



## CANCER PREVENTION & RESEARCH INSTITUTE OF TEXAS

Award ID:  
RP100233

Project Title:  
Comprehensive Analysis of Genetic and Epigenetic Changes in Oral Cancer

Award Mechanism:  
Individual Investigator

Principal Investigator:  
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Entity:  
The University of Texas M.D. Anderson Cancer Center

### Lay Summary:

It is widely known that cancer is a genetic disease caused by changes in DNA. These changes can involve alterations (e.g., mutations) or increases in the copy number of genes that make cells grow uncontrollably (i.e., oncogenes), as well as loss or silencing of genes that suppress and slow down the growth of cells (i.e., tumor suppressor genes). Currently, very little is known about the identity of actual genes altered in oral cancer. A more complete knowledge of the genes involved in oral cancer could be used to design novel and more effective treatment strategies, including therapies that would be specific for tumors and potentially have fewer side effects than traditional chemotherapy and radiation. Recent and rapid advances in technology now make it feasible to examine a patient's tumor and identify the specific DNA changes that caused the cancer to grow. Using this cutting edge technology, we will study a very large set of cancers from patients with oral cancer of the tongue to generate information regarding genetic alterations in unprecedented detail. The overall objective of this research proposal is to generate a comprehensive database of nearly all genomic alterations in a single set of oral cancer specimens. This work is being done as collaboration between multiple investigators at the University of Texas M.D. Anderson Cancer Center and the Baylor College of Medicine Human Genome Sequencing Center. At the conclusion of this study, oral cancer of the tongue will be one of the most well characterized tumor types on the genomic level. In the near future, this information may allow physicians to personalize a patient's therapy and specifically select drugs that are better suited to treat their individual cancers.