



LncRNA HOTAIR as a Novel Biomarker in Psoriasis

Thesis

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By

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Abstract

Psoriasis is a multisystem inflammatory disease affecting 1-3% of the world population. The typical clinical skin manifestation of psoriasis is erythematous scaly plaques. However, it is not limited to the skin and may be associated with systemic comorbidities including arthritis, cardiovascular diseases, diabetes, mood disorders, and malignancy.

Pathogenesis of psoriasis was allocated to immune-genetic causes with many triggering environmental and endogenous factors causing cytokines and cellular dysregulation. IL-23/ IL-17 axis is considered the main drive of the pathogenesis and inflammatory reactions in psoriasis, which links the innate and the adaptive components of the immune reaction.

Disease susceptibility and phenotype determination are results of interaction between genetics and environmental factors. The genetic component can be modified by epigenetic mechanisms, which in turn might be triggered by the environmental factors

Epigenetics are the heritable changes in gene expression without alterations in the nucleotide sequences. Regulation by non-coding RNAs including LncRNAs is one of the epigenetic mechanisms.

LncRNAs are RNA transcripts with 200 or more nucleotides that lack protein-coding sequences. Studies have proved that lncRNAs dysregulations play a key role in different autoimmune diseases.





كلية الطب

The aim of our study was to assess the expression of the lncRNA HOTAIR in the serum of psoriatic patients compared to healthy subjects. This study was conducted at Medical Biochemistry & Molecular Biology Department, Faculty of Medicine, Fayoum University. After the approval of the ethical committee, 60 subjects were recruited from the dermatology outpatient clinic, Fayoum University Hospital and were divided into 2 groups; 40 psoriatic patients and 20 matched normal subjects.

All participants in the study were submitted to an informed consent, detailed history taking, and clinical examination to evaluate the degree of severity of psoriasis according to PASI score. Serum samples were collected, and lncRNA HOTAIR was measured by real-time PCR, in addition to biochemical blood investigations for measurements of CBC, ALT, AST, creatinine, urea, cholesterol, triglycerides, and HDL.

Results revealed a statistically significant up-regulation in HOTAIR gene expression in the serum of psoriatic cases in comparison to control subjects with a p-value < 0.001.

The biochemical blood investigations showed a significantly higher neutrophil/lymphocyte ratio (NLR) and lipid profile in psoriatic patients compared to control subjects.

Study findings suggest the possible involvement of lnc-HOTAIR in the pathogenesis of the disease and that it can serve as a potential diagnostic marker.