

## ***Burkholderia pseudomallei* suppresses *Caenorhabditis elegans* immunity by specifically targeting a GATA transcription factor**

**Sheila Nathan**

Universiti Kebangsaan Malaysia, Malaysia

*Burkholderia pseudomallei* is a gram-negative soil bacterium that is able to infect both humans and animals. Although cell-culture based studies have revealed significant insights into factors contributing to virulence and host defense, the interactions between this pathogen and its intact host remain to be elucidated. To gain insights into the host defense responses to *B. pseudomallei* infection within the context of a whole organism, we performed a genome-wide transcriptome analysis on infected *Caenorhabditis elegans*. We observed a robust transcriptional response whereby approximately 6% of the nematode genes were modulated over a 12-hour course of infection. An unexpected feature of the transcriptional response to *B. pseudomallei* was a progressive increase in the proportion of down-regulated genes, many of which are the transcriptional targets of the intestinal GATA transcription factor ELT-2, which was previously shown to be important for immune response. We demonstrate that *B. pseudomallei* down-regulation of ELT-2 targets is associated with rapid loss of ELT-2 protein. Further analyses indicate that suppression of ELT-2 is mediated by active degradation of the ELT-2 protein by the host ubiquitin proteasome system and requires the *B. pseudomallei* type III secretion system. Together, our studies provide evidence that a pathogen is able to suppress the immune response by triggering the destruction of a host transcription factor.

### **Biography**

Sheila Nathan is currently a Professor at the Faculty of Science and Technology, National University of Malaysia. Her research group focuses on understanding the host-pathogen interaction of the tropical bacterium *Burkholderia pseudomallei*. She has also held the position of a Director of Research at the Malaysia Genome Institute. She has published over 50 papers and has also been involved in the review process for a number of international journals and has herself held the position of editor-in-chief of a Malaysian journal.

sheila@ukm.my