

## **Abstract**

TLRs are type I transmembrane proteins of the Interleukin-1 receptor (IL-1R) family that possess an N-terminal leucine-rich repeat (LRR) domain for ligand binding, a single transmembrane domain, and a C-terminal intracellular signaling domain, and are expressed at the cell membrane and in sub cellular compartments such as the endosome. These receptors mediate initial responses in innate immunity and are required for the development of the adaptive immune response. Toll-like receptors (TLRs) enable innate immune recognition of endogenous and exogenous prototypic ligands. They also orchestrate innate and adaptive immune response to infection, inflammation, and tissue injury. Given their significance in the immune response, it is not surprising that genetic variations of TLRs can affect their function and by extension affect the response of the organism to environmental stimuli. In the present study we have analyzed the role played by the polymorphism of TLR genes and the effect of the polymorphism on the disease status of the patients. Along with this we have also analyzed the genetic divergence of our study population with some of the representative populations of the world. Our study demonstrates that one of the polymorphism of TLR 9(T1237C) is found to play a protective role in case of head and neck cancer, and the gene frequency of our study population is close association with the African population. A comparative study of the expression level of the TLR genes was also undertaken.