

Body's own proteins may lead the way in global fight against tuberculosis

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Ohio scientists hope to counter the re-emerging threat of tuberculosis (TB) with help from proteins from our bodies. In a research report published in the June 2010 print issue of the *Journal of Leukocyte Biology*, scientists show how the protein CCL5 plays a protective role in helping the body ward off this contagious, airborne disease in the early stages of infection. CCL5 is a member of a large family of proteins responsible for immune cell migration toward infection sites. The work on this molecule suggests that CCL5 and/or related proteins may lead to new therapies that help the immune system resist TB.

"We hope this study will spark interest in understanding the mechanisms which control cell migration to sites of infection, help define the protective immune response to *Mycobacterium tuberculosis*, and ultimately improve our capacity to predict and/or treat patients with TB," said Gillian Beamer, V.M.D, Dipl. ACVP, Ph.D., a researcher from the Center for Microbial Interface Biology at Ohio State University in Columbus, Ohio who was involved in the work.

Scientists discovered the role and potential benefits of CCL5 by studying mice lacking the gene to make the CCL5 [protein](#) and mice with the CCL5 gene. When both groups of mice were infected with *Mycobacterium tuberculosis*, those lacking CCL5 accumulated fewer protective cells and had more bacteria in the lungs over three to five weeks of infection when compared to the normal mice. After five weeks, differences between the groups were not apparent, leading researchers to conclude that CCL5 did not play a role in long-term

infection, but rather in the onset and early protection against infection. Additionally, in humans, altered CCL5 expression may be a predisposing factor leading to TB [disease progression](#).

"[Tuberculosis](#) may not be top of mind for most people in the developed world, but TB is a leading cause of global disease and drug resistant forms of TB are an ever increasing problem," said John Wherry, Ph.D., Deputy Editor of the [Journal of Leukocyte Biology](#). "Studies such as these this give us hope that as organisms evolve resistance to current therapies, we can develop promising new approaches to treat infectious disease."

More information: Bridget Vesosky, Erin K. Rottinghaus, Paul Stromberg, Joanne Turner, and Gillian Beamer. CCL5 participates in early protection against Mycobacterium tuberculosis. *J Leukoc Biol* 2010 87: 1153. [doi:10.1189/jlb.1109742](https://doi.org/10.1189/jlb.1109742)

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