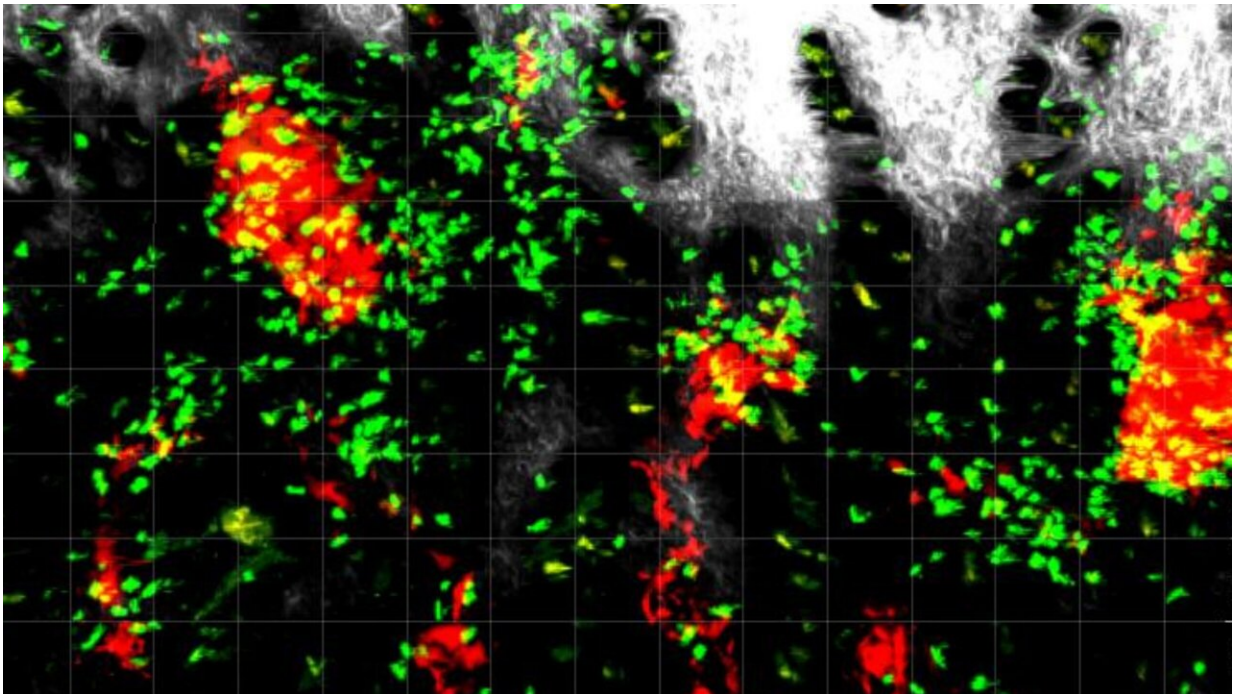


# The secret life of CD4<sup>+</sup> T cells: From helpers to melanoma fighters

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CD4<sup>+</sup> T cells (green) attacking melanoma cells (red) in the skin. Credit: Dr. Bawden / Doherty Institute

A study led by the Peter Doherty Institute for Infection and Immunity (Doherty Institute) has found that CD4<sup>+</sup> T cells, traditionally called 'helper T cells' for their role in aiding the activation of other immune cells, are remarkably effective in controlling melanoma.

University of Melbourne's Dr. Emma Bawden, Postdoctoral Researcher at the Doherty Institute and lead author of the study, said this discovery challenges the conventional understanding of the role of CD4<sup>+</sup> T cells in cancer immunity. The work is [published](#) in *Science Immunology*.

"Our in-depth study, using animal models, unraveled the complex biology of CD4<sup>+</sup> T cells in melanoma and how they control cancer," explained Dr. Bawden.

"Using microscopic live imaging, we visualized the activities and interactions of CD4<sup>+</sup> T cells with other [cell types](#) in the tumor microenvironment. Our findings challenge previous assumptions by showing that CD4<sup>+</sup> T cells can combat tumors through a multitude of pathways."

The detailed analysis revealed the [genetic makeup](#), developmental states and functions of CD4<sup>+</sup> T cells in melanoma, showing the potential of harnessing CD4<sup>+</sup> T cells for future therapies against the skin cancer.

University of Melbourne Professor Thomas Gebhardt, Senior Research Fellow at the Doherty Institute and senior author of the study, said that understanding CD4<sup>+</sup> T cell responses could pave the way for more effective immunotherapies against melanoma.

"While CD4<sup>+</sup> T cells are often viewed as accessory cells regulating the function of other immune cells, our work shows they can work effectively on their own. Therefore, harnessing their potential therapeutically holds great promise for the development and improvement of current cancer immunotherapies," said Professor Gebhardt.

More than 15,000 Australians are diagnosed with melanoma every year, a rare but highly aggressive form of [skin cancer](#).

**More information:** Emma Bawden et al, CD4+ T cell immunity against cutaneous melanoma encompasses multifaceted MHC II-dependent responses, *Science Immunology* (2024). [DOI: 10.1126/sciimmunol.adi9517](https://doi.org/10.1126/sciimmunol.adi9517).  
[www.science.org/doi/10.1126/sciimmunol.adi9517](https://www.science.org/doi/10.1126/sciimmunol.adi9517)

Provided by The Peter Doherty Institute for Infection and Immunity

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