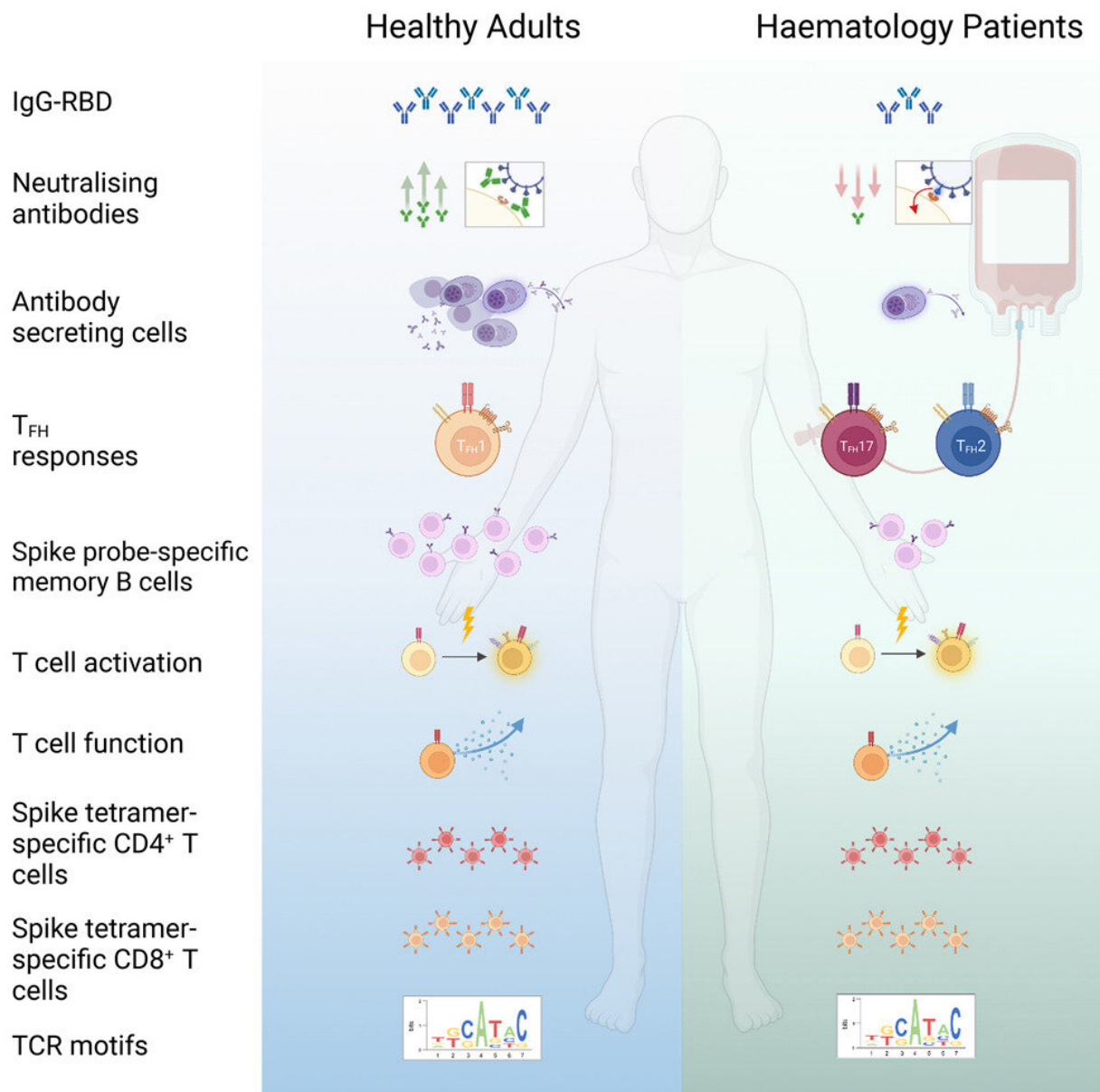


COVID vaccine induces robust T cell responses in blood cancer patients

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Graphical abstract. Credit: *Cell Reports Medicine* (2023). DOI: 10.1016/j.xcrm.2023.101017

Researchers have found that, despite being heavily immunocompromised, hematology patients generate strong cellular immune responses against SARS-CoV-2 after vaccination, on par with that of healthy individuals.

Published today in *Cell Reports Medicine*, the research team, led by University of Melbourne Professor Katherine Kedzierska, a Laboratory Head at the Peter Doherty Institute for Infection and Immunity (Doherty Institute), undertook the most comprehensive analysis of adaptive SARS-CoV-2 immunity to date in hematology patients of varying diseases and treatments across three doses of COVID-19 vaccination in comparison to healthy individuals. The research was performed in collaboration with Associate Professor Benjamin Teh, Professor Monica Slavin and Professor Constantine Tam from the Peter MacCallum Cancer Center.

University of Melbourne Dr. Oanh Nguyen, Senior Research Fellow at the Doherty Institute and co-lead author of the paper, says it is important to really understand [vaccine](#) efficacy in this immunosuppressed high-risk group of patients to help prevent severe SARS-CoV-2 infection.

"This group is at high risk of viral infectious diseases, such as influenza and SARS-CoV-2, and yet they are not always included in pre-clinical trials that test [vaccine efficacy](#)," Dr. Nguyen says.

"Our study shows that they highly benefit from receiving three doses of vaccination. The vaccines boost their levels of T cells, the [white blood cells](#) that kill viral infected cells, irrespective of the patient's B-cell numbers and antibody response.

"We also looked at the characteristics of these T cells that are generated after vaccination, and we found that these signatures are very similar to healthy individuals that are either infected or vaccinated. These findings are really important and super exciting for cancer patients," Dr. Nguyen adds.

Professor Kedzierska says that the study provides key insights for future immunization strategies with vaccines such as influenza which predominantly induce B cell immune responses.

"What we have shown is that people with co-morbidities that have a heavily impacted B cell immune arm, can have an mRNA [vaccine](#) to elicit T cells and give them that extra level of protection," Professor Kedzierska says

Associate Professor Teh says this research is important for [clinicians](#) working with blood [cancer patients](#).

"Clinicians can be confident that it is safe and beneficial for their patients, who are heavily immunocompromised and vulnerable to severe COVID-19 infection, to receive vaccination against SARS-CoV-2. Regardless of their diseases and treatments, COVID-19 vaccination generates strong T cell immunity in this group," Associate Professor Teh says.

More information: Thi H O Nguyen et al, Robust SARS-CoV-2 T cell responses with common TCR $\alpha\beta$ motifs towards COVID-19 vaccines in haematological malignancy patients impacting B cell immunity, *Cell Reports Medicine* (2023). [DOI: 10.1016/j.xcrm.2023.101017](https://doi.org/10.1016/j.xcrm.2023.101017). [www.cell.com/cell-reports-medi ... 2666-3791\(23\)00127-1](https://www.cell.com/cell-reports-medicine/abstract/S2466-3791(23)00127-1)

Provided by The Peter Doherty Institute for Infection and Immunity

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