

# Discovery of a cell that suppresses the immune system

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Researchers at the Dana-Farber Cancer Institute in Boston have identified a new type of cell in mice that dampens the immune system and protects the animal's own cells from immune system attack.

This "suppressor" cell reduces the production of harmful antibodies that can drive [lupus](#) and other [autoimmune diseases](#) in which the immune system mistakenly turns on otherwise healthy organs and tissues.

The discovery, published in the September 16 issue of *Nature* (H Kim, et al.; Vol 467 in Letters), resulted from Lupus Research Institute funding to Harvey Cantor, MD, and colleagues on a separate immune system topic.

Now the discovery will be used to explore therapies that might control the hyperactive immune system in lupus. "These CD8+ T suppressor cells represent a potential new lever for lowering the strength of the immune response in autoimmune diseases such as lupus," Dr. Cantor said.

## Staying Open to Discovery

Until now, scientists searching for cells involved in quieting the immune system response had focused their hunt on "regulatory CD4+ T cells"—also known as CD4+ Treg. Some of these cells have been shown to prevent harmful inflammatory diseases and infections.

In the Nature study, Harvey Cantor, MD, and his team reported that not just CD4+T cells but CD8+ T cells as well include a subset that helps dampen the immune response. Instead of reducing inflammation like their CD4 cousins, the CD8+ T regulatory cells ensure that the immune system doesn't produce antibodies that attack normal cells.

Lead author Hye-Jung Kim and colleagues made the discovery as they were winding up unrelated LRI-funded work into the role in autoimmunity of a protein found inside immune cells called osteopontin.

"Our LRI funds allowed us to carry out the early experiments that led to the definition of the CD8 suppressor cells." - Dr. Cantor.

"We were testing osteopontin's activity against a population of cells known as follicular T helper cells," explained Dr. Cantor. "We noted that the cells were responsive to osteopontin but also that they expressed what we knew to be the target of suppressor CD8+ T cells."

As next steps, Dr. Cantor and his team will investigate whether defective CD8+ T suppressor cells actually could be a cause of lupus and might serve as a powerful drug target for quieting the [immune system](#) response in autoimmunity.

Provided by Lupus Research Institute

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