



## Genomics Aotearoa news



### Co-director appointed

Professor Mik Black has been appointed as Co-Director of Genomics Aotearoa, working alongside Peter Dearden.

Mik is a statistician whose research focuses on the development of methods for the analysis of genomic data, with a strong emphasis on cancer and other human diseases.

A common theme is the use of techniques that allow high-dimensional and often very disparate data sets to be combined in ways that provide new insights into disease development and progression. This research is highly collaborative, and Mik works closely with a number of Otago research groups, as well as with long-standing national and international collaborators at the

University of Auckland, the Institute of Environmental Science and Research, Wake Forest University Medical School, and Moffitt Cancer Center.

In addition to his own work, Mik has been heavily involved in establishing national research infrastructure in high performance computing through the NZ eScience Infrastructure, and in genomics and bioinformatics through Genomics Aotearoa, where he is the Chair of the Bioinformatics Leadership Team.

### **New Genomics Aotearoa associate**

Genomics Aotearoa is pleased to welcome a new associate - the [Applied Molecular Solutions](#) lab based at Unitec Te Pūkenga in Auckland. The multidisciplinary Applied Molecular Solutions Research Centre team works closely with industry, government bodies, mana whenua and the community to produce high quality genomic solutions and research for real problems in biodiversity, biosecurity, environmental health, agriculture, and animal welfare.

### **Save the date**

Genomics Aotearoa is hosting its Annual Meeting from **November 20-22** in Dunedin. We plan to kick off with a training day on Monday, November 20, our Annual Meeting will be on Tuesday November 21 and the morning of Wednesday November 22, and then Genomics Aotearoa and MapNet will share an afternoon of presentations.

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## **Genomics research**

### **Congratulations**

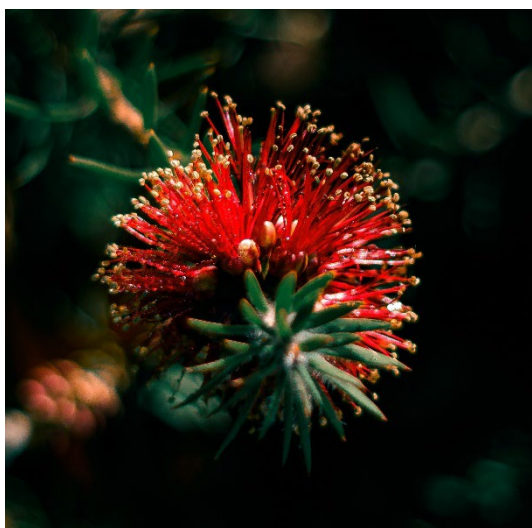
Genomics Aotearoa post docs **Rebecca Clarke** and **Rachael Ashby** from AgResearch have recently received Full-Ride Travel Awards to present at the **Advances in Genome Biology and Technology (AGBT)-Agricultural**

**conference** in San Antonio, Texas. The scholarships are a grant in aid for promising early career scientists across the globe to attend the event.

Both were presenting on GA related work. Rebecca's talk was entitled "Investigation of genomic regions of interest in animal genomes using ONT adaptive sampling" and Rachael presented a poster "BEAKERtaxa (Biological Embeddings Acquired from KmERs) – a novel model for species identification."

### **Ko wai ngā rākau rangatira pohutukawa o Mauao?**

#### **Building agile and informed kaitiaki biosecurity on the maunga**



As a maunga tapu, Mauao (Mt Maunganui) is integral to the cultural identity of the people of Tauranga Moana. The uniqueness of Mauao extends both culturally and geographically, with the maunga in close proximity to the port of Tauranga.

Genomics Aotearoa through the indigenous Genomics Platform, is supporting a project to initiate building Mauao as a sentinel for biosecurity, using pōhutukawa and its susceptibility to myrtle rust as a first case study. Researchers will work with Tauranga Moana hapū and directly with the Mauao Trust, utilising genomics to understand pōhutukawa whakapapa.

Read more [here](#)

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## **Queenstown Research Week**

Registrations are now open for Queenstown Research Week, August 27 to September 1 - link [here](#) to register, or visit the [website](#) for more information.

Genomics Aotearoa is sponsoring the [Genomics Satellite](#) August 27-28 (Convenors: Joep de Ligt, ESR & David Chagné, Plant and Food Research), and the [BioProtection Satellite](#) August 31-September 1 (Convenors: Amanda Black, Lincoln University, and Matt Templeton, University of Auckland and Plant and Food Research).

The QRW [Microbiomes Satellite](#) is on 27-28 August at the Rydges Hotel, Queenstown. Kim Handley and Mike Taylor are Co-Chairs. Confirmed speakers include Phil Hugenholtz (Plenary, Australian Centre for Ecogenomics, University of Queensland), Kristi Biswas (Human microbiome, FMHS, UoA), Manpreet Dhami (Animal microbiomes, Manaaki Whenua), Matthew Stott (Environmental microbiomes, University of Canterbury), Steve Wakelin (Plant microbiomes, Scion). Abstract submissions are open - link [here](#)

Nanopore Day on Thursday, August 31 will be a good opportunity to hear about the latest technical updates for Oxford Nanopore Technologies as well as talks from local scientists about their latest work using nanopore technology. Register [here](#).

