How Crohn's disease-associated bacteria tolerate antibiotics
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Bacteria associated with Crohn's disease rely on multiple stress responses to survive, multiply, and tolerate antibiotics within white blood cells called macrophages, according to a study published November 14 in the open-access journal *PLOS Pathogens* by Olivier Espéli of the College de France and PSL Research University in Paris, France, and colleagues.

Crohn's disease is a chronic disease that causes inflammation and irritation in the digestive tract. The disease is characterized by an imbalance in the intestinal microbiome. In particular, adherent-invasive Escherichia coli (AIEC) strains have been implicated in the disease. AIEC colonize intestinal cells and survive and replicate within macrophages. In the new study, the researchers demonstrated that the AIEC LF82 strain can switch between replicating and non-growing states within macrophages. This switch can result from a stress response called the stringent response immediately after uptake by macrophages, or at later stages, from DNA damage and a stress response called SOS during replication within macrophages.

Espéli adds, "Within their macrophage's niche, Crohn's disease associated bacteria become tolerant to antibiotics."


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