

Metabonomics Of Oral Cancer Diagnosis - A Review

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Abstract

Metabolomic analyzes move the medical diagnostics sector forward at unparalleled levels because of its ability to accurately classify concentrated metabolites at the metabolic stage. Biomarker research has benefited from these advances to the point where saliva is now recognized as an excellent diagnostic medium for disease detection. Oral cancer (OC) is defined as a malignant tumor of the oral cavity and is the sixth most common cancer worldwide. Early diagnosis of oral squamous cell carcinoma (OSCC) is an attractive strategy to increase the survival rate of patients. If detected early, oral cancer survival is better than 90% at 5 years, whereas the late-stage survival of disease is only 30%. Therefore, novel metabolic markers have an obvious clinical utility that helps to diagnose oral cancer at an early stage and monitor the response to treatment. In combination, five salivary biomarkers (propionyl choline, N-acetyl - L-phenylalanine, sphinganine, phytosphingosine, and S-carboxymethyl-L-cysteine) yielded adequate precision (AUC = 0.997), sensitivity (100%) and specificity (96.7%) in separating OSCC from control in the early stages. In this study, a comprehensive saliva metabonomics analysis review for identifying potential biomarkers to early diagnose OSCC is successfully demonstrated, which has the advantages of non-invasive, simple, reliable and low-cost. Such novel metabolic biomarkers have a clear clinical usefulness that will aid in the early diagnosis of OSCC. Their diagnostic utility for clinical applications has been discussed by the discovery of salivary biomarkers that could be used to track health and disease surveillance. Comprehensive salivary metabolome will be an important resource for researchers studying metabolite chemistry, especially in the fields of salivary diagnostics, and will be helpful in analyzing and thus identifying appropriate salivary biomarkers related to the disease.

Keywords:

Biomarkers Metabolite metabolomics Oral cancer