

A novel “persister” phenotype of *Vibrio cholerae*

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Cholera continues to be a major public health threat, particularly in countries where safe drinking water, sanitation and hygiene are suboptimal. Toxigenic *Vibrio cholerae*, responsible for epidemic cholera, has two life styles, including (i) a transient and accidental occurrence in human intestine where it causes profuse diarrhea, and (ii) a ubiquitous occurrence in aquatic environments, including fresh, estuarine and marine waters. Although human acquire the disease by consumption of water contaminated with the bacterium, the genetic and physiologic basis of persistence of *V. cholerae* in the aquatic reservoirs, even during an ongoing cholera epidemic, is largely unknown. In response to stress such as in antibiotic stress, pathogenic bacteria are known to develop a “persister” phenotype which evades the stressful condition by stochastic mechanism. Using filter sterilized microcosm model, we recently demonstrated that, in response to nutrient stress, *V. cholerae* can select a subpopulation of bacterium, that, we termed as novel “persister” phenotype. The novel persister *V. cholerae* exhibited unprecedented bipolar and peritrichous flagella, diverse morphological cellular types, increased quorum sensing molecules, particularly CAI-1 molecule, and response to some nutrients while remained nonresponsive to others. We are currently examined other characteristics associated uniquely to persister *V. cholerae* and will be discussed in the proposed meeting.

Biography

Afsar Ali has received his Ph.D. in 1998 from the University of Maryland at College Park, Maryland. He investigates the genetic and physiologic basis of persistence of *V. cholerae* in the aquatic reservoirs. NIH and Department of Defense (DoD) have funded his research.

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