THE UNIVERSITY OF
MELBOURNE

Department of Anatomy and Neuroscience
Faculty of Medicine, Dentistry and Health Sciences, The University of Melbourne

Research Fellow, Genomics Data Analyst

POSITION NO	0045320
CLASSIFICATION	Research Fellow Grade 1 (Level A)
SALARY	$69,148 - $93,830 p.a.
SUPERANNUATION	Employer contribution of 9.5%
EMPLOYMENT TYPE	Full time, fixed-term position available from 1 July 2018 to 30 June 2019 Fixed term contract type: Research
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
CURRENT OCCUPANT	New
HOW TO APPLY	Online applications are preferred. Go to http://about.unimelb.edu.au/careers, under 'Job Search and Job Alerts', select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACTS FOR ENQUIRIES ONLY	Dr Kim-Anh Lê Cao Email: kimanh.lecao@unimelb.edu.au *Please do not send your application to this contact*

For information about working for the University of Melbourne, visit our websites:

about.unimelb.edu.au/careers
joining.unimelb.edu.au

Position Summary

The Research Fellow in Genomics Data Analysis is a collaboration between the University of Melbourne and the University of Queensland, funded by Stem Cells Australia.

Stem Cells Australia (SCA) http://www.stemcellsaustralia.edu.au/ is an Australian Research Council Special Research Initiative which has received more than $24m in funding since 2011. The initiative links Australia's experts in stem cell biology, regenerative medicine, bioengineering, nanotechnology, advanced molecular analysis and clinical research with the aim of exploring the fundamental mechanisms in stem cell regulation and differentiation, and the translation of this knowledge into therapeutic applications. The initiative, led by the University of Melbourne, involves 13 Australian Universities and Medical Research Institutes.

The Research Fellow in Genomics Data Analysis will be responsible for mining, analysing and integrating different sources of biological data (transcripts, mRNA CAGE, transcription factors) available from the Stemformatics platform and from our wide range of collaborators. The aim of this project sits at the forefront of systems biology in stem cells and is to establish the first computational principles towards the understanding of stem cell programming and reprogramming stages.

The first part of the project will be based in Dr Lê Cao's lab (Melbourne Integrative Genomics & School of Mathematics and Statistics, University of Melbourne) to mine and identify molecular signatures to characterise stem cell subtypes. The second part of the project will be based in A/Prof Jess Mar's lab (Australian Institute for Bioengineering and Nanotechnology, University of Queensland) and builds on the results of the first phase, by investigating the network modularity from the molecular signatures derived. This will involve the application and development of statistical classifiers and similar machine learning methods to identify decision tree-type models that reflect the underlying rules that drive the reprogramming events and developmental processes of stem cells.

The incumbent is expected to share their time evenly across The University of Melbourne and the University of Queensland when possible. This role offers the unique opportunity to work at the interface between stem cell biologists, bioinformaticians, and statisticians in cutting-edge stem cell research and 'omics data integration.

In addition to being a member of Stem Cells Australia, the incumbent will be an affiliate member of Melbourne Integrative Genomics (MIG), hosted by the University of Melbourne, and the Australian Institute for Bioengineering and Nanotechnology (AIBN) at the University of Queensland.

1. Key Responsibilities

1.1 RESEARCH AND RESEARCH TRAINING

- Under broad supervision of research group leaders, contribute to novel and innovative statistical developments in cutting-edge stem cell research
- Participate in research independently and as a member of a research team
- Co-supervision of postgraduate research projects within research area
- Contribute to publications arising from scholarship and research, such as publication of books and in peer reviewed journals, and conference presentations
- Acquire and maintain familiarity with relevant scientific literature
- Work with colleagues and postgraduates in the development of joint research projects.

1.2 LEADERSHIP AND SERVICE

▸ Active participation in the communication and dissemination of research at all levels – laboratory, institutional, national and international as appropriate.

▸ Identification of sources of funding to support individual or collaborative projects, relating to research and engagement practice in the discipline

▸ Effective liaison with external networks to foster collaborative partnerships

2. Selection Criteria

2.1 ESSENTIAL

▸ PhD or substantial progress towards PhD in applied statistics, computational biology, bioinformatics, or related area.

▸ Strong computer programming skills in R or other relevant language.

▸ Experience in statistical analysis of high-throughput biological data.

▸ Knowledge of mammalian molecular biology and genomics

▸ Experience in research publications and presentations

▸ Good interpersonal and communication skills including ability to present and discuss own research work, contribute to discussion of the work of others.

▸ Demonstrated ability to exercise sound judgement, attention to detail, time management and meticulous record keeping.

2.2 DESIRABLE

▸ Experience with supervised analyses for biomarker discovery

▸ Experience in network modelling

▸ Experience in analysing and providing visualisation of large biological data sets.

▸ Understanding of Next Generation sequencing.

2.3 SPECIAL REQUIREMENTS

▸ Ability and willingness to be based at the University of Melbourne for the first 6 months and the University of Queensland for the remaining 6 months.

