



Bio21 Molecular Science and
Biotechnology Institute

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The Place to be

As the flagship of the Bio21 Cluster Project, the Bio21 Institute aims to improve human health and the environment through innovation in biotechnology and related areas, driven by multi-disciplinary research and dynamic interactions with industry.

The University of Melbourne's \$125 million Bio21 Molecular Science and Biotechnology Institute is the core physical development within the Bio21 Cluster, which includes 17 prestigious member institutions recognised for research excellence and translational outcomes in medical and biomedical science and biotechnology.

The Institute's purposes are to:

- Achieve biotechnology innovation through multi-disciplinary research, building on the genomics and related technology revolution and adding value through strategic alliances and collaboration with academia and industry
- Attract outstanding scientists and technicians
- Establish core platform technology facilities, available to a wide cross section of the scientific and industry communities

- Engage industry and nurture the commercialisation of discoveries
- Support start up company development through business incubation and entrepreneurship skills development
- Contribute skills to the work force and prepare research students and post doctoral fellows to be future leaders within academia and industry
- Translate research into educational and economic community benefits
- Provide a forum for community debate and dissemination of information on emerging bioscience and technology issues.

When fully established by mid 2007, the Institute will accommodate in excess of 450 academic and industry participants, making it one of the largest biotechnology research centres in the country.



The Institute's research capability is underpinned by state-of-the-art purpose built laboratories and a \$30 million investment (cash and in-kind) in core instrumentation and related platform technologies, including:

- Mass spectrometry, metabolomics, functional proteomics, peptide and nucleic acid technology, synthetic chemistry and animal models for diseases to drive drug and pesticide discovery, as well as innovation in medical and environmental molecular diagnostics.
- Comprehensive structural biology capacity including high field solution and solid state NMR spectroscopy, cryo-electron microscopy and x-ray crystallography to support drug discovery research
- The Institute's substantial nanotechnology facility, incorporating high resolution electron microscopy, microanalysis and nanofabrication and clean room capabilities, to support bio-imaging of the preparation of cells and isolated protein chips and the development of biosensors, biocompatible materials for tissue engineering applications and nano-particle-based drug delivery capsules

The Institute accommodates researchers from 12 University science and engineering disciplines, several Bio21 member institutions and industry. The Institute hosts BSc Honours and post graduate research projects in a broad range of frontier areas of science and technology, which are expected to number in excess of 200, when the Institute is at full strength, and offers

extracurricular opportunities for undergraduates to gain experience of academic research and industry activities.

An extensive complex of visitors' laboratories facilitate external user access to platform technology facilities and opportunities for non-resident researchers from a number of other academic departments, research institutions and industry to initiate collaborative projects.

Key external member participants currently are:

- CSIRO Division of Molecular and Health Technologies
- The Walter and Eliza Hall Institute
- The Howard Florey Institute
- Neurosciences Victoria
- Mental Health Research Institute
- Bone Marrow Research Laboratories
- Clinical science groups based in neighbouring Bio21 partner hospitals, the Royal Melbourne, Royal Children's, Royal Women's and Dental Hospitals
- Peter MacCallum and Ludwig Cancer Research Institutes.

Achieving innovation and economic benefits is dependent on the Institute's commitment to:

- proactive industry engagement, including industry collaborations which leverage Institute resources and provide access to industry know how
- Industry responsive business gateway
- Business incubation and entrepreneurship training.

