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Anopheles stephensi dual oxidase maintains microbial homeostasis in blood fed midgutParik Kakani, Mithilesh Kajla, Tania Pal Choudhury, Kuldeep Gupta, Rini Dhawan, Lalita Gupta and Sanjeev Kumar
Birla Institute of Science and Technology, India

The presence of bacteria in mosquito gut is mainly involved in the food digestion. After blood meal they proliferate and are protected from immune attacks by the formation of gut barriers. Simultaneously, it is also required that the gut microbial population should not over proliferate to cause any deleterious effect on the host and thus there is the need of maintaining gut microbiota homeostasis. Here, we demonstrate that *A. stephensi* dual oxidase (AsDUOX) is not only protecting the gut bacteria through barrier formation but it is also responsible for balancing their population after the blood meal. The transcriptional analysis revealed that AsDUOX is highly induced in the blood fed midgut and its silencing significantly increased the gut bacteria in these midguts. However, the AsDUOX silencing has non-significant effect on the mortality of mosquito. This is due to the induction of an array of anti-bacterial immune genes in silenced midguts. These findings reveal that the multiple levels of immune responses are functional to control the bacterial population in the blood fed midgut. We hypothesized that manipulating the microbial homeostasis will introduce new frontiers in blocking the malaria transmission as the gut bacteria have been reported as suppressors of the *Plasmodium* development.

Biography

Parik Kakani has completed her Master's degree from School of Biotechnology, Devi Ahilya University. She is currently pursuing PhD from Birla Institute of Technology and Science (BITS), Pilani, India under the supervision of Dr. Sanjeev Kumar. The broader area of her research is exploring the *Anopheles* immunity against blood-borne antigens to arrest *Plasmodium* development. She has authored four papers which have been published in reputed journals.

kakani.pari78@gmail.com**Notes:**