THE UNIVERSITY OF
MELBOURNE

Centre for Cancer Research
Faculty of Medicine, Dentistry and Health Sciences

Bioinformatician

POSITION NO	0042691
SALARY	An attractive salary package will be negotiated
SUPERANNUATION	Employer contribution of 9.5% or 17%
WORKING HOURS	Full-time
BASIS OF EMPLOYMENT	Fixed-term position available for 3 years Fixed term contract type: Research
OTHER BENEFITS	http://about.unimelb.edu.au/careers/working/benefits
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	Oliver Hoffman Tel +61 3 466 366 501 Email oliver.hofmann@unimelb.edu.au *Please do not send your application to this contact*

For information about working for the University of Melbourne, visit our website:
about.unimelb.edu.au/careers

Date Created: dd/mm/yyyy   **Last Reviewed:** dd/mm/yyyy   **Next Review Due:** dd/mm/yyyy

Position Summary

The University of Melbourne Centre for Cancer Research ("UMCCR") seeks to improve cancer patient outcome through Cancer Genome Discovery, Translation and Personalized Medicine. To achieve this the UMCCR needs to create solutions for rapid research and diagnostics at scale, decoding the genetic damage present in each patient's cancer genome, with the rigor and speed needed for a clinical setting. To help us achieve these aims we seek an experienced and motivated computational biologist to develop, maintain and apply analytical workflows for whole genome sequencing data.

1. Key Responsibilities

- The position is responsible for running genome sequencing data analysis pipelines, testing and maintaining existing workflows (written for bcbio and the Common Workflow Language), expanding quality control metrics in preparation for accreditation processes and evaluating new methods with a focus on cancer sequence analysis (DNA and RNA) in collaboration with local staff and international collaborators. The incumbent will apply the developed workflows to internal and public data, work with the UMCCR staff on data management issues, and engage with researchers and clinicians to establish and continuously improve genomic reports for cancer patients.

- The position will also be involved in the interpretation of results and where appropriate in the development of new methods, experimental study design and ongoing research projects.

- Develop effective working relationships with local and international partners such as Melbourne Genomics Health Alliance and the Australian Genomics Health Alliance, The Broad Institute (Boston), CRG (Barcelona), UCSC (Santa Cruz) and other open source projects as well as consortia such as the Global Alliance for Genomics and Health.

2. Selection Criteria

2.1 ESSENTIAL

- M.S. or Ph.D. in bioinformatics, genome sciences, computational biology, or related area, or equivalent experience

- In-depth knowledge of the principles and practice of bioinformatics as it relates to genome and transcriptome interrogation

- Proficiency in one or more scripting language (e.g., Perl, Python, etc.)

- Fluency in Unix/Linux

- Experience and effectiveness in running analysis in high performance computing environments

- Excellent project management and organization skills

2.2 DESIRABLE

- Thorough understanding of best practices in data science

- Solid foundation in statistics and software development

- Experience in cancer research

- Experience with single cell sequence analysis

▶ Prior collaboration with clinicians

2.3 SPECIAL REQUIREMENTS

▶ The incumbent may be required to contribute to Centre activities out-of-hours.

3. Job Complexity, Skills, Knowledge

3.1 LEVEL OF SUPERVISION / INDEPENDENCE

The incumbent will be self-motivated to stay informed about current best practices and likely future developments in software development, sequencing workflows and computational environments. They will independently engage with their peers at national and international sites such as GA4GH, The Broad Institute, CRG and other academic and commercial partners to develop workflow solutions for processing genomic data generated at UMCCR. The incumbent will decide on workflow steps that need to be updated with priority, independently assess the quality of all steps, and identify processes that could endanger accreditation plans.

3.2 PROBLEM SOLVING AND JUDGEMENT

UMCCR will need to create solutions for rapid research and diagnostics at scale, decoding the genetic damage present in each patient's cancer genome, with the rigor and speed needed for a clinical setting. Accordingly, the incumbent needs to be able to identify computational bottlenecks and implement methods to enable data analysis at scale, yet meeting clinical quality requirements. They will need to rapidly evaluate different solutions and provide feedback to centre staff to inform future software development directions. Excellent time management skills and project planning skills are required to focus on the most urgent tasks.

3.3 PROFESSIONAL AND ORGANISATIONAL KNOWLEDGE

The position is expected to have a thorough understanding of best practices in bioinformatics workflow development along with familiarity with software development and high performance computer environments. The incumbent will coordinate the development of workflows with international partners at The Broad Institute (Boston), CRG (Barcelona), UCSC (Santa Cruz) and other open source projects as well as consortia such as the Global Alliance for Genomics and Health. They will interact with peers at the Melbourne Genomics Health Alliance and the Australian Genomics Health Alliance.

3.4 RESOURCE MANAGEMENT

The position will provide guidance on resource allocations of UMCCR funds for research computing. They will develop resource plans and work on cost/benefits analysis with peers at UoM, NCI and commercial partners. The incumbent will also independently assess commercial solutions for their suitability and make recommendations to UMCCR and UoM.

3.5 BREADTH OF THE POSITION

Having the capacity to reliably sequencing the genomes of cancer patient's — both at scale and within a short timeframe — is key for the success of UMCCR. The position will generate the metrics required to make decisions on sequence workflow developments and use their expertise in collaboration with national and international partners to decide on resources allocation. The incumbent will engage with initiatives such as GA4GH, driving projects to standardise UMCCR's sequencing workflows and aligning them with international best practices.

4. *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.

5. *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.

6. *Other Information*

6.1 THE UNIVERSITY OF MELBOURNE CENTRE FOR CANCER RESEARCH

The newly formed UMCCR will be responsible for supporting a program of cancer research and education activities across the University of Melbourne in addition to managing University of Melbourne cancer research located in the VCCC facility. The

UMCCR will bring together leading researchers, strengthening research capacity and enabling the interdisciplinary collaboration required to understand the complex and intersecting factors that underpin cancer research.

6.2 FACULTY OF MEDICINE, DENTISTRY AND HEALTH SCIENCES

www.mdhs.unimelb.edu.au

The Faculty of Medicine, Dentistry and Health Sciences (MDHS) plays a vital role in the delivery of the University of Melbourne's Strategic Plan 2015-2020: Growing Esteem by providing current and future generations with education and research equal to the best in the world. It is Australia's largest and leading biomedical research faculty. It employs more than 1,700 members of staff, has more than 8,000 students, and total revenue of $607 million for 2015. Reflecting the complexity of today's global health landscape, the Faculty is made up of six different Schools and four Strategic Research Initiatives, and draws together all areas of human health, ranging from the most basic to the most applied areas of research. The Faculty contributes close to 50 per cent of research conducted at the University.

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.

6.3 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.

6.4 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.

6.5 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/governance