Transcriptome analysis of oral samples

Nandlal Bhojraj and SubbaRao V Madhunapantula
Jagadguru Sri Shivarathreeshwara University, India

Statement of the Problem: Analysis of transcriptome of cells present in saliva and buccal cheek provide key information about the expression of genes in healthy individuals. Knowledge about the expression profile of genes helps to determine the key players involved in keeping the oral health in good condition. However, to date, not much is known about the ideal sample, salivary cells or buccal cheek cells, to analyze for measuring the expression profile of genes. Therefore, in this study, we have compared the expression profile (at mRNA level) of cells collected from saliva of normal healthy individuals with the cells harvested from buccal cheek of the same individual.

Methodology & Theoretical Orientation: Total RNA was isolated from the cells present in saliva and buccal cheek of 15 young adults and quality assessed using Tape Station. The quality RNA was processed as shown in Image and differentially expressed genes identified. Genes were considered significantly differentially expressed, if their q values <0.05 from ANOVA tests and log2 Fold change value is above and below 1.

Findings: Quality RNA could be extracted from both saliva and buccal cheek cells, Yield of quality RNA is much better if the sample is buccal swab and among a total of 140RNAs differentially expressed between saliva and buccal cheek cells, 15 genes found to be upregulated and 135 genes appeared to be down regulated.

Conclusion & Significance: In conclusion, results of this study demonstrate that the ideal sample for RNA isolation and subsequent transcriptome analysis is buccal cheek but not the saliva.

Recent Publications

Biography
Nandlal Bhojraj has his expertise in evaluation and passion in improving the oral health and wellbeing. He has been evaluating genomics and transcriptomics studies. He has been involved in methodology development studies on oral biofilms and bio-fluids and biomarkers and has academic and research methodology that utilizes the evaluation: measurement of disease and health. These research methodologies have been of recent interest in evaluating oral health care products effects on various conditions of oral cavity.

dr_nandlal@yahoo.com