

2nd World Congress on

Bio Summit & Molecular Biology Expo

October 10-12, 2016 Dubai, UAE

The association of single nucleotide polymorphism of *interleukin-21* gene and serum *interleukin-21* levels with systemic lupus erythematosus

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Background: Systemic lupus erythematosus (SLE) is a common autoimmune disorder which commonly results from the combined effects of a large number of genes. Variations in the DNA sequence in the *Interleukin-21* (*IL-21*) gene may lead to altered *IL-21* production and/or activity which can affect an individual's susceptibility to SLE. *IL-21* is a novel class I cytokine produced by activated CD4⁺ T cells, natural killer T cells and T helper (Th) cells. There is increasing evidence that *IL-21* contributes to the pathogenesis of SLE due to its biological activity.

Aim: To investigate the association between single nucleotide polymorphism (SNP) of *IL-21 rs2221903* gene and serum *IL-21* levels with SLE and to detect the possible association between *IL-21* serum levels and the pathogenesis of the disease.

Subjects & Methods: This study was conducted on 30 SLE patients and 20 age and sex matched healthy controls. Serum *IL-21* levels were measured using enzyme-linked immunosorbent assay (ELISA) technique and SNP of *IL-21 rs2221903* gene was detected by genotyping assay, using real-time polymerase chain reaction (RT-PCR).

Results: Serum *IL-21* levels were significantly higher in patients compared with controls ($p < 0.001$). Patients with high activity index of SLE had significantly higher levels of serum *IL-21* (p value < 0.001). A statistically significant association was found between the T allele of SNP *rs2221903* and SLE, whereas; no association between SNP of *IL-21 rs2221903* genotypes and SLE or serum *IL-21* levels could be detected.

Conclusion: *IL-21* plays an important role in the immune-pathogenesis of SLE and could be used as a possible target for novel immunotherapy. The T allele of SNP *rs2221903* suggests that the *IL-21* gene may contribute to an inherited predisposition to SLE.

Biography

Dina Mohammad Erfan has completed her MD and Postdoctoral studies from Faculty of Medicine, Ain Shams University, Egypt.

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