POSITION DESCRIPTION

THE UNIVERSITY OF
MELBOURNE

Department of Anatomy and Neuroscience
Faculty of Medicine, Dentistry and Health Sciences

Research Fellow in Computational Biology/ Statistics

POSITION NO	0043228
CLASSIFICATION	Research Fellow Grade 1 (Level A) or Grade 2 (Level B) Level of appointment is subject to qualifications and experience
SALARY	Level A: $69,148 - $93,830 p.a. Level B: $98,775 - $117,290 p.a.
SUPERANNUATION	Employer contribution of 17%
EMPLOYMENT TYPE	Full time, fixed-term position available for 2 years 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, select the relevant option ('Current Staff' or 'Prospective Staff'), then find the position by title or number.
CONTACT **FOR ENQUIRIES ONLY**	Dr Kim-Anh Lê Cao and Prof Christine Wells Email: kimanh.lecao@unimelb.edu.au; wellsc@unimelb.edu.au *Please do not send your application to these contacts*

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

about.unimelb.edu.au/careers

Position Summary

The Centre for Stem Cell Systems is seeking a skilled research fellow to work on our exciting large-scale data integration projects conducted at the Centre. As one of its flagship programs, the Centre has reviewed, collated and curated hundreds of datasets from various stem cells sources, to investigate cell growth, differentiation capacity and associated donor properties. This is the largest international collection of curated stem cells data, which are available through our repository www.stemformatics.org.

The Research Fellow in Computational Biology and Statistics will be responsible for contributing to novel and innovative statistical developments to integrate different sources of biological data available on matched biological samples (transcripts, miRNA, proteomics, metabolites, etc) to identify molecular signatures, as well as further refine or characterise subtypes of stem cell, in particular human mesenchymal stromal cells. We anticipate that such analyses will require the extension or improvement of integrative methods developed in Lê Cao lab as part of the mixOmics project. 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.

The position will be based at the Centre for Stem Cell Systems in the Department of Anatomy and Neuroscience and will be affiliated with the Centre for Systems Genomics (Lê Cao Lab). The position will primarily report to the Centre for Stem Cell Systems Director, Prof Christine Wells.

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 and experience in software development.
- Experience in statistical methods including, but not limited to linear and multivariate statistical analysis, mixture models, statistical learning and classification methods for the analysis of large data sets; 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.

In addition to the above, essential criteria for a Level B appointment are:

- Experience in the supervision or co-supervision and mentoring of honours and postgraduate students and other staff
- Demonstrated ability to effectively manage research projects.

2.2 DESIRABLE

- Experience with mammalian transcriptome and proteome analysis and an understanding of related data types
- Knowledge of other related programming languages including Python.
- Experience in analysing and providing visualisation of large biological data sets.
- Understanding of Next Generation sequencing.

In addition to the above, desirable criteria for a Level B appointment are:

- Demonstrated track record of obtaining competitive research funding

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 on the basis of 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 CENTRE FOR STEM CELL SYSTEMS

The University of Melbourne's Centre for Stem Cell Systems encompasses a multi-disciplinary network of leading researchers across the University Precinct with expertise in areas such as stem cell biology, tissue engineering, bioinformatics and the ethical, legal and social issues associated with regenerative medicine. The Centre facilitates collaboration between these specialists to increase the visibility, understanding and translational impact of stem cell research and technologies at a local, domestic and international level. The Centre's activities link Faculties including Science and Medicine, Dentistry and Health Sciences, Melbourne Law School and School of Engineering, as well as the medical research institutes and hospital departments affiliated with the University.

The Centre is hosted by the Department of Anatomy and Neuroscience, which is housed within the School of Biomedical Sciences in the Faculty of Medicine, Dentistry and Health Sciences. Further departmental information is available at http://biomedicalsciences.unimelb.edu.au/departments/anatomy-and-neuroscience/

5.2 THE CENTRE FOR SYSTEMS GENOMICS

The Centre for Systems Genomics (CSG), founded in 2015, is a multi-disciplinary research co-operative involving approximately 50 in-house researchers (with 10 group leaders including Dr Lê Cao) and 21 associate members dispersed across campus, including Prof Wells. CSG provides a unique research environment where biology-focussed researchers with strong statistical/computational skills are supported by both a state-of-art integrated genomic profiling laboratory and excellent computing resources, hosted by the Victorian Life Sciences Computing Initiative (VLSCI, www.vlsci.org.au). VLSCI also hosts the EMBL Australia Bioinformatics Resource.

Systems genomics is concerned with the integration of multiple types of data generated from a single organism or biospecimen in order to understand the genetic basis of its

functions. CSG researchers have backgrounds in human genetics, pathogen genomics, biochemistry, engineering, computer science and mathematics, among other fields and use and develop methods from those different disciplines to analyse those vast amounts of biological data.

Centre website: https://sysgenmelb.org/

5.3 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.

5.4 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.

5.5 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.

5.6   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.

5.7 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.

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