

If you take simvastatin to control cholesterol, watch out for infection says new report

March 1 2010

Simvastatin might help us control our cholesterol, but when it comes to infection, it's an entirely different story says a new research study published in the *Journal of Leukocyte Biology*. In the research report, scientists from Italy show that simvastatin delivers a one-two punch to the immune system. First it impairs the ability of specialized immune cells, called macrophages, to kill pathogens. Then, it enhances production of molecules, called cytokines, which trigger and sustain inflammation.

"Statins are key drugs in the primary and secondary prevention of cardiovascular disease," said Cosima T. Baldari, Ph.D., a scientist from the Department of Evolutionary Biology at the University of Siena in Siena, Italy, who was involved in the research. "Our understanding of how these drugs affect the immune system should help maximize the benefits of these excellent drugs."

To make this discovery, the researchers conducted experiments using human cells and then followed up by conducting additional experiments in mice. They used human macrophages derived from blood samples of healthy donors and murine (mouse) macrophages. The macrophages were incubated with *Staphylococcus aureus*, a pathogen commonly found on the skin and in the upper airways. Once the infection manifested, researchers analyzed the bactericidal response of macrophages treated with simvastatin.

Results showed that the treated [macrophages](#) were significantly impaired

in both the removal of the pathogen and related cell debris and the killing of ingested bacteria compared to untreated cells. Additionally, the treated cells produced higher amounts of cytokines, which are responsible for triggering and sustaining inflammation. The same experiment was conducted in vivo, using mouse models, with similar results.

"Statins are lifesavers, but there might be room for improvement," said John Wherry, Ph.D., Deputy Editor of the [Journal of Leukocyte Biology](#). "Studies like this help pave the way for researchers to develop newer versions of drugs like [statins](#) that are more specific for their intended effect increasing the benefits of these pharmaceuticals."

More information: <http://www.jleukbio.org>.

Provided by Federation of American Societies for Experimental Biology

Citation: If you take simvastatin to control cholesterol, watch out for infection says new report (2010, March 1) retrieved 20 July 2023 from <https://medicalxpress.com/news/2010-03-simvastatin-cholesterol-infection.html>

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