

MicroRNA Expression Changes in Parkinson's Disease (PD) Patients' Leukocytes Prior to and Following Deep Brain Stimulation (DBS)

Lilach Soreq*

*UCL, Israel.

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ABSTRACT

The second most prevalent neurodegenerative disorder worldwide in the elderly is Parkinson's disease (PD). It is a major risk factor for aging.

Objectives: Currently the involvement of miRNAs in the disease is mainly unclear. Additionally, the disease etiology is complex and there are no available disease-modifying medications. Therefore, more evidence is required concerning its pathogenesis and developing new treatment modalities.

Methods: Here, we studied the expression profiles of about 900 miRNAs in PD patients prior to and following deep brain stimulation (DBS) both on and following 1 hour off electrical stimulation and as compared with age and gender matched healthy control (HC) donor samples, using Affymetrix miRNA microarrays. We analyzed statistically the data using Affymetrix expression console software.

Results: We detected significantly altered miRNAs pre and post DBS treatment.

Conclusions: Our findings indicate the involvement of miRNAs in PD. Future studies can enlarge the number of samples and use RNA sequencing platform to quantify further miRNAs in PD samples. We may also use the expression levels of miRNAs as biomarkers for PD in the blood.

Keywords: PD, RNA, DBS, Microarray, Blood, Leukocytes

Corresponding author: Lilach Soreq, UCL, Israel, E-mail: l.soreq@gmail.com

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