

Enabling Precision Medicine



National Research Infrastructure for Health Discovery and Translation

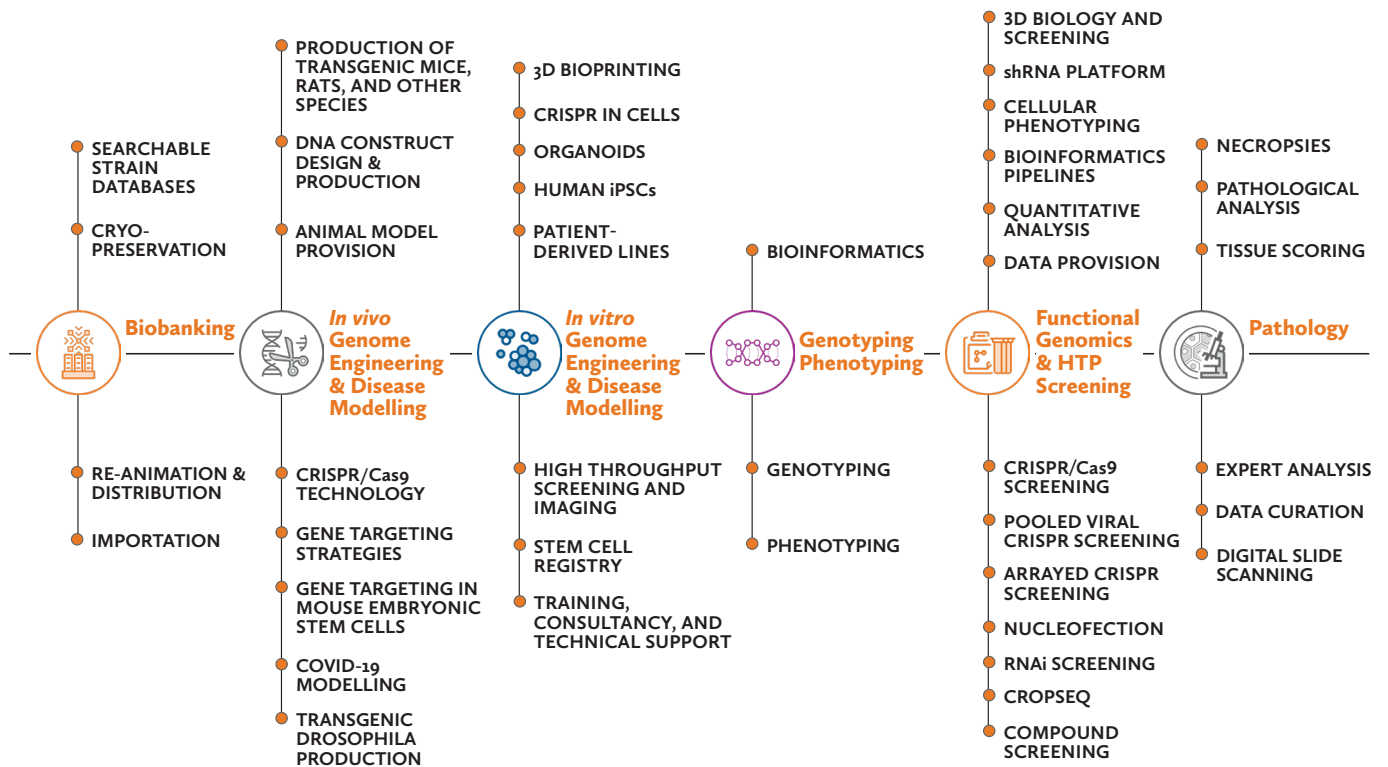
Phenomics Australia is a forward-thinking research infrastructure provider enabling research discovery and high-impact healthcare outcomes in precision medicine.

Vision

Better health through the discovery of gene function.

Mission

Providing world-class infrastructure and expertise, collaborating for research excellence, and advocating and partnering for impact, Phenomics Australia will drive the discovery of the molecular basis of disease to benefit the health of all Australians.



