

# DRUG AND VACCINE DISCOVERY

Queensland has world-recognised excellence in medical research, including researchers who are leaders in vaccine research and drug discovery. Queensland offers a highly attractive health and medical research hub developed through a critical mass of health, medical and hospital-based research facilities, including over 70 institutes, research hospitals, precincts, laboratories and other research organisations.

In support of drug development, translation and commercialisation, the Queensland node of the Therapeutic Innovation Australia initiative has assembled five key drug discovery and development institutions into a Facilitated Product Development Pathway to provide efficient, transparent and accessible linkages between services for fundamental biomedical discovery, nonclinical testing and clinical trials. The Facilitated Product Development Pathway involves:

1. The University of Queensland (UQ) Diamantina Institute
2. UQ Centre for Integrated Preclinical Drug Development (TetraQ)

3. Queensland University of Technology's Institute of Health and Biomedical Innovation
4. UQ Centre for Clinical Research
5. QIMR Berghofer Medical Research Institute's Clinical Trials and Biostatistics Units.

The Queensland Government is highly supportive of the state's life sciences industry. Having previously heavily invested in world-class enabling infrastructure, the Queensland Government's Advance Queensland initiative now seeks to position Queensland as a place where entrepreneurs, industry, universities and government collaborate to translate a greater number of discoveries into commercial healthcare products and treatments. Advance Queensland provides a comprehensive suite of programs designed to support the growth of the life sciences industry in Queensland.

## Discover more about the life sciences opportunities in Queensland

The **Queensland Science Capability Directory** provides information on Queensland's key research capabilities, science expertise, and collaboration and investment opportunities.

➔ [www.qld.gov.au/ScienceDirectory](http://www.qld.gov.au/ScienceDirectory)

# On the road to success

## World's first cancer vaccine

A vaccine to prevent cancer from certain types of human papillomavirus resulted from cutting-edge immunotherapy research by Professor Ian Frazer and his team. As of 2014, 58 countries include it in their routine vaccinations, at least for girls.



*Professor Ian Frazer AC, TRI Ambassador and Chair of TRI Foundation Board, Translational Research Institute, The University of Queensland Diamantina Institute; and co-inventor of the Gardasil® vaccine.*

## Novel immunotherapies for infectious disease and cancer

Admedus is developing therapeutic vaccines for the treatment and prevention of infectious diseases and cancers. Admedus has two key programs targeting herpes simplex virus 2 (HSV-2) and human papillomavirus (HPV). The Admedus HSV-2 therapeutic vaccine is in a Phase II clinical trial and has achieved successful results to date. The HPV therapeutic vaccine is on track to enter a Phase Ib clinical trial in 2017.

➔ [www.admedus.com/technology/immunotherapies/](http://www.admedus.com/technology/immunotherapies/)

## A new treatment for motor neuron disease (MND)

PMX205 is a new drug that was discovered at The University of Queensland and, based on its promising preclinical profile, has been granted orphan drug designation to treat ALS/MND in both Europe and the USA. It is a highly selective antagonist of the complement C5a receptor and is being developed for human clinical trials by Alsonex Pty Ltd. PMX205 is not only expected to benefit patients with ALS/MND, but also patients with other neurodegenerative conditions such as Alzheimer's and Huntington's diseases.



*Associate Professor Trent Woodruff, School of Biomedical Sciences, The University of Queensland, hopes PMX205 will be ready to trial on patients in 2019.*

## Johnson & Johnson Innovation Partnering Office @ QUT

is an initiative between the Queensland University of Technology and Johnson & Johnson Innovation in an affiliation with Janssen ANZ (Janssen-Cilag Pty Ltd). Based at QUT's Institute of Health and Biomedical Innovation, the office serves as a strong platform to identify and nurture life sciences research collaborations.

“Queensland offers excellent opportunities for industry engagement with its world-class scientific infrastructure, translational approach to life-science research, track record of collaboration and the Advance Queensland initiative supporting the commercialisation of science innovation to discover, develop and deliver real solutions to patients globally.”



