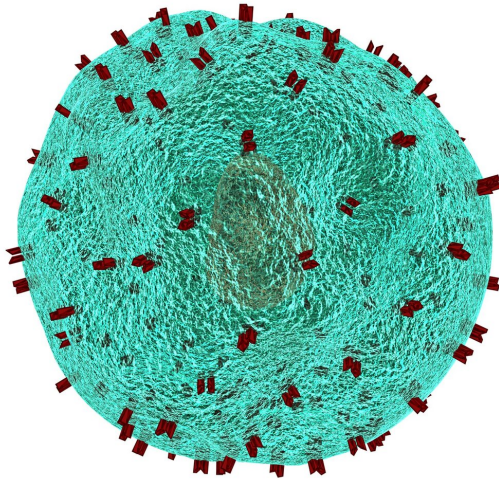


Natural killer cells also have a memory function

19 October 2020, by Johannes Angerer



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Good news for the human immune system: Researchers from MedUni Vienna's Departments of Dermatology and Surgery have managed to ascribe an immunological memory function to a subset of cytotoxic NK cells, which have hitherto been regarded as antigen-non-specific. Under the leadership of Georg Stary, the researchers found that around one-third of all human liver NK cells can remember viruses and therefore respond specifically to them. These cells are therefore an interesting target for prophylactic use in the human immune system in the fight against infections and viruses.

NK cells are natural cytotoxic killer cells in [human blood](#) and are a type of lymphocyte, a subgroup of white blood cells or leukocytes. They are able to identify and kill abnormal cells such as tumor cells or virally infected cells (apoptosis). Up until now,

NK cells have been regarded as having no memory function, meaning that they are unable to kill on an "antigen-specific" basis but are only able to react afresh each time to viruses and sources of infection in a non-specific way.

In the study, recently published in *Science Immunology*, the MedUni Vienna scientists found that there is a subset of NK cells in the liver—the organ which is generally regarded as a large reservoir for NK cells—that is able to fight infections such as hepatitis A and B and to remember them. This subset also exhibits a unique gene expression profile that is different from that of other NK cell groups.

"Our study results show that this particular subset of NK cells mediates effective antigen-specific processes. This subset of NK cells could therefore be a suitable candidate for specific, therapeutic and also prophylactic vaccination strategies," says Stary. Healthy people have around 5 to 15% of NK cells in their blood, whereby the liver acts as a reservoir for these cells. As a next step, the authors are investigating the role of these NK cells in the course of infectious diseases. They also want to explore whether these NK [cells](#) could additionally take over missing memory functions in patients with rare diseases with immunodeficiencies affecting T and B lymphocytes.

More information: Victoria Stary et al. A discrete subset of epigenetically primed human NK cells mediates antigen-specific immune responses, *Science Immunology* (2020). [DOI: 10.1126/sciimmunol.aba6232](https://doi.org/10.1126/sciimmunol.aba6232)

Provided by Medical University of Vienna

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