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Differential expression of miRNA in peripheral blood cells from acute dengue and dengue hemorrhagic fever patients

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Dengue is the most prevalent arboviral disease transmitted by mosquitoes common in tropical areas of the world. Lack of proper medication or vaccines for dengue fever and inability to distinguish severe cases of dengue fever (DF) known as dengue hemorrhagic fever (DHF) during the early stages of infection, renders this disease life-threatening for people living in endemic areas. Early symptoms of DHF are similar to those of non-life threatening DF. However, DHF patients manifest plasma leakage, elevated hematocrit, and pleural effusions after 3-5 days of fever. Early diagnosis and disease management can alleviate DHF related complications. Therefore, biomarkers that distinguish DHF at the acute phase of infection can help reduce mortality. Due to their role in post-transcriptional regulation of cellular gene expression and remarkable stability, altered expression of miRNA can serve as clinically relevant biomarkers. Therefore, we evaluated the expression of five miRNA targets in Peripheral blood cells (PBC) collected from 20 DF and 20 DHF positive patients within four days of fever onset by qRT-PCR. Relative expression of has-let-7e, has-miR-30b, has-miR-30e-3p, has-mir-33a, and has-miR-150-5p were evaluated against the geometric mean of has-miR-103a-3p and has-miR-16-5p as reference genes. While has-let7e, has-miR-30b, has-miR-30e-3p and hsa-mir-33° did not show differential expression between and DHF patients during the acute phase of infection, has-miR-150-5p showed over two-fold upregulation indicating that miR-150 may serve as an early biomarker of DHF.

Biography

Nimanthi Jayathilaka earned her PhD from University of Southern California and conducted her postdoctoral studies at University of California, San Diego. Currently she serves as a Senior Lecturer in Chemistry at the University of Kelaniya, Sri Lanka. Her primary research interest is transcriptional regulation in diseases.

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