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# Research Provides Clues on How Gut Microbes Boost Immunity

Last Updated: April 01, 2014.

**Gut bacteria direct innate immune cell development via promoting hematopoiesis, according to a mouse study published in the March 12 issue of *Cell Host & Microbe*.**

TUESDAY, April 1, 2014 (HealthDay News) -- Gut bacteria direct innate immune cell development via promoting hematopoiesis, according to a mouse study published in the March 12 issue of *Cell Host & Microbe*.

Arya Khosravi, Ph.D., from the California Institute of Technology in Pasadena, and colleagues utilized germ-free and antibiotic-treated mice to control the differentiation of innate immunity as part of a mouse model to study the impact of microbiota and immune cell populations.

The researchers found that germ-free mice display reduced proportions and differentiation potential of specific myeloid cell progenitors of both yolk sac and bone marrow origin. Impaired early responses to pathogens may result from homeostatic innate immune defects. Germ-free and oral-antibiotic-treated mice display increased pathogen burden and acute death following systemic infection with *Listeria monocytogenes*. Defects in myelopoiesis and resistance to *Listeria* were restored with recolonization of germ-free mice with a complex microbiota.

"These findings reveal that gut bacteria direct innate immune cell development via promoting hematopoiesis, contributing to our appreciation of the deep evolutionary connection between mammals and their microbiota," the authors write.

**Abstract**

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Image courtesy of Blausen Medical

**Animal study indicates gut microbes shape immunity via regulation of hematopoiesis**

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