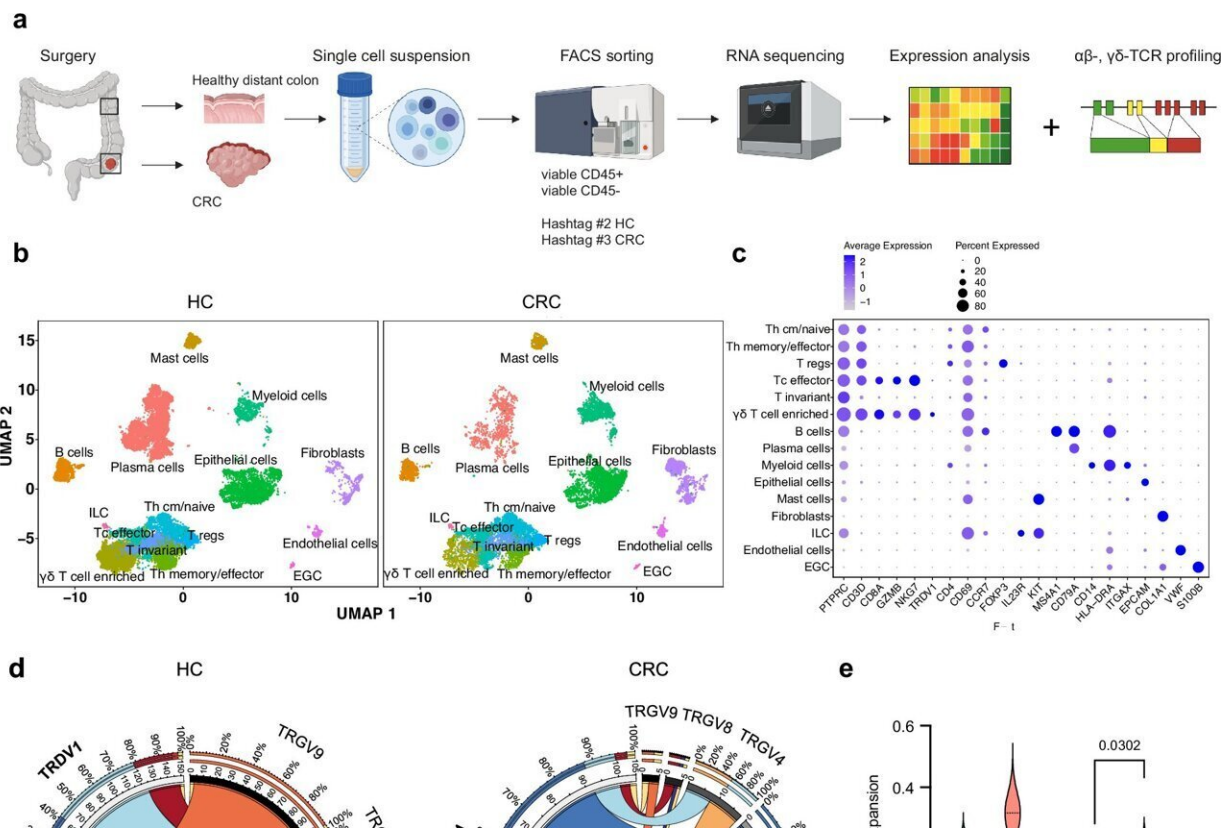


Colorectal cancer: New approach for better efficacy of immunotherapies

August 27 2024



Single-cell RNA- and TCR sequencing reveal favored V δ 1+ usage with expanded CDR3 identity patterns in $\gamma\delta$ T cells of MSS CRC. Credit: *Nature Communications* (2024). DOI: 10.1038/s41467-024-51025-1

The most common form of colorectal cancer, microsatellite-stable colorectal cancer (MSS CRC), can currently only be treated to a limited

extent with modern immunotherapies. A research team led by MedUni Vienna has now identified the possible cause of treatment failure and thus found a way to improve treatment for patients. The [study](#) was recently published in *Nature Communications*.

The researchers, led by Victoria Stary (Department of General Surgery, Comprehensive Cancer Center of MedUni Vienna and University Hospital Vienna), focused their investigations on a special type of immune cell, known as $\gamma\delta$ T cells, whose role in immune disorders associated with colorectal cancer has not yet been investigated.

In contrast to the much better-studied $\alpha\beta$ T cells, which only recognize [foreign bodies](#) in the body when they are presented to them by other cells, $\gamma\delta$ T cells can react directly to signals emitted by potentially diseased cells. This makes them a highly effective component of the immune system.

The researchers' complex analyses show that a certain subgroup of these cells, the so-called $V\delta 1+$ T cells, do not function sufficiently to effectively fight the cancer in patients with MSS CRC. The scientists identified certain connective tissue cells (fibroblasts) that release substances that block the activity of the $V\delta 1+$ T cells as the trigger for this.

"As we have discovered, this blockade can be partially reversed if a certain molecule called TIGIT is inhibited on the $V\delta 1+$ T cells. This allows the T cells to fight the cancer cells a little better again," reports Stary.

Most common form of bowel cancer by far

At 85% to 90%, microsatellite-stable tumors make up the vast majority of colorectal cancers. In [contrast](#) to microsatellite unstable colorectal

cancer (MSI CRC), patients with MSS CRC respond only to a limited extent to immunotherapies aimed at activating the body's own immune system to fight the tumor.

The newly gained insights provide a possible explanation for the therapy failure and at the same time point to promising options. "Our study shows that not only the known $\alpha\beta$ T cells, but also the $\gamma\delta$ T cells play a role in the most common form of [colorectal cancer](#).

"Future research could specifically target $\gamma\delta$ T cells and their interactions with other cells in the [tumor microenvironment](#), such as fibroblasts, to develop ways to improve treatment success in MSS CRC," says Stary.

More information: Victoria Stary et al, Dysfunctional tumor-infiltrating V δ 1+ T lymphocytes in microsatellite-stable colorectal cancer, *Nature Communications* (2024). [DOI: 10.1038/s41467-024-51025-1](#)

Provided by Medical University of Vienna

Citation: Colorectal cancer: New approach for better efficacy of immunotherapies (2024, August 27) retrieved 27 August 2024 from <https://medicalxpress.com/news/2024-08-colorectal-cancer-approach-efficacy-immunotherapies.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--