Crosstalk between cells allows Listeria bacteria to hijack immune system

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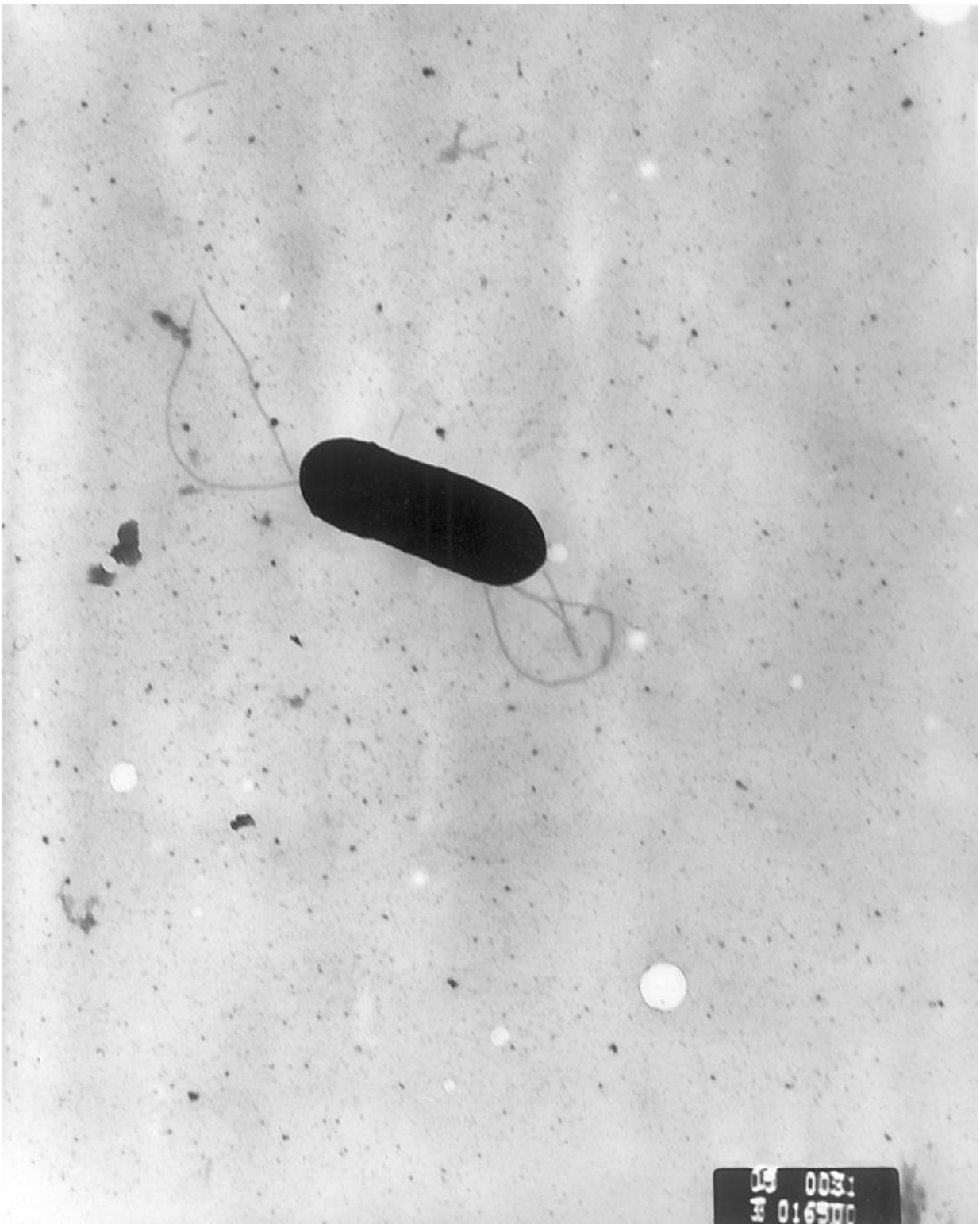

Electron micrograph of a flagellated Listeria monocytogenes bacterium, Magnified 41,250X. Credit: CDC/public domain

Listeria bacteria in food, water, or soil can cause food poisoning and even life-threatening infections in vulnerable people. In a study, Yale investigators have described how the pathogen manipulates the immune system to promote its own survival.

The researchers studied mice with compromised immune systems to examine how three types of immune cells in the spleen—dendritic cells, macrophages, and B cells—interact during a bloodborne infection. They conducted a range of experiments to solve the mystery of why these immune cells appeared to respond to the presence of *Listeria* infection while also encouraging its spread.

They found that in an area of the spleen where *Listeria* infection takes hold, there were interactions, or crosstalk, between different types of immune cells. While one cell type is responding to signals to deliver the bacterium to a region of the spleen where it can be destroyed, other cells are listening to signals to pause the destruction. While it is not clear why this occurs, the seemingly contradictory crosstalk gives the bacteria an opportunity to thrive.

These findings demonstrate how a pathogen can enter immune cells and outsmart the body's defense mechanisms, said co-corresponding author and associate professor of laboratory medicine Stephanie Eisenbarth.

The full paper is published in *Immunity*.

More information: Dong Liu et al. IL-10-Dependent Crosstalk between Murine Marginal Zone B Cells, Macrophages, and CD8α+ Dendritic Cells Promotes *Listeria monocytogenes* Infection, *Immunity* (2019). DOI: 10.1016/j.immuni.2019.05.011

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