

Title: Endosomal escape of *Aeromonas hydrophila*: a strategy for its survival in the host body

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Aeromonas hydrophila, Gram-negative bacterium, is an opportunistic pathogen of fish and mammals. Due to its wide host tropism and disease-causing ability this bacterium is included in the list of emerging pathogens. Using zebrafish *Aeromonas hydrophila* infection model, we have reported that *A. hydrophila* inhibits endosome maturation and escapes to the cytoplasm where it remains persistent and causes pathogenesis. Bacterial localization was performed by immunofluorescence staining of zebrafish splenic macrophages and the results suggested that *A. hydrophila* moved from the membrane to the early endosomes. Later we located the bacteria inside the cytoplasm. Internalization of bacteria was supported by TLR4 trafficking as it is the pathogen recognition receptor that plays a critical role in the host immunity against *A. hydrophila.* The quantitative PCR findings for TLR9 and RAB7 suggested that the internalized bacteria did not reached the late endosomes which suggested its escape from the endocytic pathway. Inside the cytosol, *A. hydrophila* avoided detection by suppressing NLRs, one of its strategies to facilitate its survival. The persistence of *A. hydrophila* in the host was established by the mRNA expression studies of various cytokines during the course of infection. We proved that *A. hydrophila* utilizes TLR4 topology and bypasses MyD88-mediated pro-inflammatory responses and elicits TRIF-mediated anti-inflammatory one to ensure its survival. Anti-inflammatory response was supported by the increased bacterial load and histopathological changes which confirmed the effective persistence of *A. hydrophila* inside the host.

Biography

Dr. Nidhi Srivastava completed her PhD in 2013 from Banaras Hindu University, India and worked as a Dr. D. S. Kothari postdoctoral fellow at University of Delhi, India. Currently, she is

working as an Assistant Professor in Zoology at Maharaja Agrasen University, Himachal Pradesh, India. Dr. Srivastava has 13 publications in journals of International repute and is serving as an editorial board member of the 'American Journal of Zoology'.

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