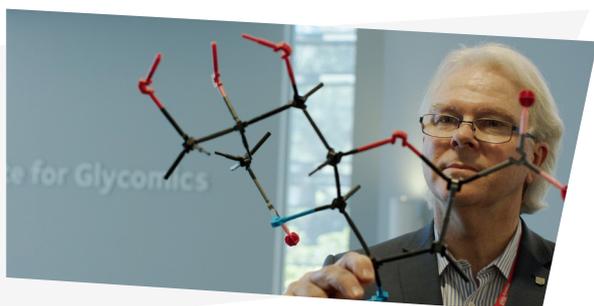
**Kathy Connell, Johnson & Johnson Innovation's Senior Director of New Ventures for Australia New Zealand**

# Exciting opportunities for investment and collaboration

## Next generation anti-influenza agents

Utilising the same rational drug design methods their researchers used to invent Relenza®, researchers at Griffith University's Institute for Glycomics have developed a new class of small molecule inhibitors with the potential for improved half-life and improved bioavailability.

The Institute for Glycomics is seeking co-development partners to rapidly complete lead optimisation of preclinical development of their latest highly potent anti-influenza compounds. Contact the Institute for Glycomics at [glycomicspartnering@griffith.edu.au](mailto:glycomicspartnering@griffith.edu.au).



*Professor Mark Von Itzstein, Executive Director, Institute for Glycomics Griffith University led the team that discovered the anti-flu drug Relenza in 1993*

## Open access antimicrobial screening

CO-ADD, The Community for Open Antimicrobial Drug Discovery, is a global open-access screening initiative launched at The University of Queensland in February 2015 to uncover significant and rich chemical diversity held outside of corporate screening collections. CO-ADD provides unencumbered free antimicrobial screening for any interested academic researcher. So far CO-ADD have screened over 190,000 compounds from 38 countries. The CO-ADD initiative seeks to ensure a solution is found before drug-resistant bacteria become a global health catastrophe. Contact: Dr Mark Blaskovich, CO-ADD Program Coordinator: Hit Validation and Chemistry, [m.blaskovich@imb.uq.edu.au](mailto:m.blaskovich@imb.uq.edu.au).

## Chlamydia vaccine for improved fertility

Chlamydia is the leading cause of preventable infertility, with 131 million new infections per year globally, and it is responsible for up to 30% of the need for assisted reproductive technology. There is no vaccine available. QUT is developing a vaccine that targets multiple parts of the chlamydia life cycle and gives far greater protection than has been achieved previously. The new vaccine takes a fresh approach and has shown striking improvements in mouse models of chlamydia. QUTbluebox seeks a motivated licensing and development partner to complete preclinical development and move to clinical trials. Contact: [enquiries@qutbluebox.com.au](mailto:enquiries@qutbluebox.com.au).

## Queensland offers

- R&D tax incentives up to 43.5%
- Rapid clinical trials system (CTN/CTX)
- Natural environment that provides great opportunities to discover new pharmaceuticals and materials
- Highly skilled researchers with international experience and connections
- Sophisticated research environment with integrated facilities
- Ongoing investment by government to support commercialisation of innovation
- A pipeline of opportunities in drug and vaccine discovery

# Facilities and capabilities

Queensland boasts a critical mass of research centres across biotechnology, food and agriculture, health and medical sciences, and offers distinct advantages for conducting clinical trials. Queensland has nine universities, including three of Australia's 10 largest universities.

**The Institute for Molecular Bioscience (IMB)** is an outstanding research institute located at The University of Queensland, in Brisbane, Australia. By understanding the development process and aspects that go awry in complex diseases, IMB aims to develop pharmaceutical and cellular therapies, technologies and diagnostics to prevent or treat such diseases.

**Institute for Glycomics at Griffith University** is one of Australia's flagship biomedical research institutes. The institute deploys world-leading scientific expertise to develop the next generation of drugs, vaccines and diagnostics for diseases of global impact.

**Compounds Australia at Griffith University** is an example of small molecule screening infrastructure that is focused on core values of customer service and quality. It provides compound management research logistics, lodgement and storage, and specialised formatting and reformatting into assay-ready microplates.

“Compounds Australia is an enabler for drug discovery and biomedical research projects across universities, research institutes and the biotechnology industry.”

**Professor Jenny Martin, Director  
Griffith Institute for Drug Discovery,  
Griffith University**



**TetraQ** is a Brisbane-based contract research organisation that offers a broad range of preclinical ADME, bioanalysis, efficacy and toxicity services. TetraQ operates within a quality framework in compliance with international standards including ISO 17025 (R&D) accreditation (ADME) and OECD-GLP recognition (ADME & Toxicology).

**Life Sciences Queensland Limited (LSQ)** is Queensland's peak industry group, working to assist the growth of individual firms and organisations, and build the profile, capacity and capability of the sector to ensure long-term economic, social and environmental benefits to Queensland. ➔ [www.lsq.com.au](http://www.lsq.com.au)

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