QUEENSLAND BIOMEDICAL

10-Year Roadmap and Action Plan

2017-2027

Edition 3 | Updated October 2022

Queensland holds a competitive position as a biomedical hub in the Asia-Pacific region with its established and emerging health precincts combining hospitals delivering high quality care and researchers conducting and participating in world-leading research and education.

This ten-year roadmap is part of the $3.34 billion Queensland Jobs Fund and demonstrates the Queensland Government's ongoing commitment to expanding the biomedical industry, it outlines our vision and priorities to deliver high-skills jobs now and for the future.

This commitment has created an ideal environment for the development of new technologies, treatments and services with more than 30 companies and research institutions supported so far, including Vaxxas which is developing a needle-free vaccine delivery technology that, if successful, will change the world.

Queensland's growing biomedical sector has high-value businesses specialising in manufacturing biopharmaceuticals, generic medicines, medical technology, immunotherapies, vaccine development and complementary medicines/biotherapeutics.

The sector has grown significantly since the launch of the Queensland Biomedical 10-Year Roadmap and Action Plan in 2017. It currently employs 12,400 people, an increase of 3000 jobs since the roadmap was launched, contributes A$2.11 billion in gross value-added, a 47 per cent increase, and has an export value estimated at A$450 million.

The unprecedented demands placed by COVID-19 provided the opportunity for the Queensland sector to demonstrate its agility and ability to quickly respond to meet global needs. Key reflections from COVID-19 include the importance of securing a strong local supply chain capability as well as the need for continued investment in developing innovative medical device technologies and therapeutics.

The Queensland Government's support for the development of the Translational Manufacturing facility (TM@TRI) comes from recognising the importance of connecting research with industry to encourage the development of home-grown talent and novel medical products.

Continued growth and development in Queensland's biomedical sector will play a pivotal role in our economic recovery from COVID-19, stimulating investment in the state and creating new jobs for Queenslanders. It will also ensure Queensland remains at the forefront of health care delivery outcomes for the global community.

The Honourable Steven Miles MP
Deputy Premier

Minister for State Development, Infrastructure, Local Government and Planning and Minister Assisting the Premier on Olympics Infrastructure

QUEENSLAND JOBS FUND

Queensland Government

Queensland Biomedical **10-Year Roadmap and Action Plan**

VISION

Our vision is for Queensland to be a globally competitive Asia-Pacific biomedical industry hub

Strengths

- World-class research base within key innovation precincts
- An educated, highly skilled workforce with access to world class training facilities
- High-value niche businesses supported by an established network of service providers
- Expertise in e-health, comprehensive pathology information and telemedicine
- Attractive location for clinical trials with sophisticated academic health translation research infrastructure
- Access to and shared time zones with high growth markets in the Asia-Pacific region

Challenges

- Access to clinician researchers
- Accessing investment capital and commercialisation expertise
- Incomplete local supply chain needed for sovereign capability
- Scale-up biomanufacturing facilities
- Collaboration and connectivity across the sector
- Awareness of industry and its capabilities
- Access to global and domestic markets

Strategy 1 – Start up

Support pipeline of Queensland start ups

- Facilitate establishment of multifunctional scale-up manufacturing facilities to retain the development of novel products in Queensland
- Work with industry to facilitate partnerships between universities, research institutes and the health system to develop a pipeline of market-driven medical products
- Leverage and raise industry awareness of the different assistance pathways available
- Run a pilot program aimed at providing training to address skills gaps and showcasing the capabilities and successes of local industry

Strategy 2 – Grow

Support existing businesses to grow in Queensland

- Leverage Queensland Government programs to help:
  - Queensland biomedical companies overcome barriers to create high value jobs for Queenslanders
  - support local projects to retain business onshore
- Accelerate business growth by leveraging the strengths of key innovation precincts
- Facilitate solutions to critical supply chain gaps, including by connecting industry, to strengthen sovereign capability

