

The High-throughput microbial pipeline allows the Centre to adopt the reverse vaccinology or genomic approach to vaccine development and a rational drug design approach to antimicrobial drug target identification.

A number of flagship projects are underway in the animal health area with commercial partners to meet the needs of Australia's primary industry.

Key diseases of interest include:

- Fowl cholera
- Ovine footrot
- Avian necrotic enteritis
- Campylobacter infection
- Leptospirosis
- Swine dysentery
- Melioidosis
- Mycobacterial infections

The Centre's infrastructure and expertise has wide applicability to the development of therapeutics, diagnostics, biomarker and other products, as well as the advancement of fundamental research.

For more information on:

- Research Partnerships
- Access to Facilities
- Consultancy
- Contract Research
- Collaborative Research

Contact us or visit us at:

www.microbialgenomics.net

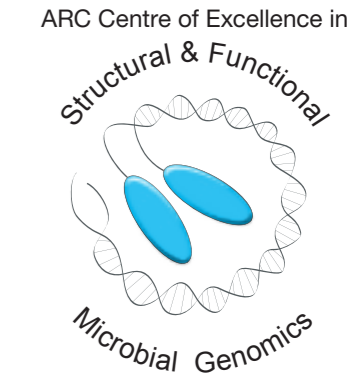
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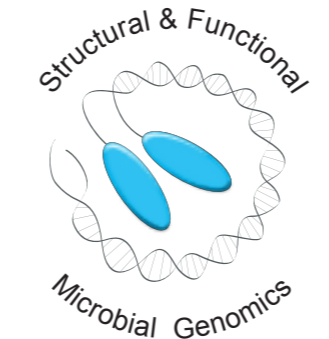
The ARC Centre of Excellence in Structural and Functional Microbial Genomics is an Australian Research Council funded institute through the Centre of Excellence program.

The ARC Centres of Excellence are an Australian Government initiative designed to create prestigious hubs of expertise where high-quality researchers can maintain and develop Australia's international standing in research areas of national priority.



Producing solutions for vaccine and drug development

ARC Centre of Excellence in



Microbial images courtesy of Monash Micro Imaging, Monash University.



About us

The Australian Research Council (ARC) Centre of Excellence in Structural and Functional Microbial Genomics was established in early 2006 with funding over five years.

The Centre is based at Monash University, Clayton and works in collaboration with the following research partners – The University of Sydney, The University of Queensland, CSIRO Livestock Industries, the Victorian Bioinformatics Consortium, the Victorian Partnership for Advanced Computing (VPAC), The State of Victoria through the Department of Primary Industries, the Australian Genome Research Facility (AGRF) and Pfizer Australia.

Our purpose

The Centre brings together a team of internationally-renowned researchers with complimentary expertise in functional genomics, structural biology, proteomics, bioinformatics, molecular pathogenesis, and mechanisms of immunity, as well as an assembly of specialised infrastructure to provide a unique approach to the study of microbial pathogens.

The Centre's aim is to elucidate key aspects of microbial pathogens and the hosts they infect.

Its specific goals are to:

- Develop vaccines against microbial pathogens
- Identify and validate genes essential for microbial survival
- Facilitate the development of novel antimicrobial agents
- Elucidate host-pathogen interactions
- Train a new generation of multi-skilled researchers

Infrastructure and Core Technologies

The Centre has specialised infrastructure in proteomics, protein production and x-ray crystallography. This infrastructure forms the Centre's High Through-put Microbial Pipeline – a facility which allows a high-throughput screening approach to protein expression and purification and structural analysis of gene products.

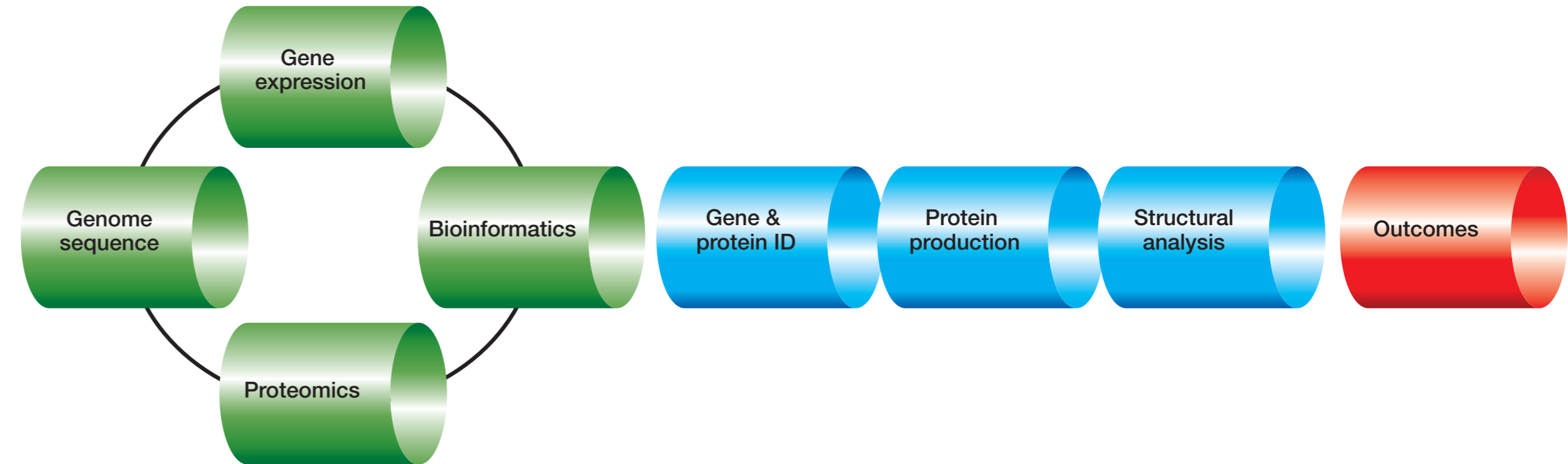
The Centre's core technologies include high-throughput genome sequencing, protein expression and purification, proteomic analysis, whole microbial genome microarrays, x-ray crystallography and animal infection models.

The High-throughput Microbial Pipeline is a series of integrated core technologies, all housed at Monash University, in protein production, x-ray crystallography and proteomics.

The Pipeline can be leveraged as an entire system or its components can independently add value to specific projects as stand alone capability.

The Centre also has access to sequencing technology, an oligonucleotide synthesis service and microarray service specialising in whole genome microarrays. The High-throughput Microbial Pipeline is also co-located with the Monash Antibody Technologies Facility (MATF) and the Australian Synchrotron.

The Centre's High-throughput Microbial Pipeline



Key Features – Specialised Capability

<ul style="list-style-type: none"> • Propriety sequence information • ID of novel genes and gene products 	<ul style="list-style-type: none"> • Specialised infrastructure • Access to public and proprietary databases 	<ul style="list-style-type: none"> • High throughput and output • A variety of expression systems • Rapid 	<ul style="list-style-type: none"> • Synchrotron • X ray crystallography • Mass Spectrometry 	<ul style="list-style-type: none"> • Vaccines • Drug targets • Diagnostics • Knowledge
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Image courtesy of Dane Parker PhD