

real innovations real research

Tissue Engineering

QUT's Tissue Bio-Regeneration program boasts a major multidisciplinary consortium of collaborators investigating the wound repair properties of progenitor cells in skin, eye and bone tissues. Program researchers have discovered novel links between various human growth factors resulting in the development of novel complexes known as *VitroGro*TM. Studies investigating the application of the *VitroGro*TM complexes have identified that the complexes accelerate cell growth and migration, properties important for superior and faster wound healing and skin repair.

More importantly, *VitroGro*TM enables technology to be developed to repair skin without the use of animal or other non-defined products that are currently used in current best clinical practices. The current application of this new technology is being further developed in collaboration with the Australian Red Cross Blood Service to provide an improved, safe, animal-product free, cell-based therapy for burns victims.

Molecular Farming

QUT's Plant Biotechnology program is an Australian leader in molecular farming and home to Australia's first molecular farming company. Molecular farming is potentially one of the most exciting and profitable new bio-industries emerging onto the world market today. The use of plants as bioreactors offers the global health care industry the most promising system for mass-producing many of the proteins required for diagnostic, pharmaceutical and therapeutic development.

Farmacule Bioindustries has a portfolio of intellectual property including the exclusive rights to exploit a patented biological operating system in plants. This unique system offers strict control over the timing and pattern of gene expression, which can be restricted to particular plant tissues such as seeds, leaves and roots and can be programmed to switch on at a particular time in the plants growth. This novel gene activation system has widespread application including valuable agronomic traits (virus resistance, male sterility) and the production of new compounds such as: Bio-Plastics, High-Value Therapeutic and Industrial Proteins and Edible Vaccines.

Advanced Diagnostics

The Cooperative Research Centre for Diagnostics (CDx), a Commonwealth-funded research consortium, has its headquarters in the IHBI building. The CDx advanced diagnostics research program is directed at developing novel protein and DNA-based platforms primarily in the area of medical diagnostics. QUT is the largest research partner in the CDx, with significant expertise in DNA analysis and infectious diseases.

CDx is associated with the Advanced Diagnostics and Devices domain of IHBI. Collaborative projects are underway in the area of biodefense. The biological discoveries of the CDx partners are being linked to the engineering and air quality expertise within IHBI research program to develop biosensors for the rapid detection and analysis of biological warfare agents.

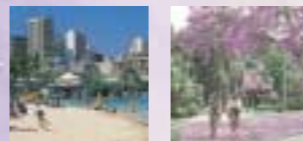
Vision Improvement

QUT researchers have patented a revolutionary new visual testing product family based upon Holographic Optical Elements (HOEs). These new products will have wide application in Optometry and can easily replace the current subjective measuring devices. The holographic device incorporates the simultaneous presentation of objects, so that a single holographic element serves the same purpose as the many presentations and the many ophthalmic lenses previously needed. HOEs devices are compact, portable and inexpensive offering simple, accurate and fast measurement capabilities. The instrument can also be manufactured at low cost and on a large scale.

Researchers in the Visual Improvement program continue to focus on understanding the imaging properties of the eye, evaluating visual performance, investigating errors in visual focussing, and understanding and managing the every day implications of visual impairment.

Strategic alliances with companies in the vision testing and vision correction markets offer significant opportunities.

These programs successfully represent the strength and quality of all the research programs upon which IHBI is based.



Advanced Diagnostics and Devices

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Vision Improvement

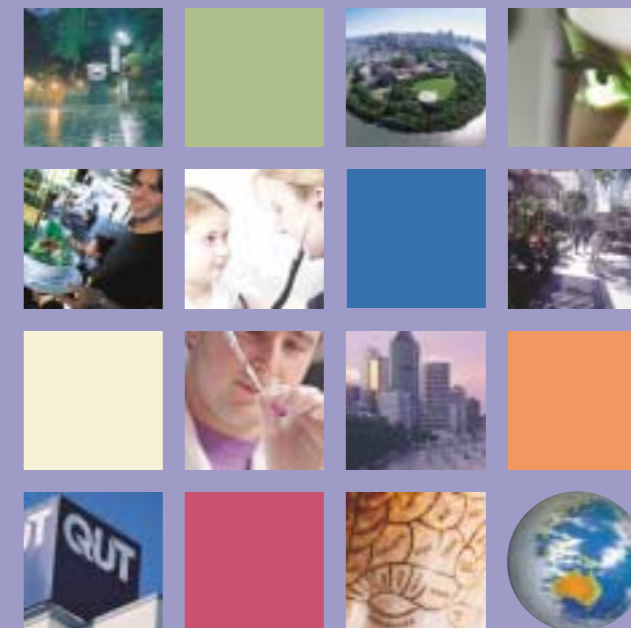
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real innovations real outcomes

Institute of Health and Biomedical Innovations



real innovations real lifestyle

Queensland University of Technology's new Institute of Health and Biomedical Innovation (IHBI) represents an exciting and innovative venture integrating the disciplines of biomedical science, biomedical engineering and health to tackle the global health and biotechnology challenges of today and into the future.

IHBI is a unique initiative bringing together top researchers into a dynamic and entrepreneurial environment with the goal to solve major health problems, commercialise Australian discoveries and facilitate the transfer of new knowledge into public policy and the health care industry.

The Institute aims to promote open collaboration across complementary disciplines and between researchers and commercial industry partners.

QUT is an innovative university offering longstanding and respected R&D programs for the real world. It is one of the largest universities in Australia with all the necessary resources and modern infrastructure required by today's scientists to achieve commercial success. QUT is noted for research, which is highly applied and relevant to the real-world needs of our global community.



IHBI represents an exciting and innovative venture integrating the disciplines of biomedical science, biomedical-engineering and health to tackle the global health and biotechnology challenges of today and into the future.



