

Bankhead-Coley Cancer Research Program

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Oral Biology
University of Florida

2008 Program
New Investigator (3-year project)

Project Title: RNA Silencing of Oral Cancer

Project Summary: RNA interference (RNAi) is a cellular process that is revolutionizing scientific research, and there is considerable excitement about using RNAi for therapy. [RNAi creates the opportunity to silence the production of disease-causing proteins.] Despite the growing number of reports demonstrating the many exciting therapeutic aspects of RNAi, little has been studied regarding the application of RNAi in the treatment of oral cancer. Therefore, it is the immediate goal of this grant to address this concern by bringing RNAi-based treatments to oral medicine. A major advantage is that the mouth is readily accessible to manipulation and may be especially suitable for RNAi-based treatments. The research involves the characterization of RNAi function in oral cancer cells, and optimization of drug and viral gene delivery techniques. Furthermore, several potential cancer-promoting genes will be targeted and suppressed using RNAi, after which the feasibility of using RNAi-based drug and gene therapy approaches to treat a mouse model that mimics a human oral cancer will be determined. The long-term research goal of this grant is to exploit this novel technology and develop it into an effective therapy for oral cancer. By harnessing RNAi for oral medicine, it will allow both scientists and clinicians to silence diseases of the oral cavity. Results from these studies may have a broader impact applicable to treatment of other diseases using RNAi-based therapies.