



Elastagen regenerates the market

In 1995, a University of Sydney research team led by Professor Anthony Weiss announced in the research journal *Gene* that it had produced the human form of a highly elastic biopolymer, tropoelastin, in genetically modified *E. coli* bacteria.

Robert Daniels, CEO of Sydney-based biotechnology company Elastagen, said the development was a seminal event in the history of regenerative medicine.

“Professor Weiss realised if he was going to pursue a career in elastin research, he had to be able to make the full-length precursor protein, tropoelastin, to understand how it functions, and how elastin fibres are assembled from tropoelastin,” Mr Daniels said.

“He also needed to make tropoelastin in sufficient quantities to formulate elastin based polymers at the required scale and quality levels, and at an affordable price, to enable practical clinical applications.

“As a result of Professor Weiss’ work since this early breakthrough, Elastagen now has an incredibly versatile platform material, with a wide range of clinical applications.”

Elastagen’s impressive pipeline of tropoelastin based products includes a clinically validated product in aesthetics, a scar remodeling product with supporting clinical safety data, and products for tissue repair and surgical glues.

In addition to funding received from investors, the quality and potential of Elastagen’s technology, together with its dominant intellectual property position, has enabled the company to attract funding from the NSW Health Medical Device Fund and recently from the Wellcome Trust in the UK. Furthermore, the company has secured a sales and marketing partner for its lead dermatology product in Europe.

“We are now seeking additional capital to fund Elastagen through to the launch of our first product in Europe, and the achievement of major clinical milestones

for the next three products in our pipeline,” Mr Daniels said.

“Elastin is a unique biological material – it’s a key component of all mammalian tissues that are required to stretch, flex and recoil, including blood vessels, lung tissue, and skin.”

Mr Daniels said elastin is synthesised in abundance during foetal development, a period when tissue damage is repaired with minimal scarring. However, after we are born, the synthesis of elastin decreases substantially.

“By the end of our lives, our bodies contain about half the elastin we had in infancy, and when we suffer injuries, the resulting scar tissue is substantially devoid of elastin,” he said.

“Although elastin is an important component of connective tissue, it could not previously be exploited medically because there was no way to extract the required amounts of elastin from tissues in its fully functional, soluble, full length form – tropoelastin.

“The good news is that we can now manufacture recombinant tropoelastin on a commercial scale with a competitive cost of goods and under clinical good manufacturing practice (GMP) conditions. Furthermore, because it’s identical to the tropoelastin present in our bodies, it has a fantastic safety and biocompatibility profile.”

Elastagen’s first product in aesthetics – for repairing aged skin – was developed to demonstrate the biopolymer’s huge potential and has already reached clinical proof-of-concept. Elastagen is working with a European partner to take the product to market.

“Our second product is an injectable for the non-surgical remodeling of scars such as stretch marks - caused by damage to elastin and collagen fibres in the skin. Phase 2 clinical trials will begin in this indication early in 2015.

“We have also shown together with a leading US surgical biomaterials company, that the incorporation of tropoelastin into skin repair scaffolds significantly improves the regeneration of skin tissue. Such products are used following the surgical excision of severe scars or skin lesions and the inclusion of tropoelastin has the potential to both reduce the number of surgeries patients must undergo and improve the properties of the regenerated skin.”

Mr Daniels said that historically, elastin was difficult to extract from animal tissues because it was so sticky. “We are now exploiting this stickiness in collaboration with colleagues at Harvard University to develop a range of surgical sealants and glues with the strength of superglue, but the physical and biological benefits of polymerized tropoelastin.

“As a biomaterial platform, our tropoelastin is unique, and its physical and biological advantages compared with what is currently on the market means that its potential is huge.”

Elastagen Pty Ltd

CEO: Robert Daniels

ASX Code: N/A

Market Cap: N/A

Description: Elastagen is a clinical stage medical company with a pioneering biomaterial technology based on the human protein tropoelastin, the building block of elastin, that naturally rejuvenates, repairs and regenerates damaged and aged tissues with applications in aesthetics, scar remodelling, wound repair and surgical adhesives.

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