

Global Congress on

Nucleic Acids: Biology, Health & Diseases

August 04-05, 2016 New Orleans, USA

A single nucleotide polymorphism in pre-micro RNA-499 rs3746444 is associated with rheumatoid arthritis in Egyptian population

Maivel H Ghattas

Port Said University, Egypt

Pre-miRNA-499 gene is associated with autoimmune disease miR-449 rs3746444 polymorphisms are inconsistent for Rheumatoid Arthritis (RA). We aimed in this study to investigate association of miR-499 rs3746444 polymorphism with RA activity and severity in Egyptian population. The study of population was conducted as case control study in 100 RA patients diagnosed according to the American College of Rheumatology (ACR) classification criteria for RA, and the control group included 100 healthy subjects who were age- and sex-matched to the RA group. All RA patients were assessed by Disease Activity Score (DAS28). Different genotypes were assessed using Polymerase Chain Reaction-Restriction Fragment Length Polymorphism (PCR-RFLP). There was significant difference in the allele frequencies between RA patients and control groups. The frequency of minor C allele in RA patients was significantly higher than in the control subjects ($P=0.037$). C allele carriers were at higher risk of RA than T allele carriers and those who had the heterozygote TC genotype had high C-reactive protein (CRP), disease activity score 28 (DAS 28) and anti-Cyclic Citrullinated Peptide (anti-CCP), while homozygote CC genotype carriers had high Rheumatoid Factor (RF). No significant difference was observed in Erythrocyte Sedimentation Rate (ESR) between different genotypes. Our work suggests that C allele of Pre-miRNA rs3746444 polymorphism contributes to heritability of susceptibility to RA compared to T allele and hence, this polymorphism was associated with the activity and severity of the disease.

m_gattas@hotmail.com

Recent advances in applications of nucleic acid

Mihir Y Parmar

Shree Swaminarayan Pharmacy College, India

Nucleic acids are biopolymers, or large biomolecules, essential for all known forms of life. Experimental studies of nucleic acids constitute a major part of modern biological and medical research, and form a foundation for genome and forensic science, as well as the biotechnology and pharmaceutical industries. The highly defined interactions between DNA and RNA have been effectively used for the design and production of synthetic nanostructures, molecular switches and computational devices of increasing complexity. The purpose of this review article was to focus briefly the recent advances made relevant to applications of free circulating nucleic acids (FcNAs) in practice. Detection of FcNAs in plasma, serum and other body fluids from healthy subjects and patients has given the possibility of diagnosis and monitoring of diseases. With the rapid developments in molecular biology techniques such as real-time quantitative polymerase chain reaction (RT-qPCR), matrix-assisted laser desorption/ionization time of flight (MALDI-ToF) mass spectrometry, quantitative fluorescent PCR (QF-PCR), single allele primer extension reaction (SAPER) method in clinical medicine have increased. The recent discovery of epigenetic changes in placental/fetal DNA and RNAs have made FcNAs to be used for diagnosis of genetic disorders in all pregnancies irrespective of the gender of the foetus in early intrauterine life. It is now possible to detect very small amounts of and specific mutations in fetal DNA in the presence of excess non-specific maternal DNA. In oncology, diabetes mellitus, trauma and stroke detection and monitoring of FcNAs have been shown to be useful. In spite of these advances questions regarding the origin and biologic significance of FcNAs remain to be answered. Standardization of methodologies including pre-analytical and analytical aspects will revolutionize the applications of FcNAs in the diagnosis and monitoring of diseases in clinical medicine in coming years.

mihirparmar4uonly@yahoo.com