New drug to supercharge immune cells in the fight against cancer

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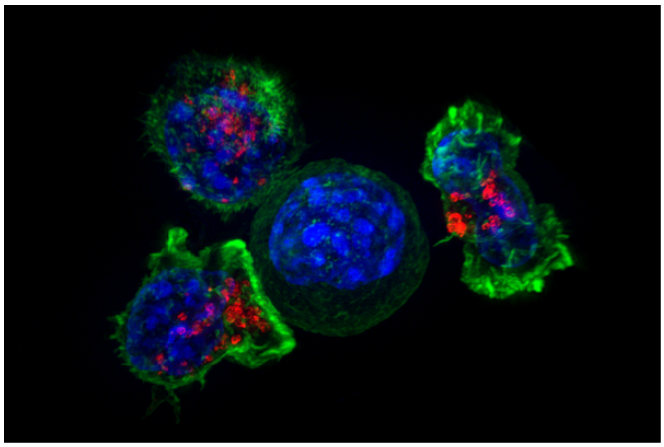

Killer T cells surround a cancer cell. Credit: NIH

A new cancer treatment with the ability to normalise tumour blood vessels and boost the body's immune system has been developed by researchers from The University of Western Australia and the Harry Perkins Institute of Medical Research.

Many tumours can become resistant to the body's immune system by creating a barrier of tangled blood vessels that feed the tumour while locking out immune cells that would attack cancer cells.

UWA Professor Ruth Ganss, who is also head of the Perkins Cancer and Cell Biology Division, said the new treatment worked by generating more normal blood vessels and lymph-node-like structures within the cancer, which together enabled immune cells to better reach the cancer core.

"Lymph nodes, a vital component of our immune system, normally only exist outside of the cancer and work to filter cancer cells and generate white blood cells that fight infection," Professor Ganss said.

"Our drug strengthens the immune response against tumours by inducing these lymph-node-structures together with normalised blood vessels, producing immune cells that infiltrate deep into the cancer. There are currently no single treatments available which can produce these two features in cancers.

"Our research shows that once our drug has triggered the lymph-node-structures within the cancer, current immunotherapies that have been approved for clinical use, can work more effectively.

"We've tested our treatment on pancreas and lung cancer models, which are particularly difficult to treat, and have had very promising results.

"We envision that a combination of our drug and existing immunotherapies will greatly enhance the outcomes for patients in the future."

The research was published in the journal *Nature Immunology*.

More information: Anna Johansson-Percival et al, De novo induction of intratumoral lymphoid structures and vessel normalization enhances immunotherapy in resistant tumors, *Nature Immunology* (2017). DOI: 10.1038/ni.3836

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