteomics project, ProCan, which is changing the way cancer is diagnosed and treated. CMRI's research programs are supported by state of the art facilities and committed research and support staff. Our achievements are made possible by a loyal network of community supporters, highly engaged donors and the very successful Jeans for Genes® fundraising campaign.

A post-doctoral scientist position funded by a National Health & Medical Research Council Investigator Grant is now available. We are looking for a highly motivated researcher to explore the molecular mechanisms governing stem cell identity and cell-fate decisions. The successful applicant will have a PhD (or be in the final stages of completion) with a strong background in molecular biology, stem cell biology, and/or systems biology (e.g. transcriptomics).

Position Summary

The Computational Systems Biology (CSB) Group and Embryology Research Unit at CMRI are welcoming applications for a post-doctoral scientist to be appointed as Research Officer to conduct bench ("wet-lab") research in the areas of stem cell biology, with an overarching goal of functionally characterising stem cell development.

Our research focuses on the acquisition of stem cell identity and cell-fate decisions during differentiation. Together, the two CMRI labs have established high-throughput experimental techniques such as single-cell genomic and transcriptomic analytics, proteomics, phosphoproteomics and computational expertise in multi-omics data analysis. The appointee will have opportunity to collaborate with data scientists in CMRI and the School of Mathematics and Statistics, and systems biologists in the Charles Perkins Centre (CPC) at the University of Sydney.

The appointee will also have the opportunity to be affiliated with the University of Sydney and supervise Honours and HDR students to build his/her teaching and supervision track record.

Duration: 3-year fixed term (full time).

Salary: \$ 89,384 – \$ 95,948 + Superannuation + Annual Leave Loading + Salary Packaging

Key experience and competencies

The individual employed will be a highly skilled post-doctoral scientist capable of designing and driving a research project and will be able to work in a collaborative and interactive environment. Outstanding candidates will be eligible for internal CMRI training fellowships.

About you

The ideal candidate should have the follow research experience.

- A PhD in biological sciences. A strong background in molecular biology, cell biology, biochemistry, developmental biology or systems biology, is desired.
- Good knowledge of stem cell biology and cellular development.
- Experience in cell culture, experimental design, and high-through omics data generation.
- Experience in omics analysis, single cell biology, chromatin immunoprecipitation (ChIP) experimentation is highly desirable.
- Ability in the formulation of research strategy and the preparation of research reports and publications.
- Track record of high-quality research output
- Excellence in written and oral communications, interacting with a variety of researchers and stakeholders
- Evidence of self-motivation and potential for undertaking original research endeavour

About the role

This position will help you building a collaboration network across multiple teams and a track record that enables you to apply for collaborative research funding and independent research fellowship. Specific roles include (but not limited to) the following:

- (i) Lead and carry out research projects in the broad area of stem cells biology, developmental biology and systems biology.
- (ii) Prepare and publish work and present scientific results in national/international conferences.
- (iii) Develop and co-supervise research projects for honours and graduate research students.
- (iv) Assist in the recruitment of research students and working towards attracting new funding.
- (v) Build collaboration with CMRI teams and multiple institutes at USYD (e.g. CPC and School of Mathematics and Statistics) and beyond.

Computational Systems Biology lab and Embryology lab

This position will be jointly mentored by CSB head Dr Pengyi Yang and Head of Embryology Research Unit Prof. Patrick Tam. The CSB lab (<https://pyanglab.github.io>) specializes in computational methods for omics analysis and the Embryology lab (<https://www.cmrijeansforgenes.org.au/research/research-teams/embryology>) specializes in development biology and stem cell science. The two labs combine computational and experimental

expertise to understand stem cell systems, providing close collaboration among computational and systems biologists; and molecular and developmental biologists.

The key research directions include

CSB: Transcriptional regulation in stem cells (Yang et al. *Molecular Cell*, 2017; Kim et al. *Nucleic Acid Research*, 2020); bulk and single-cell multi-omics analysis (Yang et al. *Cell Systems*, 2019; Kim et al. *Bioinformatics*, 2020); and machine learning application in systems biology (Cao et al. *Nature Machine Intelligence*, 2020).

Embryology: Transcriptional and functional properties of mouse epiblast stem cells (Kojima et al. *Cell Stem Cell*, 2014); Lineage specification and tissue organization in mouse embryo (Peng et al. *Nature*, 2019); Signalling in epiblast stem cells (Osteil et al. *Development*, 2019).

You will be provided with a competitive remuneration package in accordance with qualifications and experience. Additional benefits include the provision of a Public Benevolent Institution salary packaging scheme and participation in an employer-contributed superannuation fund.

Applications should include a cover letter (citing PV2111), curriculum vitae and contact details (phone/email) of three professional referees and be forwarded to recruitment@cmri.org.au.

We will interview suitable candidates as applications are received. Closing date for applications is **16th April 2021**.

Please direct enquiries regarding the position to Dr Pengyi Yang (pengyi.yang@sydney.edu.au) or Prof. Patrick Tam (PTam@cmri.org.au).