3. Equal Opportunity, Diversity and Inclusion

The University is an equal opportunity employer and is committed to providing a workplace free from all forms of unlawful discrimination, harassment, bullying, vilification and victimisation. The University makes decisions on employment, promotion and reward based on merit.

The University is committed to all aspects of equal opportunity, diversity and inclusion in the workplace and to providing all staff, students, contractors, honorary appointees, volunteers and visitors with a safe, respectful and rewarding environment free from all forms of unlawful discrimination, harassment, vilification and victimisation. This

commitment is set out in the University's People Strategy 2015-2020 and policies that address diversity and inclusion, equal employment opportunity, discrimination, sexual harassment, bullying and appropriate workplace behaviour. All staff are required to comply with all University policies.

The University values diversity because we recognise that the differences in our people's age, race, ethnicity, culture, gender, nationality, sexual orientation, physical ability and background bring richness to our work environment. Consequently, the People Strategy sets out the strategic aim to drive diversity and inclusion across the University to create an environment where the compounding benefits of a diverse workforce are recognised as vital in our continuous deserve to service for excellence and reach the targets of Growing Esteem.

4. Occupational Health and Safety (OHS)

All staff are required to take reasonable care for their own health and safety and that of other personnel who may be affected by their conduct.

OHS responsibilities applicable to positions are published at:

http://safety.unimelb.edu.au/topics/responsibilities/

These include general staff responsibilities and those additional responsibilities that apply for Managers and Supervisors and other Personnel.

5. Other Information

5.1 DEPARTMENT OF ANATOMY AND NEUROSCIENCE

http://biomedicalsciences.unimelb.edu.au/departments/anatomy-and-neuroscience

Our research in neuroscience, cell and developmental biology, and anatomical sciences aims to understand fundamental biological mechanisms in order to develop new treatments for injury and disease states. Our researchers are located in the Medical Building and the Melbourne Brain Centre, and include research teams from Stem Cells Australia and the Melbourne Brain Centre Imaging Unit. The Department has excellent research facilities, including confocal, fluorescence and live cell imaging microscopes, laser capture dissection, tissue culture facilities, an excellent histology laboratory and a new molecular biology suite. Our Department also hosts the Australian Phenomics Network Histopathology and Organ Pathology Service, providing detailed histological phenotyping and digital scanning of data from mutant mice. The synergy between these activities provides a vibrant environment for undergraduate and postgraduate training, and a friendly and supportive intellectual community to encourage development of early career researchers.

AUSTRALIAN INSTITUTE FOR BIOENGINEERING & NANOTECHNOLOGY

http://www.aibn.uq.edu.au

The University of Queensland's Australian Institute for Bioengineering and Nanotechnology (AIBN) is a dynamic multi-disciplinary research institute dedicated to

developing technology to alleviate societal problems in the areas of health, energy, manufacturing and environmental sustainability. AIBN brings together the skills of more than 450 world-class researchers complimented by an extensive suite of integrated facilities, working at the intersection of biology, chemistry, engineering and computer modelling. With a reputation for delivering translational science, AIBN conducts research at the forefront of emerging technologies, and has developed strong collaborations with leading members of industry, academia and government. AIBN goes beyond basic research to develop the growth of innovative industries for the benefit of the Queensland and Australian economies.

AIBN is committed to supporting the career growth of female researchers and have a number of initiatives to support females in developing and achieving a fulfilling research career at the institute. For more information, please visit our AIBN Women in Science web site at http://www.aibn.uq.edu.au/women.

5.2 FACULTY OF MEDICINE, DENTISTRY & HEALTH SCIENCES

www.mdhs.unimelb.edu.au

The Faculty of Medicine, Dentistry & Health Sciences has an enviable research record and is the University of Melbourne's largest faculty in terms of management of financial resources, employment of academic and professional staff, teaching of undergraduate and postgraduate (including research higher degree) students and the conduct of basic and applied research. The Faculty's annual revenue is $628m with approximately 55% of this income related to research activities.

The Faculty has a student teaching load in excess of 8,500 equivalent full-time students including more than 1,300 research higher degree students. The Faculty has approximately 2,195 staff comprising 642 professional staff and 1,553 research and teaching staff.

The Faculty has appointed Australia's first Associate Dean (Indigenous Development) to lead the development and implementation of the Faculty's Reconciliation Action Plan (RAP), which will be aligned with the broader University – wide plan. To enable the Faculty to improve its Indigenous expertise knowledge base, the Faculty's RAP will address Indigenous employment, Indigenous student recruitment and retention, Indigenous cultural recognition and building partnerships with the Indigenous community as key areas of development.

5.3 THE UNIVERSITY OF MELBOURNE

Established in 1853, the University of Melbourne is a leading international university with a tradition of excellence in teaching and research. The main campus in Parkville is recognised as the hub of Australia's premier knowledge precinct comprising eight hospitals, many leading research institutes and a wide-range of knowledge-based industries. With outstanding performance in international rankings, the University is at the forefront of higher education in the Asia-Pacific region and the world.

