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Differential expression of parasite surface antigen-2 (PSA-2) in antimony resistant and sensitive clinical isolates of *Leishmania donovani*

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Visceral leishmaniasis (VL) is caused by *Leishmania donovani* species complex which is fatal in the absence of treatment. The disease is endemic in 70 countries with a total of 200 million people at risk and an estimated 500,000 new infections annually. In the absence of an effective anti-leishmanial vaccine, chemotherapy remains the mainstay; however there is only a limited arsenal of drugs available for treatment. Widespread resistance against the traditional antimonial therapy has been reported from many parts of the world, notably in above 60 percent of cases from Bihar, India. Mechanism of antimony resistance operating in clinical isolates is poorly understood. Of the several genes found associated with antimony resistance, the present study aimed to characterize the role of parasite surface antigen-2 (PSA-2) gene. The expression of PSA-2 gene was studied in clinical isolates of *Leishmania donovani* comprising of antimony resistant (n=3) and sensitive (n=3) parasites at transcript level by RT-PCR and protein level by western blotting. We observed an up-regulation of PSA-2 expression in resistant field isolates at both transcript level and at protein level. As clearly shown from the limited strains studied, the expression of PSA-2 gene appears to be implicated in antimony resistance in visceral leishmaniasis. The potential of using PSA-2 as a biomarker for resistance to begin appropriate therapy needs to be further explored. In future, there is scope for development of drugs targeting specific genes, such as PSA-2 or their products to overcome resistance.

Biography

Viviktha Ramesh is currently a first year post-graduate student pursuing M.D. in Community Medicine at All India Institute of Medical Sciences. She completed her MBBS from Maulana Azad Medical College in 2012. She won the State Level Biology Olympiad and participated at the National Level. She also won the 24th IAP Pediatric Quiz at intra-collegiate level and was the 2nd runner up in the All India Medical Olympiad. She is also a recipient of the prestigious Kishore Vaigyanik Protsahan Yojana (KVPY) scholarship, given to promising young researchers. She has also attended many conferences throughout undergraduation and post-graduation.

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