

World-first discovery could help treat life-threatening tumors

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WA researchers investigating how blood vessel growth keeps cancers alive have made a world-first discovery that could boost the chances of successfully treating life-threatening tumours.

Western Australian Institute for Medical Research (WAIMR) Associate Professor Ruth Ganss and her team have found that a gene called RGS5 can reverse angiogenesis – the growth of blood vessels inside the tumour.

The discovery is published in the most recent edition of *Nature*, one of the world's most prestigious scientific journals.

“It’s the uncontrolled growth of blood vessels and the formation of abnormal blood vessels inside tumours that ‘feed’ them, allowing them to grow and stopping the immune system from wiping out the tumour,” said Associate Professor Ganss.

“What we’ve shown is that RGS5 is a master gene in angiogenesis and that when it is removed, angiogenesis reverses and the blood vessels in tumours appear more normal.

“Importantly, this normalisation changes the tumour environment in a way that improves immune cell entry, meaning tumours can be destroyed and improving survival rates in laboratory tests.”

Reversing abnormal vessel growth represents a fresh approach to tackling angiogenesis, with most current research focusing on how to

block or kill tumour-feeding blood vessels.

“We’ve long-suspected this research would deliver advances in knowledge about what impacts tumour growth and this publication recognises the innovation and importance of our work,” said Associate Professor Ganss.

“By understanding what is actually going on in the tumour itself, the ultimate hope is that we’ll be able to work on making current therapeutic approaches even more successful and reducing side effects of them.”

Associate Professor Ganss’ breakthrough comes after joining WAIMR from Heidelberg where she worked at the German Cancer Research Center. Last month, The Cancer Council Western Australia granted Associate Professor Ganss a Cancer Council Research Fellowship for continued work into tumour angiogenesis.

The majority of the discovery was funded by the National Health and Medical Research Council and part of the work was achieved using facilities at The University of WA based Centre for Microscopy, Characterisation and Analysis.

Earlier this month, a second paper by Associate Professor Ganss’ and her team was published in The Journal of Clinical Investigation which describes how tumours can be attacked by the immune system with fewer side-effects.

“This discovery involves targeting tumours with inflammatory substances that change the environment, so immune cells can attack the tumour through blood vessels more effectively and lessen the amount of toxins going elsewhere in the body,” Associate Professor Ganss said.

WAIMR Director Professor Peter Klinken praised Associate Professor

Ganss' team saying their work was serving to further put WA on the scientific world map.

“This breakthrough is one of the most significant discoveries to come out of WAIMR. The potential for this new knowledge to positively impact the lives of cancer patients in the future is very exciting,” he said.

“The fact that this breakthrough has come during our 10-year anniversary celebrations is just fantastic.”

Source: Research Australia

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