

## Pseudomonas exoenzyme $\gamma$ -mediated evasion of host innate immune responses

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**P***Pseudomonas aeruginosa* is recognized as a leading cause of respiratory infections in cystic fibrosis or in immunocompromised patients. *P. aeruginosa* possesses a number of virulence factors released through diverse secretion systems, and type III secreted effectors have obtained much attention for their ability to manipulate host cell function and viability during infections. However, little is known about the impact of exoenzyme Y (ExoY), which is directly translocated into the cytoplasm of infected host cells, on the modulation of host innate immune responses. In this study, we analyzed effects of ExoY in the activation of inflammasome, which results in IL-1 production and pyroptotic cell death. Inflammasome-mediated production of IL-1 and formation of pyroptotic cell death were clearly reduced in response to ExoY. These suppressive effects were mediated by the adenylate cyclase activity of ExoY, which plays a role in delaying the activation of NF- $\kappa$ B and caspase-1, a key component of inflammasome-mediated responses. Moreover, the reduction in cytotoxicity was in part associated with ExoY-involved suppression of bacterial motility, which probably causes the reduction of bacterial contact with cells. Together, these results demonstrate that ExoY can influence both host and bacterium itself to reduce inflammasome-related responses by delaying the activation of inflammatory pathways and suppressing bacterial motility.

## Biography

Un-Hwan Ha has completed his PhD in the field of microbiology and Immunology from the University of Florida in 2002 and has continued postdoctoral studies in the field of innate immunity and cellular microbiology from House Ear Institute and University of Rochester Medical Center. In 2008, he got an Assistant Professor position at the Department of Biotechnology and Bioinformatics, Korea University and has served as Professor since 2015. He has published about 20 research articles contributed as a corresponding author in reputed journals since 2008. His main research area is host-microbe interactions by aiming to understand both bacterial pathogenesis and host innate immune responses.

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