Clinical Microbiology-2013
OMICS Group Conferences
Accelerating Scientific Discovery
2nd International Conference on
Clinical Microbiology & Microbial Genomics
September 16-18, 2013 Las Vegas, USA

Evaluation of toll-like receptor expression in peripheral blood mononuclear cells isolated from chronic Hepatitis C patients

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Abstract

Hepatitis C virus is a notorious pathogen that establishes chronic infection leading to liver cirrhosis and hepatocellular carcinoma. How HCV establishes chronic infection and evades detection from the immune system is poorly understood. Interactions of viral proteins with a number of pattern recognition receptors and other host proteins involved in cell signaling may play important role in inducing tolerance towards infection. Toll-like receptors (TLR) are important in this regard since they are the first line of defense against invading pathogens. Gene-specific primers for all ten TLR genes were designed. Peripheral blood mononuclear cells were isolated from fresh blood samples of normal, chronically infected and past patient's sustained virological response (SVR) after therapy. Total RNA was extracted from the isolated cells and cDNA was synthesized. Gene expression of all ten TLR was quantified using Real-time PCR analysis. Levels of each gene in three study groups were compared by ANOVA. The levels of TLR 2, 3, 4, 6, 7, 8, and 9 were significantly different in three study groups. TLR2, 3, 4, 6, 8, and 9 were elevated in chronic group while TLR 7 and 8 were elevated in SVR patients as compared to healthy controls. The current study provides important insight in role of innate immune system in HCV infection. It will provide a basis for further investigations including study of polymorphism in TLR genes, signaling pathways related to TLRs. It will also open the horizons for TLR based immune therapy and may provide important prognostic markers for patients receiving therapy.

.Biography

Dr. Sobia Manzoor has completed her Ph.D in February, 2011 at the age of 28 years from University of The Punjab, Lahore, Pakistan and Postdoctoral studies from NCVI, NUST, Pakistan. She is the Group leader of Viral Hepatitis Research/ Molecular Virology Laboratories at ASAB, NUST, and Islamabad, Pakistan (one of the prestigious institute of country). She is conducting research on molecular virology of HCV, perturbed signaling pathways involved in HCV induced liver pathogenesis, pathophysiology of P2X receptors and HCV, polymorphism in disease severity of HIV. She is supervising many M. Phil and Ph.D research scholars. She has published more than 15 papers in International reputed journals.