The University employs people of outstanding calibre and offers a unique environment where staff are valued and rewarded.

Further information about working at The University of Melbourne is available at http://about.unimelb.edu.au/careers.

THE UNIVERSITY OF QUEENSLAND

The University of Queensland (UQ) contributes positively to society by engaging in the creation, preservation, transfer and application of knowledge. UQ helps shape the future by bringing together and developing leaders in their fields to inspire the next generation and to advance ideas that benefit the world. UQ strives for the personal and professional success of its students, staff and alumni. For more than a century, we have educated and worked with outstanding people to deliver **knowledge leadership for a better world.**

UQ ranks in the world's top universities, as measured by several key independent ranking, including the Performance Ranking of Scientific Papers for World Universities (43), the US News Best Global Universities Rankings (52), QS World University Rankings (47), Academic Ranking of World Universities (55), and the Times Higher Education World University Rankings (65). UQ again topped the nation in the prestigious Nature Index and our Life Sciences subject field ranking in the Academic Ranking of World Universities was the highest in Australia at 20.

UQ has an outstanding reputation for the quality of its teachers, its educational programs and employment outcomes for its students. Our students remain at the heart of what we do. The UQ experience – the UQ Advantage – is distinguished by a research enriched curriculum, international collaborations, industry engagement and opportunities that nurture and develop future leaders. UQ has a strong focus on teaching excellence, winning more national teaching excellence awards than any other in the country and attracting the majority of Queensland's highest academic achievers, as well as top interstate and overseas students.

5.4 GROWING ESTEEM, THE MELBOURNE CURRICULUM AND RESEARCH AT MELBOURNE: ENSURING EXCELLENCE AND IMPACT TO 2025

Growing Esteem describes Melbourne's strategy to achieve its aspiration to be a public-spirited and internationally-engaged institution, highly regarded for making distinctive contributions to society in research and research training, learning and teaching, and engagement. http://about.unimelb.edu.au/strategy-and-leadership

The University is at the forefront of Australia's changing higher education system and offers a distinctive model of education known collectively as the Melbourne Curriculum. The new educational model, designed for an outstanding experience for all students, is based on six broad undergraduate programs followed by a graduate professional degree, research higher degree or entry directly into employment. The emphasis on academic breadth as well as disciplinary depth in the new degrees ensures that graduates will have the capacity to succeed in a world where knowledge boundaries are shifting and reforming to create new frontiers and challenges. In moving to the new model, the University is also aligning itself with the best of emerging European and Asian practice and well-established North American traditions.

The University's global aspirations seek to make significant contributions to major social, economic and environmental challenges. Accordingly, the University's research strategy *Research at Melbourne: Ensuring Excellence and Impact to 2025* aspires to a significant advancement in the excellence and impact of its research outputs. http://research.unimelb.edu.au/our-research/research-at-melbourne

The strategy recognises that as a public-spirited, research-intensive institution of the future, the University must strive to make a tangible impact in Australia and the world, working across disciplinary and sectoral boundaries and building deeper and more

substantive engagement with industry, collaborators and partners. While cultivating the fundamental enabling disciplines through investigator-driven research, the University has adopted three grand challenges aspiring to solve some of the most difficult problems facing our world in the next century. These Grand Challenges include:

Understanding our place and purpose – The place and purpose grand challenge centres on understanding all aspects of our national identity, with a focus on Australia's 'place' in the Asia-Pacific region and the world, and on our 'purpose' or mission to improve all dimensions of the human condition through our research.

Fostering health and wellbeing – The health and wellbeing grand challenge focuses on building the scale and breadth of our capabilities in population and global health; on harnessing our contribution to the 'convergence revolution' of biomedical and health research, bringing together the life sciences, engineering and the physical sciences; and on addressing the physical, mental and social aspects of wellbeing by looking beyond the traditional boundaries of biomedicine.

Supporting sustainability and resilience – The sustainability and resilience grand challenge addresses the critical issues of climate change, water and food security, sustainable energy and designing resilient cities and regions. In addition to the technical aspects, this grand challenge considers the physical and social functioning of cities, connecting physical phenomena with lessons from our past, and the implications of the technical solutions for economies, living patterns and behaviours.

Essential to tackling these challenges, an outstanding faculty, high performing students, wide collaboration including internationally and deep partnerships with external parties form central components of Research at Melbourne: Ensuring Excellence and Impact to 2025.

5.5 EQUITY AND DIVERSITY

Another key priority for the University is access and equity. The University of Melbourne is strongly committed to an admissions policy that takes the best students, regardless of financial and other disadvantage. An Access, Equity and Diversity Policy Statement, included in the University Plan, reflects this priority.

The University is committed to equal opportunity in education, employment and welfare for staff and students. Students are selected on merit and staff are selected and promoted on merit.

5.6 GOVERNANCE

The Vice Chancellor is the Chief Executive Officer of the University and responsible to Council for the good management of the University.

Comprehensive information about the University of Melbourne and its governance structure is available at http://www.unimelb.edu.au/unisec/governance.html.