

Institute for Molecular Bioscience

Where the next cure begins

In two decades, UQ's Institute for Molecular Bioscience (IMB) has become one of the world's most influential and innovative research institutes. In Australia, we are the nation's number one research institute for research outputs, and the top research institute for commercialisation activity.

It started 20 years ago with funding from the Queensland Government, philanthropists Chuck and Helga Feeny, and the University of Queensland. The vision was bold and innovative: to position Queensland as a global epicentre for drug discovery.

Whether it be for common diseases such as COVID-19, chronic pain, cancer and stroke, or for diseases in agriculture, IMB is where the next cure begins.

To start a conversation about the IMB and to change the world, please contact

Professor Ian Henderson
Director, IMB
director@imb.uq.edu.au

At IMB we have a vision: **to create a world with a cure for every disease.** Our approach to drug discovery and agricultural innovation is unique and world-renowned. We harness our knowledge of nature to create sustainable cures for diseases that plague people, animals, and plants.

Our researchers use **Australian venoms, plants, and soils** to stop superbugs in their tracks, to create better cancer treatments, to ensure patients survive strokes and heart attacks, to solve inflammatory diseases such as Parkinson's and Alzheimer's, and to develop environmentally friendly and effective pesticides. We strive to make treatments more affordable, and accessible to regional and remote communities across the globe. Our research outputs and global partnerships have made Queensland a global destination for drug discovery and development and positioned the University of Queensland in the **world's top 50** universities.

Our entrepreneurial culture and collaborative approach also set us apart. Our research has led to **12 spin-out companies**, which have had an impact internationally, and brought considerable wealth and investment to Queensland. International and national pharmaceutical, biotech and agricultural companies



#1
Australian research
institute



>400
staff and students



12
spin-out companies



>20% of patent families
at UQ are derived from
IMB research



1454
international collaborators
from 48 countries

preferentially partner with us, delivering Australia's largest-ever biotech deal, a Nasdaq listed company, and 50% of the University of Queensland's patent income.

IMB is a crucial player in the local economy, providing **over 400 jobs and training places.** We are a cornerstone for delivering the highly-skilled, **STEM-educated, entrepreneurial workforce** of tomorrow. Connecting Queensland to our world, our alumni are entrepreneurial leaders in Australia, executive leaders in multinational companies, policy makers in international organisations, and highly sought-after opinion leaders.

At IMB we dare to discover a healthy and sustainable economic future for Brisbane and Queensland.

Agricultural Innovation begins at IMB



Professor Glenn King with a funnel web spider

The world-first organic insecticide: mass-producible, non-toxic, bee-friendly and plant-based

With bee pollination responsible for more than 30% of global food production, stopping the dramatic decline in bee numbers is critical. IMB researchers worked with regional Australian company Innovate Ag to develop Sero-X¹, a non-toxic, bee-friendly, world-first plant extract bio-pesticide, now used successfully as an alternative to harmful synthetic pesticides.

The world's first eco-friendly pesticides

Australia is home to some of the world's deadliest spiders and snakes. IMB researcher Professor Glenn King, and his team, harnessed venom from the Blue Mountain funnel web spider to create Vestaron a revolutionary new type of pesticide^{2,3}. Animal venoms are increasingly being used in drug discovery efforts as they constitute a vast and largely untapped source of drugs that

stop pests in their tracks. IMB is positioning Queensland as the home of pesticide innovation.

Protecting the Australian livestock industry

Parasites are a major cause of disease and loss in livestock, causing significant economic loss. Current treatments are expensive, time-consuming, toxic to humans and render agricultural land unusable. In addition, resistance to these compounds is on the rise. IMB researchers are partnering to develop next-generation, natural anti-parasitic treatments developed from sheep poo, that overcomes resistance and protects livestock, as well as farm land.

Protecting the Australian prawn industry

Since the initial outbreak in 2016, the white spot virus has had a devastating impact on South-East Queensland prawn farms and is a growing threat to the \$124.6m Queensland prawn

industry. Using microalgae, which are a natural food for prawns, IMB researchers have developed a vaccine-type therapeutic to stop the virus, that is designed to be scalable, safe and inexpensive.

From farm to pill—harnessing the land to produce new cures for animals, plants and humans

Soils for Science is an Australian-first citizen science program dedicated to finding the new antibiotics needed in the fight against the scourge of superbugs. Over 50% of all antibiotics have been developed from microbes found in soil and nature. Queensland has one of the most biodiverse environments in the world, ripe for the discovery of microbes that could be developed into new antibiotics and other medicines. Launched in March 2021, such is the public interest that we received more than 2000 kit requests in three days.

1 <https://imb.uq.edu.au/article/2020/08/enhancing-food-production-bee-friendly-pesticides>

2 <https://stories.uq.edu.au/imb/2020/venom/index.html>

3 <https://www.vestaron.com/>