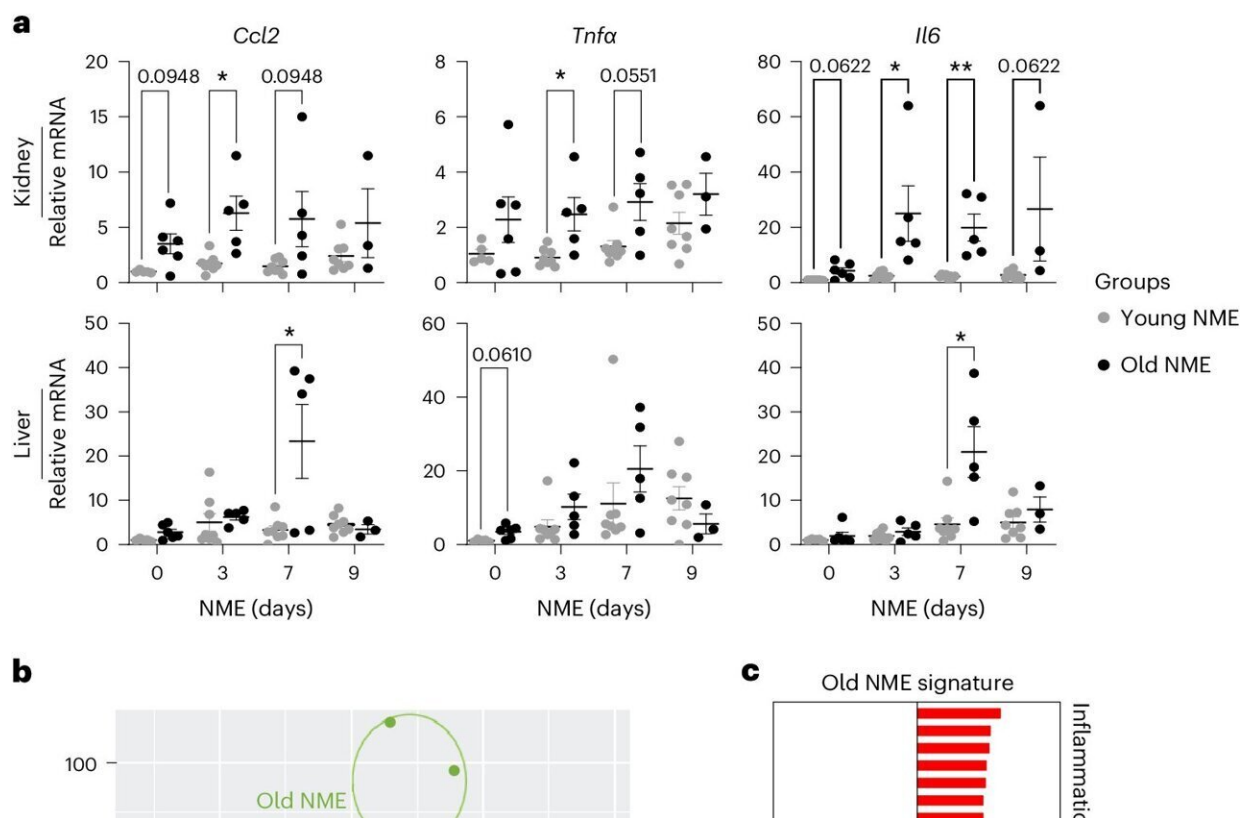


Study reveals immunotherapy's potential in boosting immune systems of older individuals

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Inflammation is increased in old mice after NME. Credit: *Nature Aging* (2024). DOI: 10.1038/s43587-024-00620-4

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researchers have provided new insight into enhancing immune responses in older individuals and the potential for using immunotherapy to make older adults less vulnerable to infections.

Using [preclinical models](#), the research team studied the impact of monoclonal anti-PD1 immunotherapy treatment—which are drugs that increase immune function—when exposed to serious infections. They found that this treatment improved [survival rates](#) because it boosted the ability of CD8⁺ T cells to kill harmful cells infected with a virus.

"We have unveiled a promising role for PD1 blockade in combating immunosenescence," said Korbyn Dahlquist, a graduate student in the University of Minnesota Medical School. "This highlights the potential of addressing age-related immune dysfunction during infectious disease."

Older individuals are at the highest risk for mortality from infections, largely due to the aging of the immune system. Exhausted T cells—which normally help protect the body from infection—accumulate during aging and contribute to a weakened immune response.

In this study, the research team tested whether checkpoint blockade therapy—which improves CD8⁺ T-cell responses by blocking inhibitory receptors—would also improve the immune response of older mice. However, overamplification of T-cell receptor signaling and T-cell activation can lead to excess inflammation and adverse events that have a negative impact on the response to infection.

"These results help us understand the biology of the aging immune system, but also support the use of checkpoint blockade therapy in geriatric individuals," said Christina Camell, Ph.D., the study's corresponding author.

Future research will be focused on using senolytics and checkpoint blockade therapy as a dual therapy option to improve the immune response and reduce symptoms of infections in older individuals.

More information: Korbyn J. V. Dahlquist et al, PD1 blockade improves survival and CD8+ cytotoxic capacity, without increasing inflammation, during normal microbial experience in old mice, *Nature Aging* (2024). [DOI: 10.1038/s43587-024-00620-4](https://doi.org/10.1038/s43587-024-00620-4)

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