

## PROGEL

## COMMERCIALISATION STORIES

# ENCAPSULATING NUTRITIONAL GOODNESS IN FOOD

A novel food processing technology is revolutionising the development of a new range of functional milk and juice products.

From the research laboratories of The University of Queensland (UQ) comes a world-first technology called Progel, which is set to enhance the nutritional value of many common foods. The breakthrough lies with Progel's low-cost, bulk, micro-gel encapsulation technology, which can be used in a number of functional food and supplement applications.

### UQ'S RESEARCH EXCELLENCE TO EXCELLENCE PLUS WITH UNIQUEST

UQ Research Strength:	Agriculture and Food Sciences
UQ Innovator(s):	Professor Bhesh Bhandari
UQ Faculty or Institute:	Faculty of Science
UQ Research Outcome:	Microencapsulation technology which can offer sufficient levels of active nutrients to provide a beneficial source of probiotics and omega-3 to consumers
UniQuest IP Position:	Patent application
UniQuest Partnering:	Pitch product opportunity to end-users and investors
UniQuest Commercialisation:	License IP to Progel Pty Ltd to develop and commercialise the technology

### THE INNOVATION

The invention made by Professor Bhandari, and his team from UQ's School of Agriculture and Food Sciences, has been used to demonstrate that different classes of 'actives' (or active ingredients) can be microencapsulated with this technology - including the friendly living bacteria in probiotics, therapeutic biologics and drugs, and nutraceutical fish oils.

In the laboratory, the Progel has been shown to protect the 'active' in a simulated acidified stomach environment and then release the 'active' in a simulated intestinal environment. The anticipated consumer benefit comes from the micro-gel encapsulation enabling active to pass through the stomach intact and be released in the digestive system.

### DELIVERING HEALTH BENEFITS

Using this technology, Progel has used probiotics and omega-3 as actives added to milk and juice products. This has led to the world's first non-fermented, multi-strain probiotic milk and juice products, which is expected to greatly increase health benefits for consumers.

Adding probiotics to commonly consumed products, like milk and juice, can improve gut health and digestion, and help lessen the effects of lactose-intolerance for milk consumers. With milk being a major source of nutrition for many global populations, a nutritionally fortified milk product has the potential to have a positive impact on nutrition and global health in communities worldwide.

Plus in the past, food products fortified with fish-based omega-3 oils tended to have a residual smell and taste. However using Progel encapsulation technology sufficient levels of active nutrients can be used to deliver greater health benefits, without any quality issues.



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As a result, products made possible by using Progel technology can deliver the many health benefits of probiotics, calcium and omega-3 to consumers who do not regularly consume dairy products. This will be a great advantage to anyone in need of omega 3, calcium or other probiotic supplements – especially children, as they require a greater intake of calcium and omega-3 to grow.

### PROGEL ADVANTAGES

“The key advantage of Progel ingredients is that they don’t affect the quality, taste or smell of the milk, and products containing the Progel encapsulation technology can offer sufficient levels of active nutrients to provide a beneficial source of probiotics and omega-3 to consumers,” said the inventor of Progel, Professor Bhandari.

The Progel technology has been developed using only safe, non-chemical and non-toxic food ingredients such as alginate, which is commonly used in many foods such as ice cream.

Of commercial importance, the method of production is novel but straightforward, requiring minimal capital and operational costs. The technology is the subject of a patent application, able to produce Progel microencapsulations at large scale and at low cost.

### COMMERCIALISATION

Pitching to investors and food companies to commercialise the microencapsulation technology, UniQuest, UQ’s main commercialisation company, secured a founding investment of \$400,000 from a syndicate of investors. In 2009, Progel Pty Ltd was established with a co-investment from Uniseed and Brisbane Angels, and the patent application was licensed by UniQuest into Progel.

Progel has gone on to raise more capital from the same investors and was successful in its grant application in 2012 for \$250,000 from Commercialisation Australia.

The company is currently developing a range of commercially viable new functional food products that can revolutionise global nutrition. The initial product targets are functional foods such as probiotic drinks or yoghurts, and omega-3 fatty acid enhanced foods.

The global food encapsulation technology market, driven by health food and children’s food markets which include dairy and juice products, has been estimated to be US\$22.7 in 2014 with a compound annual growth rate of more than seven percent.

While Progel’s focus is currently on the functional foods market, the underlying microencapsulation technology has opened a window of opportunity to expand the application of encapsulated probiotics and omega-3 oil in a wider range of products, such as pharmaceutical formulations, cosmetics, nutraceuticals, agricultural and aquacultural supplies.

### PARTNER WITH UNIQUEST

UniQuest is one of Australia’s leading research commercialisation companies. It specialises in global technology transfer and facilitates access for all business sectors to the world class expertise, intellectual property and facilities at The University of Queensland, Australia.

### OUR TRACK RECORD

UniQuest enters into over 400 research contracts per year – many repeat clients from industry.

UniQuest has created over 70 companies from its intellectual property portfolio, and since 2000 UniQuest and its start ups have raised more than \$490 million to take university technologies to market. UQ technologies licensed by UniQuest – including UQ’s cervical cancer vaccine technology and image correction technology in magnetic resonance imaging machines – have resulted in combined sales of final products in the order of \$10 billion net sales between 2007-2013.



**If you want to know more about this commercialisation story or other offerings from UniQuest then contact [enquiries@uniquet.com.au](mailto:enquiries@uniquet.com.au) or visit [www.uniquet.com.au](http://www.uniquet.com.au)**



### THE PROGEL JOURNEY SO FAR

**Professor Bhesh Bhandari**  
The University of Queensland

- Progel is commercialising a novel technology that can produce micro-gel spheres in bulk and at low cost.
- Made of non-toxic food ingredients, the micro-gel spheres are designed to pass through the stomach intact, protecting active ingredients inside from the acidic environment and allowing the actives to be released in the digestive system.
- Using this technology, Progel has used probiotics and omega-3 as actives added to milk and juice products, which is expected to greatly increase health benefits for consumers.
- Progel Pty Ltd founded in 2009 with a seed investment of \$400,000 from Uniseed and Brisbane Angels. Additional capital since raised from the same investors and was successful in its grant application in 2012 for \$250,000 from Commercialisation Australia.