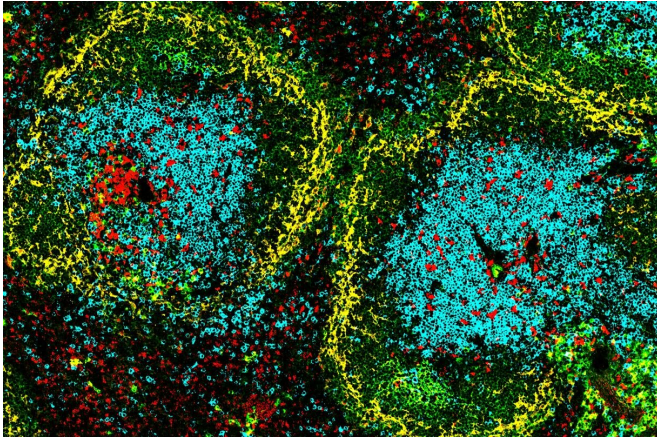


# Unravelling the secret of a critical immune cell for cancer immunity

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DC-SCRIPT positive cells (red) activating an immune response (blue T cells). Credit: Shengbo Zhang and Wang Cao, WEHI

WEHI researchers have discovered a key differentiation process that provides an essential immune function in helping to control cancer and infectious diseases.

The research, published in *Science Immunology*, is the first to show a new factor—DC-SCRIPT—is required for the function a particular type of dendritic cell—called cDC1—that is essential in controlling the [immune response](#) to infection.

Led by WEHI Professor Stephen Nutt, Dr. Michael Chopin and Mr Shengbo Zhang, it defines the role for a new regulatory protein—DC-SCRIPT—in producing dendritic [cells](#).

## DC-SCRIPT essential in the production of cancer-fighting cells

Dendritic cells are [immune cells](#) that activate 'killer' T cells, which are vital for clearing [viral infections](#) and for triggering a response to [cancer tumors](#).

Through gaining a better understanding of how this process works, researchers hope to be able to determine a way of directing the body to produce large numbers of dendritic cells, to enable it to better fight off cancer and infections.

Professor Nutt said the [research paper](#) highlighted the importance of DC-SCRIPT in the production of effective dendritic cells.

"What we found, is that without this new factor, the cells develop poorly, and their capacity to fight infection and cancer, or to clear a parasite, is diminished," he said.

"The next stage of our research is to try and work out how we can get the body to produce these particular [dendritic cells](#), cDC1s, in large volumes in order to boost the body's natural tumor response."

## Harnessing the body's natural response to infection

Dr. Chopin said he was confident cDC1s held the clues to improving immunity to viruses and tumors.

"This paper clearly shows DC-SCRIPT is one of the regulators of dendritic cell production. As a result of this study, we're now focussed on ways we could harness this to increase dendritic cell production," he said.

"We now have a biomarker to follow when we expand this elusive cell type, which we will continue to test in pre-clinical models."

This research lays the foundation for future studies into dendritic cell production and their clinical applications in response to tumors.

"We have generated new tools, allowing us to trace these cells within the tumor and observe how they behave in the tumor environment," Dr. Chopin said. This work was made possible with funding

from the National Health and Medical Research Council and the Victorian Government.

**More information:** S. Zhang et al., "Type 1 conventional dendritic cell fate and function are controlled by DC-SCRIPT," *Science Immunology* (2021). [immunology.sciencemag.org/look ...  
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Provided by Walter and Eliza Hall Institute

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