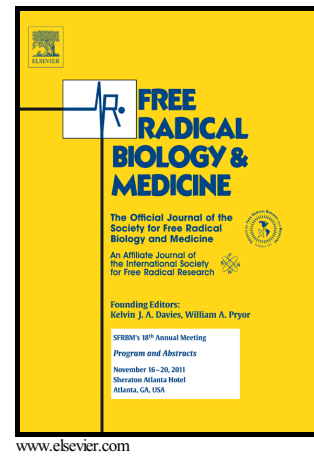


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Grace Y. Chen



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Regulation of the gut microbiome by inflammasomes

Grace Y. Chen

Division of Hematology & Oncology, Department of Internal Medicine, 1500 East Medical Center Drive, Ann Arbor, MI 48109
gchenry@umich.edu

Abstract

Inflammasomes are multiprotein complexes whose primary function is to activate caspase-1, which allows the cleavage of pro-IL-1 β and pro-IL-18 to their mature forms. The production of these cytokines has been shown to be critical for host defense as well as the maintenance of intestinal homeostasis and protection against pathologic intestinal inflammation. More recently, there has been growing evidence that inflammasomes are also capable of regulating the composition of the gut microbiota in mice models, which has significant implications for intestinal health and disease. Specifically, the absence of inflammasome components has been associated with pathologic alterations in the gut microbiota, or dysbiosis, that can result in increased susceptibility to colitis and tumorigenesis. In this review, evidence that inflammasome signaling is important for promoting a healthful microbiome and potential mechanisms by which inflammasomes modulate the gut microbiome will be presented. A better understanding of the function of inflammasomes in microbiome regulation may lead to the development of effective strategies for the prevention and treatment of diseases driven by dysbiosis.

Keywords

inflammasomes; IL-18; microbiome; colitis

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