



Intracellular parasitism, the driving force of the evolution of virulence of *Legionella pneumophila* and the genus *Legionella*



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The genus *Legionella* comprises 65 species that replicate as intracellular parasites of amoebae but that can also cause a severe pneumonia, called Legionnaires' disease. Adaptation to the host environment and exploitation of host cell functions are critical to the success of these intracellular pathogens. Genomics analyses of *L. pneumophila* identified a large number of genes coding proteins with eukaryotic-like properties as witness of the tight co-evolution between *Legionella* and their protozoan hosts. Functional analyses showed that these proteins are secreted effectors that act in the host like their eukaryotic homologues – thus molecular mimicry is a major virulence strategy of *Legionella*. Recently, functional and comparative genomics used to deconstruct the entire genus *Legionella* revealed the surprising parallel evolutionary trajectories that have led to the capacity of *Legionella* to replicate in protozoa and in human cells.

Host: Dr. Alex Engsminger

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