

The Distinctive Role of Gut Microbiota and their Interplay with Resident Macrophages in Invasive Amebic Colitis and Giardiasis

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ABSTRACT

The intestinal resident macrophages play pivotal role in gut innate immune responses against pathogens and in maintaining gut homeostasis. They are abundant in the intestine subepithelial lamina propria of the mucosa, where they act as sentinels but also interact with gut microbiota to change their phenotype and replenish the resident macrophage niche during and post infection. In the case of enteric parasitic infections like invasive amebic colitis and giardiasis, the direct contact of the protozoan parasites with host cells, leads to a change of macrophages phenotype to a pro-inflammatory state via inflammasome activation and secretion of interleukin IL-1 β . Inflammasomes play a key role in response to cellular stress and microbe attacks. The outcome is dependent on the interaction between gut microbiota and resident macrophages. Invasive infections of *Entamoeba histolytica* and *Giardia duodenalis* involve the activation of inflammasome NLRP3 to promote host defense. More studies are needed to further elucidate possible therapeutic and protective strategies against these protozoan enteric parasites' invasive infections in humans.

Keywords: Gut microbiota, Inflammasome, Intestinal protozoan parasites, Macrophages

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