Kelvin Grove Urban Village and Health Precinct

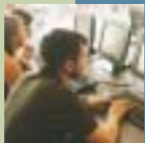
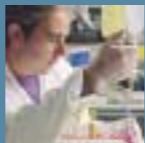
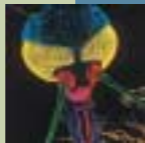
IHBI is situated within the new Health Precinct of the Kelvin Grove Urban Village. The Kelvin Grove Urban Village is an Australian first and is less than 2 kilometres from the centre of Brisbane. The development, planned and built jointly by QUT and the Queensland Government, provides for educational, commercial, residential and entertainment venues and is located beside one of QUT's major campuses.

Embracing Queensland's Smart State ideals, the \$400 million Urban Village will create a new place where people can easily walk from home to work, have a coffee at the local deli and then stroll into the city, Roma Street Parkland or the University for an afternoon lecture – all in the centre of Brisbane, Australia – by 2005.

real innovations real entrepreneurship

Key researchers from the disciplines of Health, Science, and Engineering have been drawn together within six core domains of research activity in which QUT has national and international expertise, and a strong competitive advantage. Research programs within these domains build on existing areas of strength and focus on real-world health issues that are best addressed by a combination of scientific disciplines.

QUT is noted for research, which is highly applied and relevant to the real-world needs of our global community.



Advanced Diagnostics and Devices

This domain brings together the very successful research areas of medical device engineering, DNA-based and antibody-based diagnostics and continuous flow monitoring of aerosols. The domain aims to develop new diagnostic systems and technologies for patient care and environmental monitoring.

Health Development

Responsive to globally significant health issues such as population ageing, increasing prevalence of chronic diseases and greater servicing of healthcare needs in community settings, this domain focuses on developing and trialling interventions aimed at prevention, health promotion and improved treatment and care management.

Injury Prevention and Rehabilitation

This domain is highly multi-disciplinary combining expertise in injury epidemiology, systems and safety, biomedical engineering and health behaviour modification. Specific applications are diverse ranging from remote monitoring of human motion, to intervention strategies for alcohol and drug related driving accidents.

Molecular Farming

An extension of QUT's highly successful Plant Biotechnology Program, Molecular Farming encompasses the mass production of high value proteins in plants, primarily for diagnostic and therapeutic purposes. QUT has significant intellectual property in this area.

Tissue Bio-Regeneration

The Tissue Bio-Regeneration domain extends QUT's unique areas of expertise in the regeneration of human tissue degraded by trauma, disease or surgical procedures, specifically in relation to skin and wound repair and in skeletal and load-bearing tissue regeneration.

Vision Improvement

QUT is at the forefront of a range of research developments underpinning major emerging technological advances to correct optical defects of vision. Research focuses on advanced vision correction, prevention of myopia (short sightedness), development of ophthalmic devices and collaborative research with other domains for example, to prevent injury, improve eye health, and improve health services.

innovation pipeline



real innovations real business



QUT's strong record of business success includes international licensing agreements, industry partnerships and profitable business development including some of Australia's most successful, leading edge, biotechnology companies.

Tissue Therapies Pty Ltd

Through an exclusive licensing arrangement with QUT, Tissue Therapies acquired the rights to commercialise a complex growth factor application known as *VitroGro*™, novel technology developed by the Tissue Bio-Regeneration program. Tissue Therapies aims to become a valuable growth factor reagent and autologous cell therapies company. The technology will deliver growth factors such as insulin-like growth factors to cells and tissue via vitronectin complexes in order to facilitate cell growth and cell-assisted healing. Tissue Therapies is also licensing a new cell proliferation drug target from QUT in order to add significant value before licensing to a global partner.

Farmacule Bioindustries

Emerging from QUT's Plant Biotechnology research program is Australia's first molecular farming spin-off company, Farmacule Bioindustries. The company's main mission is to establish a molecular farming industry in Australia through the application of its portfolio of proprietary Intellectual Property and commercialisation skills. The company will focus on the contract production of high-value proteins and other valuable compounds, such as new plastics, using plants as the production vehicle.

PanBio Limited

One of Queensland's most successful biotechnology companies was co-founded by QUT researcher and bio-entrepreneur Dr David Wyatt. PanBio, which has offices in the USA, specialises in the development, manufacturing, marketing and

The Institute of Health and Biomedical Innovation will build on its past success, providing Australia with a centre of excellence for the development of world-class innovations in health and biomedical science and bio-engineering applications.

international distribution of diagnostic kits for more than 27 infectious diseases. PanBio continues its association with QUT today as a strong industry partner in the Cooperative Research Centre for Diagnostics.

Agenix Limited

This company's early focus was on exploiting the diagnostic benefits of the then novel monoclonal antibody technology emerging from QUT's Centre for Applied Immunology. Today, the company is one of Australia's largest and most profitable publicly listed biotechnology companies with operations covering three niche businesses: AGEN Biomedical Limited, Milton Pharmaceuticals Ltd, and Phytoprotein Biotech Pty Ltd.

GeneCo

One of QUT's earliest spin-off companies, GeneCo, was a forerunner to the current highly successful Cooperative Research Centre for Diagnostics. The genetic disease diagnostic technology known as FNC, developed by researchers in the early days of this company, was recently licensed to US biotech giant Affymetrix Inc. resulting in one of Queensland's largest biotechnology licensing deals.

Continuing in the footsteps of QUT's past commercial success IHBI will provide researchers with space and support for future commercialisation activities. The incubation facilities within the Institute will provide start-up companies with an identifiable street frontage business address as well as access to state-of-the-art offices, meeting rooms, boardroom and conference facilities. Start-up companies can co-locate with IHBI to utilise the many resources available at the Institute.

