



Marine Biomedical

Discovering the oceans' potential

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Harnessing the power of Western Australian mother of pearl

A new Western Australian biotech company could revolutionise the global medical devices and products sector, drawing on the unique characteristics of marine resources sourced from the pristine waters of Broome in the State's north.

Marine Biomedical intends to develop medical products and devices derived from marine resources including nacre – commonly known as mother of pearl. Its patented debut technology PearlBone™ is a bone substitute material derived from nacre sourced from sustainably certified Western Australian silver-lipped pearl oysters.

PearlBone™ was developed through a program of research at the University of Western Australia that identified the potential for marine resources including nacre to be used in medical applications, specifically orthopaedic, trauma and reconstructive surgery.

Traditional bone substitutes made from calcium carbonate (limestone) can trigger adverse biological reactions once placed in the body, including inconsistent and sometimes unpredictable bone formation. The research demonstrating the possibilities of using nacre in place of a calcium carbonate product represents a potential paradigm shift; PearlBone™ technology offers significant potential for the global health sector in areas including bone loss due to trauma, bone tumours, joint reconstruction and the stabilisation of vertebrae in spinal fusion surgery.

Marine Biomedical Chief Executive Patrick Moase, a marine biologist with more than 22 years of commercial pearling industry expertise, said Marine Biomedical aimed to demonstrate the capacity for innovation, research excellence and life sciences opportunities in regional areas such as Broome.

“At Marine Biomedical we hope to establish a way to harness the incredible regenerative capacity of marine organisms,” Mr Moase said.

“What was established with the research undertaken for PearlBone™ is groundbreaking, and the full range of potential applications for marine resources in the medical industry provides a solid pipeline of products and opportunities for the future.

“Through our headquarters in Broome, Marine Biomedical will be embedding a new local culture of innovation and adding value to the historically significant pearling industry.”

Marine Biomedical was established through a partnership with renowned local Broome pearling business Willie Creek Pearls, with research expertise through The University of Western Australia's Medical School.

University of Western Australia Winthrop Professor of Orthopaedic Research and Perron Institute Head of Bone and Brain Research Professor Minghao Zheng is the inventor of PearlBone™ and a Marine



Biomedical founding partner. He has devoted many years to the development of the technology and said its potential for orthopaedic applications could not be understated.

“Our work through pre-clinical trials has proven that PearlBone™ substantially supports the process of new bone formation, compared to other synthetic bone substitutes in the market,” Professor Zheng said.

“The results to date are very encouraging – through PearlBone™, there is a revolutionary opportunity to utilise the process of marine biomineralisation in lieu of traditional devices in orthopaedic, trauma and reconstructive surgical applications.

“The global bone substitute market has an estimated global value of more than AUD\$3 billion. PearlBone™ is an innovation that has the potential to become a world-leading alternative to currently available bone substitutes.”

Willie Creek Pearls Chairman and Marine Biomedical partner Robert Banfield said he welcomed the opportunity to expand Broome’s internationally renowned pearling industry.

“Modern pearl farming has tended to view mother of pearl as a by-product, but this opportunity to develop PearlBone™ from this incredible source material shines a light on a new opportunity for the whole pearl farming industry,” he said.

“For Willie Creek Pearls to be involved in the advancement of products that could make a significant difference to the health and wellbeing of so many is very exciting.”

MTPConnect Western Australia Life Sciences Innovation Hub Director of Biomedical Innovation Professor Kevin Pflieger said Marine Biomedical could lead the way in unlocking the potential for development of marine-derived biomedical applications in Australia.

“The work of Marine Biomedical demonstrates the capacity for innovation and research excellence in Western Australia,” he said.

Marine Biomedical’s presence in Broome establishes the capacity for research and innovation-focussed enterprises to operate in northern Western Australia, opening the door to other similar industries operating in the region.

University of Western Australia Deputy Vice Chancellor Research Professor Tim Colmer said the establishment of Marine Biomedical in Broome demonstrated the University’s commitment to economic development in the Kimberley.

“This is an important milestone in regional development that will strengthen research and education opportunities in the region,” he said.

Marine Biomedical aims to complete the development of PearlBone™ and pursue a global regulatory strategy for the technology. The company also intends to expand its intellectual property portfolio and pipeline of products derived from sustainable marine resources in Australia.