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Suppressing the immune response may lead to more potent vaccines, a study finds

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Yale researchers uncovered a new role for a type of immune cell, known as regulatory T cells, in promoting long-term immunity. The new insight gets researchers one step closer to developing vaccines that could be more protective against some of the most intractable viral infections, including HIV and flu.

For the study, published in *Nature Immunology*, researchers Brian Laidlaw, Dr. Joseph Craft, and Dr. Susan M. Kaech and co-authors observed immune responses to infection in mouse models. They found that a chemical signal known as IL-10, which is secreted by regulatory T cells, is important for the development of long-term immunity.

IL-10 is particularly important for keeping inflammation in check during the resolution phase of infection. By reducing inflammation during this phase, IL-10 enabled long-term memory cells—CD8+ T cells—to mature and develop their capacity to protect against future infection.

The finding may hold the key to more effective vaccines. "A critical problem with many vaccines is that they do not elicit a robust and protective T cell response," said Laidlaw. The study sheds light on another pathway for enhancing the body's protective response. "By understanding this process, during each phase of the immune response, we hope to be able to mirror these steps in a vaccine approach," he said.

More information: Production of IL-10 by CD4+ regulatory T cells during the resolution of infection promotes the maturation of memory CD8+ T cells, DOI: 10.1038/ni.3224

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