

Victoria – taking biotechnology from strength to strength

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Victoria is Australia's leading biotechnology location, with strengths in cancer, neuroscience, stem cells, infectious disease and immunity, and agricultural biotechnology. With its clusters of world-class universities, teaching hospitals, research institutions and industry, the state continues to advance in its aim to become one of the top five biotechnology locations worldwide.

Biotechnology has a major role to play in the delivery of solutions to the challenges faced in our day-to-day lives and the Victorian Government understands that microorganisms often underpin these major advancements.

Over the past decade, the Victorian Government has committed \$3.4 billion into major science and innovation-related initiatives – creating a dynamic, internationally competitive and globally connected environment for 136 biotech companies, 47 private companies, 13 major medical research institutes, 10 teaching hospitals and nine universities. The market capitalisation of Victoria's listed life science companies is \$23.8 billion (December 2009) and Melbourne is home to CSL, one of the world's top 10 biopharmaceutical companies.

Victoria is also renowned for top-class surveillance and control of infectious diseases. Melbourne is home to five World Health Organization (WHO) Collaborating Centres in infectious diseases (Reference and Research on Influenza; Biosafety in Microbiology; Diagnostics and Laboratory Support for HIV/AIDS and Other Blood-borne Infections; Research and Training in Immunology and Molecular Parasitology; and *Mycobacterium ulcerans*), a WHO National Influenza Centre and two WHO Regional Reference Laboratories (for measles and poliovirus).

In partnership with the Commonwealth Government, the Victorian Government has announced support for a new Peter Doherty Institute for Infection and Immunity, which will

physically unite several leading health units from The University of Melbourne and Melbourne Heath to form a critical mass and highly competitive scope of activity in infection and immunity research. These health units include:

- Victorian Infectious Diseases Reference Laboratory
- Microbiological Diagnostic Unit Public Health Laboratory
- Victorian Infectious Diseases Service
- Victorian Nosocomial Infection Surveillance System.

Strong support and leadership from the Victorian Government has enhanced the capacity of researchers and firms and attracted international partnerships and investment. Industry continues to grow, with Victoria exporting \$1 billion of biotechnology and pharmaceutical products each year. Victoria's private sector spends more than \$650 million on biotechnology and medical R&D every year. Victoria continues to transform local industries into a forward looking bioeconomy – an economy that applies bioscience discoveries and technology to solve health, agriculture and environmental sustainability challenges. Government-led initiatives place Victoria at the forefront of global agriculture and industrial biotechnology precincts. Just last year the government opened a \$128 million Dairy Futures Cooperative Research Centre in Melbourne's north, demonstrating Victoria's leadership in dairy bioscience research.

Across the sector, a culture of collaboration has emerged which also extends to interstate and international partnerships. Recent examples that have confirmed Victoria's position as a leader in biotechnology include:

- The collaborative stem cell research project between the Victorian and NSW governments to develop better drugs for treating type 1 diabetes and new applications for infertility treatments.
- The three-year collaborative stem cell research program between Victoria and



Californian researchers to progress research into treating Alzheimer's disease and other illnesses.

- A research partnership between the Victorian Government and Dow AgroSciences to develop new plant varieties and traits to improve crop yields for farmers.

Innovation is the key to securing a healthy, sustainable and productive future for all Victorians, in the face of issues such as the global financial crisis, climate change, an ageing population and intense competition in the global marketplace. We will continue to build on key innovation-related initiatives to further develop biotechnology in Victoria.

The Victorian Government supports the sustainable use of its natural resources – including biodiscovery. This commitment is reflected in the release in 2008 of the policy document, *Biodiscovery in Victoria – framework for managing access to and use of our native biological resources*. Victoria's native biological resources are part of the broader biotechnology industry, which is worth more than \$21 billion. The policy looks at a framework to ensure the conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of the benefits arising from the use of genetic resources.

Other Victorian Government strategies include the *AgBio 21 Strategy*, which sets out strategic initiatives to develop Victoria's biotechnology research base in the agricultural production and food processing (AgriFood) sector; the \$205 million *Future Farming Strategy and Actions*, which aims to build resilient rural communities, able to deal with rapid change by helping Victorian farmers and farm businesses become more productive, competitive and sustainable; and *Driving Growth: A Road Map and Action Plan for the Development of the Victorian Biofuels Industry*, which invests in driving industry-critical infrastructure development.

We have worked hard to become Australia's leader in providing biotechnology-related education, training and skills development. Through partnerships with our universities, research institutes and private biotechnology companies, the Victorian Government has made significant investments in science, technology and innovative technologies to deliver outstanding outcomes. By fostering a collaborative approach and supporting the innovative capacity of Victoria, the government empowers the research that will advance discoveries in water availability, sustainable energy, environmental preservation, preventative healthcare and competition through productivity.

Victoria's access to world-class infrastructure also means it is an attractive place to live, work and learn. Our investment in high-tech facilities includes high-throughput chemical screening, bioresources, informatics and protein crystallisation technology platforms.

Our world-class facilities include:

- Australian Synchrotron – the largest stand-alone piece of scientific infrastructure in the southern hemisphere.
- The Walter and Eliza Hall Institute of Medical Research (WEHI) – Australia's oldest and largest research institute, which focuses on cancer, immunity and infectious diseases research.
- The Burnet Institute – Australia's largest infectious disease research institute.
- The Victorian Life Sciences Computational Initiative – the world's most powerful supercomputer dedicated to life sciences research, which will have a system of over 800 Teraflops by 2012.
- The \$153 million Australian Regenerative Medicine Institute (ARMI) at Monash University's Clayton campus was opened last year, including the largest zebra-fish facility in the Southern Hemisphere.
- The Victorian Infectious Diseases Reference Laboratory (VIDRL) – the state's largest public health reference laboratory, with expertise in virology, mycobacteriology, bacteriology, parasitology, epidemiology and molecular detection technologies.
- The University of Melbourne's Bio21 Molecular Science and Biotechnology Institute – a multidisciplinary, \$140 million research centre, specialising in medical, agricultural and environmental biotechnology.
- Monash University's ARC Centre of Excellence in Structural and Functional Microbial Genomics – integrated research facility that investigates key aspects of microbial pathogens and the hosts they infect.
- Victorian Node of the Recombinant Protein Feeder Facility – \$11.2 million facility is headquartered at Monash University's ARC Special Research Centre for Green Chemistry.

For almost a decade, the Victorian Government has maintained its commitment to the biotechnology sector, recognising the potential of biotechnology to deliver solutions to everyday challenges. The success of our approach is also reflected in the resilience of Victoria's biotechnology sector during the recent global financial crisis. Despite this challenging environment, Victoria's biotechnology sector has kept growing in size, capability and profitability.

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