The EMBL Australia Bioinformatics Resource – BRAEMBL – is a network of bioinformatics expertise, resources and training for Australian life science research

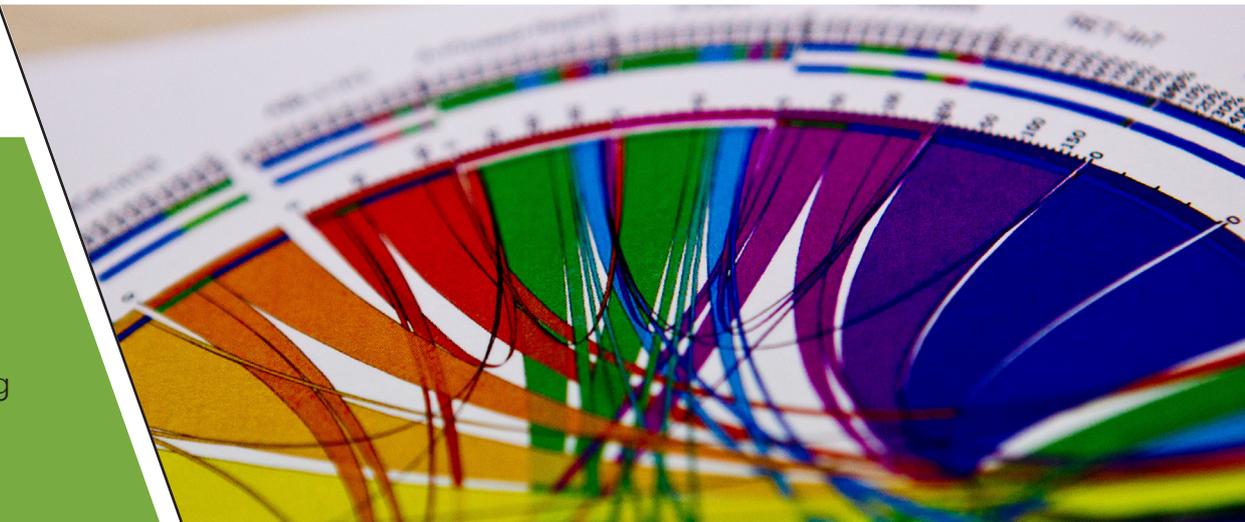**Collaborating** with world-leading institutes (including EMBL, EBI)

Hosting critical tools and data

Supporting through network of expertise and training

Contributing to Australian flagship science

Participating in international big data projects

EMBL AUSTRALIA BIOINFORMATICS RESOURCE

TRAINING

BRAEMBL's current task is to roll out an extensive national program of training to address the increasing demand for bioinformatics skills-development in the Australian research community.

The suite of training workshops aimed for beginners to advanced users, cover topics such as NGS Data Analysis, De novo Sequencing and Cancer Genomics. A series of 'train the trainer' workshops are aimed at enhancing the skills of local bioinformatics experts in key research nodes.

The Australian-made Genomics Virtual Laboratory, a user-friendly environment for complex bioinformatics (see over for details), is being implemented across the country through BRAEMBL-led activities. See over for details.

TOOLS

The history of bioinformatics is complex. It is strewn with dead-ends and obsolete methods. Access to established methods, useful tools and well-curated datasets which are all regularly maintained and updated by an engaged community is vital.

Through membership of the European Molecular Biology Laboratory, Australia enjoys access to all the resources of the European Bioinformatics Institute: growing the relationship with European initiatives and bringing mature tools, training and resources to Australia and, in turn, taking Australian tools and data to the world.

Meme-suite.org, developed with local talent, is accessible to all via the cloud. It is used for discovering novel motifs in collections of unaligned nucleotide or protein sequences, and for performing a wide variety of other motif-based analyses.

GT-Scan is locally hosted and provides tools for finding optimal targets for genome editing or regulatory interference using CRISPR/Cas or zinc-finger nuclease systems.

Other tools are being uploaded to the website from where researchers and students can get further advice and assistance: how to maximise tools, how to manage, move and store data, what are the computing options to get timely results.

EMBL Australia Bioinformatics Resource

vlsci LIFE SCIENCES COMPUTATION

> " *I am a biologist, I don't know about Linux or programming languages like Python, and running most of the genomics software requires you to know these things. With the GVL, it's a web-based tool. It helps me to overcome those problems. Instead of spending time trying to learn how to install software and use a command line interface, I can focus on the goals I want to achieve. It makes everything easy for biologists like me.* "

Dr Paungfoo-Lonhienne, Institute of Molecular Bioscience, UQ

GENOME.EDU.AU

The Genomics Virtual Laboratory: taking the IT out of bioinformatics

The GVL provides a highly accessible, functional and reproducible cloud-based genomics analysis environment, comprehensive tutorial materials and protocols, managed services and user support. There is a common platform for data analysis, tool development, and training, with a powerful interface for managing these services and resources.

The benefit of the GVL to researchers is immediate availability of a highly functional and scalable genomics analysis environment pre-configured with numerous best practice tools and reference data. As well as providing genomics capability, the GVL has a dedicated learning centre, with tutorials that are being used in training centres around the world.

The GVL is funded through NeCTAR. The GVL's training resources, produced at VLSCI, are being rolled out across Australia through the creation of local instances for its use as part of BRAEMBL and other national infrastructure funded programs. The goal is to ensure that Australia's researchers are upskilled to use this tool to both do and teach bioinformatics.

Did you know that Australia has an associated membership of the European Molecular Biology Laboratory (EMBL)?

EMBL Australia creates opportunities for: building international links and internationalising Australian research; empowering Australia's best young researchers through training; embedding bioinformatics and systems biology in Australian life sciences www.emblaustralia.org

WHO IS INVOLVED?

Director, BRAEMBL and VLSCI, A/Prof. Andrew Lonie (pictured left) is leading the expansion of the Resource across Australia, to make it a truly national resource. Service providers have been established at nodes in Queensland (QCIF), New South Wales, (The University of Sydney Schools of Biological Sciences and Medicine), Western Australia (Centre of Excellence in Plant Biology), South Australia, (University of Adelaide, Flinders University and SAHMRI), Victoria (Monash University and VLSCI, University of Melbourne) and Tasmania (Menzies Research Institute). Locally they will provide local training and researcher support, while also working collaboratively to build upon Australia's national bioinformatics networks and resources.

This bioinformatics resource hub is based at the Victorian Life Sciences Computation Initiative (VLSCI). It is Australian's link to the European Bioinformatics Institute (EBI) that results from an agreement between the University of Melbourne and EMBL Australia, with funding from Bioplatforms Australia.

EMBL Australia is funded by the Australian Government through Bioplatforms Australia, a National Collaborative Research Infrastructure Strategy program established to serve the Australian research community's molecular biology needs.

All enquiries via www.braembl.org.au