



Major Breakthrough - VitroGro® Reduced to Three Proteins in One

Tissue Therapies Limited (ASX: TIS) is delighted to announce another world-first for its VitroGro® wound care and cell culture technology and its research team at QUT – the creation of a fundamentally new, important VitroGro® molecule, referred to as **VitroGro®-1**.

Chief Executive, Dr Steven Mercer said the new VitroGro®-1 molecule had major commercial benefits for Tissue Therapies in the areas of manufacturing costs, intellectual property value, regulatory approvals and product simplification.

He said that, in terms of manufacturing costs alone, the future use of VitroGro®-1 was expected to more than halve the Company's production costs.

"The new VitroGro®-1 molecule represents a major breakthrough in protein science," he said.

"Using molecular engineering, it combines the active regions of the multiple protein components of the existing VitroGro® and creates a single new protein molecule," he said.

Dr Mercer said that, "as well as representing an exceptional scientific achievement, the commercial ramifications of VitroGro®-1 are substantial for Tissue Therapies".

"Now instead of combining three or four different proteins manufactured to Good Manufacturing Practice (GMP) standards in a clean room environment, we only need this new, single patented protein. As well as demonstrating its functionality, we have also confirmed that we can produce this new protein and rapidly scale-up production of VitroGro®-1.

"This will give Tissue Therapies a significant advantage through substantial reductions in manufacturing costs, shipping and preparation as well as making regulatory approval for clinical treatments quicker, simpler and cheaper," Dr Mercer said.

The announcement of the VitroGro®-1 molecule follows the Company's recently announced world-first achievement that VitroGro® can be used to replace animal or human serum in the culture of human embryonic stem cells.

Dr Mercer said "VitroGro®-1 is an extraordinary scientific achievement. Prior to this work, no one had successfully combined the active regions of these types of proteins and growth factors into a single protein."

Beating the scientific odds, he said that the success of the VitroGro®-1 project was highly unlikely in reality.

"This was a classic high-risk, high-return project. The basic principles of protein science mean that the success of such a project is highly unlikely, due to the complexities of the three-dimensional shape of proteins and the effect this has on the biologic activity of proteins.

"The activity of synthetic proteins does not just depend on creating the correct sequence of the amino acid building blocks. The folded three-dimensional shape of the protein is also intimately involved in allowing the correct active regions to be presented to the appropriate cell surface receptors. To join the active segments of multiple different proteins together and to still have the bioactivity of the multi-protein complex is a superb achievement," Dr Mercer said.

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Chief Consulting Scientific Officer to Tissue Therapies, Professor Zee Upton said that extensive testing had proved the result.

"Tests have shown that not only does the single protein, VitroGro®-1 have the bioactivity of multi-protein VitroGro®, but the cellular mechanisms that are activated by the single, chimeric VitroGro®-1 are the same as those turned on by the normal multi-protein VitroGro®," she said.

"This really is a world class piece of protein science and an exciting discovery," she said.

Dr Mercer said the discovery again proved the extraordinary versatility and predictability of VitroGro® and the truly world class scientific talent of the QUT research and development team under the leadership of Professor Upton.

He said the development of the VitroGro®-1 molecule had further benefits in the form of valuable new intellectual property rights for Tissue Therapies. The new discovery was protected via international patent applications over which the Company had exclusive commercial rights.

"Use of our new VitroGro®-1 molecule will provide a significant competitive advantage over existing alternatives, with applications in our broad target markets, including burns treatments, wound care, stem cell culture, other research markets and industrial cell culture."

"Importantly, the VitroGro®-1 discovery does not delay the timing of the commencement of our planned pre-clinical and clinical trials," he said.

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About Tissue Therapies Limited

Tissue Therapies Limited is an Australian company developing biomedical technologies for wound healing, tissue and various cell culture applications.

The Company has worldwide exclusive rights to commercialise VitroGro®, a platform technology developed by tissue engineering experts at the Institute for Health and Biomedical Innovation at QUT for enhancing cell growth and migration. VitroGro® has particular commercial applications in wound healing, tissue regeneration, stem cell therapies and other cell culture uses.

Based on its VitroGro® platform technology, Tissue Therapies is developing more effective medical treatments for wounds and burns, integration of orthopaedic and medical implants, and other applications such as cosmeceuticals.

Tissue Therapies also provides cell culture reagents to enhance the growth of mammalian cells for emerging cell-based therapies, along with research and industrial cell culture markets internationally.

More information: www.tissuetherapies.com