



CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:
RP150703

Project Title:
Metabolomic Salivary Biomarkers for Oral Cancer Detection

Award Mechanism:
High Impact/High Risk

Principal Investigator:
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Entity:
Texas A&M University System Health Science Center

Lay Summary:

With advances in cancer detection and treatment, the survival rate for many cancers has greatly improved, but the rate for oral cancer remains low; about 40% of oral cancer patients die within 5 years, usually because it is not diagnosed until already at an advanced stage. Thus, we urgently need to detect oral cancer earlier. Because constituents of human saliva have been found to reflect the body's physiological state, analyzing saliva holds promise as an easy way to test for oral cancer. Research has identified more than 100 salivary constituents that could help to detect oral cancer. These "potential salivary biomarkers" are constituents that have shown significantly different levels in oral cancer patients when compared to levels found in healthy persons. However, many candidate salivary biomarkers have also been found to show significantly different levels in patients with common oral inflammatory diseases--such as gum disease, which affects about 48% of the US population. If we tried to use those salivary constituents to detect oral cancer in patients who have such other disease, it would result in false diagnoses of cancer—a high "false positive" rate—leading to unnecessary stress for the patients and wasteful medical costs. So, we propose to look for new oral cancer biomarkers, by doing an in-depth metabolomic profile analysis—studying the unique metabolites in saliva taken from oral cancer patients, and comparing that with the same kind of analysis of saliva from patients with some common oral inflammatory diseases, as well as with healthy persons. If the proposal is successful, we will be able to obtain cancer-specific salivary biomarkers. This would have a major impact on early detection of oral cancer, and that would lead to reduced suffering, saving lives, reduced medical costs, and perhaps providing a study model to find specific salivary biomarkers for other types of cancers.