Life and Death of *Mycobacterium tuberculosis* within Host Macrophages

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Pathogenic mycobacteria such as *Mycobacterium tuberculosis*, the causative agent of tuberculosis is probably the most successful bacterial pathogen known today. It is responsible for more deaths world wide than any other bacterial pathogen. While mycobacteria are efficiently internalized into macrophages, rather than being destroyed like any other phagocytosed cargo, pathogenic mycobacteria survive for prolonged times.

My laboratory is interested in the mechanisms that are utilized by *Mycobacterium tuberculosis* to avoid innate and adaptive immune defenses. One of the strategies relies on avoiding transfer to lysosomes, and we are characterizing host as well as mycobacterial factors that are involved in blocking intracellular degradation. It appears that mycobacteria utilize both molecular mimicry as well as the hijacking of host signal transduction mechanisms to allow them to survive inside macrophages. The implications of these findings in the light of the challenges faced in the control of tuberculosis will be discussed.