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OUR EXPERTISE

Through openly accessible service delivery centres, we offer specialised infrastructure, research services and technical expertise dedicated to advancing our fundamental understanding of health and disease, and enabling next-generation innovations in healthcare and therapeutic development to benefit all Australians.



Biobanking

Phenomics Australia Biobanking service provides a database and cryobank of mouse sperm and embryos essential for discovering and distributing disease models in Australia.



In vivo Genome Engineering & Disease Modelling

Phenomics Australia provides a national capability to explore the human genome and the genetic basis of health and disease. One way we achieve this is through the production of bespoke *in vivo* models possessing targeted mutations of interest and which can replicate clinical findings. These *in vivo* models serve as a crucial tool to study rare disease and enable new clinical understanding and treatments.



In vitro Genome Engineering & Disease Modelling

To complement our established *in vivo* capabilities, and address an important capability gap for the research community, Phenomics Australia has actively expanded our range of *in vitro* engineering and disease modelling system to include cell-, organoid- and tissue-based models, as well as 3D bioprinting.



Genotyping & Phenotyping

Using next-generation screening and sequencing technology, with integrated bioinformatics capabilities, Phenomics Australia enables researchers to identify new genomic variants and understand how they contribute to disease.



Functional Genomics & High-Throughput Screening

Phenomics Australia enables genome-scale cell-based CRISPR, RNAi, and compound screening in both 2D cell lines and 3D cell lines, PDX, patient-derived cells, and complex disease models using sophisticated liquid handling automation, high content cellular phenotyping, and reporter-based readouts.



Pathology

Phenomics Australia enables detailed description of the pathological changes in every tissue of *in vivo* disease models to efficiently determine the biological consequences of genetic mutations and to relate mutant and other disease phenotypes to human disease. Histopathology is also an essential component for drug development, to provide pre-clinical models to test the utility of drugs and identify off-target effects.

OUR PARTNERS



OUR NODES

Established in 2007, we are a founding member of the National Collaborative Research Infrastructure Strategy (NCRIS) and have since grown to span more than twenty locations across Australia.

- Australian National University – The Australian Phenome Bank
- Monash University – The Australian Phenome Bank
- Australian National University – Genome Targeting Facility (GTF)
- Monash University – Monash Genome Modification Platform (MGMP)
- Olivia Newton-John Cancer Research Institute – Melbourne Advanced Gene Editing Centre (MAGEC)
- South Australian Health and Medical Research Institute – South Australian Genome Editing Facility (SAGE)
- Peter MacCallum Cancer Centre – The Australian Drosophila Transgenic Facility (ADTF)
- Australian National University – ANU Centre for Therapeutic Discovery (ACTD)
- Harry Perkins Institute of Medical Research – Translational Cancer Research Program in Oncology
- Monash University – Monash Organoid Program & Monash Genome Modification Platform
- Murdoch Children's Research Institute – iPSC Derivation & Gene Editing Facility
- Peter MacCallum Cancer Centre – Victorian Centre for Functional Genomics (VCFG)
- University of Melbourne – Stem Cell Disease Modelling Laboratory & Centre for Stem Cell Systems
- University of Queensland – *In vitro* Genome Engineering and Disease Modelling Service, Australian Institute for Bioengineering and Nanotechnology
- Victor Chang Cardiac Research Institute – Stem Cell Production Facility iPSC Reprogramming Service within the Innovation Centre
- Peter MacCallum Cancer Centre – Victorian Centre for Functional Genomics (VCFG)
- Australian National University – ANU Centre for Therapeutic Discovery (ACTD)
- Harry Perkins Institute of Medical Research – Translational Cancer Research Program in Oncology
- Monash University – Monash Functional Genomics Platform (MFGP)
- University of Adelaide in partnership with South Australian Health and Medical Research Institute – Functional Genomics South Australia (FGSA)
- University of Melbourne – Phenomics Australia Histopathology and Digital Slide Service