

**Abstract:**

Multiple sclerosis (MS) is a potentially devastating disease in the central nervous system (CNS) and the most common inflammatory demyelinating and degenerative disease in the young adults. Despite the effort of researchers to find the etiology of MS, we don't have any clear etiology for this complex disease, yet. But many studies proposed that different genetics and environments factors are involved in MS susceptibility. The prevalence of MS in various geographical and ethnical groups is very different and Iran is located in low range of MS. Unfortunately in recent years, the rate of MS increased in Iran. Many reports proposed that in the future years, Iran have many new cases of MS and will locate in moderate rate of MS. Some studies in genetics field of MS proposed that many genes are involved in susceptibility to MS. One of the newest of these genes is *SOCS1*. *SOCS1* is the suppressor of cytokine signaling and cytokines have the major effects in MS pathology and also in inflammation in the brain plaques in MS patients. They act in the immune system by specific pathways. In this study, we analyzed the polymorphism and expression profiling of *SOCS1* gene in MS patients of Sistan and Baluchistan province of Iran. Whereas the Sistan and Baluchistan province has a specific environment and also the population of this province has a unique genetic background, we think that this province is an excellent model for MS researches. Firstly, we performed some epidemiologic studies in this region and select the suitable patients for our analysis. The informed consent was obtained from all patients and controls and 5ml peripheral bloods were collected in EDTA tubes. In the following the DNA extracted from all samples and genotyping performed by PCR-RFLP method. Also RNA extracted from all samples and expression analysis performed by Real Time PCR method. In opposite to Vandembroeck study, we don't find any significant association of T risk allele in rs243324 SNP in 5'UTR of *SOCS1* gene in total; but in female group we find a significant association with MS susceptibility. Also the expression of *SOCS1* in MS patients is significantly higher than healthy controls.

**Keywords:** Multiple Sclerosis, Polymorphism, Gene expression analysis, Suppressor of Cytokine Signaling (*SOCS1*)



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**Title:**

**Expression profiling and polymorphism analysis of  
*SOCS1* gene in Multiple Sclerosis patients in Sistan  
and Baluchistan province**

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