

## Science, Technology and Engineering

### The Biosciences Research Centre

The Biosciences Research Centre (BRC) is a joint initiative of La Trobe University (La Trobe) and the Government of Victoria, through the Department of Primary Industries (DPI).

The facility will be a world-class centre for agricultural biosciences research and will be built at La Trobe's Bundoora campus.

A key objective of the BRC is to enable increased science collaboration between La Trobe and DPI. A multi-disciplinary and collaborative approach to research and development is increasingly seen as a more effective way to tackle complex problems, rather than in isolation, leading to better, more innovative science outcomes.

To facilitate this, La Trobe and DPI have made a number of joint appointments, with the aim of ensuring that Victoria's agribusiness is supported and protected by cutting edge research.

Joint scientific programs at the BRC will include:

- world-leading gene discovery and functional genomics in major plant and animal species of importance to Victoria and Australia;
- molecular breeding for disease resistance, drought tolerance, bioenergy and health;
- molecular diagnostics, biological control and other management strategies for weeds and plant and animal pests and diseases of importance to Victoria and Australia;
- physiology and genetics related to plant and animal bioactives and health; and
- developing sustainable systems of animal and plant production.

Scientists will assist in the delivery of these research programs at this state-of-the-art facility.

### Staff research areas



#### **Professor German Spangenberg FTSE**

Current research interests include plant functional genomics of key metabolic pathways and developmental processes in plants, plant-fungal endosymbiosis and the application of plant transgenesis for food, feed and bioeconomy outcomes.



#### **Professor Ben Cocks**

Current research interests are in the application of genomics in mammalian systems, mammalian regulation of microbial communities, new therapeutics, and improved feed and food.



#### **Professor John Forster**

Current research interests include the use of high-throughput DNA sequencing and genotyping technologies for genetic marker development, mapping, trait-dissection and gene identification in agriculturally important animal, microbial and plant species.



#### **Professor Kevin Smith**

Current research interests are in the application of molecular breeding technologies for crop improvement. This includes the dissection of the genetic control of complex traits, such as stress tolerance and forage quality, and the design and analysis of molecular breeding trials.



#### **Dr Robin Adair**

Current research interests include taxonomy and ecology of *Cecidomyiidae*, biocontrol of environmental weeds, impact of fire on invasion processes of alien plants, development of impact assessment techniques for invasive plants and the role of marsupial herbivores on invasion patterns of alien plants.

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### Dr Jacky Edwards

Current research interests include epidemiology and management of diseases of horticultural crops, particularly grapevines.



### Dr Ben Hayes, Associate Professor

Current research interests are in genetic improvement of livestock and aquaculture species, with a focus on integration of molecular information into breeding programs, contributing to knowledge of genetic mechanisms underlying quantitative traits, linkage and linkage disequilibrium mapping and marker assisted selection.



### Dr Matthew McDonagh

Current research interests are in muscle biology and understanding biological mechanisms that are important for development of livestock production traits.



### Dr Pauline Mele, Associate Professor

Current research interests include the deep exploration of the soil microbial communities to measure the impact and to discover new processes that sustain and enhance plant production systems including use of soil metagenomics approaches.



### Dr Aidyn Mouradov, Associate Professor

Current research interests are the use of multidisciplinary approaches to understand molecular aspects of the regulation of metabolic pathways in plants, including fructan and lignin biosynthesis.



### Dr Ian Porter, Associate Professor

Current research interests include sustainable methods to control soilborne plant pathogens, soil health and disease suppression and mitigation and global regulation of ozone depleting chemicals and climate change gases in horticulture.



### Dr Simone Rochfort

Current research interests include understanding biological function within and between organisms and their interaction with the environment through molecular phenotyping techniques with particular focus on metabolomics.



### Dr Brendan Rodoni

Current research interests include the diagnosis of plant viruses and plant pathogenic bacteria, plant biosecurity plant virus disease epidemiology and microbial discovery.



### Dr Tim Sawbridge

Current research interests encompass the application of next-generation sequencing technology to gain understanding of biological systems including bioinformatics analysis of plant and fungal genomes and soil and rumen metagenomes.



### Dr Alan Yen, Associate Professor

Current research interests include biosecurity issues associated with fruit fly, potato cyst nematodes, psyllids, and Australian plague locusts, management of threatened invertebrate species, the interface between natural and production systems for invertebrates, and the use of edible insects as a source of proteins for livestock and humans.

## Further information

For further information about undertaking research within the Biosciences Research Centre, or to discuss collaboration with our researchers, please contact:

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