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## Genomics Aotearoa Seminar Series

Our Genomics Aotearoa seminar series continues to increase its profile. Thanks to the following presenters over the last month:

- **Greg Jones** (University of Otago ) *From epigenome-wide discovery to clinical utility, delivering on the promise of 'precision' cardiovascular disease risk prediction.*
- **Michael Hoggard** (University of Auckland) *Environmental viruses and their influence on the microbial dynamics of aquatic ecosystems.*

We also joined the Asia Pacific Forum to hear from **Guojie Zhang** (Adjunct Professor at the Kunming Institute of Zoology of the Chinese Academy of Sciences) to hear about *Evolutionary Significance of Incomplete Lineage Sorting.*"

Next up on May 26 is **Thomas Buckley** (Manaaki Whenua Landcare), talking about *Using genomics to understand the evolution of New Zealand terrestrial invertebrates.*

Contact us directly if you'd like to view Guojie Zhang's talk.  
Other seminars will be uploaded to YouTube shortly.

And please [let us know](#) if you know of a potential presenter for future seminars.

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## Advanced genome assembly workshop

Genomics Aotearoa, in collaboration with New Zealand eScience Infrastructure, is piloting an advanced workshop on human genome assembly using long-read sequencing platforms. This is an in-person workshop hosted at the University of Otago, **July 4-6.**

This workshop will be led by members of the Human Pangenome Reference Consortium (HPRC): Ann McCartney, Assistant Researcher, University of

California Santa Cruz (UCSC) Genomics Institute and Julian Lucas, Senior Bioinformatics Systems Analyst, UCSC Genomics Institute. The focus is read handling, assembly generation, evaluation and curation. The workshop's scope also includes comparisons between sequence platforms and popular long-read assemblers, examples of good and bad assemblies, and approaches to assembly phasing.

Please complete an expression of interest [here](#) to sign up to this workshop, and to share your experiences, feedback and suggestions. Contact [Jian Sheng Boey](#) for further information.

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## Upcoming training

### Imputation workshop at LIC Hamilton, July 7, 9am-5pm

This in-person workshop is jointly hosted by LIC, Genomics Aotearoa and NeSI. It is for New Zealand scientists and will explore genotype imputation techniques. Genotype imputation is a cost-efficient approach to approximate high-density genotypes or full sequence data from low-density genotypes/low-pass sequencing data of individuals. This workshop is intended for anyone interested in learning how to use either Beagle or Minimac to impute genotypes and how to evaluate the imputation performance of these methods.

This workshop will involve:

- A brief overview of imputation.
- Quality control and preparation of genetic data for imputation.
- Evaluation the imputation performance using different parameters.
- Workshop attendees will observe demonstrations and then work through exercises.

**Prerequisites:** Attendees are expected to have some familiarity with basic bash and R. If you would like a refresher, you can find a copy of past workshops which cover the fundamentals of bash ([here](#)) and R ([here](#)). Additionally, to get the most out of this workshop attendees are encouraged to know about basic genetics and genomics.

**Sign up to the workshop at [Eventbrite](#).**

### **Draft of RNA-seq data analysis workshop, June 15, 10am-4pm**

This online workshop is delivered by Genomics Aotearoa and NeSI. It is for New Zealand researchers interested in RNA-seq data analysis. The focus of this workshop is to analyse RNA-seq data with the aim to identify differentially expressed genes.

Some of the topics covered in the workshop include:

- Quality assessment
- Trimming and filtering
- Mapping and read counts
- Differential expression analysis
- Over-representation analysis

This is a beginner-friendly workshop which assumes you are familiar with the basics of R ( e.g., you can copy basic functions like head, tail, or colSums, you are aware of how R stores files as Objects) and bash (e.g., can change directory with cd command, make a new folder with mkdir command, view contents using less command). If you would like a refresher on R you can find one [here](#). If you would like a refresher on bash you can find one [here](#). The material for this workshop can be previewed here:

<https://genomicsaotearoa.github.io/RNA-seq-workshop/>

**Sign up for this workshop at [Eventbrite](#).**

Let [Tyler McInnes](#) know if you have bioinformatics training needs or would like more information. You can also visit the [training page](#) on our website for details on upcoming workshops.

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## New to our website



### **Introducing Genomics Aotearoa post doc Susie Szakats**

Susie hopes to spend her nights in tramping huts without being kept awake by rats scuttling through the roof all night long. - read more [here.](#)

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## Genomics job opportunities

### **Post-Doctoral Scientist for eradicating rats in New Zealand**

The AgResearch Animal Biotechnology Team has a short-term opening for a Post-Doctoral Fellow to validate genetic strategies for the eradication of wild rats in NZ as part of NZ's goal to become free of introduced mammalian predators by 2050. The successful candidate will participate in fundamental research to develop a transgenic rat suppression system in containment, which will ultimately support eradication of wild rats in New Zealand. This exciting project will contribute to the implementation and management of genetic control tools for rats, aligning with other research aims around developing genomic datasets in wild rat populations and assessing public attitudes towards transmission ratio distortion approaches in New Zealand. The group is based at the Ruakura Campus in Hamilton.



For more information and all enquiries regarding this position, please contact [Bjorn.oback@agresearch.co.nz](mailto:Bjorn.oback@agresearch.co.nz) or [Goetz.laible@agresearch.co.nz](mailto:Goetz.laible@agresearch.co.nz)

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## Genomics events

**July 16-21**            [23rd Congress of Genetics](#), Melbourne  
**August 27-Sept 1**    [Queenstown Research Week](#), Queenstown  
**Nov 20-23**            [NZ Microbiological Society Conference](#), Auckland

Let us know if you would like to add an event.

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## Genomics Aotearoa YouTube Channel



[Genomics Aotearoa YouTube Channel](#)

We welcome suggestions for linking to content that our community would find useful - please email [Jess McLean](#).

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## Contact Genomics Aotearoa

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