## MICSCIOUP onference on <u>onferences</u> Accelerating Scientific Discovery Clinical Microbiology & Microbial Genomics

September 16-17, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

## Understanding innate immune system in Caenorhabditis elegans during Serratia infection

Krishnaswamy Balamurugan Alagappa University, India

*Caenorhabditis elegans* is a widely used tractable model host and its evolutionarily conserved immune pathways are distinctly involved during the infection of pathogenic gram negative and positive microorganisms. *Serratia marcescens* is an opportunistic pathogen and causative agent of nosocomial infection. Our study aimed to reveal the role of MAPK and insulin signaling pathway genes induced against the infection of a clinical and reference strains of *S. marcescens* using the model organism *C. elegans. S. marcescens* is capable of causing infection in *C. elegans.* Solid and liquid based physiological assay results revealed that the clinical strain was more virulent than the reference strain. qPCR analyses of specific mRNA expression level were kinetically analyzed for conserved innate immune pathway specific genes in wild-type and mutants during the infection of clinical and reference strains. The *daf-16, bec-1* transcripts were induced throughout the infection of clinical and reference strains. The *daf-16, bec-1* transcripts were induced throughout the infection of clinical and reference strains. The *daf-16, bec-1* is of *science strains* revealed that MAPK and insulin signaling pathways appeared to play a key role in *C. elegans* against *S. marcescens* infection. Even though the clinical strain is more virulent than the reference strain, the immune specific gene responses at the molecular levels were similar. Interacting immune regulators of *C. elegans* during *S. marcescens* infection were analyzed at proteomic levels using bioinformatics tools revealed the role and contribution of *Several* important interactive players of immune regulatory system.

## Biography

Krishnaswamy Balamurugan is serving as Associate professor at Alagappa University, Tamil Nadu, India. His research group is actively working on host pathogen interactions using the model organism, *Caenorhabditis elegans* with human bacterial pathogens. He has established *C. elegans* for understanding the pathogenesis of *Salmonella enterica* serovar Typhi, *Cronobacter sakazakii, Vibrio alginolyticus, Vibrio parahaemolyticus, Shigella flexneri, Shigella boydii, Proteus mirabilis, Pseudomonas aeruginosa, Klebsiella pneumoniae* and addressed the issues pertaining to the innate immune players of a host as well as the changes in the interacting pathogens machinery. He has published about 32 research articles in reputed peer-reviewed journal.

bsuryar@yahoo.com