

**UNIVERSITY OF OTAGO**  
**Te Whare Wananga o Otago**

**JOB DESCRIPTION**

**JOB TITLE:** Assistant Research Fellow (fixed-term, two years; full-time)  
**DEPARTMENT:** Biochemistry, Otago School of Medical Sciences  
**DIVISION:** Health Sciences

**PROJECT**

The Department of Biochemistry has recently secured funding to sequence ~3,000 human DNA samples from clinical trials in gout. This work would be done through involvement in the Virtual Institute of Statistical Genetics (VISG) based in the Departments of Biochemistry and Mathematics & Statistics. The appointee will also be working with the Merriman and Black research groups within the Department of Biochemistry, and will be part of a multidisciplinary team working together on the assembly, management and analysis of large genomics data sets.

**PRIME FUNCTION**

**Bioinformatician:** Perform bioinformatic and statistical analysis of human whole genome sequence data. Maintenance and deployment of bioinformatics and statistical tools for the processing, analysis and visualization of these genomic data.

**KEY TASKS AND OBJECTIVES**

The successful applicant will generate VCF files from whole genome sequence FASTQ files generated by the Garvan Institute (Sydney) on ~3,000 human DNA samples. Analytic and data management pipelines will be established and maintained on the UoO and external IT systems used for this work. The successful applicant will also be expected to perform bioinformatic and statistical analyses that address specific research questions related to the genetic control and genomics of urate and gout. The position involves the following key tasks:

- Deployment and use of genomics software and analytic pipelines on Linux-based systems within the UoO and NZ eScience Infrastructure (NeSI).
- Interaction with relevant members of the Virtual Institute of Statistical Genetics (VISG), Merriman and Black research groups, the Garvan Institute and ArdeaBiosciences (San Diego)
- Documentation of systems installed, tasks undertaken and processes developed.
- Assistance with preparation of scientific manuscripts
- Travel for courses, meetings or conferences as appropriate, nationally or internationally.

**EXPECTED OUTCOMES**

- Processing and generation of high quality genomics data.
- Effective recording, analysis and reporting of results and progress.
- Clear and concise version-controlled documentation of all software installation and deployment.
- Analysis of genomics data to address specific research questions (focussed on the genetic control of urate and risk of gout)

- Assistance with preparation and publication of manuscripts (including rebuttal) detailing research findings as required.
- Attend and present research findings at laboratory meetings, scientific conferences and lay forums as directed.
- Provision of creative and innovative solutions to technical and computational problems encountered.
- Training and professional development and conference travel will be offered as befits the project objectives, funding and University of Otago policies.
- Ethical and international cultural awareness including Māori tikanga and toanga.
- High standards of health and safety are to be practiced at all time as per University of Otago policies.
- All work must be electronically recorded clearly. It is important to be aware of prioritizing work.
- Effective communication (verbal, written and listening) as indicated in Functional Relationships.

### **PERSON SPECIFICATION**

- Education: A MSc degree or equivalent, and experience in the Bioinformatics field (including bioinformatics, computing and statistics) with a clear interest in applying this to human genetics
- Previous experience performing bioinformatics analysis in industry and/or an academic environment would be beneficial, but not essential
- A background in genetics would be beneficial, but not essential
- Experience in the analysis of data generated by high throughput genomics platforms and next generation sequencing systems.
- Experience in the use of data analytic frameworks such as R, and in the use of Perl, Python, Java, C/C++ and shell scripting.
- Previous experience with the creation and administration of SQL databases is desirable.
- Familiarity with “reproducible research” concepts and tools (e.g., Rmarkdown, git, iPython notebooks etc).
- Able to self-motivate, multi-task and work independently.
- Excellent analytical skills, meticulous attention to detail.
- Ability work as part of a team, and a willingness to share knowledge.
- Excellent communication skills, both verbal and written.
- Well developed time management skills and the ability to work to deadlines.
- Ability to relate well with staff, students and other researchers.
- Ethical and cultural awareness including Māori tikanga and toanga.
- A quick learner, who is able to think laterally, use initiative and is willing to explore newly developed technologies relating to the outcomes.

### **RELATIONSHIPS**

**Directly responsible to:** A/Prof Tony Merriman

**Supervision of:** No supervisory roles

**Functional relationships with:** A/Prof Michael Black  
VISG team members

Members of the Merriman and Black research groups  
Staff within the Departments of Biochemistry and  
Mathematics & Statistics  
Members of the NeSI service delivery team(s)  
Members of the NZ Genomics Ltd bioinformatics team

**BUDGETARY RESPONSIBILITY**

- No budget responsibilities

**SALARY RANGE AND LEVEL**

- Commensurate with qualifications and experience.