Strategy 3 – Attract

Attract investment, businesses and facilitate alliances

- Leverage Queensland Government programs to:
  - attract investment-ready projects that strengthen supply chains
  - encourage and support international and interstate businesses to invest in Queensland, including through targeted incentives
- Work with the sector to develop a set of ‘branding’ and promotional collateral
- Facilitate place-based strategic alliances to expand capabilities across Queensland
- Run the Queensland Biomedical Business Attraction Program to attract business investment in Queensland
- Support national and international roadshows and trade missions to identify opportunities for Queensland’s biomedical industry working with Trade & Investment Queensland, Australian Government agencies, including Austrade and peak industry bodies

Enabling actions

- Develop an economic evidence base profile of the Queensland biomedical sector to inform economic impact analysis and the consideration of appropriate industry assistance
- Develop a tailored skills plan that addresses capability gaps to meet current and future workforce need
- Establish an Industry Advisory Group to help overcome the challenges and unlock opportunities that will create a collaborative and dynamic biomedical ecosystem in Queensland and deliver on the vision`

Q-Gen Cell Therapeutics (Q-Gen)

A $1.4 million matched state government investment to upgrade the QIMR Berghofer Medical Research Institute's world-class, TGA-approved, GMP cell manufacturing facility Q-Gen Cell Therapeutics (Q-Gen) enabled the company to attract co-investment from Atara Biotherapeutics, a top-tier international business.

Q-Gen, which currently employs 22 FTEs, undertakes an advanced manufacturing process which is highly complex, requiring a number of carefully performed steps to produce cells that are compliant with Good Manufacturing Practice (GMP) standards. In late 2021 it attracted a deal with Maverick Capital worth up to $63 million for a potentially ground-breaking new treatment in development for multiple sclerosis.

The investigational treatment, known as ATA188, is an allogeneic off-the-shelf T-cell therapy developed by QIMR Berghofer immunologist Professor Rajiv Khanna and licensed to Atara Biotherapeutics in 2015. Off-the-shelf allogeneic cell therapies enable faster delivery to patients.

Professor Khanna said the deal was a substantial endorsement of the new treatment's potential as a game-changing therapy.

"We share Maverick Capital's optimism about this potentially transformative immunotherapy. During the Phase 1 trial in Queensland we saw a dramatic and sustained improvement in many patients with progressive multiple sclerosis," Professor Khanna said.

QIMR Berghofer Director and CEO Professor Fabienne Mackay said the deal will help the Institute develop and commercialise future research-derived intellectual property.

In a more recent development San Francisco based company Cellevolve Bio has joined with QIMR under a licence agreement to manufacture its off-the-shelf cellular therapy for another central nervous system disease, progressive multifocal leukoencephalopathy (PML), for conducting Phase II clinical trials in the USA and Europe.

WearOptimo

Brisbane healthtech company, WearOptimo, has developed a novel and patented Microwearable technology platform to gain access to key body signals just below the surface of the skin.

This technology could be a gamechanger in global health care with support from the Queensland Government.

WearOptimo's device detects dehydration in real-time and could replace frequent blood testing for other diseases and improve the care of seriously ill patients.

WearOptimo's products will provide painless access to key health signals continuously, remotely, and in real-time. Together with local and cloud-based data platforms, using AI and predictive analytics, WearOptimo's solutions will provide unique health insights and analytics that are not obtainable with current surface-based technologies.

"By providing individuals with a measure of their own hydration, action can be taken immediately, before performance is impaired or health is risked," WearOptimo Founder and CEO Professor Mark Kendall said.

"With higher global temperatures, the Asia-Pacific region especially will experience serious productivity losses from workers who become dehydrated. The elderly and sick are also at heightened risk. The healthcare costs of dehydration run into many billions of dollars."

The inexpensive and painless device will be produced for global distribution at a new one-of-a-kind facility in Queensland. The project is expected to create more than 120 direct new high-value jobs in the next three years and up to 500 new high-value jobs, including specialist manufacturing jobs, across the supply chain in the longer term.

Local industry partners will be engaged to manufacture and supply electronic components, printed circuit boards, plastic parts, packaging, and develop custom software and apps.