

MEDIA RELEASE

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30 years of research on a single cell sees husband and wife team develop new drug to treat cancers with the highest mortality rates.



For as long as Professor Jenny Gamble and Professor Mathew Vadas AO, have been a partnership in marriage, they have been working on understanding the function of a single cell, the “guardian” endothelial cell that lines our blood vessels. Professor Gamble, who is Head of the Vascular Biology Program, and husband Professor Vadas AO, Executive Director, have been with the Centenary Institute for the past ten years. Their painstaking work has been like working on a jigsaw puzzle, slowly fitting the pieces together, to develop a deep understanding of how the endothelium is critical in the control of inflammation, the body’s response against harmful stimuli.

After more than 30 years of research they have developed a new drug that could be effective in some of the hardest to treat cancers with the highest mortality rates, such as pancreatic and liver cancer, although it would also be effective in other, more common cancers such as melanoma. Their ground-breaking study has recently been published in

the prestigious journal, *Cancer Research*.

Unlike other types of cancers, the death rate for pancreatic has not improved for 40 years. It is currently the fastest cancer killer with an estimated 2900 Australians likely to die from the disease in 2017 and a further 3270 will be diagnosed with the disease. Unlike other types of cancer, which have seen increased survival rates, thanks to medical advancements, just seven percent of those diagnosed with pancreatic cancer, survive for five years.

Liver cancer is also extremely difficult to treat. Australia faces a potential crisis in liver cancer, with a recent report from the Australian Institute of Health and Welfare (AIHW) revealing death rates have increased seven-fold over the past 50 years. The five-year survival rate for liver cancer patients is just 17.3 per cent.

A collaboration between Centenary Institute's Vascular Biology Program and with Mirrx Therapeutics in Denmark, lead to the development of the drug (called CD5-2) and together with other scientists at domestic research institutes in Australia, they have shown that it has potential to be effective and to work alongside the current immunotherapy for cancers. The first-in-class drug, by altering the endothelial cells of the blood vessels within the tumour, allows T cells to penetrate into the tumour and also impacts on the behaviour of these T cells allowing them to more effectively provide their protective function of fighting and killing the cancer cells.

Essential toxicology and safety studies are underway, but it is hoped that this new drug could be in clinical trials, performed in Sydney, in the next 2-3 years. This exciting development highlights the benefits of effective local and international collaboration, between multiple organisations, working together towards the common goal of understanding disease and finding cures. The partnership between Professor Gamble and Professor Vadas is also clearly a great success, which has not only enhanced their own lives, but could also potentially save the lives of others. Their dedicated teamwork giving hope, that soon, cancers such as those of the liver and pancreas will not be a death sentence.

The work has had long-term support from the National Health & Medical Research Council and a number of other smaller funding bodies and more recently a prestigious Avner Pancreatic Cancer Foundation Accelerator Grant, awarded in 2015.

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www.avnersfoundation.org.au

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