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Review

The regulation of acute immune responses to the bacterial lung pathogen *Legionella pneumophila*

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Abstract

Legionella pneumophila causes Legionnaires' disease, a severe and potentially fatal bacterial pneumonia in immunocompromised individuals. Despite the understanding that a robust inflammatory response is important for control of *L. pneumophila* infection, our understanding of the network of molecular and cellular events within the lung that function to clear the bacterium is not clearly understood. This review compiles our understanding of the various molecular and cellular pathways stimulated upon infection with *L. pneumophila* and considers recently published advances that focus on the immune response to *L. pneumophila* in the lungs of mice. This includes a cooperative network of tissue - resident and inflammatory phagocytes, including alveolar macrophages (AM)s, neutrophils, and inflammatory monocytes/monocyte - derived cells (MC) that contribute to the acute inflammatory response and restrict the bacteria via distinct intracellular pathways. The understanding of this difference in cellular activity in response to infection provides insight into the innate immune responses within the tissues in general and may prompt novel means of clinical management of bacterial infections in an era of increasing emergence of antibiotic resistance.