

## *“MicroRNA Profiling of Exosome-derived Plasma in Chronic Periodontitis Patient”*

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MicroRNAs (miRNAs) have been proven to play crucial role as regulator in inflammation response; however, the function of plasma exosomal miRNAs in periodontal inflammation has yet to be elucidated. This study was done to compare plasma exosomal miRNA profile between chronic periodontitis patients with healthy subjects. Selected differential miRNAs were analyzed to predict their common inflammation-related targets. From 2,549 profiled miRNAs, there were zero miRNA found to be significantly up-regulated in chronic periodontitis samples as compared to healthy samples. However, 33 miRNAs were identified to significantly down-regulated (false discovery rate (FDR) < 0.05 and fold-change (FC) > 2.0) in chronic periodontitis samples as compared to healthy samples. In descending order of fold change value, the 33 miRNAs are: hsa-let-7b-5p (FC= -112.73), hsa-miR-24-3p, hsa-miR-6821-5p, hsa-miR-21-5p, hsa-miR-4485-5p, hsa-miR-3663-3p, hsa-miR-92a-3p, hsa-miR-320d, hsa-miR-6850-5p, hsa-miR-6088, hsa-miR-20a-5p, hsa-let-7a-5p, hsa-miR-197-3p, hsa-miR-766-3p, hsa-miR-2861, hsa-miR-320c, hsa-miR-103a-3p, hsa-let-7i-5p, hsa-miR-19b-3p, hsa-miR-3135b, hsa-miR-320e, hsa-miR-22-3p, hsa-let-7d-5p, hsa-miR-23a-3p, hsa-miR-15b-5p, hsa-miR-126-3p, hsa-miR-199a-3p, hsa-let-7g-5p, hsa-miR-17-5p, hsa-let-7f-5p, hsa-miR-25-3p, hsa-miR-150-5p and hsa-miR-6090 (FC= -5.63). Among predicted inflammation-related targets for these miRNAs were: B-cell lymphoma (BCL), bone morphogenetic protein (BMP), fibroblast growth factor (FGF), interleukin (IL), toll-like receptor (TLR), and tumor necrosis factor (TNF). Plasma exosomal miRNAs profiling was able to significantly differentiate between chronic periodontitis and healthy samples. These miRNAs were predicted to targeting inflammation-related targets. Thus, they could be potential biomarkers for chronic periodontitis.

Keywords: chronic periodontitis, exosome, microRNA, profiling, plasma

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