



PRESS RELEASE

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Invictus Biotechnology Achieves Preclinical POC for Tocotrienol Prodrug

Melbourne Victoria (6 August 2018) – Invictus Biotechnology Pty. Ltd., a private Australian biotechnology company developing and commercialising evidence-based nutraceuticals and pharmaceuticals based on a natural product (tocotrienols), today announced that it has successfully completed a proof of concept animal study on Tocotrienol ProDrug (TPDs) Delivery Platform.

In March 2018, the Company was granted the exclusive global rights from Monash University to exploit TPDs, a new drug delivery technology platform for tocotrienols developed by the Monash Institute of Pharmaceutical Sciences (MIPS).

TPDs, which were developed by Professor Chris Porter's research group at MIPS, are tocotrienols linked to a delivery vector. TPDs are orally administered (swallowed like a pill) but when they come into contact with the gut, instead of being digested within the gut and metabolised in the liver, are designed to be absorbed into the lymphatic system of the gut where the tocotrienol is released from the delivery vector into the blood. In this way, TPDs have the potential to improve the bioavailability of tocotrienols (the amount of tocotrienols that end up in the blood) compared to oral delivery where the tocotrienols are subject to digestion and first pass metabolism.

Invictus Biotechnology has completed an exploratory rat pharmacokinetic study on an initial range of TPDs. TPDs are made up of a tocotrienol linked to a number of delivery vectors using a range of different chemistries. The theory is the delivery vector helps with the absorption of TPDs into the lymphatic system of the gut and then the tocotrienols are released from the delivery vector and into the blood. It is expected that TPDs would increase the bioavailability of tocotrienols compared to tocotrienols that are orally administered and subject to digestion in the gut and first pass metabolism in the liver. The hypothesis is the more tocotrienols in the blood, the more make contact with target organs



and tissues, and this has the potential to improve the efficacy of tocotrienols in a number of target indications including Non-Alcoholic Fatty Liver Disease (NAFLD) and pancreatic cancer.

The objective of the present study was to establish proof of concept for TPDs' ability to deliver tocotrienols into the blood and increase the bioavailability of the tocotrienols compared to orally administered tocotrienols. This study has successfully identified a lead TPD that resulted in significant amounts of tocotrienols being detected in the blood after oral administration of the TPD. Oral bioavailability was similar to that obtained from tocotrienols that had been emulsified using an oil which is expected to promote the absorption of the tocotrienols into the lymphatic system of the gut and improve bioavailability (these types of emulsified tocotrienols have superior bioavailability to orally administered tocotrienols that are not emulsified).

Professor Chris Porter, the Director of MIPS, said:

"This result provides proof of concept that TPDs can deliver significant quantities of tocotrienols into the blood and provides an improved understanding of the types of delivery vectors that are likely to be most effective in a TPD."

Based on the results of this proof of concept study, Invictus will continue its collaboration with MIPS to implement the next phase of the development of TPDs which is to synthesise and assess additional TPD analogues with the objective of developing a TPD that has superior bioavailability compared to emulsified tocotrienols.

Invictus Biotechnology's Chairman of the Scientific Advisory Board, Dr David Kingston, said:

"The objective is to develop a TPD which significantly improves the bioavailability of the tocotrienols which will in turn be included in Invictus' drug development programs targeting NAFLD and pancreatic cancer".

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About Invictus Biotechnology

Invictus Biotechnology Pty. Ltd. is a private Australian biotechnology company developing and commercialising novel dietary supplements and prescription medicines based on natural products (tocotrienols) which have wide therapeutic potential, including: Delayed Onset Muscle Soreness, muscle recovery, exercise endurance, hyperlipidaemia, hypertension and diabetes. Invictus Biotechnology owns and controls patent and other intellectual property rights for novel approaches to delivering tocotrienols directly to the target tissues. The Company has a product development program for evidence-based nutraceuticals and a clinical development program for prescription medicines.